

Feeling and showing: A new conceptualization of dispositional teacher enthusiasm and its relation to students' interest

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A B S T R A C T

Although teacher enthusiasm is a relevant variable in the teaching context, a clear definition is still lacking. Research on teacher enthusiasm is characterized by ambiguous conceptualizations of enthusiasm as either an affective characteristic of teachers or behaviors of expressiveness. Integrating these two notions, a new conceptualization of dispositional teacher enthusiasm, defined by teachers' positive affect and positive emotional expressivity, was developed. It was hypothesized that dispositional teacher enthusiasm would relate to students' interest, mediated by students' perceived teacher enthusiasm. Based on a correlational study design, secondary teachers ($N = 75$) from Switzerland reported on their enthusiasm, complemented by student ratings ($N = 1523$) on perceived enthusiasm and interest. Multilevel structural equation modeling revealed that dispositional teacher enthusiasm positively predicted students' interest, which was fully mediated by students' perceived enthusiasm, providing the basis of a valid definition of teacher enthusiasm. Based on this integrative definition, implications for future research are discussed.

Keywords:

Teacher enthusiasm
Enjoyment
Emotional expressivity
Student interest
Multilevel structural equation modeling

1. Introduction

Act enthusiastic and you will be enthusiastic. (Dale Carnegie, 1888–1955)

When reviewing the educational literature, talking with student–teachers about what makes a good teacher, or reminiscing about teachers in one's own schooling experiences, encountering the term “enthusiasm” is almost inevitable. The term usually is applied to those teachers who had a certain, contagious fire in them, who burned for their subject and transmitted interest, curiosity and joy for learning and subject related tasks. In educational research, teacher enthusiasm as a topic of scientific scrutiny emerged during the 1960s. Since then, it has been suggested that teacher enthusiasm is a key element of effective, high quality teaching (e.g., Brophy & Good, 1986), a desirable characteristic of good teachers (e.g., Feldman, 2007), and an essential ingredient of supportive classrooms (e.g., Kunter et al., 2008).

This widely agreed on importance of teacher enthusiasm might stem from its ability to positively impact students' progress and learning. Studies with experimental or repeated measures designs have shown that a variety of student outcomes seem to benefit from teacher enthusiasm. For instance, scholars have demonstrated that students' cognitive learning (e.g., achievement; Kunter et al., 2013; see also Keller, Neumann, & Fischer, 2013) is positively influenced by teacher enthusiasm. Other positive outcomes include motivational (e.g., intrinsic motivation; Patrick, Hisley, & Kempler, 2000), affective (e.g., enjoyment; Frenzel, Goetz, Lüdtke, Pekrun, & Sutton, 2009), and behavioral characteristics (e.g., attention; Bettencourt, Gillett, Gall, & Hull, 1983). Synthesizing the results of these studies, it can be hypothesized that teacher enthusiasm first and foremost is associated with students' motivational and affective outcomes (e.g., enjoyment, interest), whereas achievement is indirectly related to enthusiasm, mediated by students' motivation or attention during class (see also Allen, Witt, & Wheelless, 2006).

Of all the student outcomes related to teacher enthusiasm, students' interest is of particular importance. As a combination of intrinsic value and enjoyment (e.g., Krapp, 2007), interest is likely to benefit from teacher enthusiasm based on two central mechanisms – *value induction* and *emotional contagion*. These

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mechanisms explain *how* teacher enthusiasm exerts influence on students' outcomes (see for example, Keller et al., 2013). In both mechanisms, enthusiastic teachers provide cues during the act of teaching that allow students to deduce the teacher's personal value and enjoyment. Students consequently experience value and enjoyment themselves, reflective of elevated levels of interest. Drawing on theories of academic interest (e.g., Hidi & Renninger, 2006), it can be hypothesized that students' perceptions of teachers' enthusiasm provide the environmental trigger that results in students' initial situational interest. When students adopt the personal value exemplified by the enthusiastic teacher, situational interest can be transformed into individual interest. Given these likely pathways, the present study investigates the role of teacher enthusiasm in student interest.

Existing research supports the argument that teacher enthusiasm is important (Brophy & Good, 1986; Kunter et al., 2013), though the notion of what teacher enthusiasm is has varied considerably. Much of this uncertainty is due to the fact that teacher enthusiasm has been investigated in educational research over a number of decades and by researchers with different backgrounds (education, educational psychology, etc.). To clearly speak about teacher enthusiasm as an important characteristic of teachers and supportive classroom environments, we need to be able to clearly define what we mean by teacher enthusiasm. Starting with the term itself, the Oxford English Dictionary describes enthusiasm as "intense and eager enjoyment, interest, or approval" (Stevenson & Waite, 2011). In research, teacher enthusiasm has been described as a teacher's positive affective experiences when engaged with teaching (Kunter, Frenzel, Nagy, Baumert, & Pekrun, 2011; Kunter et al., 2008). Enthusiastic teaching also is connected to behaviors of expressiveness (see Keller et al., 2013) that denote the teacher's liking and positive affect connected to the subject and teaching itself. On the one hand, teacher enthusiasm can be considered as a dispositional characteristic of teachers and described as a form of strong, positive affective connection a teacher feels toward teaching and his/her subject. On the other hand, teacher enthusiasm can be considered as a set of demonstrated behaviors in a classroom related to the positive affective experience. A gap in the literature exists in that no known studies have brought together these two notions of teacher enthusiasm. More precisely, it is not clear whether teacher enthusiasm as an affective characteristic is sufficient in precipitating behaviors of enthusiasm. It is the aim of the present study to clarify these aspects by conceptualizing a new form of dispositional teacher enthusiasm and investigating its relation to behaviorally shown teacher enthusiasm, as perceived by students, as well as students' interest.

