

Assessing Teachers' Positive Psychological Functioning at Work: Development and Validation of the Teacher Subjective Wellbeing Questionnaire

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This study reports on the initial development and validation of the Teacher Subjective Wellbeing Questionnaire (TSWQ) with 2 samples of educators—a general sample of 185 elementary and middle school teachers, and a target sample of 21 elementary school teachers experiencing classroom management challenges. The TSWQ is an 8-item self-report instrument for assessing teachers' subjective wellbeing, which is operationalized via subscales measuring school connectedness and teaching efficacy. The conceptualization and development processes underlying the TSWQ are described, and results from a series of preliminary psychometric and exploratory analyses are reported to establish initial construct validity. Findings indicated that the TSWQ was characterized by 2 conceptually sound latent factors, that both subscales and the composite scale demonstrated strong internal consistency, and that all scales demonstrated convergent validity with self-reported school supports and divergent validity with self-reported stress and emotional burnout. Furthermore, results indicated that TSWQ scores did not differ according to teachers' school level (i.e., elementary vs. middle), but that they did differ according to unique school environment (e.g., 1 middle school vs. another middle school) and teacher stressors (i.e., general teachers vs. teachers experiencing classroom management challenges). Results also indicated that, for teachers experiencing classroom challenges, the TSWQ had strong short-term predictive validity for psychological distress, accounting for approximately half of the variance in teacher stress and emotional burnout. Implications for theory, research, and the practice of school psychology are discussed.

Keywords: measurement, positive psychology, subjective wellbeing, teachers

Much research has been conducted on teacher subjective wellbeing during the past decade, yet the majority of studies have targeted negative indicators of teacher functioning, such as stress and burnout (cf. Fleming, Mackrain, & LeBuffle, 2013), while failing to account for the

positive and, arguably, more important aspects of teachers' successful and healthy functioning at work, such as positive affect and prosocial relationships (cf. van Horn, Taris, Schaufeli, & Schreurs, 2004). Although there may be various reasons for the dearth of research regarding the positive dimension of teachers' subjective wellbeing, we suggest that a primary reason is the lack of systematic conceptual work and associated measure development research in this area. The present study takes a step toward progressing this line of scholarship by developing and validating a new, brief, multidimensional measure of positive teacher subjective wellbeing: the Teacher Subjective Wellbeing Questionnaire. Beyond advancing research, the measure tested in the present study is also intended to function as a pragmatic and socially valid assessment instrument for informing school-based

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consultation and intervention practices targeting teacher wellbeing. To establish the conceptual and empirical warrant for this work, we first overview the traditional, negative conception of teaching subjective wellbeing, followed by a discussion of the importance of a positive conception of teacher subjective wellbeing. Once this initial groundwork is established, we then turn to a full description of the purposes of the present study.

A Negative Conception of Teaching Wellbeing

In recent decades, there has been a trend toward greater accountability in education (Shahjahan, 2011). This trend has sparked much research and policy related to the identification and dissemination of evidence-based practices, and has led to more challenging standards for student performance and increased emphasis on teacher evaluation (Konstantopoulos, 2014; Spencer, Detrich, & Slocum, 2012). Although well-intentioned, these sweeping changes have placed a heavy burden on already overburdened teachers (Fleming et al., 2013; Lambert, McCarthy, O'Donnell, & Wang, 2009). For example, schools implementing multitiered systems of support (MTSS) require teachers to learn new evidence-based instructional practices and data-based decision making skills (Kashima, Schleich, & Spradlin, 2009). While teachers work to increase instructional rigor and student engagement, they are also expected to proactively manage student problem behavior and adapt instruction to an increasingly diverse student population (Harrison, Vannest, Davis, & Reynolds, 2012; Kinch, Lewis-Palmer, Hagan-Burke, & Sugai, 2001). When these challenges are considered within the context of new requirements related to Common Core State Standards and teacher evaluation systems (Kaplan, Chan, Farbman, & Novoryta, 2014), it is not surprising that many teachers experience work-related stress—nor that such stress is one of the primary reasons that up to 30% of teachers leave the profession (Johnson et al., 2005; Montgomery & Rupp, 2005).

Given this context, much of the historical research on teachers' subjective wellbeing has targeted teacher stress and burnout. *Stress* is defined as the physiological and psychological strain experienced by a person when striving to

meet adjustment demands from one's environment (Carson, Butcher, & Mineka, 2000). Thus, *stressors* are typically conceptualized as the environmental stimuli or situations that evoke such stress. When work-related stressors persist over time and are not resolved or coped with adaptively, teachers can incur various negative outcomes. One of the most commonly researched stress-related outcomes is teacher *burnout*, which is defined as a syndrome characterized by emotional exhaustion, depersonalization, and lacking personal accomplishment (Maslach, Jackson, & Leiter, 1996; Maslach & Leiter, 2008). Teacher burnout has been associated with a variety of other negative outcomes, including headaches, gastrointestinal problems, hypertension, muscle tension, other illness, dysphoric symptoms, low job satisfaction, and diminished instructional effectiveness (Grayson & Alvarez, 2008; Skaalvik & Skaalvik, 2007). It has also been linked to poor teacher–student relationships (Grayson & Alvarez, 2008), the use of more punitive behavior management strategies (Clunies-Ross, Little, & Kienhuis, 2008), increased absenteeism, transfer, and attrition (Carson, Baumgartner, Matthews, & Tsouloupas, 2010), as well as poorer student functioning across social–emotional, behavioral, and academic domains (Fleming et al., 2013; Spilt, Koomen, & Thijs, 2011).

A Positive Conception of Teacher Wellbeing

Although much of the work focused on teacher stress and burnout has intended to target teachers' subjective wellbeing, we suggest that it has, in reality, mostly targeted threats or barriers to wellbeing, while overlooking the heart of the construct itself: healthy and successful functioning at work. Throughout the past decade, however, some investigations into teacher wellbeing have moved beyond stress and burnout to explore the utility of positive subjective wellbeing indicators, such as positive emotions and cognitions (e.g., Pas, Bradshaw, & Hershfeldt, 2012; Parker, Martin, Colmar, & Liem, 2012; Reinke, Herman, & Stormont, 2013; Skaalvik & Skaalvik, 2010). Although research in this area is limited, it is typically guided by the application of van Horn and colleagues' (2004) empirically grounded occupational wellbeing theory for teachers, which indicates that

positive indicators of affective, professional, and social wellbeing are distinct from negative indicators of teacher functioning. Since [van Horn et al.'s \(2004\)](#) study, the utility of positive subjective wellbeing indicators—as distinct from and in addition to negative indicators—has been empirically supported in relation to a variety of valued educational outcomes, including improved implementation fidelity and overall teacher effectiveness, better classroom climates, and enhanced student wellbeing (e.g., [Beltman et al., 2011](#); [de Schipper, Riksen-Walraven, Geurts, & Derksen, 2008](#); [Domitrovich & Greenberg, 2000](#); [Grayson & Alvarez, 2008](#); [Robertson-Kraft & Duckworth, 2014](#); [Pyhältö, Pietarinen, & Salmela-Aro, 2011](#); [Spilt et al., 2011](#)). Considered in light of the research regarding negative indicators, these findings suggest that assessing positive indicators of teacher wellbeing is just as important for progressing the science and practice of school improvement.

