

Identifiable but Changeable: Capturing the Features of Teacher Identity

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Abstract

The present research replicated and extended a recent attempt to measure teacher identity comprehensively. The Teacher Identity Inventory (TII) was constructed incorporating three components: teacher self-efficacy, organizational commitment, and job satisfaction. A series of three studies were conducted with three independent samples to validate the inventory in terms of internal consistency and external validity. The TII proved to be a comprehensive, reliable, and valid measure of teacher identity. Implications for future research are discussed.

Keywords: *teacher identity; the teacher identity inventory; validation*

1. Introduction

Over the last two decades, the issue of teacher identity has developed into a distinct area of research. Teacher identity merits such attention primarily because of its documented accountability for the overall landscape of education including, for example, pupils' achievement (Day, Sammons, Stobart, Kington, & Gu, 2007) and policy implementation (Robinson & McMillan, 2006). However, conceptualizations of teacher identity are inconsistent, as are the measures and understanding of teacher identity (Findlay, 2006). The literature suggests that, on the one hand, attempts to study teacher identity with a quantitative measure are still lacking (Cheung, 2008) and, on the other hand, no instrument measuring teacher identity has been used in more than one study. It follows that researchers are either bewildered by the sheer variety of components of teacher identity that have been identified in the literature, or at a loss to decide what is a comprehensive and reliable measure of teacher identity.

The present research aimed to address the need for a comprehensive measure of teacher identity by replicating and extending a recent attempt made by Canrinus, Helms-Lorenz, Beijaard, Buitink, and Hofman (2012). To achieve this objective, an inventory, the Teacher Identity Inventory (TII), was constructed from a pool of source inventories to assess three core components of teacher identity: teacher self-efficacy, organizational commitment, and job satisfaction. To ensure the validity and internal reliability of this inventory, a series of three studies were conducted with three independent samples, including both prospective teachers and in-service teachers, given that these two teacher populations have been found to differ in strength of teacher identity (Day & Gu, 2010). Multiple methods of validation and analyses were employed to triangulate results from each of the three studies. Results indicated that the TII could be regarded as a comprehensive and easy to use inventory that reliably assesses teacher identity.

2. Literature review

Teacher identity

A review of the literature suggests that previous attempts conceptualized teacher identity largely through three lenses: (1) an ontological lens; (2) a lens of professionalism; and (3) a lens of interactionism. The first lens focuses on individual differences, highlighting the importance of teachers' inner traits (e.g., esteem and self-image) and self-construction of knowledge and values (e.g., Wenger, 1998). The second lens focuses on professional characteristics, depicting teachers mainly as experts in subject matter, pedagogy, and didactics (e.g., Beijaard, Verloop, & Vermunt, 2000). The third lens views teacher identity

as the function of contextual factors (e.g., school, family, and politics) (e.g., Day, 2011). It is imperative that a unifying framework be conceptualized—a framework that merits the strengths of all three lenses.

Measures of teacher identity

As discussed above, quantitative measures to assess teacher identity are limited in number, and most of these measures merely draw on only one of the three lenses noted above. For example, through the ontological lens, Mcenerney and Satterstrom (1984) focused on *scholastic aptitude*, *moral reasoning*, and *conceptual level*, while Flores and colleagues (2010) measured such attributes as *self-efficacy* and *epistemological belief*. Through the lens of professionalism, Beijaard, Verloop, and Vermunt (2000) measured only three indicators of teacher identity: *subject matter experts*, *didactical experts*, and *pedagogical experts*. Similarly, Kremer and Hofman (1985) examined only teachers' professional traits such as *centrality* and *valence*. Živković (2013), and Starr et al. (2006) focused on *job satisfaction* and *sense of belonging*. None of the aforementioned measures is comprehensive, however; nor has any measure been employed in more than one study (Findlay, 2006). It is imperative that components of central importance for teacher identity be explored and identified.

