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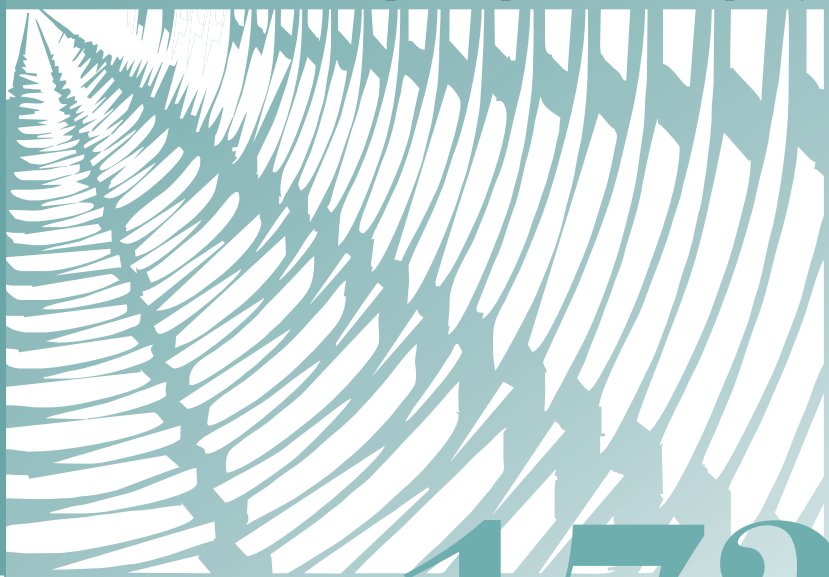

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TEACHER WELL-BEING: IN QUEST OF ITS NATURE, DETERMINANTS, AND OUTCOMES

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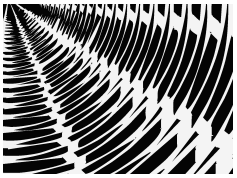

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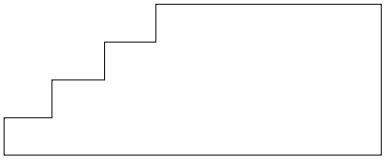

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Teacher Well-Being: In Quest of Its Nature, Determinants, and Outcomes

Teachers play a central role in the functioning and effectiveness of educational systems by providing high-quality instruction and supporting students' academic development. At the same time, education systems worldwide are increasingly confronted with teacher shortages and high rates of attrition, which can disrupt school functioning and negatively affect students' academic outcomes (Ronfeldt et al., 2013). It is therefore not surprising that teacher well-being has emerged as an important factor associated with teachers' professional functioning and decisions to remain in or leave the profession (Madigan & Kim, 2021). Interest in teacher well-being has further intensified in response to growing concerns about the adverse effects of occupational stress on teachers' physical and mental health (Hagermoser Sanetti et al., 2021) as well as increasing evidence that teachers' well-being may have important implications for student outcomes, including academic achievement (Granziera et al., 2023).

Despite growing interest in teacher well-being, the field has remained conceptually fragmented, partly because studies have often focused on isolated aspects of the phenomenon rather than its nature, determinants, and consequences as an integrated whole. A central challenge concerns the definition of teacher well-being itself. Although most approaches acknowledge its multidimensional character, substantial variation exists in how the construct is defined and operationalised. In their systematic review, Hascher and Waber (2021) demonstrated considerable inconsistency across studies in both the number and content of well-being dimensions and highlighted a frequent lack of distinction between its predictors, indicators, and outcomes. This conceptual ambiguity, often reinforced by cross-sectional research designs, makes it difficult to determine which factors constitute teacher well-being and which should instead be regarded as its antecedents or consequences.

Thus, the goal of the Special Issue was to bring together research addressing three closely interconnected domains. The first concerned the nature of teacher well-being, including both positive and negative aspects of teachers' occupational and psychological functioning. The second focused on its individual and contextual antecedents, including personal characteristics and resources, job demands and resources, and features of the broader school environment. The third addressed the consequences of teacher well-being for teachers' professional functioning, motivation, career-related intentions, teaching-related outcomes, and, more broadly, educational effectiveness.