To date, the most commonly researched positive indicators of teacher wellbeing are self-efficacy, positive affect, and prosocial relationships (cf. [van Horn et al., 2004](#)). While *self-efficacy* is defined as appraising one's behavior as effectively meeting environmental demands, *positive affect* is typically understood as experiencing socially desirable emotions (e.g., gratitude, happiness, and hope). *Prosocial relationships* is the broadest of these three constructs, and has been defined variously in relation to the quality of student–teacher, teacher–teacher, and teacher–administrator relationships. When these positive indicators of teacher subjective wellbeing have been included in empirical investigations, such studies have typically relied on either single-construct scales or combinations of such scales (e.g., [Grayson & Alvarez, 2008](#); [Hakanen et al., 2006](#); [Pas et al., 2012](#); [Parker et al., 2012](#)) and have, thus, yet to explore the utility of multidimensional measures. That said, we suggest that a logical next step for progressing the science and practice of positive teacher subjective wellbeing is to develop and test such multidimensional measures. Given that the current state-of-the-art depends largely on single-scale measures, and that combining individual scales developed in isolation (e.g., positive affect and self-efficacy measures) does not prevent against phenomenological redundancy or high levels of shared variance among the constructs of interest, we further suggest that de-

veloping and testing multidimensional measures is not only desirable but also necessary for progressing a scientific understanding of teacher subjective wellbeing. Because without doing so, researchers will have no way to ensure that they have rigorously established and are accurately investigating the construct, while practitioners will have little confidence that they are effectively applying the findings derived from such scholarship.

Purposes of the Present Study

The proximal purpose of the present study was to develop and establish the technical adequacy of a brief, multidimensional, domain-specific measure of teachers' positive psychological functioning at work: the Teacher Subjective Wellbeing Questionnaire (TSWQ). That said, the ultimate purpose of the present study was to test and refine a practical instrument that could be used in conjunction with performance-based teacher wellbeing measures (e.g., direct observations of classroom climate), as well as with subjective problem or threat-to-wellbeing measures (e.g., self-reports of stress and burnout), to provide comprehensive data regarding teacher functioning that might be used to inform decision-making concerning teacher consultation, professional development activities, and other prevention and intervention efforts. More specifically, the TSWQ was developed to function as a companion measure for student subjective wellbeing measures (e.g., [Furlong, You, Renshaw, O'Malley, & Rebelez, 2013](#); [Furlong, You, Renshaw, Smith, & O'Malley, 2014](#); [Renshaw, Long, & Cook, 2014](#)), and thus to serve as an assessment tool that could be used in combination with other measures for gauging the subjective wellbeing of an entire school population—making possible a wellness-oriented approach to MTSS that is truly schoolwide, not just student-wide (cf. [Stoiber, 2014](#)). Until now, the utility of a wellness-oriented truly schoolwide approach to MTSS has gone largely unexplored, not because of its lack of potential merits, but because of the lack of available instrumentation (i.e., positive teacher subjective wellbeing measures) necessary to conduct foundational applied research in this area. Given these objectives and this context, we conceptualized and operationalized a pilot version of the TSWQ based on the positive

dimension of van Horn and colleagues' (2004) occupational wellbeing theory for teachers, taking into account face-validity and feasibility considerations that would allow the measure to be useful within MTSS. Taking this approach, we developed a multidimensional measure comprising three teacher-specific positive subjective wellbeing indicators that were refined versions of the three most commonly researched indicators: school connectedness (prosocial relationships), joy of teaching (positive affect), and teaching efficacy (self-efficacy).

Given the overarching purposes outlined above, the specific subpurposes of the present study were threefold and were intended to support the construct validation of the TSWQ. First, we aimed to conceptualize the metaconstruct of positive teacher subjective wellbeing and its subconstructs, and then to operationalize these subconstructs via drafting test scales and items. Second, we aimed to establish the TSWQ's initial psychometric properties, concurrent validity, and differential participant responsiveness by testing the pilot measure on a general sample of elementary school and middle school teachers. Third, we aimed to reevaluate the TSWQ's psychometric properties and concurrent validity, further investigate its differential participant responsiveness, and establish its short-term predictive validity by testing a refined version of the pilot measure with a target sample of elementary teachers currently experiencing classroom management challenges. Given these aims, we hypothesized that the TSWQ would be characterized by a multidimensional latent structure, and that its subscales and the composite scale would be positively associated with other self-reported wellbeing measures and negatively associated with subjective threat-to-wellbeing measures. Furthermore, given the unique stressors associated with secondary schools (e.g., developmental status of adolescents and increased student-teacher ratios and workload), we hypothesized that substantive respondent differences would be observed on the TSWQ between elementary and middle school teachers, but that such differences would not be observed between same-level school environments (e.g., teachers from one elementary school compared with teachers from another elementary school).

Method

Participants

The participants in the present study were teachers employed in elementary schools and middle schools in a midsize urban city within the southern region of the United States. Sample 1 (S1) was a general sample of 185 teachers from two elementary schools (28%) and two middle schools (72%), the majority of whom were female (89%) and primarily identified as either Black/African American (48%) or White (44%). These teachers' experience levels were wide-ranging, spanning 1 to 46 years ($M = 11.77$, $SD = 9.54$). Most S1 teachers reported teaching general education only (58%), followed by both general and special education (31%), and, lastly, special education only (7%). Teachers from Elementary School One (E1) and Two (E2) accounted for approximately 13% ($n = 24$) and 15% ($n = 27$) of S1, whereas those from Middle School One (M1) and Two (M2) accounted for about 28% and 45% of the sample, respectively. All S1 teachers agreed to complete the survey as part of staff-wide wellbeing screening efforts that were intended to inform future in-service professional development activities.

Sample 2 (S2) was a target sample of 21 teachers from 10 elementary schools, the majority of whom were female (95%) and primarily identified as White (62%) and Black/African American (19%). These teachers' ages ranged from 23 to 60 years ($M = 40.40$, $SD = 12.61$), and their teaching experience ranged from 1 to 34 years ($M = 9.40$, $SD = 9.63$). Most S2 teachers reported having general education certification only (81%), followed by both general and special education certifications (14%), and, lastly, special education certification only (5%). Of the 10 elementary schools represented in S2, five had one teacher involved in the study, three had two teachers involved, one had three teachers involved, and one had seven teachers involved. All S2 teachers consented to complete the survey as part of a larger classroom management study, wherein they were nominated by their school administrator to receive brief intervention as a result of experiencing current classroom management challenges. Each of these teachers was made aware of their nomination by the administrator and researcher be-

fore consenting to participate, and both nominating administrators and nominated teachers were explicitly informed by the researcher of the ethics related to voluntary participation and teachers' "right to refuse" without penalty or withdrawal of benefits. Nominated teachers were also informed that their data might potentially be reported to administrators in the future and that, if shared, such data would be de-identified and aggregated, preventing against potential misuse of the data for evaluating the performance of individual teachers. Although a full description of this larger study is beyond the scope of the present study, interested readers are encouraged to contact the second author for further information.

TSWQ Development

Development of the Teacher Subjective Wellbeing Questionnaire was based on Clark and Watson's (1995) basic principles for scale development, which are reflective of the test development guidelines offered in the *Standards for Educational and Psychological Testing* (Joint Committee on Standards for Educational & Psychological Testing, 2014) and other contemporary recommendations (e.g., DeVellis, 2003). In short, Clark and Watson posited that the primary concern in measure development is construct validity, which encompasses the many subtypes of validity as well as traditional notions of reliability, and that such validity can be constructed via establishing *substantive*, *structural*, and *external* validity evidences. Establishing substantive validity evidence typically consists of two subprocesses: determining the nature and scope of the construct of interest, and creating an item structure and pool. Following, structural validity is established via testing the measure on a target sample and evaluating the item distributions, latent structure, internal consistency, and construct boundaries using descriptive, factor analytic, reliability, measurement invariance, and concurrent or predictive correlational analyses, respectively. Lastly, if structural validity evidence is obtained, then external validity evidence is established by testing the generalizability of the measure's psychometric properties with diverse samples, its relations with other convergent and discriminant measures, and its utility in applied contexts.