1.1. Teacher enthusiasm: its conceptualization

1.1.1. Teacher enthusiasm as instructional behavior

In the educational research literature, teacher enthusiasm most often has been conceptualized as an instructional behavior (e.g., Brophy & Good, 1986). Enthusiastic teaching has from the beginning been considered in terms of expressiveness. Rosenshine (1970) called it animated teaching and summarized research that described enthusiastic teaching as buoyant, lively, or the opposite of dull. Collins (1978) devised indicators for enthusiastic teaching including use of gestures or lively facial expression. In a post hoc study, Murray (1983; see also 2007) identified additional indicators, such as display of interest or humor. Other researchers (e.g., Bettencourt et al., 1983; Patrick et al., 2000) have employed these (mostly nonverbal) behaviors of expressiveness in their conceptualizations of enthusiastic teaching. Altogether, research evidence based on the

conceptualization of teacher enthusiasm as an instructional behavior points toward associated behaviors that are largely, if not exclusively, behaviors of expressiveness that denote a teacher's passion and enjoyment.

1.1.2. Teacher enthusiasm as a personality trait

As Kunter et al. (2008) point out, the behavioral conceptualization, which stays purely on the surface level, is not suitable in explaining the internal processes of teachers. According to Kunter et al., teacher enthusiasm can also – but, as we argue, not necessarily contrarily – be conceptualized as a trait like characteristic of teachers. As an affective component of teacher motivation, enthusiasm refers to a teacher's positive affective experience (e.g., enjoyment, pleasure and excitement) while teaching. In this way, enthusiasm can be regarded as a "trait like, habitual, recurring emotion" (Kunter et al., 2008, p. 470). Kunter et al. distinguished between a teaching related and a content related dimension of this trait like enthusiasm. The teaching dimension, in particular, was found to be highly predictive of motivationally supportive instructional behaviors such as autonomy, social support, and monitoring. Trait like enthusiasm corresponds to high quality teaching and impacts student outcomes (e.g., enjoyment; Kunter et al., 2013). What remains to be shown, however, is whether such variables also relate to the behaviors of expressiveness conceptualized as enthusiastic teaching in prior research.

Frenzel et al. (2009) have contributed to what is known about teacher enthusiasm as a trait. They assessed teachers' enthusiastic teaching by means of students' perceptions on a global, high inference scale. Enthusiastic teaching was positively related to teachers' self reported enjoyment in the teaching context. Although Frenzel et al. (2009) did not denote teacher enjoyment as enthusiasm, their operationalization of enjoyment reflects a construct fairly similar, if not identical, to Kunter et al. (2008)'s construct of enthusiasm (see also Kunter et al., 2011). In contrast to enthusiastic teaching as a behavior, teacher enthusiasm as a personality trait can be defined as a tendency to experience positive affect during teaching.

In summary, there are two different, if overlapping and interdependent, notions of teacher enthusiasm present in the educational literature: (1) teacher enthusiasm as an instructional behavior, mostly nonverbal behaviors of expressiveness, and (2) teacher enthusiasm as a positive affective trait of teachers, denoting enjoyment and pleasure during teaching. To what extent these conceptions overlap, and whether and how they may be integrated into an overarching concept of teacher enthusiasm, still remain to be shown. In the present study, we integrate the two positions in order to consider both emotional expressivity and positive affect as constituents of dispositional teacher enthusiasm.

1.1.3. The role of emotional expressivity in teacher enthusiasm

Emotional expressivity can be defined as "individual differences in the extent to which people outwardly display their emotions" (Kring, Smith, & Neale, 1994, p. 934). Although different facets of emotional expressivity have been postulated and are empirically supported, the different approaches share the notion of positive and negative emotional expressivity as two distinct sub facets of emotional expressivity (Gross & John, 1998; King & Emmons, 1990; Kring et al., 1994). Positive emotional expressivity denotes the tendency to express positive emotions (e.g., enjoyment, pride). Conversely, negative emotional expressivity denotes the tendency to express negative emotions (e.g., anxiety, anger). As teacher enthusiasm has been conceptualized as a form of positive affect, we will only consider positive emotional expressivity of teachers for the purposes of this study.

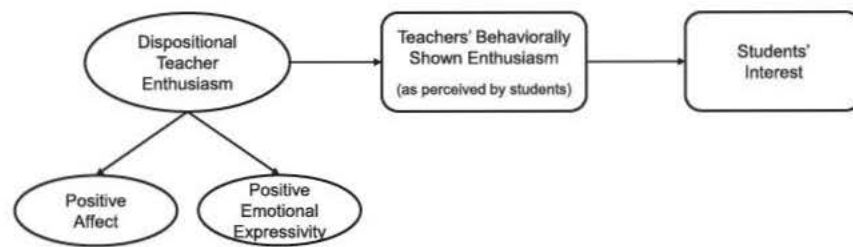


Fig. 1. Research model for dispositional teacher enthusiasm (indicated by teachers' positive affect and positive emotional expressivity) influencing students' interest, mediated by behaviorally shown enthusiasm, as perceived by students.

From a theoretical perspective, three aspects of emotions are interlinked: emotion experience, emotional expressivity (the dispositional characteristic denoting a person's tendency to express emotions; Gross, John, & Richards, 2000), and emotional expressiveness (the observable behaviors of expressiveness; Gross & John, 1997, 1998). Emotional expressivity regulates the extent to which emotion experiences find their outwardly observable emotional responses in the form of expressive behaviors (see Gross et al., 2000). Empirical evidence supports that emotionally expressive behaviors (e.g., facial expression, physiological responses) are associated with both emotion experience (Gross et al., 2000; Rosenberg & Ekman, 1994) and the trait of emotional expressivity (Gross et al., 2000; King & Emmons, 1990; Kring et al., 1994). Summarizing the relations in terms of positive emotions, more intense experiences of positive emotions result in higher levels of emotion expressive behaviors; simultaneously, persons scoring high on emotional expressivity have generally elevated levels of emotion expressive behaviors when compared to low expressivity individuals (see Gross et al., 2000).