Nature and Configurations of Teacher Well-Being

Among the contributions to this Special Issue, Pavin Ivanec et al. *most directly address the nature and configuration of teacher well-being by examining how its positive and negative components coexist within individuals. Using a person-centred approach, they investigate work engagement and burnout among 599 early-career teachers and identi-*

fy three distinct occupational well-being profiles: highly engaged, moderately engaged, and at-risk teachers. These profiles also differ in important professional outcomes, with highly engaged teachers reporting the greatest job satisfaction and strongest intentions to remain in teaching, and at-risk teachers reporting the least favourable outcomes. By considering work engagement and burnout simultaneously, the study illustrates the value of conceptualising teacher well-being as a multidimensional phenomenon that cannot be reduced to either positive functioning or the absence of ill-being. A complementary perspective is provided by Loziak et al.*, whose systematic review focuses on the well-being and stress of teachers working in marginalised communities. Across 45 qualitative and quantitative studies, they show that teachers in these contexts frequently experience substantial stress and threats to their well-being, while also identifying resources that may help sustain engagement and commitment under demanding conditions. In particular, a strong sense of professional purpose, positive collegial relationships, supportive school leadership, and institutional support emerge as potentially important contextual resources.*

Individual and Contextual Determinants of Teacher Well-Being

A number of contributions focused primarily on individual antecedents and personal resources associated with teacher well-being, while differing substantially in their methodological approaches. For example, by using a two-wave longitudinal design, Parmač Kovačić and Burić *focused on individual antecedents of teachers' job satisfaction, examining how relatively stable personality characteristics operate through more malleable personal resources, namely self-efficacy and work engagement. Their findings showed that work engagement mediated the relationships between all Big Five personality traits and subsequent job satisfaction, while self-efficacy additionally mediated associations involving extraversion, agreeableness, and conscientiousness. For these traits, a serial pathway from personality through self-efficacy and work engagement to job satisfaction was also supported. By separating the assessment of predictors and job satisfaction across two time points, the study went beyond a purely cross-sectional approach and provided insight into the mechanisms through which individual characteristics may be linked to later occupational experiences. Importantly, it also highlighted self-efficacy and work engagement as potentially more actionable targets for professional development than relatively stable personality traits. Likewise, by adopting a longitudinal perspective,* Mornar *examined the reciprocal relationship between personal social-emotional resources and burnout among 911 early-career teachers. Using a two-wave cross-lagged design, the study tested not only whether social and emotional competencies predicted subsequent burnout, but also whether burnout predicted subsequent changes in these competencies. The findings indicated that burnout was a stronger prospective predictor of teachers' social and emotional competencies than the reverse, with cognitive impairment predicting lower subsequent self-awareness, cognitive reappraisal, and affective empathy. This longitudinal approach therefore challenged the assumption that social and emotional competencies function mainly as antecedents of well-being and showed that diminished occupational well-being may itself erode important personal resources over time.*

In contrast, Kozina et al. *used a cross-sectional design to investigate individual emotion-regulation difficulties and career stage as correlates of burnout in a large sample of 1,468 Slovenian pre-service and in-service teachers. Lower emotion-regulation difficulties were consistently associated with lower cognitive, emotional, and physical burnout, while pre-service and early-career teachers reported comparatively higher levels of all three burnout dimensions. Although the cross-sectional design did not allow developmental changes to be traced within individuals over time, the inclusion of teachers across multiple career stages provided a broad comparative perspective on potential periods of vulnerability. The study highlighted the transition from teacher education into professional practice as a stage at which support for emotion regulation and well-being may be especially important.* Springer et al. *also employed a predominantly cross-sectional design but complemented quantitative survey data with qualitative responses in a mixed-method study of teachers in a rural school district in the south-eastern United States. Their focus was on technology-related professional resources and burnout in the post-pandemic context, examining technology-integration efficacy alongside generational cohort. Quantitative analyses showed significant associations between technology-integration efficacy and burnout but did not support generational differences in either construct. The qualitative component added contextual depth by capturing teachers' views on the types of support needed to reduce burnout, including stronger social-emotional support, improved working conditions, and reduced workload. The study thus combined an individual resource perspective such as technology-integration efficacy with teachers' perceptions of broader contextual and organisational demands.*

