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REVIEW ARTICLE

Teachers' Psychological Characteristics: Do They Matter for Teacher Effectiveness, Teachers' Well-being, Retention, and Interpersonal Relations? An Integrative Review

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Abstract
This integrative review aims to render a systematic account of the role that teachers' psychological characteristics, such as their motivation and personality, play for critical outcomes in terms of teacher effectiveness, teachers' well-being, retention, and positive interpersonal relations with multiple stakeholders (e.g., students, parents, principals, colleagues). We first summarize and evaluate the available evidence on relations between psychological characteristics and these outcomes derived in existing research syntheses (meta-analyses, systematic reviews). We then discuss implications of the findings regarding the eight identified psychological characteristics—self-efficacy, causal attributions, expectations, personality, enthusiasm, emotional intelligence, emotional labor, and mindfulness—for research and educational practice. In terms of practical recommendations, we focus on teacher selection and the design of future professional development activities as areas that particularly profit from a profound understanding of the relative importance of different psychological teacher characteristics in facilitating adaptive outcomes.

Keywords Teacher · Psychological Characteristics · Non-cognitive characteristics · Effectiveness · Selection · Professional development · Motivation · Emotion

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In research on teachers, the term "psychological characteristics" describes teacher[1] attributes, such as motivation or personality (e.g., Darling-Hammond et al., 2012; Klassen & Tze, 2014). The idea that more vs. less effective teachers differ on certain psychological characteristics is a longstanding view in educational research and has pervasive implications for educational practice (e.g., Barr, 1952). To date, psychological characteristics play an essential role in selection and recruitment of individuals into initial teacher education and into the teaching profession, even though the situation (teacher shortages as opposed to a large number of applicants and a need for selection) varies in many parts of the world and within countries (e.g., Ingvarson & Rowley, 2017). As such, many interviews and selection tools take root in the sometimes-implicit beliefs that certain psychological characteristics will make a teacher more successful in the classroom and should therefore guide selection decisions (e.g., Klassen & Kim, 2019). For instance, the Gallup interview, a widely used commercial teacher selection instrument, is organized around a set of characteristics (e.g., persistence), believed to characterize effective teachers (e.g., Haberman, 1995, see also Metzger & Wu, 2008). Psychological characteristics also bear significance for teacher education and professional development of teachers: Numerous teacher education and professional development programs and interventions target the development and promotion of specific psychological characteristics deemed valuable for teaching and teachers' professional lives, hence taking advantage of the intuitively appealing malleability of psychological characteristics (e.g., Magidson et al., 2014). Recent years have, for example, witnessed a sharp increase in initiatives aiming at fostering teachers' mindfulness (e.g., Klingbeil & Renshaw, 2018).

In sum, psychological characteristics are thought to be one of the cornerstones of effective teaching (e.g., Klassen & Tze, 2014). In addition, specific psychological characteristics have been linked to critical further outcomes, such as teachers' well-being (e.g., Yin et al., 2019). However, although single psychological characteristics have been subject to systematic research syntheses, an integrative review of psychological characteristics of teachers and their effects on crucial outcomes in the teacher domain building on the best available evidence is currently lacking. We therefore conduct a synthesis of existing syntheses (meta-analyses, systematic reviews) covering multiple psychological characteristics of teachers in order to advance understandings of their relative contributions to a broad range of outcomes (teacher effectiveness variables, such as student achievement, as well as teachers' well-being, retention, and interpersonal relations, for example with students, parents, colleagues). For research and theory-building, our work serves as an indication of the level of maturity in terms of research activity and solid conclusions reached within research on psychological teacher characteristics. For educational practice, summarizing, synthesizing, and organizing what we know about psychological characteristics in the teacher domain will help to inform selection decisions (What should we look for?) and decisions regarding the content of teacher education and professional development programs (What should we develop?).

[1] We use the term "teacher," but refer to both practicing and prospective teachers (i.e., student teachers/pre-service teachers). Nonetheless, if the results of one of the syntheses we summarize and discuss were presented separately for these two groups, we point this out in the results and discussion section.

Psychological Characteristics of Teachers

With the aim of constructing a comprehensive definition of what constitutes psychological characteristics (sometimes also referred to as non-cognitive characteristics, e.g., Klassen & Tze, 2014) for the present work, we state that psychological characteristics encapsulate a complex set of motivations, emotions, cognitions, patterns of self-regulation, and personality aspects. As such, psychological characteristics can, for example, refer to the beliefs teachers have about their own capabilities as teachers or to their goals for teaching (motivation), how they feel about their students or their subject (emotions), how they regulate their emotions (self-regulation), or whether they are outgoing or shy (personality). In addition, while psychological characteristics can have behavioral manifestations, they should not exclusively be reflected in bodily expression, such as specific (facial) gestures or movements (e.g., Rosenshine, 1970). For clarity, psychological characteristics we focus on are separate from academic aptitude—IQ, subject area knowledge, and knowledge about pedagogy—as well as sociodemographic personal attributes, such as gender or working experience. It should furthermore be mentioned that even though we note a considerable overlap with the concept of professional competences (e.g., Kunter et al., 2013a, b), the term psychological characteristics is more narrowly defined, for example by excluding knowledge-focused aspects such as content knowledge.

Teacher Effectiveness, Teacher Well-Being, Retention, and Interpersonal Relations

In the current work, we consider a set of "outcomes" against which to evaluate the psychological teacher characteristics. First, our integrative review centers on teacher effectiveness, which is commonly defined as teachers' performance in terms of effects on student learning (e.g., Seidel & Shavelson, 2007). Often, it is measured using value-added models capturing a teacher's impact on students' achievement, evaluations of a teacher's performance in the classroom by external parties (e.g., supervisors or mentor teachers), or student ratings of the instructional quality (e.g., Atteberry et al., 2015; Hamre et al., 2013; Wagner et al., 2016). The present work, however, looks for a multi-dimensional definition of teacher effectiveness, given that any one-dimensional view will most likely generate one-dimensional findings and might thus be of limited value if we strive to provide information useful for educational research and practice. Still aligned with "classical" definitions of teacher effectiveness, for our work, an effective teacher contributes to student achievement and provides high quality instruction (e.g., as measured by student ratings of instructional quality or external observer ratings of practice). However, we add to this that an effective teacher promotes a variety of other outcomes as well, such as students' adaptive motivational patterns, development of socio-emotional competences, self-regulated learning, etc. (e.g., Bardach et al., 2020; Kraft, 2019; Muijs, 2006; Perry et al., 2007).

Complementing teacher effectiveness which is directly tied to the improvement of student outcomes and teachers' classroom performance, we include three further outcomes deemed important for teachers' professional lives. The high incidence of stress-related illnesses in the teaching profession prompts us to consider teachers' well-being as a relevant second outcome (e.g., Montgomery & Rupp, 2005; Kunter et al., 2013a). The debate on how to exactly conceptualize well-being is still unresolved and several accepted definitions can be found in the literature, for example subjective well-being consisting of the three dimensions satisfaction with life, the absence of negative affect, and the presence of positive affect (e.g., Diener et al.,

1985), or psychological well-being as fulfillment of one's potential and functioning at an optimal level (e.g., Ryff & Keyes, 1995; see also e.g., Cooke et al., 2016; Lent, 2004 for overviews). In addition to these more general approaches to defining well-being, researchers have introduced domain-specific well-being aspects, such as work-related well-being (see, e.g., Collie et al., 2015 for a study on work-related well-being among teachers, which the authors termed "teacher well-being"). Moreover, even though well-being, according to current theoretical approaches, goes beyond the absence of "ill-being" (e.g., stress and burnout, depressive symptoms such as loss of interests, low mood, and anxiety), studies on well-being still often focus on negative aspects, and especially on stress and burnout as (negative) well-being indicators (see, e.g., Collie et al., 2015). For example, burnout, which develops as a result of chronic stress in the work environment, is commonly conceptualized as tripartite-constructs including exhaustion (feeling exhausted and overwhelmed), depersonalization (indifferent and cynical attitude), and decreased personal accomplishment (reduced capability, inability to cope) (Maslach et al., 2001; Maslach & Leiter, 2016). To conclude, in light of the variety of constructs subsumed under the umbrella term "well-being," we consider both negative (e.g., burnout, stress) as well as positive well-being aspects (e.g., satisfaction with life, work-related well-being) in the present integrative review.

Third, from a practical perspective, the well documented high teacher attrition rates (e.g., Borman & Dowling, 2008) led us to pay attention to teacher retention/attrition and related concepts (e.g., teachers' commitment) as further important outcome. Fourth, teaching and practicing to become a teacher occur in complex sociocultural contexts. Thus, we additionally pay attention to how teachers attempt to build and sustain high quality relationships with key people in those contexts—students[2], principals, parents, colleagues, and mentors at school and in teacher education programs (e.g., Roorda et al., 2011; Hughes & Kwok, 2007).

Conceptual Considerations Regarding the Link Between Psychological Characteristics and the Considered Outcomes

As shown in Fig. 1, psychological characteristics form the "starting point" of our work as well as for practical applications concerning, for example, the selection of teachers on certain psychological characteristics (e.g., Klassen & Kim, 2019; Metzger & Wu, 2008). We therefore summarize evidence on the relation between psychological characteristics and teacher effectiveness, teachers' well-being, retention, and interpersonal relationships, guided by the theoretical assumption that psychological characteristics can affect these outcomes (see solid arrows in Fig. 1). However, even though the focus of our work clearly lies on the effects of psychological characteristics, we admit that the ways in which teachers' psychological characteristics could potentially bring about changes in the considered outcomes are complex and interwoven with numerous other features. For example, certain psychological characteristics may be reciprocally related to factors we treat as outcomes in our review and the factors could thus also give raise to some psychological characteristics (e.g., feeling generally satisfied with one's job or burned out could increase or decrease one's level of job-related motivations, see dashed arrows in the figure). Furthermore, we acknowledge that the assumed effects of teachers' psychological characteristics on the outcomes might be transmitted via more proximal (teaching) processes. For example, specific psychological characteristics might make

[2] It should be noted that positive student-teacher relations can also be covered as aspect of instructional quality, so there exists some overlap with the "teacher effectiveness" category.

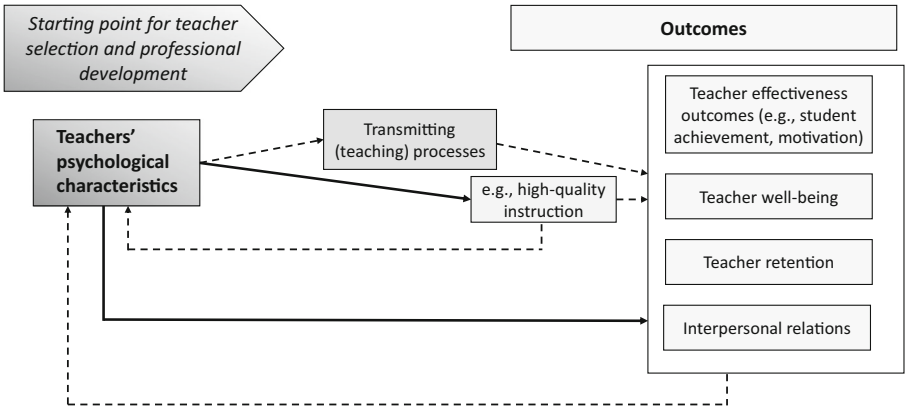

Fig. 1 Conceptual model guiding the current integrative review: assumed effects of teachers' personal characteristics on the considered outcomes. Solid lines symbolize association that will be the focus of the present review, whereas reciprocal effects (dashed lines) and transmitting processes (dashed lines) will not be examined. We consider instructional quality as an effectiveness outcome on its own (see solid line), but also acknowledge its role as transmitting factor.

teachers more likely to deliver high-quality instruction which then translates into higher student motivation or achievement (e.g., Frenzel et al., 2009; Zee & Koomen, 2016)[3]. Other psychological characteristics might enable them to, for example, interact with colleagues in an empathic and responsive way which then leads to a higher relationship quality with colleagues. Notwithstanding and keeping with our two examples of transmitting processes, high-quality instruction and high-quality interactions with colleagues are entangled with other features, such as the characteristics a teacher's students and colleagues bring with them, or more generally the climate that pervades a classroom or a school. Empirical evidence indicates, for instance, that the characteristics with which students enter a classroom can be powerful drivers of their achievement gains, with less room for teacher effects (e.g., Deary et al., 2007). We also acknowledge the presence of further influencing factors located on different levels, such as the broader context of the educational system in a country, and individual teacher factors (e.g., sociodemographic features and prior experiences that shape psychological characteristics, not displayed in the figure). To conclude, even though we recognize the intricate interplay between psychological characteristics, teacher effectiveness, well-being, retention, and interpersonal relations, as well as social and contextual affordances and constraints, the aim of the present work is to parcel off a set of psychological teacher characteristics and to determine their relative contributions to the larger picture of what can affect important outcomes.