Fortunately, a number of such important components have manifested themselves in existing quantitative studies. Among others, four key components figured prominently in Day's (2002) meta-analysis of studies conducted over two decades: self-efficacy, level of motivation, job satisfaction, and commitment. The importance of these four components were repeatedly evidenced in subsequent studies. These four components had been investigated separately and in diverse combinations, but no study had examined them simultaneously to achieve a holistic understanding of teachers' perceived professional identity until Carinus et al.'s (2012) study. Canrinus and colleagues (2012) constructed and tested a model of teacher identity comprising the aforementioned four components. Canrinus and colleagues administered a questionnaire, containing items borrowed directly from a pool of source inventories, to 1,214 Dutch secondary school teachers. Their hypothesized model of the interrelationships between the four components was verified and refined with structural equation modeling.

Canrinus and colleagues' (2012) research contributed significantly to profiling teacher identity comprehensively. However, as indicated by the researchers themselves, their primary objective was to "investigate how relevant indicators of teachers' sense of their professional identity...are related" (p. 115), rather than develop and validate a comprehensive measure of teacher identity. This resulted in their overlooking the validation of the measure. In addition, no results have been reported concerning the internal reliability, validity of factor structure, and external validity of the inventory. In practice, this might deter other researchers from conducting further research with the same measure. Therefore, the present research was intended to replicate Canrinus and colleagues' (2012) research by choosing three out of the same four core components to represent teacher identity: teacher self-efficacy, organizational commitment, and job satisfaction. The component "level of motivation" was excluded from the present research primarily because teachers' motivations are rarely assessed quantitatively but are normally classified typologically as "motivators" instead (e.g., intrinsic or extrinsic)(e.g., George & Sabapathy, 2011; Watt & Richardson, 2008).

Teacher self-efficacy. Compared with other conceptualizations, Friedman and Kass's (2002) operationalization of self-efficacy unifies teachers' self-perceptions and social contexts. Therefore, in the present research, teacher self-efficacy refers to "the teacher's perception of his or her ability(a) to perform required professional tasks and to regulate relations involved in the process of teaching and educating students (classroom efficacy), and (b) to perform organizational tasks, become part of the organization and its political and social processes(organizational efficacy)"(Friedman & Kass, 2002, p. 684).

Organizational commitment. Organizational commitment is widely accepted as "a psychological state that (a) characterizes the employee's [in the present research, the teacher's] relationship with the organization and (b) has implications for the decision to continue or discontinue membership in the

organization” (Meyer, Allen, & Smith, 1993, p. 539). It is further broken down into three types (Meyer & Allen, 1991): normative commitment, affective commitment, and continuance commitment.

Job satisfaction. The term “job satisfaction” began to receive attention when Hoppock (1935) defined it as “any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say, ‘I am satisfied with my job’” (p. 47). (p. 47)(p. 47)(p. 47)(p. 47)(p. 47)(p. 47)(p. 47) This definition suggests that job satisfaction is influenced by both personal factors and contextual factors. As indicated in previous studies, the degree of job satisfaction determines many aspects of the teaching profession, such as the attrition rate and collegiality (Brien, Hass, & Savoie, 2012).

3. The present research

The TII was expected (1) to tap the broad range of teacher identity through three components, (2) to exhibit good internal consistency across multiple populations, and (3) to demonstrate high external construct validity. To this end, the present research was conducted in a series of three consecutive studies (Studies 1, 2, and 3) among three independent samples (Year 3 prospective teachers, Year 4 prospective teachers, and beginning teachers, respectively).

Study 1: Developing the TII

In Canrinus and colleagues’ (2012) study, 81 items were directly adopted from three source inventories: Friedman and Kass’s (2002) *Classroom and School Context (CSC) teacher self-efficacy scale* (33 items), Meyer, Allen, and Smith’s (1993) scale measuring organizational commitment (18 items), and Van der Ploeg and Scholte’s (2003) Job Satisfaction Index (JSI) (30 items). The items were designed to fall into three scales – teacher self-efficacy, organizational commitment, and job satisfaction.