Regarding teachers, emotions have been the focus of several investigations starting about 10 years ago (e.g., Sutton & Wheatley, 2003). Since then, teacher emotion research has focused on the emotion *experience* of teachers in their professional activities, with an emphasis on actual teaching activity in classrooms. Although research on the effects of teachers' emotion experiences are rare, evidence suggests that positive teacher emotions like enjoyment accompany high quality teaching and favorable student outcomes. For instance, Frenzel et al. (2009) found that teachers' enjoyment (perceived by students as enthusiastic teaching behaviors) related to students' own enjoyment during class.

Beyond teacher enthusiasm, research on teachers' positive emotion *expression* focuses on (1) teacher immediacy, and (2) teacher expressiveness. Teacher immediacy refers to nonverbal behaviors that denote physical and psychological closeness between teachers and students (see, for example, Allen et al., 2006).¹ Immediacy has been connected to students' learning outcomes (e.g., motivation, achievement). Teachers' emotional expressiveness primarily has been investigated in the setting of college teaching. In these studies, teacher expressiveness is defined as enthusiasm and humor (e.g., Ware & Williams, 1975) and is closely related to enthusiastic teaching as defined by Collins (1978) or Murray (2007). As with investigations of enthusiastic teaching, teacher expressiveness has been investigated from a behavioral perspective, relying on student ratings of teachers' displayed expressive behaviors. In existing research, the concept of teacher expressiveness is rarely connected to teacher emotions or defined in terms of an emotion expression component of experiences.

¹ At present, the concept of teacher immediacy is not very well integrated into educational psychological research; however, the operationalization of the nonverbal behaviors associated with immediacy are very similar to those of enthusiastic teaching (see Babad, 2005, 2007).

Based on what we know about emotion experience and emotional expressivity, enthusiastic teaching can be viewed in terms of the behavioral expression of enjoyment (see also Frenzel et al., 2009). It is the aim of the current study to bring together two approaches to understanding teacher enthusiasm: (1) the experiential component of a dispositional teacher enthusiasm, that is, the experience of enjoyment during teaching (e.g., Kunter et al., 2008), and (2) positive emotional expressivity of teachers (Gross & John, 1998). Our purpose is to investigate these aspects' joint contribution to behaviorally shown teacher enthusiasm, as perceived by students.

2. Model for dispositional teacher enthusiasm

We devised a model for dispositional teacher enthusiasm that brings together affective teacher characteristics and behaviors of expressiveness (see Fig. 1). Dispositional teacher enthusiasm includes an experiential component denoting teachers' positive affect or positive emotion experiences during teaching. Dispositional enthusiasm also draws from the behavioral notion of teacher enthusiasm in existing research through the inclusion of positive emotional expressivity, denoting the tendency to express positive emotions while teaching.

These two components – positive affect and positive emotional expressivity – define dispositional teacher enthusiasm as a latent construct. As depicted in Fig. 1, we assume that dispositional teacher enthusiasm manifests itself in class during teaching in such a way that students can observe it and become aware of it, thus informing their perception of the teacher's enthusiasm. Through this behavioral element, operationalized via students' perceptions on a class level, we also hypothesize that dispositional teacher enthusiasm relates to students' interest.

3. The present study

The present study aimed to establish our conceptualization of dispositional teacher enthusiasm as depicted in Fig. 1, validate it with regard to students' perceived teacher enthusiasm, and investigate its relation to students' interest.

We addressed the ambiguous nature of enthusiasm and merged its two prevalent conceptualizations as positive affect and expressivity into one construct: dispositional teacher enthusiasm. Validating the new conceptualization of teacher enthusiasm was one central element of the present study. We ascertained the validity of this new dispositional construct by relating it to students' perceptions of their teachers' enthusiasm. We hypothesized that dispositional teacher enthusiasm would positively relate to students' perceptions of teacher enthusiasm. Having both teachers' and students' perspectives on teacher enthusiasm enabled us to develop a balanced definition of enthusiasm and investigate its role during teaching and relations to student outcomes.

The relation to students' interest was the second central element of the study: we hypothesized that dispositional teacher enthusiasm would be associated with students' interest, mediated by students' perceived teacher enthusiasm. Previous research has shown that teacher enthusiasm primarily relates to students' affective and motivational outcomes (Frenzel et al., 2009; Patrick et al., 2000). In the present study, we focused on an important correlate of teacher enthusiasm—students' interest—which can be regarded as both a motivational and an affective variable (Ainley, 2006).

In summary, the present study introduced dispositional teacher enthusiasm as a new integrative construct and investigated how two perspectives on teacher enthusiasm—teachers' and students'—related to students' interest. Our study aimed to (1) validate the new construct of dispositional teacher enthusiasm, and (2) investigate its relation to students' interest.

3.1. Hypotheses

Based on the research model presented in Fig. 1, we considered three research hypotheses.

3.1.1. Hypothesis 1

The conceptualization of dispositional teacher enthusiasm would be reasonable. Specifically, the assumptions of its measurement model would be statistically supported (H1a) and dispositional enthusiasm would positively relate to students' perceived teacher enthusiasm (convergent construct validity; H1b).

Hypothesis 1a was tested via confirmatory factor analysis; we sought an adequate model fit as indicated by commonly used model fit indices (RMSEA, CFI, and TLI; see Hu & Bentler, 1999). Regarding hypothesis 1b, we postulated that dispositional teacher enthusiasm would positively predict students' perceived teacher enthusiasm (moderate to strong effect as denoted by explained variance in students' perceived teacher enthusiasm).

3.1.2. Hypothesis 2

Dispositional teacher enthusiasm would positively relate to students' interest.

Based on prior research showing evidence of teacher enthusiasm's relations to students' motivational and affective outcomes, we hypothesized that dispositional teacher enthusiasm would relate positively to students' interest, consisting of value and enjoyment components (Krapp, 2007).

3.1.3. Hypothesis 3

The inferential effect of dispositional enthusiasm on students' interest would be mediated by students' perceived teacher enthusiasm.