Other contributions placed greater emphasis on contextual and organisational antecedents of teacher well-being, including the ways in which personal characteristics interact with features of the school environment. For example, by drawing on Work as a Calling Theory, Jurčec et al. *used a cross-sectional design and tested the moderated serial mediation model to examine how an individual motivational orientation, i.e., perceiving teaching as a calling, interacts with organisational support in relation to teachers' job and life satisfaction. Their findings indicated that perceiving a calling was associated with greater life satisfaction through living one's calling and, subsequently, higher job satisfaction. Importantly, organisational support strengthened the relationship between perceiving and living a calling. The study therefore integrated individual and contextual perspectives, suggesting that personally meaningful professional orientations may contribute to well-being only to the extent that organisational conditions allow teachers to enact them.*

Also, with a more explicitly contextual focus, Novak et al. *investigated school climate as an organisational antecedent of teacher mental health and well-being using a two-wave longitudinal cross-lagged panel design with Croatian high school teachers. Teachers who perceived a more positive school climate at the first assessment reported fewer psychological distress symptoms approximately ten months later, whereas reciprocal effects of well-being or distress on subsequent perceptions of school climate were not supported. By establishing temporal ordering across two measurement occasions, the study provided stronger evidence than cross-sectional research for the potential importance of the*

organisational environment in shaping teachers' later psychological functioning. Its findings support approaches to teacher well-being that address school-level conditions, including workload, resources, leadership, and collaborative professional relationships, rather than focusing exclusively on individual coping capacities.

Finally, Hascher et al. *adopted a distinct three-wave intervention-oriented comparison design and shifted attention to initial teacher education as a context in which resources for future well-being may be developed. The study followed pre-service primary teachers across a semester and compared those completing regular coursework with those whose coursework incorporated an online platform addressing resilience-related topics. Exhaustion increased in both groups during the semester, but at the 12-week follow-up, platform users reported lower exhaustion and higher resilience than the coursework-only group. Although the design did not establish the same level of causal inference as a randomised controlled intervention, its repeated assessments and comparison of two learning conditions provided valuable evidence on changes in well-being-related outcomes over time. Importantly, the study moved beyond identifying correlates of teacher well-being by examining whether the educational environment itself could be structured to support resilience and reduce exhaustion before entry into the profession.*

Outcomes of Teacher Well-Being: Job Satisfaction, Functioning, and Retention

Compared with the larger number of contributions focusing on the nature and antecedents of teacher well-being, only one study in this Special Issue addressed its outcomes as its primary research focus. Specifically, Butković et al. *tackled the issue of teacher retention by investigating flow at work as a potential protective factor against intentions to quit. In their three-wave longitudinal study of 726 teachers, intentions to leave the profession remained highly stable across the school year. Nevertheless, teachers who experienced greater flow while teaching in the middle of the year reported lower intentions to quit at the end of the year. Flow also partially mediated the association between intentions to quit measured at the beginning and end of the school year. These findings identify flow as a potentially important positive occupational experience related to teacher retention and highlight the value of working environments that support autonomy, provide adequate resources, and create opportunities for absorbing and intrinsically rewarding teaching experiences.*

Although the remaining contributions did not focus primarily on the consequences of teacher well-being, several examined important outcomes alongside its phenomenology or antecedents. For example, Pavin Ivanec et al.*, combined the study of occupational well-being profiles with an examination of their links to job satisfaction and planned persistence in the profession. Teachers characterised by high engagement and low burnout reported greater job satisfaction and stronger intentions to remain in teaching, whereas those in the at-risk profile reported the least favourable outcomes. Their findings therefore connected different configurations of positive and negative well-being with teachers' subsequent career-related attitudes. Similarly,* Parmač Kovačić and Burić *primarily investigated individ-*

ual antecedents and explanatory mechanisms, but their model also included job satisfaction as an important occupational outcome. Their findings showed that work engagement served as a pathway through which personality and self-efficacy were associated with subsequent job satisfaction, suggesting that positive occupational functioning may help translate personal resources into more favourable evaluations of one's work. Finally, Mornar *approached outcomes also from a different direction by examining the reciprocal relationship between burnout and teachers' social and emotional competencies. Although the study centred on the interplay between well-being and personal resources, its longitudinal findings indicated that burnout may precede declines in self-awareness, cognitive reappraisal, and affective empathy. In this sense, diminished well-being may have consequences not only for teachers' career-related decisions, but also for the personal and interpersonal capacities they bring to their professional role.*