Participants

Participants in this study were 236 (45 male and 191 female) prospective teachers, aged $21.57 \pm .51$, in their third year of a teacher training program at a teacher-training university in mainland China. All participants had completed their one-year-long teaching practicum at the time of this survey.

Measures and data analysis

Participants were required to report the degree to which they agreed with each of the 52 statements indicated by a seven-point Likert scale (1=“not at all well”; 7=“extremely well”). The three scales were as follows.

The teacher self-efficacy scale. Teacher self-efficacy was measured with Friedman and Kass’s (2002) *Classroom and School Context (CSC) teacher self-efficacy scale* (33 items: 14 for “teacher self-efficacy in school context” and 19 items for “teacher self-efficacy in classroom context”).

The organizational commitment scale. Organizational commitment was assessed by a revised 15-item version of Meyer, Allen, and Smith’s (1993) scale. Each of the three components (affective commitment, continuance commitment, and normative commitment) was measured via five items. Because this scale was originally devised for business and medical settings (e.g., Lin & Hwang, 2014), terms such as “nursing”/“counselling” and “nurse” were replaced in the present research with “teaching” and “teacher” respectively. A sample item is: “I feel lucky to have entered the teaching profession.”

The job satisfaction scale. Job satisfaction was assessed by four items denoting “salary and fringe benefits” adopted from Giacometti’s (2005) Job Satisfaction Scale. Items overlapping those measuring teacher self-efficacy or motivation were removed (e.g., “motivation to teach” and “emotional factors”). A Cronbach’s alpha coefficient of .57 was reported in Giacometti’s (2005) study. One sample item is: “My salary adequately meets my needs.”

4. Results

The data yielded eight factors explaining 66.93% of variance. Factor 1 contained four items from the job satisfaction scale. Factors 2, 3 and 4 subsumed all items denoting the three dimensions of organizational commitment. The teacher self-efficacy scale, however, was split into three factors (5, 6, and 7) rather than two. Factor 8 was made up of two cross-loaded items from the teacher self-efficacy scale in the classroom context.

A careful examination of Factors 6 and 7 suggested that these two factors pertained to the teacher self-efficacy scale in the school context. Factor 6 stressed teachers' perceived self-efficacy in decision making concerning school affairs. Factor 7 emphasized teachers' perceived self-efficacy in dealing with relationships in the school context. This finding was consistent with Friedman and Kass's (2002) assertions that "the teacher operates simultaneously as a leader and as an employee" (p. 677) and "one social system connects the teacher to the students; the other connects the teacher to colleagues and the principal" (p. 678). Therefore, it was decided that *teacher self-efficacy in the school context* should be further divided into two subscales: leadership self-efficacy and relationship self-efficacy.

Factor 8 was eliminated since the two items supposedly measuring classroom self-efficacy showed heavy cross loadings (item 30 with factor loadings of .65 and .50; item 31 with factor loadings of .58 and .42).

Table 1 shows data on the internal consistency of the TII. The results indicated that the TII possessed internal scale reliability with Cronbach's alpha (CA) ranging from .70 (job satisfaction) to .92 (affective commitment), and with the median being .85 (relationship self-efficacy).

Table 1 Internal consistency of the TII

Factor	Study									
	1 (N=236)		2-Calibration (N=539)			2-Validation (N=563)			3 (N=232)	
	CA	CA	CA	CR	AVE (%)	CA	CR	AVE (%)		
JS	.70	.83	.80	.80	50	.71	.71	45		
AC	.92	.93	.92	.93	76	.90	.90	68		
CC	.78	.78	.80	.78	48	.77	.72	49		
NC	.80	.79	.83	.82	53	.78	.78	50		
CSE	.91	.90	.90	.82	53	.87	.86	51		
LSE	.89	.89	.89	.89	57	.84	.84	52		
RSE	.85	.86	.84	.86	51	.77	.78	50		

Note: CA= Cronbach's alpha; CR= composite reliability; AVE= average variance extracted; JS=job satisfaction; AC=affective commitment; CC=continuance commitment; CSE=classroom self-efficacy; LSE=leadership self-efficacy; RSE=relationship self-efficacy.