The final hypothesis involved testing our complete research model. Specifically, we investigated the extent to which dispositional teacher enthusiasm related to students' perceived teacher enthusiasm and the extent to which this perception, in turn, related to students' interest. We hypothesized a mediation effect for perceived teacher enthusiasm (see Frenzel et al., 2009).

4. Methods

The data for the present study were part of the first wave of a larger, longitudinal study on students' emotion experiences in the German speaking part of Switzerland. In the current study, we conducted survey research at eight Swiss schools in four subjects: German, English, French, and mathematics. All students were ninth graders in the high achieving track of the Swiss secondary school system, known as Gymnasium.

4.1. Sample & data structure

Seventy five teachers agreed to participate in the research study and represented the four subjects to a fairly equal amount ($n = 20/20/19/16$ for German, English, French, and mathematics, respectively). We utilized 1523 student ratings of teachers, provided by 863 students (56.5% female; $M_{age} = 14.93$ years, $SD = 0.68$ years; two students did not indicate their age).² Teachers, whose average age was 46.06 years ($SD = 10.59$ years; Minimum = 28 years, Maximum = 64 years), had been teaching for an average of 16.14 years ($SD = 10.64$). Forty three teachers were female and 27 were male, with the remaining five teachers not indicating their gender.

4.2. Measures

4.2.1. Teachers' positive affect

For this component of teacher enthusiasm, we made minor adaptations to Kunter et al.'s (2008, 2011) teacher enthusiasm scale. The scale assessed enjoyment and positive experiences related to teaching. The items appear in Appendix A; all items were rated with respect to teaching one subject in one specific class. The scale had three items that were rated on a five point scale from (1) *agree not at all* to (5) *agree totally*. The scale achieved acceptable internal consistency (Cronbach's $\alpha = .76$) and was slightly, yet not significantly, negatively skewed.

4.2.2. Teachers' emotional expressivity

The second component of teacher enthusiasm—positive emotional expressivity—denotes a teacher's tendency to show positive emotions while teaching. We adapted Gross and John's (1998; German translation by Mohiyeddini, John, & Gross, 2008) expressivity scale for use in the teaching context. The resulting scale included eight items, which appear in Appendix A. A sample item was, "When I'm happy in class, my feelings show." The items were rated on a seven point scale with the anchors (1) *agree not at all*, (4) *neutral*, and (7) *agree totally*. The scale had good internal consistency (Cronbach's $\alpha = .83$) and was slightly, yet not significantly, positively skewed.

² Altogether, $N = 863$ students from $N = 43$ classes participated. All students answered all items (on their interest and perceived teacher enthusiasm) with respect to the four subjects, which resulted in student data from 172 (43×4) classes. For these classes, the respective teachers were asked to voluntarily participate in the study, and 75 of them did. Although there could have been up to 172 teachers for our participating 43 classes, it also could have been the case that a given teacher taught more than one subject. The possible total number of different teachers is unknown to us, yet regarding our sample used for the present analyses, all of the 75 teachers only appear one time. For these teachers, we utilized the respective student ratings ($N_1 = 1523$); thus, on average students rated 1.94 teachers. For analysis purposes, we clustered student ratings ($N_1 = 1523$, level 1) into teachers ($N_2 = 75$, level 2) to allow us to investigate effects of teachers on student variables. Due to this data structure, we have students appearing up to three times (with their ratings on the different subjects and teachers, respectively) in our sample. To check whether we made any significant error in our estimations by ignoring the nesting of student ratings in students, we calculated the design effect (DEFF) for both student-assessed variables. This figure indicates to what extent the standard errors are underestimated when ignoring the nesting of subject measures in persons, and should be less than two (see Maas & Hox, 2005). Our analyses yielded design effects below two (perceived enthusiasm: DEFF = 1.12, interest: DEFF = 1.00). Thus, we can assume that our estimation results yielded for the data structure described above are not biased in any substantial way. To further check the validity of our results, we randomly selected one rating per student and ran our analyses (related to hypotheses 1b, 2, and 3) with a reduced sample of $N = 863$ student ratings and their respective teachers. The results were similar to those reported on the overall student rating/teacher sample. Regarding hypotheses 1b and 2, the changes in regression coefficients β were $-.13$ and $.01$, respectively (changes in R^2 were $-.17$ and $.02$, respectively). For the overall model, the results including model fit were very similar. The indirect effect was somewhat smaller (change in β was $-.08$).

4.2.3. Students' perceived teacher enthusiasm

Our measure of perceived teacher enthusiasm was based on Marsh and Bailey (1993)'s scale. A sample item was "Our teacher in SUBJECT teaches with enthusiasm." The scale included three items that were rated from (1) *agree not at all* to (5) *agree totally*. The scale achieved good reliability (Cronbach's $\alpha = .85$) and was significantly negatively skewed, that is, students tended to agree with the items above the mean of the rating scale. The intraclass correlation (ICC) reflects the proportion of between cluster variance to total variance (see for example, Lüdtke, Trautwein, Kunter, & Baumert, 2006). For perceived teacher enthusiasm, the ICC of .43 indicated that a relatively high amount (about 43 percent) of the total variance was between classes.

4.2.4. Students' interest

According to Krapp (e.g., 2007), academic interest reflects students' enjoyment when engaging in subject related tasks (affective component) and the personal value and importance of the subject (value component). Students' level of interest was measured with four items. One item measured the affective component in the form of students' enjoyment (Nett, Goetz, & Hall, 2011). For the value component, three items assessed intrinsic value (Goetz, Pekrun, Hall, & Haag, 2006). The items appear in Appendix A. The four items were rated on a five point scale from (1) *agree not at all* to (5) *agree totally*. The scale was significantly negatively skewed, with students agreeing to the items above the mean of the rating scale. The overall scale achieved good reliability (Cronbach's $\alpha = .84$), with about 28 percent of the total variance occurring between classes.