Substantive validity. As the first step in the measure development process, we outlined the nature and scope of the type of measure we intended to develop: a brief (i.e., 20 item or less), multidimensional measure of teachers' subjective wellbeing. These length and content determinations were grounded in feasibility and incremental validity considerations, as the TSWQ was envisioned to be a stand-alone measure of teachers' subjective wellbeing that might be used to inform decision-making regarding teacher supports, professional development activities, and other school-based interventions within the framework of truly schoolwide MTSS. Next, we conceptualized the nature of the metaconstruct to be assessed by the measure—teacher subjective wellbeing—which we operationalized as *teachers' self-perceptions of healthy and successful functioning at work*. Following, we reviewed the relevant literature regarding this metaconstruct and generated a list of previously researched subconstructs that either fell within the scope of this metaconstruct or seemed closely related to it. Using the population keyword "teacher" along with generic topic keywords (e.g., "well-being," "positive psychology," "resilience") and specific topic keywords (e.g., "self-efficacy," "positive affect," "relationships") that were known to be associated with the metaconstruct of interest, an electronic search was conducted of the PsycINFO and ERIC databases for relevant original empirical studies, review articles, book chapters, and books. Resulting abstracts were reviewed to identify literature that presented or discussed subjective wellbeing measures administered to teachers. Although our primary interest was in identifying domain-specific measures (e.g., teaching self-efficacy), literature discussing global measures (e.g., general self-efficacy) used with teachers was also identified and reviewed.

As noted above, teacher subjective wellbeing indicators have been researched using primarily single-scale measures that often have conceptual overlap, and thus this review intentionally evaluated item content—above and beyond the stated latent variables that were said to be assessed by the measures—for the purposes of identifying both unique and shared variance among relevant subconstructs. Findings from this literature reviewed yielded five conceptually distinct teacher-specific subjective wellbe-

ing subconstructs: self-efficacy (e.g., Egyed & Short, 2006), job satisfaction (e.g., Caprara, Barbaranelli, Steca, & Malone, 2006), task-specific positive affect (Tadic et al., 2013), prosocial relationships or connectedness (e.g., You et al., 2013), and social support (e.g., Burke, Greenglass, & Schwarzer, 1996). Seven closely related constructs, which were not measured using teacher-specific items but could be easily generalized to educational contexts, were also identified: optimism, gratitude, zest, creativity, curiosity, love of learning, and perseverance (cf. Park, Peterson, & Seligman, 2004). Of these 12 potential subconstructs, the majority had been researched using validated measures, while one subconstruct—connectedness—was identified via selected items located within a broader teacher-specific measure of social supports.

Given that our purpose was to develop a brief, multidimensional instrument that could be used for various purposes within truly school-wide MTSS, we determined that an optimal measure structure would consist of three to five scales (representing first-order subconstructs that could be targeted for intervention) that each comprised four to five items and that, when taken together, would indicate a single composite scale (representing a second-order or meta-construct) of teacher subjective wellbeing. With this aim in mind, we conducted a generic qualitative theme analysis, following the recommendations of Braun and Clarke (2006), on the list of 12 potential teacher subjective wellbeing subconstructs. Findings from this simple thematic analysis, which involved sorting the subconstructs into categories according to key shared construct characteristics, suggested that two of the 12 tapped into aspects of *school-specific relationships* (i.e., connectedness and social support), four touched on *job performance and relevant behaviors* (i.e., self-efficacy, persistence, love or learning, and creativity), and six tapped into *affective experiences during or regarding teaching* (i.e., satisfaction, happiness, gratitude, zest, optimism, and curiosity). Following, using face-validity and representativeness considerations, one subconstruct was selected from each of the three thematic domains for use in the pilot version of the TSWQ: school connectedness, self-efficacy, and happiness. In our view, each of these three selected subconstructs tapped into

and somewhat accounted for the other subconstructs included within its thematic subjective wellbeing domain, described above.

Connectedness, which was retermed *school connectedness*, was defined as *feeling supported by and relating well to others at school*; self-efficacy, which was retermed *teaching efficacy*, was defined as *appraising one's teaching behaviors as effectively meeting environmental demands*; and happiness, which was retermed *joy of teaching*, was defined as *experiencing positive emotions and cognitions when engaged in teaching-related tasks*. After selecting and defining these three subconstructs, an item structure and pool was developed. We determined that all items would be phrased positively to directly represent the subconstructs of interest (necessitating no reverse-coding) and that a four-point frequency-based response scale was the most appropriate for our purposes (*1 = almost never, 2 = rarely, 3 = sometimes, 4 = almost always*). This particular response scale format was selected because we conceptualized the subconstructs as representing classes of wellbeing behaviors (i.e., things teachers *do*—such as feeling, appraising, experiencing—that are located in time and space; cf. Romanerö & Törneke, 2008; Törneke, 2010), and because we reasoned that four response options were optimal for teachers to make meaningful distinctions regarding experiential frequency. Furthermore, we selected a frequency-based response scale because we intended to assess the prevalence of teachers' wellbeing experiences, rather than the intensity of or self-identification with such experiences.

Following, pilot scales were created by drafting a pool of eight items for each of the three subconstructs of interest, resulting in 24 total test items. Items for the School Connectedness Scale (SCS) of the TSWQ were modeled after preexisting items in the Brief-California School Climate Survey (You et al., 2013) as well as the corresponding student scale in the Student Subjective Wellbeing Questionnaire (SSWQ; Renshaw et al., 2014); Teaching Efficacy Scale (TES) items were modeled after items in the Teachers' Self-Efficacy Beliefs Scale (Caprara et al., 2006) as well as the corresponding student scale in the SSWQ (Renshaw et al., 2014); and items from the Joy of Teaching Scale (JTS) were modeled after the Teachers' Job Satisfaction Scale (Caprara et al., 2006), the Curiosity

and Zest Scales of the Values in Action Inventory of Strengths (Park, Peterson, & Seligman, 2004), as well as the corresponding student scale in the SSWQ (Renshaw et al., 2014). Following this drafting process, the 24-item TSWQ was administered to a group of eight research assistants working in the schools, who critically reviewed item structure and wording for clarity and developmental appropriateness. Feedback from this content review resulted in several minor changes to item wording, while retaining all original pilot scales and test items. For the next step, a general sample of middle school teachers working at two local schools was identified for piloting the TSWQ and a research partnership was initiated with the administrators of each school. Although the administrative teams at both middle schools agreed to participate, they determined that the most feasible setting for administering the TSWQ—to reach all teachers on the same day and at the same time, increasing the likelihood of completion and timely return of the measure—was during the homeroom or advisory period, which lasted approximately 20 minutes each morning. Thus, given pragmatic considerations, we pared down the 24-item TSWQ by selecting the four pilot items from each subscale that appeared to be the most face-valid and representative of the constructs of interest (see Table 1), resulting in an abbreviated 12-item pilot measure that could be feasibly completed by middle school teachers, along with a few

concurrent validity scales, during their homeroom period. Following, as a final step, the general sample was expanded to include additional teachers working at two local elementary schools.

Structural validity. After establishing evidence in favor of the TSWQ's substantive validity via the process outlined above, the structural validity of the measure was tested using the general sample of elementary school and middle school teachers described above (S1). Specifically, the distributions of the 12 pilot items were examined, exploratory factor analyses (EFA) were conducted to identify the pilot measure's latent structure, the interitem correlations and internal consistency and overall distribution of the resulting subscales were evaluated, and then correlational analyses with two hypothesized concurrent-convergent validity scales—assessing perceived school supports for students and teachers—were conducted. In addition to these analyses, differential participant responsiveness was explored by conducting multivariate analyses of variance (MANOVA), followed by post hoc comparisons, to investigate potentially significant and meaningful differences in teachers' subjective wellbeing across general school level (i.e., elementary vs. middle) and unique school environment (e.g., E_1 vs. E_2 vs. M_1 vs. M_2).