Study 2: Cross-validating the TII

Study 2 was designed to validate the seven-factor structure obtained in Study 1. In this study, a single-sample cross-validation involving both EFA and confirmatory factor analysis (CFA) was executed (Van Prooijen & Van Der Kloot, 2001).

Participants

Participants were 1,102 (366 male and 736 female) Year 4 prospective teachers in mainland China, aged $22.74 \pm .65$ years. Data were collected at the end of their teacher training program. They were all awarded teaching certificates by the Ministry of Education.

Measures and data analysis

The participants in this study were randomly split into two halves in SPSS 21. One subsample was used for calibration and consisted of 539 participants (182 male and 357 female), and the other was used for

validation and comprised 563 participants (184 male and 379 female). EFA was performed on data from the calibration sample, while confirmatory factor analysis (CFA) was carried out on data from the validation sample.

Results

Calibration sample. As expected, ML analysis with direct oblimin yielded seven factors. The cumulative variance explained amounted to 66.25%. Nearly all the items loaded neatly on the factors they were theoretically supposed to be. One item measuring leadership self-efficacy was dropped due to its heavy cross loadings (.54 and .62) on the factor of classroom self-efficacy as well (i.e., “I think I can joke with students without it affecting their respect for me.”) (Costello & Osborne, 2005). Another three items with weak loadings (.28 and .31) were removed, including two on the expected factor of classroom self-efficacy and one on that of relationship self-efficacy (.32).

As shown in Table 1, compared with the data on the internal reliability of 38 items in Study 1, Cronbach’s coefficients of the resultant 34 items in this study moderately increased in magnitude ranging from .78 (continuance commitment) to .93 (affective commitment), with the median being .86 (relationship self-efficacy).

Validation sample. A CFA was performed on the generated seven-factor model using AMOS 21. Results are shown in Table 2. According to the benchmarks for indices (Bryrne, 2010), the χ^2/df (2.27) demonstrated that the hypothesized model was robust. The CFI (.94) indicated that the hypothesized model adequately described the sample data. The values of GFI (.91) and NFI (.90) suggested that the model fit was marginally adequate. What is more, the SRMR (.05) denoted that the average value of all standardized residuals derived from a well-fitting model. Finally, the RMSEA (.05) also indicated good fit.

Table 2 Confirmatory factor analysis of the TII in Study 2 and Study 3

Study	χ^2	df	χ^2/df	CFI	GFI	NFI	SRMR	RMSEA
2-Validation (N=563)	1107.33	487	2.27	.94	.91	.90	.05	.05
3 (N=232)	801.70	497	1.61	.91	.90	.90	.05	.06

In testing the reliability of the hypothesized model, the composite reliability (CR) and the average variance extracted (AVE) were calculated in addition to Cronbach’s alphas. As exhibited in Table 1, the CR of each factor was no smaller than .80, while the AVE by all but one factor exceeded 50%, indicating fairly acceptable convergent validity (Fornell & Larcker, 1981). Also, Cronbach’s alphas all exceeded .80, similar in magnitude to the results yielded from the calibration sample.

Study 3: Further validating the TII

In this study, perceived work environment was chosen to be studied with teacher identity in order to assess the external validity of the TII. This is because teacher identity is considered to be context specific (Dworet, 1996), and many researchers have examined teacher identity within particular school contexts (e.g., Day & Gu, 2010; Findlay, 2006).

Participants

Participants were 232 (28 male and 204 female) beginning teachers, aged 23.68 ± 1.32 , from 183 different schools in mainland China. They had, on average, two years of teaching experience. Among them, 132 (57%) were teaching in secondary high schools, 75 (32%) in junior high schools, and 25 (11%) in elementary schools.