4.3. Hierarchically structured data analysis

Our sample represented a clustered data structure with students on level 1 ($N_1 = 1523$) clustered within teachers on level 2 ($N_2 = 75$). The mean cluster size was 20.41 students. We conducted multilevel structural equation modeling using the software Mplus 7.0 (Muthén & Muthén, 1998–2012). Multilevel structural equation modeling takes into account the nested data structure, thus avoiding estimation problems. It also allows for the consideration of latent variables, such as dispositional teacher enthusiasm (see also Parker, Marsh, Lüdtke, & Trautwein, 2013).

The model as depicted in Fig. 1 includes two different types of latency (see Marsh et al., 2012). Teachers' positive affect and positive emotional expressivity are latent in terms of correcting for measurement error, whereas students' perceived teacher enthusiasm and interest (included as scale means on the student level) are latent in terms of correcting for sampling error.

The models were estimated using the maximum likelihood parameter estimation in Mplus with robust standard errors. For further information, a sample Mplus input file regarding the analyses and model specifications appears in Appendix B.

5. Results

5.1. Descriptive results

The descriptive statistics and zero order intercorrelations of our study variables are shown in Table 1. Overall, teachers reported high levels of positive affective experiences with respect to teaching. For the tendency to express their positive experiences in class through nonverbal displays, teachers were slightly above neutral (four on the seven point scale). Students perceived their teachers to be highly enthusiastic and reported moderate to high levels of interest. The correlations of study variables were all statistically significant. Students' interest was moderately related to students'

Table 1

Descriptive statistics and intercorrelations of study measures.

	M	SD	Skewness (SE)	(1)	(2)	(3)	(4)
<i>Teacher</i>							
(1) Affective component	4.34	0.51	-0.51 (.28)	1	.35***	.36***	.34**
(2) Positive emotional expressivity	4.57	0.91	0.36 (.29)		1	.50***	.30**
<i>Student</i>							
(3) Perceived teacher enthusiasm	3.91	0.89	-0.84 (.06)			1	.73***
(4) Interest	3.15	0.51	-0.23 (.06)				.30*** 1

Note. Correlations are shown based on manifest variables; means across the respective items for each scale were calculated and then correlated to each other. Below the diagonal, correlations for the within-level are shown. Above the diagonal, correlations for the between-level are shown. ** $p < .01$, *** $p < .001$.

perceived teacher enthusiasm, as well as to teachers' self reports of positive affect and positive emotional expressivity. Students' perceived teacher enthusiasm also had a moderately strong correlation with teachers' self reports of positive affect and positive emotional expressivity.

5.2. Hypothesis 1a: measurement model of dispositional teacher enthusiasm

We used confirmatory factor analysis (CFA) to investigate whether dispositional teacher enthusiasm could be represented as a latent construct with positive affect and positive expressivity as its indicators. We fixed one additional parameter to overcome non identification of the second order factor by setting the variance of dispositional enthusiasm at value 1. We compared this second order model with a unidimensional model where all items of positive affect and positive expressivity loaded on one factor; the results of model fit for both models is shown in Table 2. The second order model obtained a good absolute model fit, indicated by RMSEA, CFI, and TLI. It was also superior to the unidimensional model, given the second order model's lower AIC and BIC values. The resulting factor loadings for the second order model are shown in Fig. 2. Our results support the assumptions of the measurement model for dispositional teacher enthusiasm, and hypothesis 1a can be accepted.

5.3. Hypothesis 1b: convergent validity of dispositional teacher enthusiasm

To establish and validate the conceptualization of dispositional teacher enthusiasm, we hypothesized that teachers' self reported dispositional enthusiasm would need to be reflected in such a way that students could perceive it. Thus, there should be a positive relation of dispositional teacher enthusiasm to students' perceived teacher enthusiasm.

To confirm this relation, we calculated a multilevel structural equation model with dispositional teacher enthusiasm as a second order latent variable, impacting students' perceived teacher enthusiasm. The model fit was good ($\chi^2 = 59.34$, $df = 53$, $p = .26$, RMSEA = .01, CFI = .98, TLI = 0.97). Dispositional teacher enthusiasm was positively related to perceived enthusiasm ($\beta = .76$,

Table 2

Fit indices for model comparison.

Model	χ^2	df	RMSEA	CFI	TLI	AIC	BIC
Unidimensional model	97.18	44	.13	.77	0.71	2128.99	2205.03
Second-order model	48.55	43	.04	.98	0.97	2082.36	2160.70

Note. $N = 74$.

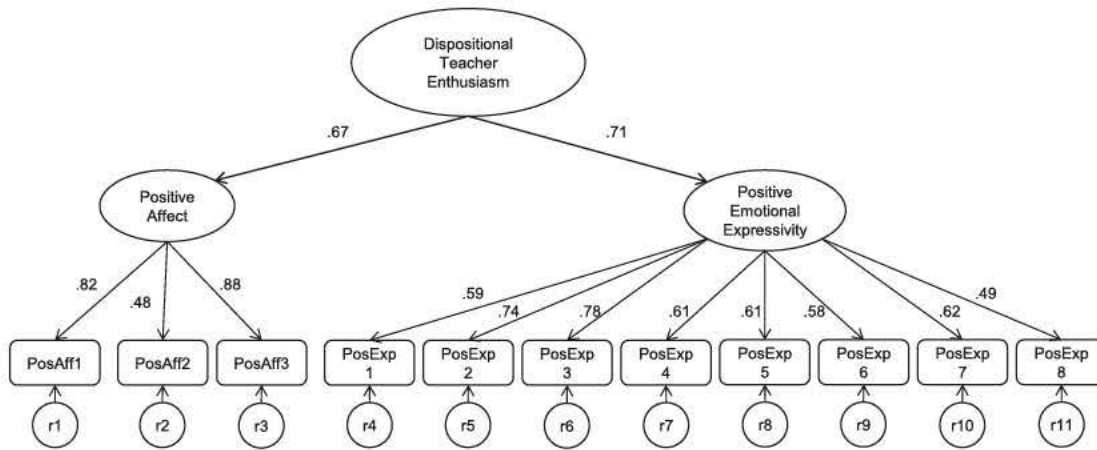


Fig. 2. Testing for the second-order model of dispositional teacher enthusiasm via confirmatory factor analysis (H1a). All factor loadings were highly significant ($p < .001$). The sample size for teachers' self-report variables was $N = 74$.