Key Contributions of the Special Issue

Taken together, the contributions to this Special Issue advanced the literature on teacher well-being in several important ways. First, the collection addressed all three domains outlined at the outset of the Special Issue – the nature and configurations of teacher well-being, its individual and contextual antecedents, and its professional consequences. Although these domains were not represented equally, the studies collectively moved beyond a narrow focus on isolated predictors or outcomes and illustrated the value of examining teacher well-being as a multidimensional and dynamic phenomenon.

Second, the Special Issue was characterised by considerable methodological diversity. Most contributions employed quantitative approaches, often using relatively large samples, including studies with more than 900 and 1,400 participants, thereby providing substantial statistical power and increasing confidence in the robustness of the findings. However, some of them also based their conclusions on qualitative data, mainly within a mixed-method approach, and provided deeper insight into teachers' own experiences and perceptions. The quantitative studies also differed in their design. While several used cross-sectional designs to examine associations among personal resources, contextual conditions, and teacher well-being, others employed two- or three-wave longitudinal designs, allowing stronger examination of temporal ordering and prospective relationships. The methodological scope was further extended by an intervention-oriented three-wave study examining changes in exhaustion and resilience across different learning conditions in initial teacher education. An additional methodological strength was the use of advanced statistical models reflecting the complexity of the relationships under study. For instance, cross-lagged panel models captured reciprocal and temporally ordered associations, while mediation and moderated mediation models provided insight into mechanisms and the interplay between individual and organisational factors. Together, these approaches enabled the contributions to move beyond simple associations and examine more complex processes underlying teacher well-being. Collectively, these methodological approaches contributed to a more differentiated understanding of how teacher well-being develops, what may shape it, and what may follow from it.

Third, the contributions highlighted the importance of moving beyond personal characteristics and resources when seeking to understand teacher well-being. Although several studies examined personal resources such as personality, emotion regulation, or social and emotional competencies, others demonstrated the relevance of school climate, organisational support, and teacher-education environments. The Special Issue therefore reinforces the view that teacher well-being emerges from the interplay between individual characteristics and the broader organisational and educational contexts in which teachers work and develop.

Directions for Future Research

Despite its substantial contribution to the literature, the studies included in this Special Issue point to several avenues for future research. Most notably, none of the contributions directly examined instructional quality or student outcomes as consequences of teacher well-being. Future studies should therefore investigate how teacher well-being relates to teaching practices, classroom processes, and students' academic, motivational, and socio-emotional outcomes. In addition, moving beyond teacher self-reports by incorporating student ratings, classroom observations, and other relevant data sources would provide a more comprehensive assessment of these relationships.

A second priority is to capture the dynamic nature of teacher well-being more closely. Longitudinal studies with measurement occasions separated by several months are valuable for examining long-term processes but may overlook short-term fluctuations in teacher emotional well-being. Approaches based on intensive longitudinal designs, such as experience sampling and diary methods (Bolger & Laurenceau, 2013), could provide better insight into within-person variability and the day-to-day interplay between personal and job demands, resources, and teacher well-being. In addition, qualitative approaches were relatively underrepresented in this Special Issue, although interviews, focus groups, and longitudinal qualitative studies could deepen the understanding of how teachers conceptualise well-being and experience changes in their professional and organisational contexts. Such approaches may be particularly useful given the continuing difficulty of distinguishing the antecedents, components, and consequences of teacher well-being.

Finally, future research should strengthen both causal and predictive inference. Experimental and quasi-experimental studies (Shadish et al., 2002) are needed to test whether interventions targeting personal resources or school-level conditions produce sustained improvements in teacher well-being. At the same time, when sufficiently large and high-quality datasets are available, machine learning approaches may complement theory-driven analyses by identifying complex and potentially non-linear combinations of risk and protective factors (Yarkoni & Westfall, 2017).