Measures and data analysis

The finalized 34-item TII was used in Study 3, while perceived work environment was evaluated by an established inventory—*The Job Demands-Resources Inventory*.

The Job Demands-Resources Inventory (JD-RI). The JD-RI (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) is a 28-item inventory consisting of seven dimensions: two for job demands (quantitative demands and emotional demands) and five for job resources (supervisor support, workmate support, performance feedback, job autonomy, and growth opportunities). Theoretically and empirically, employees in a stressful work environment characterized by high quantitative and emotional demands are supposed to score low in organizational identification (in the present study, teacher identity), in contrast to those in a resourceful work environment, where the above-mentioned job resources are more available (Rothmann & Jordaan, 2006). However, since employee engagement has been found to be negatively associated with both continuance commitment (Albdour & Altarawneh, 2014) and job demands, it was reasonable to hypothesize a positive relationship between job demands and continuance commitment. Accordingly, it was expected that job resources would be negatively associated with continuance commitment.

Results

Also in Table 3 are the summarized results concerning the goodness-of-fit between the dataset of Sample 3 and the hypothesized model. All indices demonstrated good model fit (Bryne, 2010), with the CFI, GFI and NFI marginally reaching the threshold of .90 and the SRMR reaching .05, while χ^2/df was far lower than 3 (Bryne, 2010). The value of the RMSEA (.06) represented acceptable fit in terms of reasonable errors of approximation in the population (Browne & Cudeck, 1993).

Table 3 shows data on the correlation coefficients between the TII and the JD-RI scales. The results largely supported the hypotheses. First, as expected, quantitative demands and emotional demands were negatively correlated with all scales of the TII except that of continuance commitment. Second, all the five scales for job resources were positively and significantly correlated with the scales of the TII, again, with the exception of continuance commitment (again, this is reasonable).

Table 3 Zero-order correlation coefficients: the TII and the JD-RI (N=232)

	JS	AC	CC	NC	CSE	LSE	RSE
Quantitative demands	-.06	-.12	.12	-.08	-.04	-.14*	-.05
Emotional demands	-.20**	-.24**	.17**	-.06	-.10	-.19**	-.11
Supervisor support	.34**	.39**	-.01	.19**	.27**	.44**	.51**
Workmate support	.26**	.33**	.03	.17**	.22**	.25**	.41**
Performance feedback	.31**	.31**	-.02	.19**	.28**	.32**	.34**
Job autonomy	.26**	.32**	-.06	.15*	.24**	.19**	.24**
Growth opportunities	.34**	.58**	.15*	.31**	.19**	.19**	.32**

Note: * $p < .05$; ** $p < .01$; JS=job satisfaction; AC=affective commitment; CC=continuance commitment; CSE=classroom self-efficacy; LSE=leadership self-efficacy; RSE=relationship self-efficacy.

Hierarchical multiple regressions were then conducted with all seven factors of the TII entered as the dependent variables, controlling for monthly income. Table 4 summarizes these regression analysis results. Specifically, three factors of teacher identity (job satisfaction, affective commitment, and leadership self-efficacy) were negatively and significantly predicted by job demands, emotional demands in particular. Also as expected, all seven factors of teacher identity were found to be positively and significantly predicted by four job resources (performance feedback, growth opportunities, supervisor support, and workmate support). Of these, growth opportunities and performance feedback were the two strongest predictors.