Goal of the Current Work

Building on the best available evidence, the present work strives to bring together the core findings of meta-analyses and systematic reviews that have been carried out on single psychological characteristics in order to gain insights into the role that psychological

[3] We consider instructional quality as an effectiveness outcome on its own, but also acknowledge its role as transmitting factor.

characteristics play for teacher effectiveness, teachers' well-being, retention, and positive interpersonal relations. For practice, our work has implications concerning what psychological characteristics should be considered when selecting individuals into teacher education programs and the profession and what characteristics should be developed. For theory-building, the integrative review seeks to move from the consideration of isolated constructs to a more complete understanding by summarizing and structuring a range of psychological characteristics that characterize effective teachers and potentially contribute to further relevant outcomes such as teachers' well-being, retention, and interpersonal relations. Even though several psychological characteristics are included in existing theoretical frameworks, such as in Kunter et al.'s (2013a) model of teachers' professional competencies, a summary of psychological characteristics and a critical evaluation of their relative importance for teacher effectiveness and further important aspects of teachers' professional lives based on synthesized evidence is currently lacking in the literature. In addition, the most prominent synthesis of syntheses (i.e., Hattie's, 2009 meta-synthesis) includes teachers' psychological characteristics, but confines its focus to student achievement as outcomes and, as its goal is to quantitatively summarize studies, relies on meta-analyses but not systematic narrative reviews. Our work, on the other hand, is anchored in a multi-dimensional conceptualization of teacher effectiveness comprising multiple student outcomes (e.g., achievement, motivation), additionally considers further outcomes (well-being, retention, interpersonal relations), and narratively synthesizes both meta-analyses and systematic reviews. The present article thus complements Hattie's (2009) synthesis and our findings could be used to fuse and extend existing theoretical models (e.g., Kunter et al., 2013a).

Method

Literature Search

We conducted a systematic literature search using the three databases PsycINFO, Web of Science, and ERIC Education Resources Information Center (latest update: July 2020). Instead of limiting our search to specific psychological characteristics and specific outcomes, we searched more broadly for combinations of the term teacher (and related terms) and meta-analysis and systematic review using the following search terms: ("teacher" OR "educator" OR "instructor") AND ("meta-analysis" OR "systematic review"), including the plural of all terms. As we deliberately only included published peer-reviewed work to make it more likely that the work had undergone a (rigorous) quality control process (see also inclusion criteria Table 1), we restricted the search to peer-reviewed articles if possible. This search resulted in 5144 hits (2672 from Web of Science, 1323 from ERIC, and 1149 from PsycINFO) of which 3811 remained after duplicates were removed. The titles and abstracts of all articles were screened applying a set of inclusion and exclusion criteria (see Table 1). A total of 23 articles fulfilled the criteria and were thus included. We then expanded our search in Google Scholar (title search), screened the references of included syntheses, and asked experts in the field for recommendations to ensure coverage of studies left out in the database search. The additional search yielded one not-yet-considered article. Hence, 24 articles constituted the sample of our synthesis of syntheses.

Table 1 Inclusion and exclusion criteria

Criterion	Included	Excluded
1. Focus	Had to be a research synthesis (i.e., meta-analysis or systematic review)	Empirical studies, summaries, conceptual papers, and reviews not relying on a systematic literature search
2. Sample	School teachers or prospective school teachers (i.e., student teachers or pre-service teachers)	Studies exclusively focusing on university/college teachers
3. Aim	Synthesizing relations between psychological characteristics and teacher effectiveness identified in our working definition[a] , teachers' well-being, retention, or positive interpersonal relations or synthesizing results from interventions targeting the psychological characteristics of teachers with the overall goal of enhancing teacher effectiveness, teachers' well-being, retention, or positive interpersonal relations	Syntheses that did not link psychological characteristics to teacher effectiveness outcomes identified in our working definition and instead address e.g., relations between different psychological characteristics
4. Research design of synthesized studies	Quantitative studies (if a systematic review summarized both qualitative and quantitative studies separately, it was still included, but we focused on the latter findings)	Syntheses relying on qualitative studies; if syntheses considering both qualitative and quantitative studies and conclusions did not discuss the respective findings separately, the synthesis was not included
5. Separate constructs	Synthesis had to report results for separate constructs (e.g., self-efficacy, personality or personality domains)	Synthesis on a composite comprising a range of psychological characteristics without distinguishing between constructs (e.g., Klassen & Kim, 2019 focusing on cognitive vs. non-cognitive constructs; see also e.g., Metzger & Wu, 2008)
6. Level of specificity		Synthesis dealing with a specific study population, e.g., syntheses exclusively focusing on the context of teaching English as a second language, as this limits their generalizability
7. Peer-review	Synthesis had to be peer-reviewed and published to make it more likely that the work had undergone a (rigorous) quality control process	Non-peer reviewed work
8. Sufficient reporting		Insufficient information on methods (e.g., literature search, coding, meta-analytic procedure)
9. Availability	Full text available	No full text available
10. Overlap with Hattie's (2009) meta-analysis of meta-analyses	Meta-analyses not considered in Hattie's (2009) work in order to update and expand the work of Hattie (2009)[b]	Meta-analyses included in Hattie's (2009) work

[a] Although conclusions on teachers' effects on student outcomes are best addressed in research controlling for prior levels of student outcomes (see, e.g., value-added models), we also consider syntheses that include primary studies which solely link teacher psychological characteristics to student outcomes without controlling for prior levels of student outcomes

Table 2 Syntheses on psychological characteristics included in integrative review: components of psychological characteristics, considered outcomes, number of included studies and overall sample size, main findings, and additional findings

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
I. Self-efficacy as psychological characteristic					
Aloe et al. (2014)	Classroom management self-efficacy	Burnout (three components of emotional exhaustion, depersonalization, personal accomplishment separately considered)	16 studies with in-service teachers (half of them from the USA, the other half from European and Asian countries)	Significant relations between classroom management self-efficacy and three components of burnout derived in a multivariate meta-analysis: (a) emotional exhaustion: ES (*r*) = -0.28, *SE* = 0.03, 95% CI = − 0.34 to − 0.22; b) depersonalization: ES (*r*) = − 0.33, *SE* = 0.03, 95% CI = − 0.38 to − 0.27; (c) personal accomplishment: ES (*r*) = 0.43, *SE* = 0.05, 95% CI = 0.34 to 0.52	- No significant effect of publication status (published vs. not published), percentage female in the sample, country of origin (USA vs. others), and years of experience - Depersonalization: Significant effect of publication year (newer studies reported smaller correlations) - Emotional exhaustion: Significant effect of school level (studies of all school levels combined had lower correlations) - Some indications for publication bias for relation between personal accomplishment and self-efficacy
Chesnut and Burley (2015)	Self-efficacy (a) aligned with Bandura's conceptualization, and (b) other conceptualizations, such as general self-efficacy (see results of moderator analyses testing differences in effects depending on the measures)	Commitment both with a positive (e.g., commitment, intention, retention) and a negative connotation (e.g., attrition, burnout [three dimensions of emotional exhaustion, depersonalization, personal accomplishment, and other conceptualizations of burnout])	33 studies (16,122 pre-service and in-service teachers from N--America, Europe, Asia, and Australia)	Significant relation between self-efficacy and commitment: ES (*r*) = + 0.32, *SE* = 0.03, 95% CI = + 0.27 to + 0.36	- No significant difference in ES between pre-service (ES (*r*) = + 0.30, *SE* = 0.02, 95% CI = + 0.26 to + 0.35) and in-service teachers (ES (*r*) = + 0.32, *SE* = 0.03, 95% CI = + 0.26 to + 0.39) - No significant difference in ES (*r*) as function of orientation of commitment measure (positive: ES (*r*) = + 0.29, *SE* = 0.03, 95% CI = + 0.24 to + 0.35 vs. negative: ES (*r*) = + 0.34, *SE* = 0.04, 95% CI = + 0.27 to + 0.41 - Significant difference in ES (*r*) between conceptually accurate, i.e., Bandura-based measures (ES

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
					(r) = + 0.35, SE = 0.03, 95% CI = + 0.30 to + 0.40) and inaccurate self-efficacy measures (ES (r) = + 0.25, SE = 0.04, 95% CI = + 0.17 to + 0.33) - Largest correlations in studies from Europe, smaller correlations in studies from N-America, Asia, and Australia - Instrument specificity (more global scales e.g., "I can affect student learning" vs. more specific scales, e.g., "I can provide realistic challenges in mixed ability classes") and conceptual accuracy significant predictors of relation between self-efficacy and commitment (account for 22.9% of variance)
Klassen et al. (2011)	Self-efficacy (a) in terms of personal teaching efficacy and teaching efficacy (referring to teachers in general) (Gibson & Dembo, 1984), (b) following a Bandura-based conceptualization	Student achievement	3 studies on student achievement (standardized achievement tests, achievement on final examinations)	Conclusions from systematic review (relations to student and teacher outcomes not main focus of review, but covered in short section on "Additional observations"): Authors noted that predominance of research on teachers' self-efficacy focused on the relations to teacher factors (e.g., job satisfaction or stress) and relatively few on links to student outcomes. Regarding student outcomes: Three studies on school achievement (standardized tests, achievement on final examinations) with inconsistent findings; it is mentioned that two of the studies relied on scale by Gibson and Dembo (1984), which has been criticized for the lack of alignment with Bandura's conceptualization	
Klassen and Tze (2014)	Self-efficacy (different conceptualizations, e.g., teacher self-efficacy for student engagement, but also Gibson	Teacher effectiveness in terms of student achievement or ratings by external observers	32 studies (pre-service and in-service teachers), international focus	As overall relations were reported for "psychological characteristics" including both self-efficacy and personality measures, we focus on the relation obtained for self-efficacy in moderator analyses for type of psychological characteristic (self-efficacy vs. personality) here: Significant relation between self-efficacy and teacher effectiveness (student	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
	and Dembo's (1984) teaching efficacy and personal efficacy)			achievement and external ratings): ES (r) = + 0.11, 95% CI = + 0.06 to + 0.16 Further findings: Significant moderating effects of effectiveness outcome, student achievement: ES(r) = + 0.07, 95% CI = + 0.02 to + 0.12 vs. external ratings: ES (r) = + 0.24, 95% CI = + 0.10 to + 0.38)	
Shoji et al. (2016)	Different self-efficacy conceptualizations (e.g., general self--efficacy, teacher efficacy, specific self-efficacy, e.g., concerning classroom management)	Burnout (most studies relied on the three components of emotional exhaustion, depersonalization, and personal accomplishment)	57 studies, among those 29 focusing on in-service teachers (10,601 teachers), teacher samples from N-America, Europe, Asia	Average relations between self-efficacy and burnout were reported for the overall sample including teachers and other professions and we therefore focus on the significant relation for teachers obtained in moderator analyses for type of profession (teacher vs. health-care vs. others) here: ES (r) = − 0.38, 95% CI = − 0.43 to − 0.32). Further findings: Relation between self-efficacy and burnout significantly stronger for teachers than health-care providers (ES(r) for health-care providers = − 0.26, 95% CI = − 0.30 to − 0.22), but no significant difference between teachers and category "other professionals" (ES(r) for "other professionals" = − 0.28, 95% CI = − 0.38 to − 0.17)	
Zee and Koomen (2016)	Self-efficacy (only studies relying on Bandura-based conceptualizations included)	Instructional quality (addressed in 95 studies) among those seven studies specifically focusing on student-teacher relationships, student achievement (addressed in 22 studies), student motivation (addressed in 11 studies), teacher well-being and retention components, incl. burnout, with most studies on burnout relying on the dimensions of emotional exhaustion, depersonalization, and personal accomplishment (addressed in 71 studies), pre-service and in-service teachers, international focus		Conclusions from systematic review: (a) Instructional quality: Difficult to reach confident conclusions due to heterogeneous effects, indications of positive relations for different dimensions of instructional quality and their components (e.g., classroom management), suggested that stronger effects occur for more experienced educators, mixed and mainly non-significant findings regarding student-teacher relationships (b) Student achievement: Teachers' self-efficacy not consistently related to achievement, modest coefficients for overall achievement scores, children's literacy outcomes less often predicted by teachers' self-efficacy than achievement in other subjects (particularly mathematics), in general, teachers' self-efficacy seems to be more important for elementary than secondary school students' achievement, no study used domain-specific instruments to measure teacher self-efficacy (c) Student motivation: Teacher' self-efficacy relatively robust predictor of a range of motivational outcomes across educational stages and countries (d) Teacher well-being and retention: Teachers' self-efficacy related to lower levels of burnout, less job-related stress, higher job satisfaction and commitment, no relations between attrition/retention and self-efficacy of in-service teachers (only one study with pre-service teachers)	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
II. Personality as psychological characteristic					
Cramer and Binder (2015)	Personality (Big Five domains openness, conscientiousness, extraversion, agreeableness, and neuroticism)	Burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment), stress	21 studies (mainly with pre-service and in-service teachers, four studies conducted in the context of tertiary education), international focus	Conclusions from systematic review: (a) Neuroticism most strongly and positively related to stress and burnout (b) Indications of negative relations between extraversion and agreeableness, and to a lesser extent conscientiousness and stress and burnout (c) Mixed/ mainly non-significant findings for openness, openness least relevant personality domain with regard to relations to teacher stress and burnout	
Kim et al. (2019)	Personality (Big Five domains openness, extraversion, agreeableness, conscientiousness, emotional stability)	Teacher effectiveness (student achievement, teaching evaluations, classroom observation scores, students' performance self-efficacy) and burnout (most studies on burnout seem to focus on the three dimensions of emotional exhaustion, depersonalization, and personal accomplishment)	25 studies (6294 pre-service and in-service teachers), 14-17 studies for teacher effectiveness outcomes, 5–6 studies for burnout, studies from the USA, Europe, Asia, and Australia	Teacher effectiveness: Significant associations with (a) extraversion: ES (r) = + 0.17, 95% CI = + 0.07 to + 0.27, (b) openness: ES (r) = + 0.10, 95% CI = + 0.01 to + 0.18, (c) conscientiousness: ES (r) = + 0.13, 95% CI = + 0.04 to + 0.21, (d) emotional stability: ES (r) = + 0.10, 95% CI = + 0.01 to + 0.18 No significant association with (e) agreeableness: ES (r) = + 0.03, 95% CI = − 0.05 to + 0.12 Teacher burnout: Non-significant associations with (a) extraversion: ES (r) = + 0.13, 95% CI = − 0.06 to + 0.31, (b) openness: ES (r) = + 0.04, 95% CI = − 0.16 to + 0.23, (c) conscientiousness: ES (r) = + 0.19, 95% CI = − 0.06 to + 0.41, (d) emotional stability: ES (r) = + 0.21, 95% CI = − 0.09 to + 0.48, (e) agreeableness: ES (r) = + 0.13, 95% CI = − 0.11 to + 0.37	Moderator analyses for relations to teacher effectiveness: - Strongest association between personality and teacher effectiveness for evaluations of teaching (ES ranging between + 0.07 for agreeableness and + 0.32 for extraversion, significant effects for extraversion, conscientiousness, and openness) and weaker associations for academic achievement (ES ranging between -0.07 for conscientiousness and + 0.10 for extraversion, none of the effects was significant) as well as for classroom observation scores (ES ranging between 0.01 for extraversion and 0.07 for conscientiousness, none of the effects was significant) and for students' performance self-efficacy (ES ranging from 0.00 for agreeableness to 0.09 for openness, none of the effects was significant, analyses for performance self-efficacy