$p < .001$). The effect size of this relation was large, explaining about 58 percent of variance in students' perceived teacher enthusiasm.³

5.4. Hypothesis 2: dispositional teacher enthusiasm influencing students' interest

In our second hypothesis, we predicted that dispositional teacher enthusiasm would positively relate to students' interest. We calculated a multilevel structural equation model with the second order latent factor of dispositional teacher enthusiasm, described by its two latent indicators—positive affect and positive emotional expressivity—posited to influence students' interest on the between level.

Dispositional teacher enthusiasm significantly related to students' interest ($\beta = .56, p < .001$). The explained variance in students' interest indicated a moderate effect ($R^2 = .31$). The model yielded a good fit ($\chi^2 = 61.26, df = 53, p = .20, RMSEA = .01, CFI = .97, TLI = 0.96$). Thus, hypothesis 2 can be supported.

5.5. Hypothesis 3: dispositional teacher enthusiasm influencing students' interest mediated by perceived teacher enthusiasm

Extending the second hypothesis, we predicted that the effect of dispositional enthusiasm on students' interest would be mediated by students' perceived teacher enthusiasm. We tested this hypothesis by estimating a multilevel structural equation model; results for the between level are shown in Fig. 3. The model yielded good model fit ($\chi^2 = 72.94, df = 64, p = .21, RMSEA = .01, CFI = .98, TLI = 0.98$).

³ At this point, we compared the effect of a second-order construct of dispositional enthusiasm with that of an alternative model including the two first-order latent factors of positive affect as predictors for students' perceived enthusiasm. Only positive expressivity significantly predicted students' perceived enthusiasm ($\beta = .49, p < .001$). The effect of teachers' positive affect was rendered non-significant ($\beta = .19, p = .15$), and about 36% of variance in students' perceived enthusiasm was explained. The absolute model fit for this alternative model was still good ($\chi^2 = 59.04, df = 52, p = .23, RMSEA = .010, CFI = .97, TLI = 0.97$), yet the comparative fit indices, AIC and BIC, indicated that the second-order model was preferred (alternative model: AIC = 5372.85, BIC = 5580.66; second-order model: AIC = 5371.28, BIC = 5573.76). Together with the explained variance in students' perceived teacher enthusiasm, which was about 20% higher when including the second-order dispositional enthusiasm as predictor, it can be argued that a second-order factor that weighs teachers' positive affect and positive expressivity is superior when considering dispositional teacher enthusiasm, as compared to two correlated first-order factors.

As can be seen in Fig. 3, dispositional enthusiasm significantly related to students' perceived teacher enthusiasm, which in turn related to students' interest. The effect of perceived enthusiasm on students' interest was large ($R^2 = .49$). On the within level (not depicted in Fig. 3), students' perceived teacher enthusiasm had a small relation to students' interest ($\beta = .30, p < .001, R^2 = .09$).

Our results further show full mediation for students' interest, with the direct path from dispositional enthusiasm to students' interest rendered non significant when students' perceived enthusiasm is accounted for in the model. The indirect effect via the mediator is significant and of a large size ($\beta_{\text{indirect}} = .53, p < .001$).

6. Discussion

The central element of this paper was the new conceptualization of dispositional teacher enthusiasm, indicated by teachers' positive affect and positive emotional expressivity. This concept of dispositional enthusiasm was subjected to empirical scrutiny in testing three hypotheses. Based on our analyses, we can support all three of them.

First, the validity of dispositional teacher enthusiasm was supported. More precisely, the measurement model (i.e., dispositional teacher enthusiasm as a second order latent construct defined by positive affect and positive emotional expressivity) was sound. In addition, convergent validation showed a strong positive relation to students' perceptions of teacher enthusiasm.

Second, we showed that dispositional teacher enthusiasm positively relates to students' interest, conceptualized as enjoyment and intrinsic value. One likely interpretation is that enthusiastic teachers help instill in their students positive subject related affective experiences and a sense of the personal importance of the subject. Future research should examine whether this relation is causal in nature.

Third, our analyses confirmed that perceived teacher enthusiasm acts as a mediator between dispositional teacher enthusiasm and student' interest. We found a full mediation effect. Assuming temporal precedence, dispositional teacher enthusiasm can be said to influence students' perceptions. In turn, students' perceptions influence students' interest. Additional research should test the directionality of the relations suggested by this study. Prior research and the theoretical underpinnings of the model suggest causality, but the present study did not directly test causal relationships.

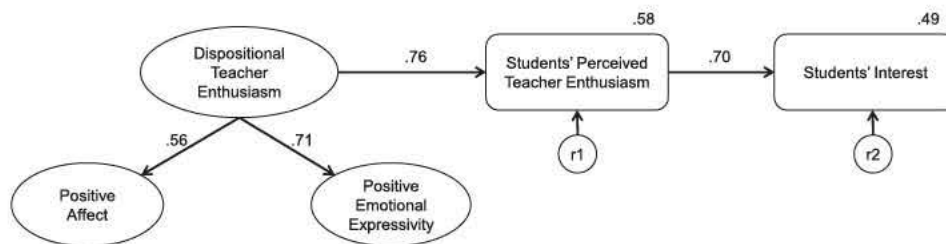


Fig. 3. Dispositional teacher enthusiasm influencing students' interest, mediated by students perceived teacher enthusiasm. To enhance clarity, the manifest indicators, loadings, and residuals for teachers' positive affect and positive expressivity are not displayed. Standardized path coefficients are shown, with all coefficients being highly significant ($p < .001$; Level 1: $N = 1523$; Level 2: $N = 75$). The direct path from dispositional teacher enthusiasm to students' interest was not estimated in the model shown above, as it was rendered non-significant after introducing the mediator of perceived enthusiasm into the model. The estimates for the dependent variables of students' perceived teacher enthusiasm and students' interest denote the respective explained variances on the between level (R^2).