Table 4 Predicting teacher identity from perceived work environment

Teacher identity	JS	AC	CC	NC	CSE	LSE	RSE
<i>Adjusted R</i> ² _{monthly income}	-.003	-.004	-.004	-.004	-.003	.042	.017
<i>Adjusted R</i> ² _{JD-R}	.193	.411	.034	.086	.101	.251	.316
β _{Job demands}	*-.16 _{ED}	**-.18 _{ED}	—	—	—	*-.12 _{QD}	—
β _{Job resources}	*.15 _{PF} **-.20 _{GO}	***.49 _{GO}	**-.20 _{GO}	***.26 _{GO}	*.18 _{PF}	***.33 _{SS} *.15 _{PF}	***.34 _{SS} **.21 _{WS}
<i>F</i> _(JD-R)	7.90	21.13	2.03	3.70	4.25	10.66	14.36
<i>Sig. F</i> _(JD-R)	.000***	.000***	.027*	.000***	.000***	.000***	.000***

Note: * $p < .05$; ** $p < .01$; JS=job satisfaction; AC=affective commitment; CC=continuance commitment; CSE=classroom self-efficacy; LSE=leadership self-efficacy; RSE=relationship self-efficacy; JD-R=job demands and resources; ED=emotional demands; PF=performance feedback; GO=growth opportunities; SS=supervisor support; WS=workmate support.

5. Discussion

The present research set out to construct and validate a new instrument—the TII—measuring three key components of teacher identity: teacher self-efficacy, organizational commitment, and job satisfaction. It can be concluded that four major points support the necessity and usefulness of the TII.

To begin with, the present research replicated Canrinus and colleagues' (2012) study by drawing test items from the same pool of source inventories except for that measuring job satisfaction. Differently, however, the present research remained focused on the construction and validation of the measure. The present research has made up for the lack of findings concerning the psychometric properties of the measure adopted in Canrinus and colleagues' (2012) study. At the same time, this is the first study empirically to support Canrinus and colleagues' argument for the importance of the three components (teacher self-efficacy, organizational commitment, and job satisfaction) of teacher identity. More importantly, the present research extended Canrinus and colleagues' (2012) research scope (which was restricted to the interrelationships between the components) by exploring the association between the TII and the JD-RI, an inventory measuring perceived work environment. Findings were consistent with those reported in previous studies examining different aspects of teacher identity in relation to characteristics of perceived work environment (e.g., Bakker, Demerouti, de Boer, & Schaufeli, 2003).

Second, the TII showed a tenable factor-structure through modification and verification in a series of three studies. The seven-factor structure pertaining to the three components generated in Study 1 was consistently validated and confirmed in Studies 2 and 3. Some new findings concerning factor distributions were reported in the present research as well. For example, in Study 1, teacher self-efficacy in the school context was found to be composed of leadership self-efficacy and relationship self-efficacy. This implies that teachers' identities might be strengthened or weakened depending on how they perceive their leadership in school issues (Danielson, 2006).

Third, the TII may be applicable to different teacher populations. Across multiple samples (two samples from prospective teachers and one from early career teachers), consistently high internal reliabilities of the TII were identified with Cronbach's alphas ranging from .70 to .92 (see Table 1). This internal consistency was corroborated by composite reliability and average variance explained (Hair, Black, Babin, & Anderson, 2010).

6. Conclusions

Knowledge of teachers' capacities, commitment, and passion to teach to the best of their abilities is for the benefit of teachers' own professional lives, their students, and education in general (Day, 2012). This knowledge is also what the TII is intended to help teachers attain. However, results from the present research are preliminary, and further independent replications are needed. In addition, there are other

limitations to the present research. First, it may be possible for other factors to be identified and taken into account, for example, change in level of motivation, which was not measured in the present research. It is hoped that in future studies, a test-retest method can be used among the same sample to assess changes in motivation levels. This could, at the same time, yield evidence for the test-retest reliability of the TII. Second, all the data in the present research were collected through a single method—self-report questionnaires—which might have caused inflated estimates of associations between constructs (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It is hoped that the TII can be validated against the data collected using other methods, such as pupils' ratings for their teachers and principals' remarks concerning teachers. Third, the research participants were predominantly female. Although this might be largely due to the characteristics of teacher education, the generalizability of the findings from the present research might be restricted.

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