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
					based on only two studies, large CIs) - Stronger associations with the outcomes (burnout and teacher effectiveness considered together) for studies using other-reported than self-reported personality measures; however, the outcomes were not investigated separately which may mask potential differences between the outcomes. The same pertained to the moderator analyses for school type (primary vs. secondary vs. tertiary).
Klassen and Tze (2014)	Personality composite (e.g., Big Five framework, Myers-Briggs framework)	Teacher effectiveness in terms of student achievement or ratings by external observers	12 studies (1918 pre-service and in-service teachers), international focus	As overall relations were reported for "psychological characteristics" including both self-efficacy and personality measures, we focus on the relation obtained for personality in moderator analyses for type of psychological characteristic (self-efficacy vs. personality) here: Significant relation between personality and teacher effectiveness (student achievement and external ratings): ES (*r*) = + 0.06, 95% CI = + 0.01 to + 0.11 Further findings: Only one study relied on student achievement as measure of teacher effectiveness (ES (*r*) = .01), whereas the significant average effect size of the 11 studies relying on ratings by external observations was ES (*r*) = .07, 95% CI = + 0.01 to + 0.13	
Montgomery and Rupp (2005)	Personality composite (e.g., type A-personality, attitude posture, relaxation potential)	Stress, burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment mentioned, but not clear whether included studies relied on them)	Studies with pre-service and in-service teachers, for relation to stress: 99 effect sizes (7941 teachers), for relation to burnout: 49 effect sizes (4821 teachers), international focus	(a) Relation between personality and burnout: ES (*r*) = + 0.28, 95% CI = + 0.26 to + 0.29, (b) Relation between personality and stress: ES (*r*) = + 0.25, 95% CI = + 0.24 to + 0.26	
III. Causal attributions as psychological characteristic					
Wang and Hall (2018)	Causal attributions (inter-personal: student performance and	Student motivation and performance, teachers' job	79 studies with in-service (K-12) teachers included in review (here	Conclusions from systematic review:	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
	misbehavior, and intra-personal: teachers' own occupational stress)	satisfaction and burnout (most studies seem to focus on the three dimensions of emotional exhaustion, depersonalization, and personal accomplishment)	focus on studies linking teachers' attributions to student performance, motivation, and misbehavior, and teachers' occupational stress), international focus	(a) Interpersonal attributions regarding student performance (success is defined as satisfactory academic work as perceived by teachers, whereas student failure is defined as generally unsatisfactory academic work) addressed in a few studies: (Reciprocal) relations between causal attributions and student motivation and performance, positive internal (high effort/ability) attributions related to higher performance and motivation, external (low task difficulty/assistance) attributions related to lower performance and motivation (b) Interpersonal attributions regarding student misbehavior: not covered here due to isolated findings (i.e., each study addressing a different outcome) (c) Intrapersonal attributions regarding teachers' occupational stress: most consistent pattern for attributions to personally controllable factors and their relations to well-being aspects such as lower burnout and higher job satisfaction	
IV. Expectations as psychological characteristic					
De Boer et al. (2018)	Teachers' academic expectations (defined as a teacher's estimate of students' academic potential)	Student achievement	10 studies included in review of effects on achievement, 7 studies meta-analytically investigated, international focus (but most studies were from the USA)	Meta-analysis: Effect on student achievement based on 7 studies: ES (Hedge's *g*) = + 0.30, *SE* = 0.11, 95% CI = + 0.09 to + 0.51, heterogeneity among effect sizes of the studies, but no moderator analyses were performed due to small number of studies Review based on 10 studies: (a) Positive effect on student achievement in four studies, three studies with non-significant findings (changes in desired direction), one study with mixed effects depending on outcome measure, two studies reporting no positive effects at all (b) Narrative review suggested that intervention type (behavioral approaches, i.e., changing teachers' practices, awareness approaches, i.e., creating awareness of existence and effects of biased expectations, beliefs approaches, i.e., addressing teachers' own beliefs about students' academic abilities) was not necessarily related to effectiveness of intervention (c) Teacher support for intervention seems critical, as studies with disappointing results often reported that intervention was not incorporated by the teachers and thus not well implemented Conclusions from systematic review:	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
Wang et al. (2018)	Teachers' academic expectations ("academic" = expectations referring to achievement and not to other student features, such as behavior)	Three student outcomes: achievement, motivation, self-beliefs, and expectations (labeled as socio-psychological outcomes), behavior	Motivation and expectations (29 studies), behavioral learning outcomes (4 studies), achievement outcomes (60 studies), in-service teachers, international focus	(a) Achievement: Relatively robust evidence for relation between expectations and students' achievement (both in studies controlling for prior achievement and the approx. 40% of studies which failed to do so), students school achievement as well as long-term outcomes considered (e.g., high school graduation, college attendance) (b) Students' adaptive (maladaptive) motivation and expectations (e.g., self-efficacy, self-concept, success expectations): Relations to teachers' high (low) expectations (c) Higher (lower) expectations also linked to lower (higher) levels of students' anxiety (d) Behavioral (learning) outcomes: Research scarce, some indications that high expectations are positively related to adaptive learning behavior, but not covered here due to isolated findings (i.e., different studies addressing different outcomes)	
V. Emotional intelligence as psychological characteristic					
Mérida-López and Extremera (2017)	Emotional intelligence	Burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment)	13 studies with in-service teachers, international focus	Conclusions from systematic review: Included studies pointed towards negative relations between emotional intelligence and burnout	
Yin et al. (2019)	Emotional intelligence	Burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment) and teaching satisfaction	85 studies with in-service teachers, emotional exhaustion: 7 studies (1334 teachers), depersonalization: 5 studies (647 teachers), teaching satisfaction: 13 studies (7667 teachers), international focus	Significant relations between emotional intelligence and (a) emotional exhaustion: ES (*r*/corrected *r* [a]) = − 0.17/− 0.21, 95% CI = − 0.28 to − 0.06. (b) depersonalization: ES (*r*/corrected *r*) = − 0.28/− 0.37, 95% CI = − 0.38 to − 0.17 (d) teaching satisfaction: ES (*r*/corrected *r*) = + 0.31/+ 0.37, 95% CI = + 0.25 to + 0.37 Reduced accomplishment also investigated, but the respective findings are not reported here as studies employing teacher self-efficacy measures were included in this category	
VI. Enthusiasm as psychological characteristic					
Keller et al. (2016)	Enthusiasm	Teacher well-being, student achievement and motivation	As only research on experienced enthusiasm and outcomes with results from > 1 study considered, small number of studies (2-3 for each outcome),	Conclusions from systematic review regarding experienced enthusiasm: Few studies on the topic showed relations to well-being outcomes (higher job and life satisfaction and lower levels of emotional exhaustion), and relations to student enjoyment and achievement	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
			in-service teachers, international focus of systematic review, but studies on experienced enthusiasm stem from Germany		
VII. Emotional labor as psychological characteristic					
Wang et al. (2019)	Emotional labor	Teacher well-being (both positive and negative components [stress, burnout in terms of emotional exhaustion, depersonalization, and personal accomplishment] considered in systematic review; negative components recoded for meta-analysis)	21 studies reporting relations between emotional labor and well-being, in-service teachers, international focus	- Conclusions from systematic review: Surface acting positively related to maladaptive outcomes (e.g., burnout components, lower job satisfaction); mixed findings for deep acting (positive to non-significant and negative); genuinely felt emotions related to adaptive factors (job satisfaction) and lower burnout- Conclusions from meta-analysis with well-being as external linkage (negative components, i.e., burnout and stress, were recoded): (a) Non-significant positive relation to deep acting: ES (*r*) = + 0.03 (b) Significant negative relation to surface acting: ES (*r*) = − 0.26 (c) Significant positive relation to genuinely expressed emotions: ES (*r*) = + 0.19	Main findings from moderator analyses: - Culture: Deep acting positively related to well-being in Eastern cultures, but negatively related to well-being in Western cultures - Measurement instrument: Studies using the emotional labor scale by Diefendorff and colleagues (2005) showed a significant positive relation between deep acting and well-being, but studies using other scales showed a non-significant slightly negative relation; negative relation between surface acting and well-being significantly stronger for studies using other scales than the one developed by Diefendorff and colleagues (2005)
Yin et al. (2019)	Emotional labor	Burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment) and teaching satisfaction	85 studies with in-service teachers, 9 to 19 studies for surface and deep acting outcomes (2391–5721 teachers), 6 to 11 studies for naturally felt emotions (= genuinely expressed emotions) outcomes (1776–3419 teachers), international focus	(a) Surface acting: Significant relations to emotional exhaustion, ES (*r*/corrected *r* [a]) = + 0.26/+ 0.32, 95% CI = + 0.18 to + 0.34; depersonalization, ES (*r*/corrected *r*) = + 0.24/+ 0.31, 95% CI = + 0.09 to + 0.38; teaching satisfaction, ES	Main findings from moderator analyses: -Year of publication as significant moderator of relation between deep acting and teaching satisfaction, with stronger relations in more recent years - Stronger relation between deep acting and teaching satisfaction