External validity. Anticipating that the structural validity analyses would yield promising findings, further analyses were conducted to investigate the external validity of the TSWQ with a target sample of elementary teachers currently experiencing classroom management challenges (S2). Specifically, the distributions and interitem correlations and internal consistency of the TSWQ scales were reevaluated, and initial test–retest reliability from Time 1 (T1) to Time 2 (T2), which spanned approximately 1-month, was examined. And differential participant responsiveness was again explored by conducting independent samples t tests to investigate potential significant, meaningful differences between this target sample of teachers (S2), who were currently experiencing classroom management challenges (i.e., a potential threat to wellbeing), and the general sample of teachers (S1). Furthermore, correlational analyses of the TSWQ scales with two hypothesized concurrent-discriminant validity scales—assessing teacher stress and burnout—

Table 1
Hypothesized Measurement Structure of the TSWQ

| Subscale and items |
|---|
| School Connectedness Scale |
| SCS1. I feel like I belong at this school. |
| SCS2. I can really be myself at this school. |
| SCS3. I feel like people at this school care about me. |
| SCS4. I am treated with respect at this school. |
| Joy of Teaching Scale |
| JLS1. I get excited about teaching and learning. |
| JLS2. I am very interested in the things we are doing at this school. |
| JLS3. I really enjoy working with students. |
| JLS4. I feel happy when I am working at this school. |
| Teaching Efficacy Scale |
| AES1. I am a successful teacher. |
| AES2. I am good at helping students learn new things. |
| AES3. I have accomplished a lot as a teacher. |
| AES4. I feel like my teaching is effective and helpful. |

were conducted, followed by regressions exploring the utility of TSWQ scores at T1 to predict teacher stress and burnout scores at T2. Taken together, then, findings from these external validity analyses, accompanied by those from the structural validity analyses and substantive validity procedures described above, were considered to provide ample initial construct validity evidence in favor of the TSWQ as a promising, dependable measure of teacher subjective wellbeing.

Concurrent Validity Measures

Supportive Student Environment Scale (SSES). The SSES is a four-item scale for assessing teachers' perceptions of the availability of environmental supports for students at their school (Renshaw, 2014). All SSES items are positively phrased (e.g., *This school is a supportive and inviting place for students to learn* and *Adults at this school treat students fairly and with respect*) and are arranged along a four-point, frequency-based response scale (1 = *almost never*, 2 = *sometimes*, 3 = *often*, 4 = *almost always*). The SSES has been shown to be relatively normally distributed, to have a unidimensional factor structure, and to yield comparable scores for teachers at both the elementary and middle school levels. In S1 in the present study, the SSES demonstrated strongly positive interitem correlations (r range = .50–.74) and strong internal consistency (Cronbach's α = .86).

Supportive Teacher Environment Scale (STES). The STES is a four-item scale for assessing teachers' perceptions of the availability of environmental supports for themselves and other teachers at their school (Renshaw, 2014). All STES items are positively phrased (e.g., *Adults at this school work hard to help each other succeed* and *This school cares about the social–emotional wellbeing teachers*) and are arranged along a four-point, frequency-based response scale (1 = *almost never*, 2 = *sometimes*, 3 = *often*, 4 = *almost always*). The STES has been shown to be relatively normally distributed, to have a unidimensional factor structure, and to yield comparable scores for teachers at both the elementary and middle school levels. In S1 in the present study, the STES demonstrated strongly positive interitem

correlations (r range = .58–.83) and strong internal consistency (α = .90).

Teacher Stress Scale (TSS). The TSS is a seven-item scale for assessing teacher-specific stress, which was adapted for the purposes of this study from the seven-item stress subscale of the 21-item Depression–Anxiety–Stress Scales (DASS–21; Antony, Bieling, Cox, Enns, & Swinson, 1998). All TSS items are phrased affirmatively (e.g., *I find myself getting agitated or annoyed at school* and *I feel tense or anxious when teaching or working with students*) and are arranged along a seven-point, agreement-based response scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *slightly disagree*, 4 = *neither agree nor disagree*, 5 = *slightly agree*, 6 = *agree*, 7 = *strongly agree*). The DASS–21 subscales have been shown to have strong internal consistency and convergent validity with each other as well as other measures of depression and anxiety. In S2 in the present study, the TSS demonstrated negligibly to-strongly positive interitem correlations (r_{T1} range = .06–.63, r_{T2} range = .21–.76), adequate-to-strong internal consistency (α_{T1} = .77, α_{T2} = .86), and robust test–retest reliability (r = .92).

Teacher Emotional Burnout Scale (TEBS). The Emotional Exhaustion subscale of the Malsach Burnout Inventory (MBI; Aluja, Blanch, & Garcia, 2005), which was retermed the TEBS for the purposes of this study, is a nine-item subscale for assessing the affective component of teacher burnout. All TEBS items are phrased affirmatively (*I feel emotionally drained from my work* and *I feel fatigued when I have to get up in the morning and face another day on the job*) and are arranged along a seven-point, frequency-based response scale (0 = *never*, 1 = *a few times a year or less*, 2 = *once a month*, 3 = *a few times a month*, 4 = *once a week*, 5 = *a few times a week*, 6 = *every day*). The TEBS has been shown to have adequate-to-strong internal consistency and convergent validity with other MBI subscales as well as other measures of subjective problems. In S2 in the present study, the TEBS demonstrated weakly to-strongly positive interitem correlations (r_{T1} range = .28–.96, r_{T2} range = .36–.93), strong internal consistency (α_{T1} = .92, α_{T2} = .94), and robust test–retest reliability (r = .87).

Data Collection and Processing

To collect data from S1, the TSWQ, SSES, and STES were combined into a single paper-and-pencil survey, which was completed by middle school teachers during their homeroom class and by elementary school teachers during their leisure time at work, and then retrieved from the schools by a research assistant or the first and second authors. Furthermore, to collect data from S2, the TSWQ, TSS, and TEBS were combined into a single pencil-and-paper survey (in conjunction with several other measures that are beyond the scope of the present study and therefore not reviewed herein), which was completed by teachers during their leisure time at T1 and T2, and then retrieved from the schools by the second author. Before collecting data from S1 and S2, all measures, data collection procedures, and consent methods were approved by the first and second authors' Institutional Review Board as well as the local school district's Accountability and Assessment Department. After data collection, the first author and three research assistants screened the data for plausible response patterns and processed all surveys into a secure electronic database, following which data entry and accuracy were verified by the first and second authors.

Data Analyses

After data collection and processing, response frequency analyses of the TSWQ items as well as the items for all other concurrent validity scales (i.e., SSES, STES, TSS, and TEBS) were conducted, with results indicating $\leq 1\%$ missing data per item. Given such a small amount of data were missing in the present study, there was no need to conduct further analyses to determine the pattern of missingness; rather, it was deemed safe to assume that data were missing completely at random, and thus the listwise deletion method was used for all analyses (cf. [Schlomer, Bauman, & Card, 2010](#)). Next, data analyses were conducted in step with the TSWQ development process, described above. The structural validity of the 12-item pilot version of the TSWQ was explored via EFA, internal consistency and descriptive scale analyses, correlations, and multivariate analyses of variance (MANOVA) conducted with S1. Considering the reality of

the nested structure inherent in the dataset (i.e., teachers located in schools), yet realizing that the small number of schools and participants did not permit the use of multilevel modeling, MANOVA analyses were deemed the most adequate method for exploring potential school-level and environment-specific differences among TSWQ scores. Following, the external validity of the refined 8-item version of the TSWQ was investigated using internal consistency and descriptive scale analyses, correlations, t tests, and regressions conducted with S2. All statistical analyses were conducted using SPSS version 21.