Overall, the studies in this Special Issue demonstrate substantial progress towards a more integrated understanding of teacher well-being. At the same time, they highlight the need for future research to connect teacher well-being more directly with classroom

processes and student outcomes, employ more diverse methodological approaches, strengthen causal inference, and integrate multiple levels and sources of data. Advancing along these lines may help the field move from identifying correlates of teacher well-being towards a more deeper understanding of its development, consequences, and possibilities for meaningful intervention.

References

Bolger, N., & Laurenceau, J.-P. (2013). Intensive longitudinal methods: An introduction to diary and experience sampling research. *Guilford Press.*

Granziera, H., Martin, A. J., & Collie, R. J. (2023). Teacher well-being and student achievement: A multilevel analysis. Social Psychology of Education, 26*(2), 279–291. https://doi.org/10.1007/s11218-022-09751-1*

Hagermoser Sanetti, L. M., Boyle, A. M., Magrath, E., Cascio, A., & Moore, E. (2021). Intervening to decrease teacher stress: A review of current research and new directions. Contemporary School Psychology, 25*(4), 416–425. https://doi.org/10.1007/s40688-020-00285-x*

Hascher, T., & Waber, J. (2021). Teacher well-being: A systematic review of the research literature from the year 2000–2019. Educational Research Review, 34, *100411. https://doi.org/10.1016/j.edurev.2021.100411*

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. Teaching and Teacher Education, 105, *103425. https://doi.org/10.1016/j.tate.2021.103425*

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. American Educational Research Journal, 50*(1), 4–36. https://doi.org/10.3102/0002831212463813*

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Experimental and quasi-experimental designs for generalized causal inference. *Houghton Mifflin.*

Yarkoni, T., & Westfall, J. (2017). Choosing prediction over explanation in psychology: Lessons from machine learning. Perspectives on Psychological Science, 12*(6), 1100–1122. https://doi.org/10.1177/1745691617693393*

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THRIVING OR SURVIVING? WORK ENGAGEMENT AND BURNOUT PROFILES AMONG EARLY-CAREER TEACHERS

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The aim of this study was to identify early-career teachers' profiles based on their occupational well-being, i.e. work engagement and burnout, and to examine differences in job satisfaction and planned persistence in the teaching profession across these profiles. A total of 599 subject teachers with up to 5 years of teaching experience completed an online questionnaire assessing their occupational well-being and related outcomes. Latent profile analysis identified three distinct profiles: highly engaged (50.3%), moderately engaged (43.7%), and at risk (6.0%). Whereas highly and moderately engaged profiles reflected high to moderate levels of work engagement and low levels of burnout, the at risk profile reflected around-average levels of both work engagement and burnout. Teachers in the highly engaged profile reported the highest job satisfaction and strongest intention to remain in the profession, followed by those in the moderately engaged profile, whereas at risk teachers had the lowest levels of satisfaction and planned persistence. These findings support previous research, emphasising the critical role of occupational well-being in fostering teacher retention and job satisfaction.

Keywords: teachers' occupational well-being, work engagement, burnout, early-career teachers, person-centred approach

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INTRODUCTION

In recent years, teacher well-being has gained prominence in educational research, reflecting increasing interest in its underlying antecedents and associated outcomes. This growing interest is driven by multiple reasons. Namely, teacher shortage has become a serious concern in many countries worldwide (Admiraal & Kittelsen Røberg, 2023; la Velle, 2019), partly due to an ageing teacher population and the decline in the attractiveness of the teaching profession. Croatia is no exception to this trend, with a particularly noticeable shortage of subject teachers, especially in the STEM area (Domović & Drvodelić, 2025).

Furthermore, teacher attrition is another significant global challenge (Dreer, 2023; Skaalvik & Sklaalvik, 2017). The literature implies that an increasing number of teachers are considering other career options, and the consequences of teacher turnover reflect on instructional quality, students' engagement and learning, and overall school dynamics (Räsänen et al., 2020). Therefore, attracting high-quality candidates to the teaching profession on one hand, and ensuring working conditions that would motivate them to remain in the profession are two interconnected concerns with considerable and far-reaching implications.