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
				r/corrected *r*) = − 0.22/− 0.27, 95% CI = − 0.38 to − 0.05 (b) Deep acting: Non-significant relations to emotional exhaustion, ES (*r*/corrected *r*) = − 0.02/− 0.02, 95% CI = − 0.09 to + 0.05, and depersonalization, ES (*r*-/corrected *r*) = − 0.03/− 0.04, *SD* = 0.21, 95 % CI = − 0.13 to + 0.06; significant relation to teaching satisfaction, ES (*r*-/corrected *r*) = + .30/+ 0.36, 95% CI = + 0.14 to + 0.44 (c) Expression of naturally felt emotions: Significant relations to emotional exhaustion, ES (*r*/corrected *r*) = − 0.21/− 0.26, 95% CI = − 0.28 to − 0.14, depersonalization, ES (*r*/corrected *r*) = − .34/− .47, 95% CI = − 0.38 to − 0.30, and teaching satisfaction, ES (*r*/corrected *r*) = + 0.28/+ 0.34, 95% CI = + 0.13 to + 0.42	in samples with more female teachers - Burnout component reduced accomplishment also included, but findings from main analyses not reported here as (reduced) teacher self-efficacy also considered; however, results from moderator analyses disentangling the effects of different measures (self--efficacy vs. original reduced accomplishment-scale from burnout inventory) reported, with focus on the relations for reduced accomplishment measured as burnout component and not as reduced teacher self-efficacy: Significant relations between reduced accomplishment and (a) surface acting, ES (*r*) = + 0.14, (b) deep acting, ES (*r*) = − 0.14, (c) expression of naturally felt emotions, ES (*r*) = − 0.32
VIII. Mindfulness as psychological characteristic					
von der Embse et al. (2019)	Mindfulness	Stress (incl. burnout: three dimensions of emotional exhaustion, depersonalization, and personal accomplishment)	8 studies with in-service teachers, international focus	Conclusions from systematic review: - Variability of effect sizes (from close to zero to large) - In addition to mindfulness interventions, review also discussed interventions in other domains (knowledge-based, behavioral, cognitive-behavioral) - The authors concluded that the most effective interventions were in the mindfulness, behavioral, and cognitive-behavioral domain - Mindfulness intervention did not seem to be more effective than these other intervention types	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
Emerson et al. (2017)	Mindfulness	Stress (psychological and physical symptoms, and burnout [three dimensions of emotional exhaustion, depersonalization, and personal accomplishment])	11 studies considering stress, pre-service and in-service teachers, studies from the USA, Canada, UK included in review	Conclusions from systematic review: - Emerging evidence that mindfulness interventions can reduce physical and psychological symptoms of stress, including burnout - Variability of effect sizes, inconsistent patterns in terms of significance vs. non-significance of results - Greatest proportion of significant findings for outcomes relating to teachers' perceived stress	
Hwang et al. (2017)	Mindfulness	Stress/distress, burnout [three dimensions of emotional exhaustion, depersonalization, and personal accomplishment], anxiety, depression	10 quantitative studies on effects of mindfulness interventions (well-being and teacher effectiveness), in-service teachers, studies from the USA, UK, and Australia included in review	Conclusions from systematic review: - Considered mindfulness interventions seemed to be effective in reducing self-perceived stress/burnout and overall perceived distress, depression, and anxiety - Teacher effectiveness aspects also covered, but not discussed here due to isolated findings (single studies)	
Iancu et al. (2018)	Mindfulness	Burnout (three dimensions of emotional exhaustion, depersonalization, personal accomplishment)	9 studies on mindfulness/meditation: Effects on emotional exhaustion, depersonalization, and personal accomplishment considered in 6, 5, and 5 studies, respectively, in-service teachers (one study included higher education staff), international focus (but most studies were from the USA)	Different interventions to reduce burnout included (mindfulness/mediation, cognitive behavioral therapy, social-emotional skills, psychoeducational approach, social support, and professional development); here focus on results for mindfulness from moderator analyses with intervention type as moderator: (a) Significant effect for emotional exhaustion: Cohen's d = + 0.31, SE = 0.12, 95% CI = + 0.08 to +0.54 (b) Non-significant effect for depersonalization: Cohen's d = + 0.17, SE = 0.13, 95% CI = − 0.08 to 0.41 (c) Significant effect for personal accomplishment: Cohen's d = + 0.28, SE = 0.14, 95% CI = − 0.00 to 0.56 - Although stronger effects were obtained for mindfulness interventions than for other types of interventions (except for the stronger effect of professional development on emotional exhaustion and an effect of virtually the same size for social support interventions on personal accomplishment), the authors concluded that mindfulness interventions were not more effective, as indicated by overlapping confidence intervals	
Klingbeil and Renshaw (2018)	Mindfulness	Psychological well-being (e.g., adaptive coping, positive affect), psychological distress (e.g.,	23 studies on well-being (n = 1248), 27 studies on psychological distress (n = 1469), 8 studies (n =	Mindfulness interventions (positive effect sizes represent results favoring the intervention group):	- Indications of publication bias for overall treatment effect

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
		perceived stress, depression, burnout), classroom climate and instructional practices	536) on classroom climate and instructional practices, in-service teachers, international focus	- Significant effect on (a) well-being: ES (Hedge's *g*) = + 0.431, 95% CI = + 0.254 to. + 0.608 (b) psychological distress: ES (Hedge's *g*) = + 0.551, 95% CI = + 0.368 to + 0.734 - Depending on specification: (c) Non-significant effect on classroom climate and instructional practices, ES (Hedge's *g*) = + 0.314, 95% CI = + 0.152 to + 0.477, when using robust variance estimation and significant effect, ES (Hedge's *g*) = + 0.314, 95% CI = + 0.202 to + 0.426, when using a random-effects model with restricted maximum likelihood and adjusted standard errors and an unweighted average within study effect size; noted that *p*-values might be biased in first specification given that the associated *df* were less than 4[b]	- Findings from moderator analyses not reported here as they did not consider the outcomes of interest separately (well-being, distress, classroom climate and instructional practices)
Lomas et al. (2017)	Mindfulness	Well-being components: burnout (e.g., three dimensions of emotional exhaustion, depersonalization, and personal accomplishment), depression, anxiety, distress/anger, stress and strain, wellbeing/ satisfaction)	18 quantitative studies, among those 16 interventions (almost all of them with in-service teachers, only one study with a pre-service teacher sample, three studies with higher education staff), international focus	Conclusions from systematic review: - Preponderance of studies pointed towards positive effects of mindfulness interventions in terms of lower levels of anxiety, burnout, depression, distress/anger, stress and strain, and higher levels of well-being/satisfaction - Teacher effectiveness aspects also covered, but not discussed here due to isolated findings (single correlational study linking mindfulness to classroom observation scores) - Cautioned that quality of included studies was relatively poor	

Table 2 (continued)

Authors and date	Psychological characteristic	Outcome(s)	*k*, *n*, and world region	Main findings	Additional findings
Luken and Sammons (2016)	Mindfulness	Burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment)	Three studies with in-service teachers from the USA and Canada	Conclusions from systematic review: Stated that all three studies with teachers reported significantly reduced burnout	
Zarate et al. (2019)	Mindfulness	Stress, anxiety, burnout (three dimensions of emotional exhaustion, depersonalization, and personal accomplishment), depression	18 studies with 1001 in-service teachers, 10 studies (743 teachers) for stress, 8 studies (672 teachers) for anxiety, 8 studies (639 teachers) for burnout, 7 studies (402 teachers) for depression, international focus	Effects of mindfulness interventions in favor of intervention group: (a) Stress: Significant effect, Cohen's $d = -0.53$, 95% CI = − 0.76 to − 0.30 (b) Anxiety: Significant effect, Cohen's $d = -0.52$, 95% CI = − 0.78 to − 0.25 (c) Burnout: Significant effect, Cohen's $d = -0.33$, 95% CI = − 0.52 to − 0.15 (d) Depression: Significant effect, Cohen's $d = -0.67$, 95% CI = − 0.92 to − 0.42 No moderator analyses conducted	

k number of studies; *n* total sample size; *ES* effect size; *SD* standard deviation; *SE* standard error; 95% CI 95% confidence interval. If a meta-analysis reports results from both random and fixed effects models (Chesnut & Burley, 2015), we focus on the results from random effects models here

[a] Yin et al. (2019) reported ES (*r*) corrected for artifacts (measurement error, combined artifact multiplier) in addition to uncorrected inverse variance weighted meta-correlations. We report both coefficients in the table: *r* and *r* corrected

[b] Significance testing using robust variance estimation is considered unbiased when the adjusted degrees of freedom are greater than 4 (see Tanner-Smith and Tipton, 2014)

Information Retrieval

For each synthesis, we coded information about authors and publication date, investigated psychological characteristic(s), type of outcome, and findings regarding the links between psychological characteristics and outcomes—for meta-analyses including effect sizes as well as standard errors of the effects and 95% confidence intervals if reported, and for systematic reviews in terms of narrative conclusions (Table 2). For correlation-based meta-analyses, we interpreted effect size indicators according to Cohen's (1988) guidelines with average correlations of above .10, .30, and .50 indicating small, medium, and large effects, respectively. Results from meta-analyses investigating effects of interventions typically employ indicators such as Cohen's *d* or Hedges' *g*. Here, the cut-off points of .20, .50, and .80 were considered as indicators of small, medium, and large effects (Cohen, 1988). For meta-analyses, we also coded information on additional findings with a particular emphasis on results from moderator analyses. We noted potential threats in terms of publication bias as additional findings, if authors mentioned them. If a synthesis reported relations between a specific psychological characteristic and a specific outcome based on one study, we did not include this information. For systematic reviews covering both qualitative and quantitative findings, we focused on the quantitative results. Although we excluded syntheses that solely relied on samples from post-secondary contexts, some of the syntheses included a few studies drawing on samples of higher education teachers, for example, four out of 21 studies in Cramer and Binder (2015). We still considered these syntheses for our integrative review, but note ambiguities related to the samples when summarizing their findings.

Results

The included meta-analyses and systematic reviews addressed the following psychological characteristics: (a) motivation: self-efficacy (6 syntheses) and causal attributions (1 synthesis); (b) personality (3 syntheses); (c) expectations (2 syntheses); (d) emotion-related teacher factors: emotional labor (2 syntheses), emotional intelligence (2 syntheses), enthusiasm (1 synthesis); and (e) mindfulness (7 syntheses). In the next sections, we summarize and discuss the findings separately for each psychological characteristic. Table 2 summarizes detailed information regarding the results of each synthesis structured in categories for each psychological characteristic, including exact effects sizes (for meta-analyses).

Self-Efficacy

Self-efficacy (Bandura, 1997) has come to be the most commonly synthesized motivational factor related to the outcomes considered in the present review. In accordance with Bandura's (1997) framing of self-efficacy as situation- and task-specific, teachers' self-efficacy has been defined as an "individual's beliefs in their capabilities to perform specific teaching tasks at a specified level of quality in a specified situation" (Dellinger et al., 2008, p. 754). The widely used Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001), for example, considers three dimensions of teachers' self-efficacy: self-efficacy regarding instructional practices, classroom management, and student engagement. On the other hand, self-efficacy can also be conceptualized as general self-efficacy referring to the belief in one's competence to cope with a wide range of stressful or challenging demands and thus, as a

construct with a broader and not necessarily task-specific focus (e.g., Luszczynska et al., 2005). Even though such an understanding of self-efficacy as an omnibus trait has frequently been criticized in research on teachers (e.g., Tschannen-Moran & Woolfolk Hoy, 2001; Zee & Koomen, 2016), some of the syntheses summarized here included studies with varying self-efficacy conceptualizations, among those general self-efficacy (e.g., Shoji et al., 2016). Other syntheses strictly followed Bandura's definitions and solely considered studies relying on task-, domain-, and/or situations specific self-efficacy (e.g., Aloe et al., 2014; Zee & Koomen, 2016, see Table 2 for an overview). Yet other studies, mainly older ones, employed the scale by Gibson and Dembo (1984), which was popular in research on teachers prior to the introduction of the TSES and distinguishes between personal teaching efficacy (teachers' beliefs regarding their own teaching) and teaching efficacy (referring to teachers in general, i.e., one's beliefs about the population of teachers and their capabilities).