Results

Structural Validity, S1

EFA. Findings from the D'Agostino–Pearson omnibus test of normality indicated that all 12 of the TSWQ pilot items were significantly non-normally distributed (K^2 range = 15.93–49.49, $p < .001$), yet evaluation of the skewness and kurtosis statistics indicated only mild to moderate departures from normality ($g_1, g_2 < |2|$; see [Table 2](#)), suggesting that each item could be considered “relatively normally distributed” for factor analytic purposes. Thus, the Maximum Likelihood extraction method with a Promax rotation was deemed the most appropriate analytic approach. Results from the initial EFA yielded a two-factor solution with eigenvalues > 1 , which accounted for approximately 64% of the variance and was characterized by an adequate sample size (Kaiser–Meyer–Olkin

Table 2
EFA Pattern Matrix for the TSWQ

| Item | Factor loadings (λ) | |
|------|-------------------------------|------------------------------|
| | ξ_1 Teaching Efficacy | ξ_2 School Connectedness |
| TES1 | .84 | .06 |
| TES2 | .83 | .01 |
| TES3 | .82 | .01 |
| TES4 | .81 | –.04 |
| SCS1 | –.13 | .87 |
| SCS2 | .01 | .85 |
| SCS3 | .06 | .62 |
| SCS4 | .14 | .54 |

Note. All robust factor coefficients ($\lambda \geq .40$) are formatted in bold font. TES = Teaching Efficacy Scale; SCS = School Connectedness Scale.

Measure of Sampling Adequacy [KMO] = .89), lack of singularity (Bartlett's Test of Sphericity [BTS] $\chi^2 = 1194.91$, $df = 66$, $p < .001$), lack of multicollinearity (Determinant = .001), moderate item communalities (h^2 range = .35–.71), a moderately positive interfactor correlation ($\phi = .49$), and a suboptimal data–model fit (Goodness-of-Fit Test [GFT] $\chi^2 = 95.58$, $df = 43$, $p < .001$). Findings from a visual inspection of the scree plot and a parallel analysis also suggested a two-factor solution. However, given the hypothesized conceptual structure for the TSWQ, a three-factor solution was also explored.

EFA findings from the three-factor solution yielded moderate-to-strong item communalities (h^2 range = .41–.76), moderately positive interfactor correlations (ϕ range = .36–.63), and an improved, yet still suboptimal, data–model fit (GFT $\chi^2 = 51.89$, $df = 33$, $p < .02$). Visual inspection of the factor–item content of the pattern matrix for the three-factor solution indicated that the four TES items loaded strongly onto ξ_1 (λ range = .75–.86), that the four SCS items loaded strongly onto ξ_2 (λ range = .66–.89), and that one of the JTS items loaded strongly onto ξ_3 ($\lambda = .71$), while another loaded weakly onto ξ_2 ($\lambda = .34$) and the other two substantively cross-loaded onto both ξ_3 and ξ_1 or ξ_2 (λ range = .33–.61). Given the poor statistical and conceptual viability of the JTS items, these were dropped from consideration and the EFA was rerun using the eight remaining items. Findings from this final analysis yielded a two-factor solution, which accounted for approximately 71% of the variance and was characterized by an adequate sample size (KMO = .83), lack of singularity (BTS $\chi^2 = 723.49$, $df = 28$, $p < .001$), lack of multicollinearity (Determinant = .017), moderate item communalities (h^2 range = .37–.74), a moder-

ately positive interfactor correlation ($\phi = .37$), and an improved, excellent data–model fit (GFT $\chi^2 = 18.17$, $df = 13$, $p < .15$). Visual inspection of the factor–item content of the pattern matrix for this final solution indicated that the four proposed TES items loaded strongly onto ξ_1 , while the four proposed SCS items loaded strongly onto ξ_2 (see Table 2). Thus, this two-factor, eight-item solution was identified as the preferred latent structure and measurement model for the TSWQ.

Scale characteristics. Further analyses of this preferred measurement model indicated that the two subscales of the TSWQ, the TES and SCS, and the Teacher Subjective Wellbeing Composite Scale (TSWCS), which was obtained by summing the composite scores of each subscale, were all characterized by significantly non-normal distributions ($K^2_{TES} = 23.51$, $K^2_{SCS} = 47.71$, $K^2_{TSWCS} = 20.88$, $p < .001$), and that, taken together, the combination of scales was also characterized by multivariate non-normality ($\chi^2 = 74.24$, $df = 6$, $p < .001$). Further consideration of skewness and kurtosis statistics, however, suggested only mild-to-moderate departures from normality (g_1 , $g_2 < |2|$; see Table 3). Moreover, all TSWQ scales were characterized by weakly to-strongly positive interitem correlations (r_{TES} range = .65–.71, r_{SCS} range = .47–.71, r_{TSWCS} range = .13–.71) and strong internal consistency ($\alpha_{TES} = .89$, $\alpha_{SCS} = .82$, $\alpha_{TSWCS} = .83$).

Correlations. A bivariate correlation conducted between the resulting TES and SCS subscales yielded a moderately positive association (Pearson $r = .33$, $p < .01$), while correlations conducted between the subscales and the TSWCS yielded strongly positive associations, $r = .79$ and $.84$, $p < .01$. Moreover, correlations conducted between the TES and the hypothesized concurrent-convergent validity scales—

Table 3
Sample 1: Descriptive Statistics of TSWQ Scales

| Scale | No. of items | Min., Max. | <i>M</i> | <i>SD</i> | <i>IQR</i> | g_1 | g_2 |
|-------|--------------|------------|----------|-----------|------------|-------|-------|
| TES | 4 | 6, 16 | 14.21 | 2.44 | 4 | –.86 | .20 |
| SCS | 4 | 5, 16 | 13.75 | 2.41 | 3.5 | –1.32 | 1.77 |
| TSWCS | 8 | 16, 32 | 28.01 | 3.63 | 5 | –.89 | .41 |

Note. Min., Max. = Minimum and maximum observed scale scores; *IQR* = interquartile range; g_1 = skewness; g_2 = kurtosis; TES = Teaching Efficacy Scale; SCS = School Connectedness Scale; TSWCS = Teacher Subjective Wellbeing Composite Scale.

the SSES and STES—indicated moderately positive associations, $r = .33$ and $.25$, $p < .01$, whereas correlations between the SCS and these same scales yielded strongly positive associations, $r = .58$ and $.72$, $p < .01$. Bivariate correlations between the TSWCS and the SSES and STES also indicated strongly positive associations, $r = .57$ and $.62$, $p < .01$.

MANOVA. Results from the Shapiro-Wilk's Tests of Normality of the resulting subscales and composite scale of TSWQ indicated significantly non-normal distributions across both the elementary school level ($W_{TES} = .75$, $W_{SCS} = .85$, $W_{TSWCS} = .89$, $df = 50$, $p < .001$) and the middle school level ($W_{TES} = .83$, $W_{SCS} = .84$, $W_{TSWCS} = .91$, $df = 133$, $p < .001$); however, evaluation of stem-and-leaf and box plots, as well as comparison of skewness and kurtosis statistics for each scale at both school levels, indicated similar scale distributions at both levels that were characterized by only mild-to-moderate departures from normality (g_1 , $g_2 < |2|$). Considered in conjunction with the findings from Levene's Tests of Homogeneity of Variance, which indicated equality of variances across the TSWQ scales for participants at both elementary and middle school levels ($F_{TES} = .03$, $F_{SCS} = .05$, $F_{TSWCS} = .05$, $df = 1$, 181 , $p \geq .83$), regular MANOVA was deemed the most appropriate analytic approach. Results from the first MANOVA, using general school level (i.e., elementary vs. middle) as the independent variable and the TES, SCS, and TSWCS as the dependent variables, yielded a nonsignificant school-level effect on teacher subjective well-being ($F = .59$, $df = 2$, 180 , $p = .56$, $\eta^2 = .006$), suggesting that no follow-up univariate analyses were warranted.