Previous studies suggest that, among factors related to teacher attrition, various aspects of teachers' well-being often stand out as crucial for considering career change, including teacher burnout, occupational stress and job satisfaction (Skaalvik & Skaalvik, 2017). Within the context of teacher attrition, early-career teachers are of particular interest and concern (Schuck et al., 2018). Namely, the gap between the theory and practice during initial stages of a teaching career is often linked to higher attrition rates, as new teachers struggle to balance the reality of everyday school life (Admiraal et al., 2023). Consequently, workload, as one of the most significant factors affecting teachers' well-being (Ostermeier et al., 2023), can be even more overwhelming among early-career teachers. Enhancing well-being of early-career teachers may therefore be essential for their motivation to remain in the profession. Accordingly, the focus of this study is on examining the patterns of well-being among early-career subject teachers and how these patterns relate to job satisfaction and career intentions. Additionally, this study is placed within the context of single-structure elementary school level, which presents specific challenges related to students' educational transition from having (mostly) one classroom teacher to interacting with many different subject teachers (Herman et al., 2020; Marušić et al., 2020).

Work engagement and burnout as indicators of teachers' well-being and job satisfaction

The conceptualisation and theoretical approaches to teachers' well-being vary in the literature, reflecting the multidimensionality of this construct (Castro Silva et al., 2026; Dreer, 2023; Hascher & Waber, 2021). A common theoretical framework used in studies of teachers' occupational well-being is the Job Demands-Resources (JD-R) model (Bakker et al., 2023). This model highlights that well-being is, on one hand, closely linked to various personal and contextual resources that contribute to positive outcomes, and, on the other, it is closely intertwined with different aspects of the work environment known as job demands. Job demands include aspects that can be stressful and require investing a significant amount of effort. Literature clearly indicates that the teaching profession is a demanding profession in several ways (emotionally, intellectually, and physically), and that teacher-burnout has become a significant concern (e.g. Castro Silva et al., 2026; Salmela-Aro et al., 2019). The JD-R model encompasses both positive and negative indicators of well-being, whereby work engagement, as a positive, and burnout as a negative indicator of well-being are predominantly explored (Bakker et al., 2023). These two indicators can be considered distinct and opposed constructs that are negatively related (Schaufeli & Bakker, 2010). However, recent studies using a person-centred approach have shown that burnout and engagement can coexist within the same individual (Salmela-Aro et al., 2019; Holstrom et al., 2023; Van der Vaart & de Beer, 2021). In studies among Finnish teachers, in addition to distinct engaged and burned-out profiles, a mixed profile characterised by both high engagement and high burnout has been identified across two different samples (Salmela-Aro et al., 2019; Holstrom et al., 2023). These three profiles were also identified in a study of South African adults; additionally, the study revealed profiles reflecting average engagement and burnout, as well as a profile with slightly above average burnout and below average engagement (Van der Vaart & de Beer, 2021).

From the perspective of the JD-R model, teacher well-being can be viewed as a job resource associated with numerous positive outcomes, such as higher work satisfaction and motivation to remain in the teaching profession (Skaalvik & Skaalvik, 2018).

Work engagement has been extensively studied across various organisational contexts, and has recently gained prominence in research on teachers. The unique characteristics of the educational context require a conceptualisation of work engagement specific to the teaching profession. Klassen et al. (2013) propose three dimensions of teachers' work engagement:

cognitive, emotional and social, whereby the social dimension encompasses relationships with students and colleagues, highlighting the essential interpersonal nature of teaching, i.e., investing energy in establishing and maintaining these relationships. Research on teacher work engagement has linked this construct with various outcomes for both teachers and students, demonstrating its multiple importance. Highly engaged teachers tend to show higher commitment and involvement (Kern et al., 2014; Timms & Brough, 2013), job satisfaction and persistence in the profession (Skaalvik & Skaalvik, 2018). They are also less likely to experience exhaustion (Hakanen et al., 2006) and are more student-centred (Turner et al., 2021). In addition to these teacher-related outcomes, teachers' work engagement reflects on student outcomes as well. For example, previous studies revealed that work engagement is positively correlated with student motivation (Leal-Soto et al., 2018), prosocial skills (Herman et al., 2020), and achievement (Wang et al., 2022).