6.1. Scholarly contributions

Building upon earlier investigations of teacher enthusiasm, the present study is an important step forward. It provides a new conceptualization of dispositional teacher enthusiasm that integrates notions of teacher enthusiasm as positive affective experiences and nonverbal expressiveness during teaching. These two approaches are successfully combined into dispositional teacher enthusiasm, which explains differences in teachers' enjoyment and positive emotional expressivity during teaching.

This new conceptualization can be considered successful insofar as it strongly relates to teachers' behaviorally shown enthusiasm as perceived by students. Thus, two perspectives on teacher enthusiasm – the teachers' and the students' – are combined in a coherent way. These perspectives provide two fundamental views on instructional processes in classrooms. As dispositional teacher enthusiasm in the present study was related to students' perceptions, this means we have identified an important teacher characteristic that influences instructional behavior. Dispositional enthusiasm as a personal, positive affective characteristic of teachers could also be important when it comes to teachers' professional and personal lives (e.g., engagement, life satisfaction).

Furthermore, dispositional teacher enthusiasm is associated with students' interest, an important variable in the educational context. Not only can interest be regarded as a desirable outcome of teaching and learning processes, but more importantly it guides students' choices for their future careers. Beyond other influences (e.g., content or content dependent teaching factors), teacher enthusiasm is a relatively universal teaching strategy that can play an important role in forming students' interest.

Although future research should directly test causal pathways, it appears likely that dispositional teacher enthusiasm affects students' perceptions and outcomes. That this effect on students' interest is mediated by students' perceived teacher enthusiasm informs our understanding of the processes underlying the effects of dispositional teacher enthusiasm in two major ways. First, the mediation can be interpreted as dispositional teacher enthusiasm manifesting itself in specific teaching behaviors that can be observed by students and lead to their overall impression of teacher enthusiasm. Second, the existence of full mediation hints that teacher enthusiasm is only effective when it is actually perceived as such by the students.

Overall, this study provides a valid and integrative conceptualization of dispositional teacher enthusiasm. By synthesizing the two major approaches in teacher enthusiasm research, the present study provides the basis for future investigations.

6.2. Limitations

Although the study was designed to overcome problems in previous research on teacher enthusiasm, there are also limitations. As with all cross-sectional data sets, we essentially were examining inferential rather than causal effects. From a theoretical viewpoint, it is possible that there are reciprocal effects of student interest on teachers' enthusiasm. In her theoretical model, Frenzel (in press) creates an argument for students' motivation as one antecedent for teacher affect and emotions. In a qualitative interview study, Stenlund (1995) showed that students' learning behavior, growth, and motivation came together as a primary antecedent for teachers' enthusiasm. Furthermore, Kunter et al. (2011) found significant correlations between teacher enthusiasm and student characteristics (enjoyment, achievement) and behavior (discipline), although their analyses were also based on cross-sectional data. The process of figuratively infecting one another with emotions – that is, emotional contagion – might naturally work in both directions. There is evidence, however, that corroborates the effect of teacher enthusiasm on student outcomes (experimental studies; e.g., Patrick et al., 2000; longitudinal data by Frenzel et al., 2009; Kunter et al., 2013). As the aim of the present study was to introduce and validate a new construct, longitudinal or large scale studies of dispositional teacher enthusiasm would be a natural next step.

From a statistical point of view, the final model was estimated on a manifest level for students' perceived teacher enthusiasm and interest. This approach enabled us to keep the estimates in proportion to the sample size; this meant, however, that the analyses did not control for measurement errors on the students' side. Future studies may wish to control for such measurement errors.

The present study investigated the effects of teacher enthusiasm across four school subjects, thus taking the position that irrespective of domains, the effects of teacher enthusiasm are comparable. In so doing, we followed the common approach in teacher enthusiasm literature of combining results across domains (e.g., Collins, 1978; Murray, 1983; Patrick et al., 2000). However, we acknowledge that domain specific differences might play a role in teacher enthusiasm, as well. There is no known empirical support for enthusiasm's differential effects across domains, yet future research of this nature would elucidate our understanding of dispositional teacher enthusiasm.

Regarding domain specificity of dispositional teacher enthusiasm, Kunter et al. (2008, 2011) distinguished two facets: enthusiasm about the subject and enthusiasm about teaching. In the present study, only teachers' enthusiasm about teaching was

considered, as it was the more powerful predictor of student outcomes in Kunter et al.'s studies. It might be possible that subject related facets of teacher enthusiasm are important for other student outcomes that have not yet been considered. Also, in conceptualizing dispositional teacher enthusiasm as a trait like characteristic, a certain temporal and trans situational stability is implied. Whether this assumption is justified cannot be answered on the basis of the present study. It remains possible that certain aspects of teachers' affect and emotional expressivity change from classroom to classroom or from day to day. A longitudinal study design including several assessment points per teacher would allow intra individual analyses to address this possibility.

7. Conclusion

Research on teacher enthusiasm to date is characterized by a lack of a clear definition of the construct. We brought together existing conceptualizations of expressiveness and positive teacher affect in an integrative concept of dispositional teacher enthusiasm. Based on this integrative conceptualization, effects and antecedents of teachers' enthusiasm can be systematically investigated in future research.

Of particular importance is the role of emotional expressiveness as observed by students, as this has been a focus in previous research that adopts a behavioral conceptualization of teacher enthusiasm. It will be interesting to learn whether teachers who report high levels of emotional expressivity are perceived as highly expressive in class, as well. Are all teachers who *are* enthusiastic (that is, who score high on dispositional enthusiasm) observed as such? If not, why? These questions suggest the likelihood of conditional effects for the link between dispositional enthusiasm and perceived enthusiasm.