Further findings from the Shapiro-Wilk's Tests of Normality of the TSWQ scales indicated significantly non-normal distributions across most of the four unique school environments: E1 ($W_{TES} = .75$, $df = 23$, $p < .001$; $W_{SCS} = .92$, $df = 24$, $p = .052$; $W_{TSWCS} = .92$, $df = 23$, $p = .055$), E2 ($W_{TES} = .73$, $W_{SCS} = .73$, $W_{TSWCS} = .82$, $df = 27$, $p < .001$), M1 ($W_{TES} = .84$, $W_{SCS} = .91$, $W_{TSWCS} = .93$, $df = 50$, $p \geq .005$), and M2 ($W_{TES} = .81$, $W_{SCS} = .78$, $W_{TSWCS} = .90$, $df = 83$, $p < .001$). That said, evaluation of stem-and-leaf and box plots, as well as comparison of skewness and kurtosis statistics for each scale across all unique school

environments, indicated similar scale distributions for all schools that were characterized by only mild-to-moderate departures from normality (g_1 , $g_2 < |2|$). Thus, considered in conjunction with the findings from Levene's Tests of Homogeneity of Variance, which indicated equality of variances across the TSWQ scales for participants from each unique school environment ($F_{TES} = .67$, $F_{SCS} = .88$, $F_{TSWCS} = .25$, $df = 3$, 179 , $p \geq .45$), regular MANOVA was again deemed the most appropriate analytic approach. Results from the second MANOVA, using unique school environment (i.e., E1 vs. E2 vs. M1 vs. M2) as the independent variable and the TES, SCS, and TSWCS as the dependent variables, yielded a significant school-environment main effect on teacher subjective well-being ($F = 2.85$, $df = 6$, 358 , $p = .01$, $\eta^2 = .05$). Follow-up univariate ANOVAs indicated that this main effect was located to the SCS ($F = 5.03$, $df = 3$, 179 , $p = .002$, $\eta^2 = .08$) and TSWCS ($F = 2.84$, $df = 3$, 179 , $p = .039$, $\eta^2 = .05$), but not the TES ($F = .67$, $df = 3$, 179 , $p = .57$, $\eta^2 = .01$), and therefore post hoc Tukey comparisons were only conducted for the former two scales. Findings from these post hoc analyses yielded various significant differences in teachers' SCS and TSWCS scores by unique school environment, which were characterized by a range of small, medium, and large effect sizes (see Table 4).

External Validity, S2

Scale characteristics. Reevaluation of the distributions of the TSWQ scales with the target sample indicated that, unlike the general sample, all scales were characterized by relatively normal distributions at both T1 ($K^2_{TES} = 1.31$, $K^2_{SCS} = 3.12$, $K^2_{TSWCS} = .86$, $p \geq .21$) and T2 ($K^2_{TES} = 2.77$, $K^2_{SCS} = 4.34$, $K^2_{TSWCS} = 1.33$, $p \geq .11$), and that, taken together, the combination of scales was characterized by multivariate normality at T1 ($\chi^2 = 5.44$, $df = 6$, $p = .49$) and T2 ($\chi^2 = 8.11$, $df = 6$, $p = .23$). All resulting skewness and kurtosis statistics were observed to be lower than 1.5 (see Table 5). Moreover, all TSWQ scales were again characterized by negligible-to-strongly positive interitem correlations at both T1 (r_{TES} range = .52–.87, r_{SCS} range = .61–.94, r_{TSWCS} range = .04–.94) and T2 (r_{TES} range = .63–.82, r_{SCS} range = .38–.90, r_{TSWCS} range = .04–.90), as well as strong internal consistency at T1

Table 4
Post Hoc Comparisons for the SCS and TSWCS by Unique School Environment

| Scale | School | | <i>M</i> Diff. (A–B) | <i>SE</i> | <i>p</i> | <i>g</i> [95% CI] |
|-------|--------|-----|----------------------|-----------|----------|-------------------------------|
| | (A) | (B) | | | | |
| SCS | E1 | E2 | –1.94 | .65 | .02 | .90 [–.32, 1.48] ^c |
| | E1 | M1 | –.09 | .57 | .99 | .03 [–.54, .61] |
| | E1 | M2 | –1.30 | .54 | .10 | .53 [–.09, .97] ^b |
| | E2 | M1 | 1.85 | .55 | .01 | .79 [.27, 1.30] ^b |
| | E2 | M2 | .68 | .52 | .55 | .31 [–.10, .72] |
| | M1 | M2 | –1.17 | .41 | .03 | .49 [–.08, .89] ^a |
| TSWCS | E1 | E2 | –1.70 | 1.02 | .34 | .49 [–.46, 1.44] ^a |
| | E1 | M1 | .54 | .90 | .93 | .14 [–.75, 1.02] |
| | E1 | M2 | –.85 | .84 | .74 | .24 [–.42, .90] ^a |
| | E2 | M1 | 2.24 | .86 | .04 | .60 [–.23, 1.42] ^b |
| | E2 | M2 | .85 | .72 | .64 | .25 [–.38, .88] ^a |
| | M1 | M2 | –1.39 | .68 | .17 | .38 [–.24, 1.00] ^a |

Note. *M* Diff. = Mean score difference; SCS = School Connectedness Scale; TSWCS = Teacher Subjective Wellbeing Composite Scale; E1 = Elementary School One; E2 = Elementary School Two; M1 = Middle School One; M2 = Middle School Two.

^a Small effect size. ^b Medium effect size. ^c Large effect size.

($\alpha_{\text{TES}} = .90$, $\alpha_{\text{SCS}} = .94$, $\alpha_{\text{TSWCS}} = .86$) and T2 ($\alpha_{\text{TES}} = .91$, $\alpha_{\text{SCS}} = .87$, $\alpha_{\text{TSWCS}} = .87$). The test–retest reliability for T1–T2 was also robust for all TSWQ scales ($r_{\text{TES}} = .79$, $r_{\text{SCS}} = .90$, $r_{\text{TSWCS}} = .89$, $p < .01$).

***t* tests.** A series of independent samples *t* tests were conducted to explore differential participant responsiveness to the TSWQ at baseline between the general and target samples. Findings from Levene’s Tests for Equality of Variances indicated homogeneity of variance across both target samples for the TES, $F = 1.26$, $p = .26$ but not for the SCS, $F = 24.98$, $p < .001$ or TSWCS, $F = 8.16$, $p = .005$, and thus Welch adjusted *t*-statistics were used for analyses involving the latter two scales. Overall, results from these sample comparisons indicated a sig-

nificant and large mean difference for the TES ($t = 3.92$, $df = 202$, $p < .001$, Hedge’s *g* [95% CI] = .78 [.45, 1.12]), a nonsignificant yet moderate mean difference for the SCS ($t_{\text{adj}} = 1.72$, $df = 21.48$, $p = .10$, Hedge’s *g* [95% CI] = .59 [.23, .95], and a significant and large mean difference for the TSWCS ($t_{\text{adj}} = 2.92$, $df = 22.12$, $p = .008$, Hedge’s *g* [95% CI] = .92 [.39, 1.44]), all of which suggests that teachers in the general sample had overall higher levels of subjective wellbeing than those experiencing classroom management challenges.