The meta-analysis of Aloe et al. (2014) focused on in-service teachers' classroom management self-efficacy, and thus, teachers' perceived competency to successfully maintain order and proactively manage disruptions (e.g., Tschannen-Moran & Woolfolk Hoy, 2001) and its association with the three burnout components of emotional exhaustion, depersonalization, and lowered personal accomplishments (Maslach et al., 2001). Social cognitive theory proposes that self-efficacy determines numerous stress-related outcomes, such as burnout (Bandura, 1997). Specifically, student misbehavior and, relatedly, teachers' perceptions of being incapable to effectively deal with disruptive behavior have been pictured as significant factors contributing to burnout (e.g., Chang, 2013), whereas higher levels of classroom management efficacy might act as protective factor in burnout prevention (Aloe et al., 2014). The findings of Aloe et al.'s (2014) meta-analysis lend support to this assumption. Significant negative average effects of small-to-medium and medium size were found for emotional exhaustion and depersonalization and a significant positive average effect of medium size occurred for personal accomplishment (sizes of effects: personal accomplishment > depersonalization > emotional exhaustion). A further meta-analysis covered relations between pre-service and in-service teachers' self-efficacy beliefs and commitment (Chesnut & Burley, 2015). Of importance, commitment was conceptualized both with a positive interpretation (e.g., commitment, intention) and a negative interpretation (e.g., burnout, attrition, negative aspects were recorded for the main analysis) and the self-efficacy measures were either aligned with Bandura's conceptualization or followed other conceptualizations (e.g., general self-efficacy). The authors reported significant positive effects of medium size for overall commitment and no statistically significant difference in the strength of the effect depending on the orientation of the commitment measures (positive vs. negative connotation). Moderator analyses further revealed that studies using "accurate" Bandura-based measures of self-efficacy produced stronger effects than studies using "inaccurate" not Bandura-based measures.

Approaching the topic from a different angle, Shoji et al. (2016) meta-analytically compared in-service teachers with health care providers and a category comprising "other professionals". Primary studies summarized in the meta-analysis employed a wide array of self-efficacy conceptualizations and measures, ranging from general self-efficacy beliefs to teacher efficacy and its specific components, such as self-efficacy regarding classroom management. Moderator analyses with occupation type as moderator revealed a significant negative effect of medium size for the relation between teachers' self-efficacy and burnout. The relation between self-efficacy and burnout was statistically significantly more pronounced in teacher samples

than in health care provider samples, whereas no significant difference emerged between teachers and "other professionals".

The systematic review of Klassen et al. (2011) aimed to capture the breadth of work on teacher efficacy that had been conducted in a 12-year span (1998–2009), querying a set of critical questions related to research characteristics such as methodology, sample attributes, and geographical location. Still, Klassen et al. (2011) also paid attention to relations between teacher self-efficacy and student outcomes in their review. They highlighted inconsistent findings regarding the link between self-efficacy and student achievement in the three studies they reviewed, and more generally, the scarcity of research on student outcomes in the teacher self-efficacy domain. The studies on the link between self-efficacy and student achievement either assessed self-efficacy using the scale by Gibson and Dembo (1984) or followed a Bandura-based conceptualization.

In a further systematic review (Zee & Koomen, 2016), the authors drew on a large and diverse body of studies carried out in the preceding 40 years to summarize relations between teachers' self-efficacy and a range of student-focused (e.g., achievement, student motivation) and teacher-focused (e.g., burnout) constructs. As Zee and Koomen (2016) only considered studies relying on Bandura-based self-efficacy conceptualizations, the overlap with the review of Klassen et al. (2011) was minimal. Similar to Klassen et al. (2011), they concluded that teacher self-efficacy has not been found to be consistently related to students' achievement, with modest coefficients for overall achievement scores (Zee & Koomen, 2016). Relatively robust relations to motivational student outcomes and some indications for positive relations to teacher effectiveness in terms of delivering high-quality instruction were noted. However, empirical support for a positive link between teachers' self-efficacy and interpersonal student-teacher relationships remained elusive: Most of the (limited) studies on this topic reported zero/non-significant findings. In addition, relations between teachers' self-efficacy and a number of well-being components, such as lower levels of burnout and job-related stress, have been established in the literature, which is well aligned with the findings of Aloe et al. (2014) focusing on classroom management self-efficacy and burnout. Zee and Koomen (2016) furthermore mentioned positive relations between commitment, but pointed toward mostly non-significant (direct) effects of self-efficacy on attrition and retention (e.g., intention to drop out or stay).

Finally, Klassen and Tze (2014) sought to quantitatively determine the strength of the relation between teachers' self-efficacy and teacher effectiveness using meta-analytic techniques. Teacher effectiveness was measured either as student achievement (value-added scores on standardized tests, provincial/state-wide competency tests, and school-based achievement results) or by using ratings of external observers (student, principal, and supervisor ratings of teaching quality). The self-efficacy measures built on a range of different conceptualizations (e.g., teacher self-efficacy for student engagement, Gibson and Dembo's (1984) teaching efficacy, and personal efficacy). The average relations between self-efficacy and teacher effectiveness was weaker (positive effect of small size) than the effects obtained in the other meta-analyses on self-efficacy. Nonetheless, moderator analyses indicated that the studies relying on external observer-rated teacher performance produced higher relations than studies using student achievement measures, with a significant small effect as opposed to a significant effect of small-to-trivial size (Klassen & Tze, 2014).

Overall, the available evidence suggests that self-efficacy plays a role for teachers' well-being. The synthesis of Zee and Koomen (2016), considering a range of outcomes, furthermore, highlights positive relations between teachers' self-efficacy and students' motivation as

well as some domains of teachers' instructional practices (see also Klassen & Tze, 2014, for the effects regarding external observer ratings of teaching). Relations to student achievement, albeit of small size, are likely to exist as well (Klassen & Tze, 2014; Zee & Koomen, 2016). On the other hand, based on the currently available evidence, self-efficacy does not show any signs of promise in enhancing positive student-teacher relations (Zee & Koomen, 2016). Some controversies regarding potential influences of self-efficacy on retention/attrition (Chesnut & Burley, 2015; Zee & Koomen, 2016) surface; however, both syntheses clearly reveal positive relations between self-efficacy and commitment. Still, the findings on self-efficacy are overshadowed by measurement-related issues, given that in several syntheses, the summarized studies relied on a variety of measures (e.g., general self-efficacy, Bandura-based measures, etc.). This heterogeneity and inconsistency interfere with a straightforward interpretation of the respective results. Other syntheses were more restrictive and solely considered studies with Bandura-based self-efficacy measurement (Aloe et al., 2014; Zee & Koomen, 2016). Yet others dealt constructively with the different measurement approaches: The moderator analyses in Chestnut's and Burley's (2015) meta-analysis showing that so-called "accurate" (i.e., Bandura-based) measures yield stronger effects than "inaccurate" measures illustrate the implications of measurement-related choices and reinforce the need to enhance conceptual clarity in the measurement of self-efficacy.

Causal Attributions

The theory of causal attributions is concerned with causes individuals ascribe to their success or failure events and the implications of these causal attributions (see, e.g., Weiner, 2000). Three causal dimensions can be distinguished, (a) locus of causality: internal (e.g., ability or effort) or external to the individual (e.g., luck or environmental circumstances), (b) stability: relatively stable causes (e.g., ability) or unstable causes that fluctuate over time (e.g., luck), and (c) controllability: changeable (e.g., effort) or not changeable (e.g., specific environmental circumstances). Attribution theory further distinguishes between interpersonal (focusing on oneself) and intrapersonal attributions (focusing on others) (Weiner, 2000; see also Wang & Hall, 2018).

Wang and Hall (2018) reviewed in-service teachers' interpersonal attributions for students' performance and for student misbehavior. The authors documented consistent relations between teachers' interpersonal attributions for student performance and students' actual performance and motivation in the few studies on this topic. Positive interpersonal attributions referring to internal dimensions (i.e., attributions focusing on students' high effort or ability as a cause for their performance) have been shown to be positively associated with students' higher performance and motivation. Interpersonal attributions focusing on external dimensions (low task difficulty or assistance) as causes for students' performance negatively correlated with students' performance and motivation. Moreover, the findings underscored the reciprocal nature of associations between teachers' interpersonal attributions and students' performance and motivation. For instance, the higher students' initial achievement levels or motivation, the more likely teachers were to attribute academic success to internal factors, which, in turn, contributed to even higher subsequent levels of achievement and motivation.

Wang and Hall (2018) also discussed interpersonal teacher attributions for student misbehavior and their consequences; however, as the results seemed rather fragmented, with single studies considering different outcomes, we did not deem it useful to summarize them. With regard to intrapersonal attributions (referring to teachers themselves), the review synthesized

research on the effects of teachers' attributions concerning their own occupational stress. The results revealed that attributing their occupational stress to personally controllable factors could increase teachers' well-being and counteract burnout.

Taken together, the review notes positive effects of teachers attributing students' performance to students' abilities or effort in that such attributions could raise students' achievement and motivation. Moreover, teachers who focus on the controllable aspects of their occupational stress tend to report higher well-being. In general, all conclusions are limited by the small number of studies that could be synthesized (e.g., three for interpersonal attributions and effects on achievement and motivation, four for intrapersonal attributions and well-being).

Teacher Expectations

Teacher expectations refer to the inferences that teachers make about student features, such as students' present and future academic achievement (Good & Brophy, 1997). It has further been proposed that teachers can be classified according to their expectations as low- vs. high-expectation teachers and thus as teachers who have high(er) or low(er) expectations for all of their students (Rubie-Davies, 2007).

The theory on teacher expectation effects outlines that teachers' expectations are translated into teachers' behaviors and interactions with students in that teachers can treat students differentially depending on their initial expectations (e.g., more favorable treatment if the teacher had higher expectations for a student). In accordance with a "self-fulfilling prophecy," students for which teachers had initial higher expectations will show higher achievement gains than low expectation students (Rosenthal & Jacobson, 1968; see also, e.g., Gentrup et al., 2020). In addition to the effects of teachers' expectations on achievement, teachers' expectations could also impact on further student outcomes. For example, as teachers may not reward the learning efforts of low expectation students in the same way as they do the efforts of high expectation students, lower expectation students may reduce their learning efforts. When positive reinforcement of the teacher is lacking due to their reduced learning efforts, these students' motivation and positive self-beliefs (e.g., self-concept) are likely to decrease and anxiety is likely to increase (Urhahne et al., 2011).

Two syntheses reviewed teacher expectation effects (De Boer et al., 2018; Wang et al., 2018). Wang et al.'s (2018) systematic review summarized, among several other dominant topics in teacher expectation research over the last 30 years, the results of studies on student outcomes of teachers' academic expectations. The authors used the term "academic expectations" to make clear that they referred to teachers' expectations of students with regard to their academic ability, performance, or future achievement and that teacher expectations about student factors other than academic ability or achievement, such as particular student behavior, characteristics, or social skills were not considered. The findings of the review by Wang et al. (2018) can be summarized along three lines. First, a considerable number of studies documented associations between teachers' high academic expectations and higher student achievement levels (e.g., scores on tests, graduation). Second, higher academic expectations were observed to be related to higher levels of students' adaptive motivation, beliefs, and expectations (e.g., self-efficacy, self-concept) and lower levels of anxiety (e.g., test anxiety, anxiety about mathematics). Third, the existing corpus of research linking teachers' academic expectations to students' learning behavior was too incoherent, with single studies focusing on different outcomes, to draw valid conclusions. Wang et al. (2018) also briefly discussed intervention studies, but De Boer et al. (2018) covered this topic more

comprehensively. The meta-analysis and review of De Boer et al. (2018) provided insights on the effects of interventions aimed at influencing in-service teachers' academic expectations, which were defined as a teacher's estimate of students' academic capabilities, as well as student achievement in naturalistic classroom settings. The included studies relied on different intervention approaches in terms of behavioral approaches (changing teachers' practices), awareness approaches (creating awareness of the existence and effects of biased expectations), and beliefs approaches (addressing teachers' own beliefs about students' academic abilities). It was shown that the interventions had, on average, a significant positive small effect on student achievement. In discussing their findings, the authors suspected teachers' support for the respective intervention to be a key factor for an intervention's success in altering student achievement (De Boer et al., 2018).