If we are to learn how to foster teachers' enthusiasm, researchers need to know about its antecedents and the contexts in which it is able to unfold. Conversely, we need to understand those contexts in which enthusiasm is constrained and hindered. That enthusiastic teaching behaviors are trainable has already been shown (e.g., Patrick et al., 2000); however, criticism of enthusiasm training has also been offered (e.g., Babad, 2007). The present study indicates enthusiastic teaching behaviors stem from "internal processes" (Bettencourt et al., 1983, p. 448), that is, dispositional enthusiasm. In a sense, displaying enthusiastic teaching behaviors without actually experiencing enjoyment is similar to emotional labor or experiences of emotional dissonance (e.g., Morris & Feldman, 1996), both of which have detrimental effects on health and well being (e.g., Bono & Vey, 2005). Fostering enthusiastic teaching behaviors one sidedly bears the potential risk of further stress for teachers. Consequently, a next step in the research must be to investigate possible moderators of dispositional enthusiasm expressed during teaching, as well as possible contextual constraints. Only after that step can we safely consider the question of training and fostering of teacher enthusiasm.

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Appendix A. Item wording of scales.

A1

Teachers' positive affect.

- PosAff1 I teach SUBJECT in this class with great enthusiasm.
(*Ich unterrichte mit Begeisterung.*)
- PosAff2 I always enjoy having taught students new things.
(*Ich freue mich wirklich, wenn ich den Schülerinnen und Schülern etwas beigebracht habe.*)
- PosAff3 I really enjoy teaching SUBJECT in this class.
(*Mir macht das Unterrichten von FACH großen Spaß.*)

A2

Teachers' positive emotional expressivity.

- PosExp1 When I'm happy in class, my feelings show.
(*Wenn ich mich im Unterricht glücklich fühle, dann zeige ich es auch.*)
- PosExp2 During teaching I laugh a lot.
(*Während des Unterrichts lache ich oft.*)
- PosExp3 When I'm feeling well during teaching it's easy for me to go from being in a good mood to being really joyful.
(*Wenn ich mich im Unterricht gut fühle, ist es leicht für mich, von einer guten in eine richtig freudige Stimmung zu kommen.*)
- PosExp4 I laugh out loud when my students tell me a joke that I think is funny.
(*Wenn mir meine Schülerinnen und Schüler einen lustigen Witz erzählen, muss ich laut lachen.*)
- PosExp5 During teaching I often laugh so hard that my eyes water or my sides ache.
(*Während des Unterrichts lache ich oft so, dass meine Augen tränen oder ich Seitenstechen bekomme.*)
- PosExp6 My happy moods in class are so strong that I feel like I'm "in heaven."
(*Meine glücklichen Stimmungen im Unterricht sind so stark, dass ich mich "wie im Himmel" fühle.*)
- PosExp7 In class my laugh is soft and subdued (R).
(*Im Unterricht ist mein Lachen sanft und gedämpft.*)
- PosExp8 Whenever I feel positive emotions during teaching, my students can easily see exactly what I am feeling.
(*Immer wenn ich mich während des Unterrichts gut fühle, können meine Schülerinnen und Schüler leicht erkennen, wie es mir geht.*)
- Note. (R) reverse coded.

A3

Students' perceived teacher enthusiasm.

- PercEnt01 Our teacher in SUBJECT teaches with enthusiasm.
(*Unser FACHlehrer unterrichtet mit Begeisterung.*)
- PercEnt02 Our teacher in SUBJECT enjoys teaching.
(*Unserem FACHlehrer scheint das Unterrichten großen Spaß zu machen.*)
- PercEnt03 Our teacher in SUBJECT tries to inspire students about the subject.
(*Unser FACHlehrer versucht im Unterricht, die Schüler vom Fach FACH zu begeistern.*)

A4

Students' interest.

- Affective component*
- Enj In SUBJECT class, I usually enjoy myself.
(*Im FACHunterricht freue ich mich in der Regel.*)
- Value component*
- IntrVal01 Whatever grade I get, SUBJECT is very important to me.
(*FACH ist mir unabhängig von der Note sehr wichtig.*)
- IntrVal02 I find the subject SUBJECT very important.
(*Ich halte das Fach FACH für sehr wichtig.*)
- IntrVal03 SUBJECT is my favorite subject.
(*FACH ist mein Lieblingsfach.*)

Appendix B. Input syntax for Mplus testing hypothesis 3.

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USEVARIABLES ARE
ent_m                                !Students' perceived teacher enthusiasm
                                      (scale mean).
PosAff1 PosAff2 PosAff3 PosAff4      !Teachers' positive affect.

PosExp1 PosExp2 PosExp3 PosExp4      !Teachers' positive emotional
PosExp5 PosExp6 PosExp7 PosExp8      expressivity.

interest;                             !Students' interest (scale mean).

BETWEEN = PosAff1 PosAff2 PosAff3 PosAff4
PosExp1 PosExp2 PosExp3 PosExp4
PosExp5 PosExp6 PosExp7 PosExp8;

ANALYSIS:
TYPE = TWOLEVEL;

MODEL:
%WITHIN%

interest ON ent_m;

%BETWEEN%
PosAff BY PosAff1 PosAff2 PosAff3 PosAff4;    !Latent variable Positive Affect.
PosExp BY PosExp1* PosExp2 PosExp3 PosExp4    !Latent variable Positive Emotional
PosExp5 PosExp6 PosExp7 PosExp8;              Expressivity.
PosExp@1;

DispEnth BY PosExp PosAff;                  !Second order latent variable
DispEnth @ 1;                                dispositional teacher enthusiasm.

ent_m ON DispEnth;                          !Effect of dispositional teacher
                                              enthusiasm on students' perceived
                                              enthusiasm.

interest ON ent_m;                          !Effect of students' perceived
                                              enthusiasm on students' interest.

MODEL INDIRECT:
interest IND ent_m DispEnth ;               !Indirect effect of dipositional
                                              teacher enthusiasm on students'
                                              interest, mediated by students'
                                              perceived teacher enthusiasm.

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