Correlations. Bivariate correlations conducted between the TES and SCS yielded a weakly positive association at T1, $r = .24$, $p > .05$ and a moderately positive association at T2, $r = .42$, $p > .05$, whereas correlations con-

Table 5
Sample 2: Descriptive Statistics of TSWQ Scales at T1 and T2

| Scale | No. of items | Min., Max. | <i>M</i> | <i>SD</i> | <i>IQR</i> | <i>g</i> ₁ | <i>g</i> ₂ |
|---------------------|--------------|------------|----------|-----------|------------|-----------------------|-----------------------|
| TES _{T1} | 4 | 8, 16 | 12.29 | 2.53 | 4 | .01 | –.92 |
| TES _{T2} | 4 | 7, 16 | 13.11 | 2.78 | 4.25 | –.88 | –.07 |
| SCS _{T1} | 4 | 4, 16 | 12.19 | 4.20 | 7 | –.72 | –.84 |
| SCS _{T2} | 4 | 6, 16 | 12.39 | 3.63 | 7.25 | –.59 | –1.27 |
| TSWCS _{T1} | 8 | 12, 32 | 24.48 | 5.41 | 8.5 | –.44 | –.26 |
| TSWCS _{T2} | 8 | 14, 32 | 25.50 | 5.43 | 9.5 | –.55 | –.55 |

Note. T1 = Time 1; T2 = Time 2; Min., Max. = Minimum and maximum observed scale scores; *IQR* = interquartile range; *g*₁ = skewness; *g*₂ = kurtosis; TES = Teaching Efficacy Scale; SCS = School Connectedness Scale; TSWCS = Teacher Subjective Wellbeing Composite Scale.

ducted between these subscales and the TSWCS yielded strongly positive associations at both T1, $r = .66$ and $.89$, $p < .01$ and T2, $r = .79$ and $.86$, $p < .01$. Moreover, correlations conducted between the TES and the teacher stress and burnout scales, the TSS and TEBS, yielded moderately to-strongly negative associations at both T1 ($r = -.57$, $p < .01$, and $-.47$, $p < .05$) and T2 ($r = -.71$ and $-.76$, $p < .01$), whereas correlations among the SCS and these same scales yielded moderately to strongly negative associations at T1 ($r = -.47$, $p < .05$, and $-.60$, $p < .01$) and T2 ($r = -.56$ and $-.61$, $p < .01$). Bivariate correlations between the TSWCS and the TSS and TEBS also yielded strongly negative associations at both T1, $r = -.63$ and $-.68$, $p < .01$ and T2, $r = -.74$ and $-.80$, $p < .01$.

Regressions. Four linear regression models were estimated, all using a single block of variables and the basic “Enter” method, arranging teacher subjective wellbeing scores at T1 to predict teachers’ stress and burnout scores at T2. Findings from visual inspection of the standardized residual–predicted value plots suggested that all variables met the homoscedasticity assumption, and thus regular linear regression was deemed the preferred analytic approach. Results from Model 1 indicated that the combination of TES_{T1} and SCS_{T1} significantly predicted TSS_{T2} ($F = 8.61$, $df = 2, 15$, $p = .01$), accounting for approximately 50% of the variance in the criterion variable ($R^2 = .53$, $R^2_{adj} = .47$) and indicating that TES_{T1} ($t = -3.12$, $p = .007$, $\beta = -.56$, partial $R^2 = .30$) was a stronger predictor than SCS_{T1} ($t = -2.30$, $p = .034$, $\beta = -.41$, partial $R^2 = .16$). Findings from Model 2 indicated that $TSWCS_{T1}$ was a significant sole predictor of TSS_{T2} ($F = 14.75$, $df = 1, 16$, $p = .001$), also accounting for almost 50% of the variance in the criterion variable ($t = -3.84$, $df = 19$, $p = .001$, $\beta = -.69$, $R^2 = .48$). Furthermore, results from Model 3 indicated that the combination of TES_{T1} and SCS_{T1} significantly predicted $TEBS_{T2}$ ($F = 8.81$, $df = 2, 16$, $p = .003$), accounting for approximately 50% of the variance in the criterion variable ($R^2 = .52$, $R^2_{adj} = .47$) and indicating that TES_{T1} ($t = -2.99$, $p = .009$, $\beta = -.52$, partial $R^2 = .27$) was a stronger predictor than SCS_{T1} ($t = -2.65$, $p = .017$, $\beta = -.46$, partial $R^2 = .21$). Finally, findings from Model 4 indicated that $TSWCS_{T1}$ was a significant sole predictor of $TEBS_{T2}$ ($F = 16.29$, $df = 1, 17$, $p = .001$), also accounting for almost 50% of the variance in the

criterion variable ($t = -4.04$, $df = 19$, $p = .001$, $\beta = -.70$, $R^2 = .49$).

Discussion

Interpretation of Results

The overarching purpose of the present study was to develop and establish the construct validity of a brief self-report measure of teachers’ positive psychological functioning at work—the TSWQ. This subjective wellbeing measure was intended to compliment both performance-based teacher wellbeing measures (e.g., direct observations of teacher–student interactions in the classroom) as well as subjective problem or threat-to-wellbeing measures (e.g., self-report stress and burnout surveys), facilitating the collection of more comprehensive data regarding teacher functioning that might be used to inform decision-making regarding teacher consultation, professional development activities, and other school-based prevention and intervention efforts. The TSWQ was also intended to function as a companion measure for student subjective wellbeing measures (e.g., Renshaw et al., 2014), providing researchers and practitioners with an assessment tool that could be used in combination with other tools to gauge the subjective wellbeing of an entire school population—making possible a wellness-oriented approach to MTSS that is truly schoolwide, not just student-wide (cf. Stoiber, 2014). To this end, the first subpurpose of this study was to conceptualize the metaconstruct of teacher subjective wellbeing and its subconstructs, and then to operationalize these subconstructs via drafting test scales and items that would form the pilot version of the TSWQ. This initial step, which was undertaken to establish substantive validity evidence, resulted in three hypothesized subscales—School Connectedness, Joy of Teaching, and Teaching Efficacy—that initially comprised eight pilot items, and, ultimately, given feasibility considerations, were each trimmed to four pilot items. The product of this initial development stage was a 12-item pilot version of the TSWQ that was characterized by a conceptually sound measurement model that was intended to assess subconstructs that were thematically representative of the overarching metaconstruct of teacher subjective wellbeing.

The second subpurpose of this study was to investigate the initial structural validity of the TSWQ. To accomplish this, various analyses were conducted on a general sample of elementary school and middle school teachers. Findings from these investigations indicated that the latent structure of the TSWQ was best characterized by a two-factor solution—represented by the SCS and TES—and that the hypothesized joy-of-teaching items failed to make unique contributions to a latent construct, resulting in their removal from consideration in the measure. This finding suggests that, unlike for students, where joy of learning seems to be a distinct latent construct in addition to efficacy and connectedness (Renshaw et al., 2014), joy of teaching may be a byproduct of efficacy and connectedness and, thus, not be a distinct phenomenon. Further analyses of the scales resulting from this preferred measurement model indicated that SCS, TES, and TWSQ were characterized by adequate interitem correlations and strong internal consistency, and that all TSWQ scales demonstrated substantive convergent validity with each other as well as with measures of perceived school supports for students and teachers. Moreover, findings from analyses exploring differential participant responsiveness on TSWQ scale scores indicated that although general school level (i.e., elementary vs. middle) had no effect on teacher subjective wellbeing, unique school environment did show an effect on the SCS and TWSQ, with post hoc analyses indicating that teachers at E_2 had the greatest school connectedness and overall subjective wellbeing, followed by teachers at M_2 (see Table 4). This finding suggests that teachers' positive subjective wellbeing is likely more strongly influenced by school-specific contextual factors (e.g., quality of leadership, interstaff relationships, and other climate variables) than general school level factors. Taken together, then, findings from this stage of analyses suggest that the TSWQ is psychometrically sound measure of teacher subjective wellbeing, which warrants further investigation as a universal screening and progress-monitoring instrument. That said, before the TSWQ is actually recommended for such purposes in practice, further research is needed to both confirm its latent structure and to explore its applied utility for classification and response-to-intervention purposes.