All in all, considerable empirical evidence indicates that teachers' academic expectations are related to students' achievement, motivation, beneficial self-beliefs, and success expectations. Some limited evidence exists on relations to anxiety (Wang et al., 2018). Even though a large number of studies on motivation, self-beliefs, and anxiety did not control for prior achievement and baseline data, those that did generally support the claim that higher teacher academic expectations should be positively associated with these outcomes. Similarly, in approximately 40% of the studies focusing on achievement outcomes, prior achievement was not controlled for; however, the results of both studies which controlled for prior achievement and those that failed to do so point toward positive effects of high academic teacher expectations on student achievement. Nonetheless, the lack of control for prior achievement and baseline characteristics remains a serious flaw that future studies in the academic teacher expectation domain need to avoid. Focusing on intervention studies, De Boer and associates (2018) furthermore demonstrated that teachers' academic expectations can be altered via interventions and causally influence student achievement. The relatively small number of studies, however, kept the authors from running moderator analyses using, for example, intervention type as moderator, which would have allowed to obtain a more nuanced understanding. In terms of enhancing teacher effectiveness outcomes (student achievement, student motivation, etc.), expectations seem to be a rather promising psychological characteristic.

Personality

Personality characteristics—often referred to as relatively enduring patterns of thoughts, feelings, and behaviors (e.g., Roberts & Jackson, 2008)—have been subject to several meta-analyses and systematic reviews in the teacher domain. Klassen and Tze (2014) meta-analytically summarized the relationship between in-service and pre-service teachers' personality and teacher effectiveness assessed by student achievement and external observer ratings. Of the twelve included studies, five relied on the Big Five framework, two on the Myers-Briggs framework, and five on other personality measures that were not further described by the authors. The Big Five framework, as the most well-known personality framework, covers five basic dimensions of personality: extraversion (active, assertive social), openness (open-minded, curious, cultured), agreeableness (altruistic, tender-minded, cooperative), conscientiousness (self-controlled, following norms and rules, organized), and emotional stability (calm, not neurotic) (see, e.g., John et al., 2008 for an overview). The Myers-Briggs framework contains sixteen different personality types which result from combinations of four attitudes or orientations (extraversion vs. introversion, and judging vs. perceiving) and four

functions (sensing vs. intuition, and thinking vs. feeling) (e.g., Myers, 1998). In their meta-analysis, Klassen and Tze (2014) did not differentiate between different personality constructs (e.g., specific Big Five dimensions, such as conscientiousness and extraversion, or Myer-Briggs personality types) and instead treated all constructs as indicators of personality ("personality composite"). The authors obtained a significant average positive effect of small-to-trivial size for the relation between their personality composite and teacher effectiveness (student achievement and external observer ratings).

Montgomery and Rupp (2005) relied on a similar approach in that personality constructs were not separately considered and instead all lumped together (i.e., "personality composite"). In their meta-analysis on stress in teachers, they argued that certain individuals may be more predisposed to feel stressed because of their personality. No comprehensive list of the considered personality construct combined to form the personality composite was provided, but features such as type-A personality, attitude posture, and relaxation potential were mentioned in the theoretical background. Type-A personality, which manifests itself in behaviors such as competitiveness, easily aroused hostility, aggressiveness, and a sense of time urgency, represents a well-known construct in research on stress and health risks (e.g., type-A personality has been described as a risk factor for cardiac disorders, Matthews, 1982; Rosenman, 1978). On the other hand, it is not clear how the other personality features (e.g., attitude posture) were defined and which exact constructs were measured in the studies included in the meta-analysis. The results showed significant average positive relations of small-to-medium size between this personality composite and both stress and burnout across investigated studies.

By contrast, Cramer and Binder (2015) and Kim et al. (2019) separated personality domains in the Big Five framework, which enabled them to disentangle effects for personality dimensions. In their meta-analysis, Kim et al. (2019) reported average positive significant correlations of a small size between in-service and pre-service teachers' extraversion, openness, consciousness, and emotional stability (size of the effects: extraversion > conscientiousness > openness and emotional stability) and a teacher effectiveness composite consisting of student achievement scores, students' teaching evaluations, classroom observation scores, as well as students' performance self-efficacy. Students' performance self-efficacy captures students' perception of their capability to perform academically, which is often measured by asking students to report the grade they expect to receive in a particular subject or their expectation to perform well in a particular subject (e.g., Shell & Husman, 2001). For agreeableness, a close-to-zero non-significant positive correlation was found. Moderator analyses for the different types of teacher effectiveness outcomes further revealed that personality domains correlated more strongly with teaching evaluation scores (positive small-to-trivial to medium associations), even though significant effects were restricted to extraversion (effect of medium size), and openness and conscientiousness (small effects). Low non-significant correlations for all personality domains were obtained for student achievement (negative small-to trivial to positive small associations), classroom observation scores (positive zero to small-to-trivial associations), and student performance self-efficacy (based on only two studies, zero to positive small-to-trivial associations). Effects for burnout, the second teacher effectiveness outcome, were not statistically significant (small positive average correlations for all dimensions except for openness with a close-to zero average effects, see Table 2).

Cramer and Binder (2015) relied on a sample of studies about teacher personality and burnout that were largely independent of those synthesized in Kim et al. (2019). This seems to be due to Cramer and Binder's broader understanding of burnout as comprising not only

burnout but also stress, differences in the search strategies, the inclusion of articles published in German and Polish in addition to English, and the reliance on published work only, whereas more than half of the studies Kim et al. (2019) synthesized were PhD dissertations. With regard to openness, Cramer and Binder (2015) arrived at the same conclusion as Kim et al. (2019) and other syntheses on employee burnout (e.g., Alarcon et al., 2009): Openness does not appear to play a relevant role for teachers' burnout. The conclusions concerning the other dimensions, however, contrasted Kim et al.'s (2019) findings. Cramer and Binder (2015) reported that high levels of neuroticism (low emotional stability) were consistently found to go along with a higher burnout risk and higher levels of stress, whereas higher levels of agreeableness, and particularly extraversion showed indications of negative relations to burnout. The findings for conscientiousness were portrayed as more mixed, even though the preponderance of studies also pointed toward negative effects. Nonetheless, it should be kept in mind that not only the studies included in the two syntheses on personality domains differed but also the chosen approach, namely meta-analysis vs. vote-counting in the systematic review. The latter approach has been criticized for potentially leading to erroneous conclusions, because, for example, sample sizes of primary studies are ignored (e.g., Borenstein et al., 2011).

In sum, Kim et al.'s (2019) meta-analysis shows, at most, small positive relations between personality domains and teacher effectiveness outcomes, even though moderator analyses point toward a more differentiated pattern of findings: Stronger effects, particularly for extraversion, surface in studies using teaching evaluations and non-significant effects in studies relying on other teacher effectiveness measures, such as student achievement or classroom observations. Klassen and Tze (2014) document a solely small-to-trivial positive average relation between a personality composite and teacher effectiveness, but the use of this personality composite hampers a straightforward interpretation. As the strength of effects presumably differs across personality constructs (see, e.g., in Cramer & Binder, 2015; Kim et al., 2019), merging different constructs to build one overall personality indicator may mask relevant and distinct relations between separate constructs and the outcomes. Findings for the relations between Big Five personality domains and negative well-being outcomes (burnout, stress) contradict each other. Cramer and Binder (2015) observe indications of negative relations for all domains except for neuroticism, whereas Kim et al. (2019) report non-significant positive effects; the conclusions of the two syntheses solely converge regarding openness (zero effects). The effects reported in the synthesis of Montgomery and Rupp (2005) are difficult to interpret due to the reliance on personality composites and ambiguities regarding the constructs included in these personality composites. Hence, we note inconsistencies regarding the relations between personality and well-being, whereas we consider Big Five personality domains, especially extraversion, as offering some promise in terms of relations to teacher effectiveness, specifically with regard to students' evaluations of teaching as a commonly used measure of teacher effectiveness.

Emotional Intelligence

Two of the syntheses identified in our integrative review addressed emotional intelligence in the teacher domain (Mérida-López & Extremera, 2017; Yin et al., 2019). Mayer and Salovey (1997) characterize emotionally intelligent individuals as those who perceive emotions accurately, can use emotions to effectively facilitate thought, and are able to grasp emotions and emotional meanings to manage emotions in themselves and others. The two most commonly

used measures of emotional intelligence for teachers (see Yin et al., 2019) are the Bar-On (1997) Emotional Quotient Inventory (EQ-i) and the Wong and Law (2002) Emotional Intelligence Scale (WLEIS). The EQ-i comprises five factors: intrapersonal (e.g., emotional self-awareness), interpersonal (e.g., empathy), stress management (e.g., impulse control), adaptability (e.g., flexibility), and general mood (e.g., optimism, Bar-On, 1997). Emotional intelligence assessed with the WLEIS is broken down into four factors: the appraisal and expression of emotion in the self, appraisal and recognition of emotion in others, regulation of emotions in the self, and using emotions to facilitate performance (Wong & Law, 2002). The subscales capturing the factors are often used to build an overall emotional intelligence factor, also because the different factors can be highly correlated (Yin et al., 2019).

In their systematic review, Mérida-López and Extremera (2017) refrained from making strong claims regarding the relation between in-service teachers' emotional intelligence and burnout based on the summarized correlational and cross-sectional studies, which might partially be ascribed to the mentioned heterogeneity of measures to assess emotional intelligence, and relatedly, difficulties in comprehensively synthesizing the current state of research. Still, they noted that the findings point toward negative associations between different emotional intelligence factors and burnout (emotional exhaustion, depersonalization, reduced accomplishment). Yin et al.'s (2019) meta-analysis supported this notion, yielding a significant small negative relation between in-service teachers' emotional intelligence and emotional exhaustion, a significant negative relation of mediums size between emotional intelligence and depersonalization, and a significant positive relation between emotional intelligence and teaching satisfaction of medium size. For the interpretations of effect sizes, we focus on corrected average correlation coefficients, which were slightly larger than uncorrected coefficients (Yin et al., 2019; see Table 2 for both estimates).

In conclusion, the existing evidence indicates that both positive and negative well-being aspects are related to teachers' emotional intelligence, with small to medium effect sizes in Yin et al.'s (2019) meta-analysis. Emotional intelligence thus appears to bear significance for teachers' well-being. Future syntheses (e.g., relying on results from interventions) now need to provide additional evidence concerning a causal mechanism, and need to expand the scope to consider further outcomes (e.g., student achievement, teachers' interpersonal relations etc.).

Emotional Labor

Hochschild (1983) coined the term "emotional labor" to describe specific ways of managing and regulating one's emotions, and defined emotional labor as "the management of feeling to create a publicly observable facial and bodily display" (p. 7). Emotional labor can take the form of surface acting, where individuals regulate the emotional expressions without modifying internal feelings, such as faking a smile, and deep acting, where individuals consciously modify their feelings in order to express the desired emotion (Grandey, 2000; Hochschild, 1983; Wang et al., 2019). Later, researchers added spontaneous and genuine emotional labor as a further component to acknowledge that individuals can spontaneously and genuinely experience and express expected emotions, without the need for adjustments (e.g., Ashforth & Humphrey, 1993).

The topic of emotional labor garnered closer attention by two groups of authors striving to synthesize existing work in this area (Wang et al., 2019; Yin et al., 2019). Yin et al. (2019) found significant positive relations of medium size between in-service teachers' surface acting and the burnout facets of emotional exhaustion and depersonalization, and a significant

negative relation between surface acting and teaching satisfaction of small-to-medium size. Deep acting was not significantly related to emotional exhaustion and depersonalization, with negative close-to-zero effect sizes; however, Yin et al. (2019) reported a significant positive relation to teaching satisfaction of medium size. Genuinely expressed emotions—those Yin et al. (2019) referred to as naturally felt emotions—showed significant negative associations with emotional exhaustion and depersonalization of small-to-medium and medium-to-large size, respectively, as well as a significant positive medium association to teaching satisfaction. All results summarized here are based on corrected average correlation coefficients, which were slightly larger than uncorrected coefficients (Yin et al., 2019, see Table 2 for both estimates).

Please note that we do not cover the main findings regarding the third burnout component, reduced accomplishment, due to conceptual ambiguities related to the content of this category. Specifically, the category confounded effects from studies using original reduced accomplishment-scales with (recoded) coefficients from studies on teacher self-efficacy. Still, moderator analyses comparing effects of these two types of measures indicated that, when appropriately measured as reduced accomplishment, a significant small positive relation to surface acting, a significant small negative relation to deep acting, and a significant medium negative relation to genuinely expressed emotions emerged (Yin et al., 2019).