The final subpurpose of this study was to explore the external validity of the TSWQ with a target sample of elementary teachers who were experiencing classroom management challenges. Similar to the results yielded in the general sample, findings from this target sample indicated that all TSWQ scales were characterized by adequate interitem correlations and strong internal consistency. Additionally, results from this stage also indicated robust test-retest reliability for all TSWQ scales. However, it is noteworthy that, unlike the general sample, the distributions of the TSWQ scales in this target sample were all relatively normal, showing weaker negative skew and a noticeable lack of positive kurtosis, which suggests generally lower positive subjective wellbeing scores. Results from inferential analyses further confirmed these suspected between-sample differences in teacher subjective wellbeing, indicating large mean differences for the TES and TWSQ, as well as a moderate mean difference for the SCS, all favoring the general sample. Furthermore, findings from the target sample indicated that all TSWQ scales had substantive concurrent-discriminant validity with measures of teacher stress and burnout, and that positive subjective wellbeing scores at T_1 were robust predictors of teacher stress and burnout scores at T_2 . Additionally, although the TES and SCS both demonstrated strong predictive ability, it is noteworthy that the TES was deemed to be a stronger predictor of both stress and burnout, and, comparatively, that the TWSQ alone was almost as robust a predictor as was the combination of both TES and SCS—accounting for about half the variance in each of the criterion variables. Taken together, then, findings from this stage of analyses suggest that, despite substantive differences in the distribution of its scales, the TWSQ again demonstrated strong psychometric properties and appears to be a promising predictor of other practically significant variables—stress and burnout—that are currently the focus of much applied research and practice with teachers in schools.

Limitations and Future Research

Although the findings described above appear promising, results from the present study warrant consideration in light of a few methodological limitations. First, like most survey studies, the

participants in the present study were derived from convenience samples of local teachers and thus results are not representative of the greater population of interest (i.e., all educators in the United States). The generalizability of these findings is therefore limited in scope to demographically similar teachers (i.e., majority Black/African American and White, teaching elementary or middle school, and working in mid-sized urban cities). To remedy these sampling limitations, we recommend that future research developing the TSWQ use random and weighted sampling techniques with more diverse samples of teachers, and that investigations of measurement invariance be conducted across both personal and environmental demographics of interest, including gender, racial or ethnic background, school type, and geographic location. Furthermore, given that all of the measures in the present study were self-reported, the concurrent validity findings in the present study may be biased by common-method variance (i.e., the variance attributed to the measurement method rather than to the constructs represented by the measures; Podsakoff et al., 2003). The potential for this bias is most likely implicated in the convergent validity correlations conducted with the general sample of teachers, as the TSWQ, SSES, and STES items are all arranged along the same four-point, frequency-based response scale. To prevent against this potential confound in future studies, we recommend expanding the repertoire of future validation measures to include informant-report measures (completed by students or administrators) as well as concurrent and predictive performance-based measures (e.g., direct observations of classroom climate and class-level academic achievement gains). Finally, given that the latent structure of the TSWQ was not reaffirmed in an additional sample using confirmatory factor analyses, the present study is also limited by the preliminary nature of the two-factor measurement model presented herein. We therefore recommend that future research investigating the TSWQ seek first to confirm and replicate the latent structure of the measure using larger development samples.

Implications for Theory and Practice

In light of the findings reviewed above, the present study has a few favorable implications for the theory and practice of school psychology. Foremost, regarding theory, results from

this study help progress a positive conception of teacher subjective wellbeing, providing evidence indicating that teaching efficacy and school connectedness are distinct latent indicators of subjective wellbeing, while joy-of-teaching is not. This finding, which certainly warrants replication and further investigation, highlights the importance of an empirically grounded theory of the nature of teachers' positive subjective wellbeing, and supports our earlier claim that using combinations of independently validated single-scale measures—as opposed to covalidated multidimensional measures like the TSWQ—is likely to misrepresent the latent structure of teacher subjective wellbeing. Furthermore, results from this study also offer empirical support in favor of the utility of teachers' cumulative subjective wellbeing, showing that the TSWQ's composite scale was almost as strong a predictor of threat-to-wellbeing indicators (i.e., stress and burnout) as were its two component scales taken together.

Regarding the practice of school psychology, findings from this study suggest that the TSWQ is a promising instrument for assessing teachers' subjective wellbeing, which may have various uses within MTSS in schools (cf. Stoiber, 2014). For example, at the universal level, the TSWQ might be used as a normative screening instrument for gauging the status of teachers' positive subjective wellbeing within a given school or district throughout the school year (i.e., identifying the proportion of teachers functioning in the below average, low average, high average, or above average domains of positive subjective wellbeing during the beginning, middle, and end of the academic year), providing data that might inform staffwide promotion and professional development efforts (e.g., resilience and positive psychology skills training). Moreover, for teachers who are not responsive to promotion efforts at the universal level, the TSWQ might be useful at the targeted level of MTSS as a pre-post measure for gauging groups of teachers' responsiveness to more thorough intervention efforts (e.g., mindfulness-based stress reduction or classroom-management skills training). Additionally, for teachers' unresponsive to such targeted-level efforts, the TSWQ might be used at the intensive level of MTSS as one of many outcome measures—along with, for instance, performance-based measures of teaching effectiveness or system-

atic direct observations of classroom climate—for facilitating a well-rounded approach to progress-monitoring teachers' functioning at work. Finally, beyond these teacher-directed purposes, it is conceivable that the TSWQ could also function as a secondary outcome measure for MTSS efforts directed toward students, to investigate the relationship between changes in teachers' positive subjective wellbeing as a result of schoolwide prevention aimed at reducing problem behaviors. School psychologists might also use the TSWQ as a secondary outcome measure in teacher consultation cases, monitoring the relationship between changes in teacher wellbeing as a function of changes in student behavior. That said, as noted above, we caution that much more applied research is needed prior to recommending the TSWQ as warranted or "best practice" for such purposes.

Finally, in closing, we reiterate the conceptual and psychometric tentativeness of the measurement model underlying the TSWQ. Although the construct validity of teacher subjective wellbeing as measured via the TSWQ has been established in this study via garnering initial substantive, structural, and external validity evidences, such data are obviously provisional and warrant further investigation. From the beginning, our intention was never to create an exhaustive measure—one assessing all possible teacher subjective wellbeing indicators—but rather to develop a brief, multidimensional, parsimonious measure that assessed several core components of teachers' positive psychological functioning at work. Indeed, our primary motivation underlying the development of the TSWQ was to produce a face-valid and feasible outcome measure that could be used to compliment performance-based measures of teacher wellbeing as well as measures of student subjective wellbeing (e.g., Furlong et al., 2013; Furlong et al., 2014; Renshaw et al., 2014), thus facilitating more robust means for gauging comprehensive teacher wellness as well as the positive subjective wellbeing of an entire school population. It is clear, then, that much more research is needed—and thus we hope that future research will pick up where this study leaves off, further validating the TSWQ as both a basic research instrument and an applied outcome measure in schools.

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