Wang et al.'s (2019) systematic review and meta-analysis drew on a partially overlapping sample of studies. Supporting the conclusions from their systematic review, meta-analytic findings revealed a significant small-to-medium negative relation between in-service teachers' surface acting and well-being, a non-significant close-to-zero positive relation between deep acting and well-being, and a significant small positive relation between the expression of genuinely felt emotions and well-being. Well-being comprised both positive components, such as job satisfaction, and (recoded) negative components, such as burnout.

Taken together, emotional labor aspects are differentially related to well-being outcomes, with surface acting as least adaptive and expression of genuinely felt emotions as most adaptive component. Conducting further syntheses providing insights into causal mechanism still lies ahead. Nonetheless, based on the currently available evidence, specific emotional labor strategies seem to hold promise as potential enhancer of teachers' well-being.

Enthusiasm

Teacher enthusiasm has recently (Keller et al., 2016) been construed as incorporating two components that can, but need not to, co-exist (a) displayed enthusiasm, i.e., enthusiasm as nonverbal expressiveness and as instructional behavior (e.g., Rosenshine, 1970), and (b) experienced enthusiasm as affective experience (Keller et al., 2016; but see Kunter et al., 2008 for a conceptualization of enthusiasm as affective-motivational teacher factor). Experienced enthusiasm can, according to Kunter et al. (2008), be further broken down into teaching- and subject-related experienced enthusiasm. For the current integrative review, we narrowed our focus to experienced enthusiasm, as displayed enthusiasm is either restricted to behavioral manifestations (e.g., facial expression, tone of voice) or manifested in high-quality instruction and thus conceptually and functionally too close to teacher effectiveness definitions including instructional quality. This decision corresponds well with Keller et al.'s (2016) statement that experienced enthusiasm seems to serve as a prerequisite for effective teaching, while displayed enthusiasm rather represents an element of high-quality teaching. Unfortunately, only a small number of studies summarized in the review of Keller et al. (2016) considered experienced enthusiasm (e.g., Kunter et al., 2011; Kunter et al., 2013b). Nonetheless, the findings of the

few studies pointed toward positive associations with both teachers' well-being (higher job or life satisfaction and lower levels of emotional exhaustion) and student outcomes (students' enjoyment and achievement). Overall, experienced enthusiasm shows links to adaptive student outcomes as well as teacher well-being outcomes. If the popularity of studying teachers' experienced enthusiasm increases, further syntheses relying on larger samples of primary studies will be critical to probe the encouraging findings of the studies summarized by Keller et al. (2016).

Mindfulness

The construct of mindfulness refers to the self-regulation of attention in a way that it is maintained on immediate experience. Mindfulness is accompanied by an orientation toward one's experiences within the present moment, characterized by curiosity, openness, and acceptance (Bishop et al., 2004), and involves both "trait" and "state" components (e.g., Kiken et al., 2015). Interventions to foster mindfulness, including the ones considered in our integrative review, rely on a range of components, such as guided reflection practices, relaxation training, yoga, meditation, breathing and body awareness exercises, group discussions of mindfulness practice, small-group activities to practice skills in real-life scenarios, and emotional balance training (see e.g., von der Embse et al., 2019; Emerson et al., 2017; Iancu et al., 2018; Klingbeil & Renshaw, 2018).

All in all, seven syntheses on mindfulness were identified, speaking to the growing popularity of this construct in research on teachers. In the year 2017 alone, a total of three systematic reviews on mindfulness with partially overlapping samples of studies were published (Emerson et al., 2017; Hwang et al., 2017; Lomas et al., 2017). Emerson et al.'s (2017) review suggested that mindfulness interventions are effective in reducing stress and particularly in-service and pre-service teachers' perceived stress, even though the authors also pointed toward the observed variability of effect sizes. Hwang et al. (2017) concluded that mindfulness interventions promote in-service teacher well-being by reducing negative outcomes, such as self-perceived stress, burnout, overall perceived distress, and anxiety. Lomas et al. (2017) reached similar conclusions and referred to decreased stress, strain, anxiety, depression, burnout, distress, and anger and increased well-being and satisfaction as a result of pre-service and in-service teachers' participation in mindfulness interventions.

Two further syntheses, one meta-analysis and one systematic review, adopted a similar approach by comparing the effectiveness of several types of interventions for in-service teachers, among those mindfulness interventions (Iancu et al., 2018; von der Embse et al., 2019). Von der Embse et al. (2019) reviewed research on mindfulness-based, knowledge-based, behavioral, and cognitive-behavioral interventions for in-service teachers and proposed that all types—including mindfulness-based-approaches—seem to be more effective in reducing teacher stress than knowledge-based interventions. However, they also noted that mindfulness-based interventions do not appear to be more effective than behavioral and cognitive-behavioral interventions and drew readers' attention to the variability in the effect sizes of mindfulness interventions.

Iancu et al. (2018) meta-analytically summarized the effects of a range of interventions developed to reduce burnout in terms of the three dimensions emotional exhaustion, personal accomplishment and depersonalization (see Maslach et al., 2001; Maslach & Leiter, 2016) among in-service teachers (mindfulness interventions, cognitive behavioral therapy, social-emotional skills, psychoeducational approach, social support, and professional development). Mindfulness interventions were found to significantly alleviate emotional exhaustion and

foster personal accomplishment (small effects), whereas the effect for depersonalization did not reach statistical significance. In accordance with the conclusions of von der Embse et al. (2019) based on a different set of intervention approaches, mindfulness interventions were not identified to be more effective than other intervention types in the work of Iancu et al. (2018).

Luken and Sammons (2016) conducted a systematic review on different professions that included a small number of studies with inservice teachers in addition to research on health care providers. The authors highlighted that all included studies indicate significant decreases in burnout following mindfulness interventions. Notwithstanding, this synthesis seems less relevant than others given that Iancu et al. (2018) reported differentiated patterns of findings for different burnout components. In addition, the very small number of studies with teachers included in Luken and Sammons' (2016) review was also covered in other syntheses.

Klingbeil and Renshaw (2018) provided a comprehensive synthesis on teacher mindfulness that focused on in-service teachers. By including unpublished in addition to published work as well as studies published in languages other than English, they were able to assemble a larger number of studies than in the above described syntheses for their meta-analysis. They obtained significant intervention effects favoring the treatment over the control group of small(-to-medium) and medium size for the outcomes well-being and psychological distress. The size of the effect for classroom climate and instructional practices was small and reached significance in one of the two specifications (see Table 2 for more details). However, the generally positive effects were overshadowed by some indications of publication bias.

Lastly, the meta-analysis of Zarate et al. (2019) complemented the other syntheses on mindfulness, which included mindfulness interventions, but in some instances also interventions with other components. Zarate et al. (2019) claimed having studied the effects of mindfulness trainings on in-service teacher well-being in isolation of such other components. Their analyses yielded negative effects in the expected direction of medium size for stress, anxiety, and depression and a small effect for burnout.

To summarize, the message is clear: Mindfulness interventions do work as several syntheses demonstrate that mindfulness interventions can increase teacher well-being—even though the effect might be somewhat positively biased (see publication bias analyses in Klingbeil & Renshaw, 2018) and even though the current evidence base may seem more impressive as it actually is due to the use of partially overlapping samples in the different syntheses. Currently, mindfulness furthermore appears to be slightly promising in facilitating teacher effectiveness outcomes as well, given that the meta-analysis of Klingbeil and Renshaw (2018) revealed a small positive effect of mindfulness interventions on instructional strategies/classroom climate.

Discussion

The present work examined relations between teachers' psychological characteristics, teacher effectiveness constructs, and teachers' well-being, retention, and interpersonal relations through the lens of an integrative review. Our goal was to synthesize and understand some general trends and foster a more comprehensive understanding of the role of psychological characteristics in the teacher domain. If we consider the existence and number of syntheses summarizing primary studies as an indicator of the maturity reached in research on particular psychological characteristics and herein considered outcomes, several trends can be noted. First, aligned with the conclusions of authors of syntheses on single psychological characteristics, such as self-efficacy (e.g., Klassen et al., 2011; Klassen & Tze, 2014), the largest

proportion of empirical evidence has been amassed on psychological characteristics and their associations with and effects on outcomes relating to teachers themselves and not to student outcomes. Specifically, syntheses on teacher well-being aspects dominate the field. In one strand of syntheses, well-being is addressed in addition to teacher effectiveness outcomes in research on teachers' motivation (self-efficacy, causal attributions), personality, and emotional characteristics (emotional labor, enthusiasm). Another strand of syntheses, which summarizes research on the psychological characteristics of emotional intelligence and mindfulness, almost exclusively concentrates on well-being (for an exception which also covered instructional practices/classroom climate, see Klingbeil & Renshaw, 2018). Thereby, the dominance of well-being-related topics in research on teachers' psychological characteristics is mainly driven by the upsurge in syntheses on mindfulness interventions with teachers.

On the other hand, syntheses linking psychological characteristics to retention outcomes are scarce. Specifically, while more is now known about influences on retention in other domains, such as organizational factors (e.g., characteristics of schools) and socio-demographic factors (e.g., gender, age, e.g., Borman & Dowling, 2008), there is a dearth of knowledge about the contribution of different psychological characteristics and what is known is restricted to self-efficacy and its relation to retention and commitment (Chesnut & Burley, 2015; Zee & Koomen, 2016). Accordingly, we see a need for increased research efforts, both from a quantitative (i.e., more syntheses) and qualitative (i.e., greater diversity in studied psychological characteristics) standpoint for the retention section. In addition, our review's findings single out a further under-studied outcome, namely establishing positive relations with colleagues, principals, parents, and students. For students as a target group, several syntheses exist; however, positive student-teacher relations tend to be treated as enablers of other critical features, such as students' engagement and achievement (e.g., Roorda et al., 2011), and not as a desirable "outcome." In our review, only one synthesis on self-efficacy explicitly addressed student-teacher relations, with inconsistent results (Zee & Koomen, 2016)[4]. For instance, a recent meta-analysis revealed positive relations between mindfulness and prosocial behavior (Donald et al., 2019), so it might be worthwhile for research on mindfulness to move beyond the focus on well-being aspects as primary outcomes and elucidate whether mindfulness interventions can be utilized to enhance student-teacher relations and teachers' relations to colleagues, principals, and parents.

On the level of sub-facets of teacher effectiveness components, achievement remained the most commonly synthesized teacher effectiveness outcome, but several systematic reviews have also paid attention to students' motivation (expectations, Wang et al., 2018; causal attributions, Wang & Hall, 2018; self-efficacy, Zee & Koomen, 2016), instructional practices (self-efficacy, Zee & Koomen, 2016, personality, Kim et al., 2019), and emotional student factors (enthusiasm, Keller et al., 2016; expectations, Wang et al., 2018). This is a positive trend and we hope it continues and spreads over to other, currently in syntheses on teacher psychological characteristics neglected student outcomes: Which psychological characteristics propel or hinder teachers from fostering a variety of other student outcomes, such as students' self-regulation and meta-cognition, and socio-emotional skills?

[4] Of course, some ambiguities remain, as positive and supportive student-teacher relations can be covered as one of the many aspects of instructional quality, for example in student surveys assessing instructional quality. However, with the sole exception of Zee and Koomen (2016), none of the syntheses treated student-teacher relations as separate category.

In conclusion, research on teachers' psychological characteristics is growing and expanding. Still, the simultaneous consideration of multiple components of teacher effectiveness and critical outcomes related to teachers' well-being, retention, and interpersonal relations allows detecting an unequal growth in different domains and pairings of psychological characteristics and considered outcomes. We probably do not urgently need more syntheses on mindfulness interventions and teacher well-being; instead, future research and syntheses should embrace the multi-dimensional nature of psychological characteristics and various relevant outcomes and, thus, aim to render a more complete understanding of their interplay.

Implications for Educational Practice

Whereas ascertaining more vs. less active areas of research on psychological characteristics yields critical information for research, practitioners will primarily be concerned with the actual effects and their implications. The next sections are therefore devoted to discussing implications for educational practice in terms of (a) designing interventions that, if found to be effective, can subsequently inform teacher preparation and professional development programs and (b) supporting the judicious selection of individuals into teaching positions and teacher education programs.

Professional Development

With an eye toward promoting adaptive within-teacher outcomes, primarily well-being aspects, our integrative review may serve as a starting point for developing future interventions, and if proven effective, findings from these can be applied to teacher education and professional development programs for pre-service and in-service teachers. Conducting interventions as a first step will be necessary to determine causal mechanisms, given that all syntheses, except those on mindfulness and one for expectations, were based on correlational work, which impedes inferences about causality.

That being said, we believe that future well-being interventions, and professional development and teacher education activities should target the supporting of teachers' self-efficacy, which has consistently been found to be related to well-being aspects (e.g., Aloe et al., 2014; Zee & Koomen, 2016). Concrete ways to promote teachers' self-efficacy revolve around the classical sources of self-efficacy, such as providing opportunities for teachers to learn and observe how mentors effectively deal with multiple complex and challenging situations (vicarious experiences) and practice and experiment with these skills (mastery experiences). This can be done in a "real life" school setting, for example during a teaching practicum, and/or in a virtual reality situation. The latter option might be particularly suitable for student teachers at the beginning of their studies. As pre-service teachers seem to equally benefit from high(er) self-efficacy beliefs than in-service teachers (Chesnut & Burley, 2015), we need to actively create opportunities to foster their self-efficacy beliefs from early career stages on. We also deem it valuable for self-efficacy interventions to encourage social reinforcement as further source of self-efficacy, for example by establishing structured outlets for teachers and student teachers to discuss solutions for common classroom and school situations (Aloe et al., 2014) as well as for more distal problems intervening with their well-being. On a related note, as mindfulness interventions have revealed effects on self-efficacy too (Klingbeil & Renshaw, 2018), some of their elements may be integrated in future self-efficacy interventions. Furthermore, interventions for teachers could be fueled by insights on causal attributions, as

the systematic review of Wang and Hall (2018) highlighted the potential usefulness of shifting intrapersonal attributions for occupational stress to internally controllable factors in order to facilitate adaptive and counteract maladaptive well-being components.

Based on the effects reported for emotion-related teacher factors, we further recommend that professional development and teacher education programs should attempt raising teachers' awareness of the functioning of specific emotion regulation strategies, particularly genuinely expressed emotions, which demonstrate positive relations to beneficial variables such as well-being and satisfaction and negative relations to unfavorable variables such as burnout (Wang et al., 2019; Yin et al., 2019). Such programs are additionally encouraged to consider enhancing teachers' deep acting and decreasing surface acting strategies—the former has been linked to teaching satisfaction (Yin et al., 2019), whereas the latter goes along with higher levels of maladaptive well-being aspects and lower levels of adaptive well-being aspects (e.g., Wang et al., 2019), meaning that we would do well to actively prevent teachers from dealing with their emotions in this way. In addition, our integrative review suggests that another promising direction for well-being interventions in the emotional domain could center on increasing teachers' emotional intelligence capacities (for an example see, e.g., Gilar-Corbi et al., 2018). Considering the related yet distinct nature of emotional labor strategies and emotional intelligence (e.g., Yin, 2015), they can potentially be constructively combined in intervention programs to achieve the best outcomes.

Although experienced enthusiasm has been shown to be related to teacher well-being, we are hesitant to suggest interventions to increase enthusiasm (see also Keller et al., 2016) due to potential risks of teachers simply pretending to feel enthusiastic. Faking enthusiasm should come with detrimental instead of beneficial well-being consequences (see research on emotional labor strategy surface acting; Wang & Hall, 2018; Yin et al., 2019). Nonetheless, we cautiously propose that future interventions might want to explore letting teachers reflect on aspects of their job, their subject etc. they are—or used to be—enthusiastic about, and to work together with them to identify strategies to alter tangible contextual features that might interfere with their enthusiasm.

Finally, as demonstrated in several syntheses with partially overlapping samples, mindfulness interventions increase teacher well-being (e.g., Emerson et al., 2017; Hwang et al., 2017; Iancu et al., 2018). Hence, mindfulness elements could fruitfully be incorporated in professional development and teacher education programs. By contrast, based on the current inconclusive state of research, we do not advise efforts to change qualities of teachers' personality (e.g., Roberts et al., 2017) in well-being interventions and programs.

For relations between teacher effectiveness outcomes in the sense of student achievement, effect sizes were, in general, smaller than those for well-being outcomes, ranging between positive small (teacher expectations interventions; De Boer et al., 2018) and positive small-to-trivial (self-efficacy; Klassen & Tze, 2014) to non-significant (Big Five personality domains: close to zero for emotional stability, agreeableness, and openness, small-to-trivial negative and small positive effects for conscientiousness and extraversion, see Kim et al., 2019). Systematic reviews noted indications of positive (reciprocal) relations between student achievement and teachers' expectations (Wang et al., 2018), enthusiasm (Keller et al., 2016), and positive internal causal attributions (attributions to effort and achievement; Wang & Hall, 2018). The at-best small effects might be disappointing to some; however, if we keep in mind that it has long been known that the major source of achievement variance lies within students (e.g., Deary et al., 2007), we should scale down our expectations and value the small yet potentially meaningful contribution of specific teacher psychological characteristics. Moreover,

psychological characteristics relevant for the promotion of other student outcomes in terms of motivation and emotions as well as the quality of teachers' instruction identified in our work are, for example, self-efficacy (see Zee & Koomen, 2016), expectations (see Wang et al., 2018), enthusiasm (Keller et al., 2016), and mindfulness (see Klingbeil & Renshaw, 2018). Furthermore, particularly extraverted teachers, but also teachers characterized by higher levels of openness and conscientiousness seem to receive more favorable instructional quality ratings of their students (Kim et al., 2019). In line with suggestions for interventions, teacher education and professional development initiatives to foster teachers' well-being, we conclude that future interventions aiming to raise student achievement, motivation, beneficial emotions, and/or instructional quality should especially emphasize the development and promotion of teachers' self-efficacy beliefs, high expectations for all students, and adaptive causal attributions. Concerning causal attribution, interventions should particularly focus on effort-based attributions, as a failure attribution to lack of effort implies the potential for improvement, whereas attributing failure to an intractable lack of ability does not (Wang & Hall, 2018).

Teacher Selection

Even though all psychological characteristics should be responsive to interventions and could thus be developed and enhanced in teacher education programs or professional development initiatives for practicing teachers (see paragraphs above), there is impetus to additionally identify psychological characteristics that can guide selection decisions. To date, we know that selecting teachers solely based on their cognitive attributes as assessed by college entrance exam test scores or intelligence tests is not very promising (e.g., Bardach & Klassen, 2020; D'Agostino & Powers, 2009), suggesting that we should consider broader approaches to selection that could also include specific psychological teacher characteristics. In general, selection procedures to determine entry to teacher education programs and the teaching profession are often unsystematic and driven by ideologies and "common sense" of what makes a good teacher (e.g., Klassen & Kim, 2019), calling for recommendations drawing on available, and in the best case, synthesized evidence.

From our point of view, candidates' expectations for students and the types of causal attributions they hold represent two target psychological characteristics that could profitably be incorporated in future teacher selection procedures. However, as typical self-report scales used to measure psychological characteristics are prone to social desirability bias and "faking," particularly in high stakes selection contexts, more subtle and objective assessment methods should be chosen. For example, situational judgment tests offer a scenario-based and contextualized assessment of psychological characteristics and have been shown to be less vulnerable to bias than classical self-reports (e.g., Hooper et al., 2006). These have recently been introduced to teacher selection research and practice (e.g., Klassen et al., 2020). Compared to expectations and causal attributions, self-efficacy seems to be a less useful psychological characteristic for teacher selection decisions, which boils down to the nature of the construct and relatedly its measurement. Believing that one has the capabilities to successfully carry out future tasks can be a powerful predictor for actual achievement, but translating this construct into measures that are appropriate for selection contexts could arguably prove difficult. The use of self-report scales is not a valid option due to their susceptibility to social desirability bias, and we think that even when using other, more objective measures (e.g., situational judgment tests), it would be simple for candidates to detect the most desirable response option. In comparison, expectations and causal attributions represent more multi-faceted constructs

with various potential "distractor" components that make it difficult to infer about the "best" answer and feign a positive personal response. Still, as an alternative, we deem it valuable to introduce self-efficacy measures in (self-report) diary format as "monitoring tools" in teacher education programs, for example to identify students who might need additional support before they feel adequately prepared and believe they have the competencies needed to successfully complete a teaching placement.

Furthermore, considering the evidence synthesized in our integrative review, we do not advise to strongly base selection decisions on measures of teachers' personality due to inconsistent and, overall not particularly encouraging findings. In addition, we are reluctant to propose that applicants aspiring to become teachers or enter teacher education should be denied or granted access due to their levels of enthusiasm. Only if we know more about whether, how, and under which circumstances experienced and displayed enthusiasm (i.e., bodily expressions) converge or whether experienced enthusiasm can reliably be captured by external observer ratings (Keller et al., 2016), future selection procedures could *potentially* include external observer ratings of teachers' enthusiasm as one of many aspects rated in sample teaching exercises. Similarly, we need more insights on the potential of emotional intelligence, particularly its effects on teacher effectiveness aspects. If future syntheses clearly demonstrate that emotional intelligence is related to job performance (e.g., O'Boyle et al., 2011), also in the teacher domain, practitioners should press forward to include emotional intelligence tests in selection packages. We believe that it is premature to do so now. Relatedly, we suggest that further psychological characteristics that have, until now, mainly been shown to be relevant for well-being—i.e., emotional labor and mindfulness—currently carry more importance for the design of interventions as well as monitoring tools (see above for self-efficacy) rather than for selection procedures.

Limitations

Limitations of this integrative review can be located on two levels. First, limitations may stem from the reviewed syntheses and their primary studies. Second, limitations may relate to our work and approach. A drawback of the syntheses summarized here is that cultural influences and potential differences between countries and cultural contexts were rarely addressed, mainly due to the fact that most primary studies were conducted in Western countries, predominantly in the USA. Hence, we need greater cultural diversity in future research and syntheses on teachers' psychological characteristics. For example, Wang et al.'s (2019) synthesis yielded a positive association between deep acting and well-being in Eastern cultures, but a negative association in Western cultures. More cross-cultural investigations are thus needed to refine current assumptions. Concerning relations to student outcomes, we ask future studies and syntheses to control for prior levels of student outcomes when investigating *effects* of teacher psychological characteristics to avoid that sorting effects (e.g., teachers with higher levels of specific psychological characteristics are assigned to classes with, on average, higher levels of achievement and motivation) can bias conclusions. Another important limitation relates to the measurement of constructs. If primary studies included in the syntheses relied on problematic or ambiguous measures, the conclusions based on the findings of such studies necessarily become less trustworthy and in the worst case flawed. We have discussed problems concerning the measurement of constructs with regard to self-efficacy (i.e., differing conceptualizations and operationalizations of the construct).

However, measurement-related problems exist for other constructs as well. For example, several syntheses on burnout included studies which exclusively relied on the conceptualization of burnout as consisting of the three dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment. In other syntheses, this seemed to be the case for most, but not all studies. Furthermore, whereas a few syntheses calculated an overall burnout score, others looked at distinct burnout dimensions. More work is now needed to continue disentangling the complex associations between various psychological characteristics and burnout dimensions.

In addition, we acknowledge that criticism pertaining to our integrative review can be leveled at the way in which we define our outcomes and the focus on effects of psychological characteristics on these outcomes. Specifically, both psychological characteristics (and further personal attributes) and contextual features (e.g., specific characteristics of the work environment at school) could affect our outcomes, with effects most likely arising from their complex and dynamic interplay. For instance, it is well established that personal and contextual characteristics influence individuals' decision to drop out of a job or study program (e.g., Geiger & Pivovarova, 2018; Rump et al., 2017). However, in this review, we deliberately chose to focus on psychological teacher characteristics as a critical piece in the puzzle of what makes a teacher effective and enhances teachers' well-being, retention, and the quality of their interpersonal relations. Moreover, the fact that the selection and development of teachers will build on their personal characteristics and not on features of educational systems and other contextual aspects provides a further rationale for focusing on psychological characteristics. Finally, we are aware that a point of criticism that could be raised is that our integrative review missed psychological characteristics that could be relevant, simply because syntheses have not yet been conducted within this realm. Still, it is our conviction that we owe it to practice to provide a review based on what has been shown to work (to a certain extent) or what is at least related to teacher effectiveness and the other outcomes instead of what might work (even better) even though we do not yet know for sure.

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*Denotes reference included in integrative review.

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