Burnout, on the other hand, is a negative indicator of teachers' occupational well-being, and it is "commonly used to describe a state of mental weariness" (Schaufeli & Bakker, 2004, p. 294). The conceptualisation and assessment of burnout can vary depending on the theoretical perspective and the instruments that either assess several dimensions or only one (exhaustion). Schaufeli and Bakker (2020) proposed a renewed conceptualisation and assessment of burnout that includes four dimensions: exhaustion, cognitive impairment, emotional impairment, and mental distance, whereby the first three dimensions represent the inability to invest energy, and the latter the unwillingness to invest energy. The consequences of burnout on teachers are diverse and are often related to prolonged overload and stress (Moyano et al., 2022). Literature indicates that the burnout symptoms seem to increase among teachers (Salmela-Aro et al., 2019; Skaalvik & Skaalvik, 2016), and, in some cases, these symptoms can coexist with a high level of work engagement (Holmström et al., 2023). Teachers who experience emotional exhaustion and stress are more likely to feel dissatisfied with their career choice and may be more inclined to leave the profession (Skaalvik & Skaalvik, 2016). Furthermore, teacher burnout is linked to poorer physical and mental health (Hakanen et al., 2006) and lower self-efficacy (Kim & Burić, 2020). In addition, the effects of teachers' emotional exhaustion also extend to student outcomes. Arens and Morin's study (2016) found negative associations between teachers' exhaustion and students' school grades, satisfaction with teacher support and satisfaction with school. Similarly, Granziera et al. (2023) obtained a negative association between teacher emotional exhaustion and student achievement at a school-average level.

Previous findings suggest that a comprehensive understanding of teacher burnout is crucial due to its significant consequences on multiple levels – individual, educational, societal and economic. Addressing this issue in early career stages can mitigate the risk of potential negative outcomes, including teacher attrition at the very beginning of their professional course.

Increased interest in teacher well-being has recently led to numerous studies exploring various constructs as its precursors and outcomes, including the intention to remain in the profession and job satisfaction (Holmström et al., 2023; Dreer, 2021; Wang et al., 2024). While intentions to leave the profession are consistently viewed as an outcome of well-being, the role of job satisfaction remains changeable. Namely, in the literature, job satisfaction is comprehended both as a potential antecedent and an outcome of occupational well-being; however, previous analyses have indicated that the causal effects from well-being to job satisfaction are stronger than *vice versa* (Bowling et al., 2010). These empirical findings support the JD-R theory (Bakker et al., 2023), which posits that burnout and work engagement, as key aspects of occupational well-being, shape important job outcomes, such as job satisfaction and career intentions. Recent literature articulates the need for further studies to shed more light on this association within the teaching context, acknowledging that teachers' well-being is a multidimensional construct that affects job satisfaction (Dreer, 2021). This perspective comprehends teacher well-being as an individual resource that contributes to their job satisfaction and intention to stay in the profession.

Studies so far have demonstrated the association of teacher well-being and job satisfaction; however, with varying conceptualisations and theoretical approaches to teachers' well-being (Dreer, 2023). Although dimensions of job satisfaction may also vary, this construct generally refers to a sense of fulfilment and gratification through teaching, and one commonly used measure of job satisfaction derives from the OECD Teaching and Learning International Survey – TALIS 2018 (OECD, 2019). This survey includes two key aspects of teacher job satisfaction: satisfaction with the profession, which refers to satisfaction with career choice; and satisfaction with the work environment, which pertains to satisfaction with school as a work environment. Literature suggests that these two aspects, as well as a composite measure of overall job satisfaction, have been supported in subsequent studies (Admiraal & Kittelsen Røberg, 2023). Recent literature indicates that a combination of teachers' burnout and job satisfaction is linked to their intention to leave the profession (Holmström et al., 2023). However, most studies use a variable-centred approach, while

research employing a person-centred one is limited. Yet, the latter approach offers valuable insights into the different configurations of variables among various subpopulations within a sample (Morin et al., 2018). Insight into patterns of simultaneous presence of work engagement and burnout could be an additional pathway to obtaining a more refined insight into the complexity of teachers' well-being.

Present study

The aim of this study was to explore and identify different profiles of early-career teachers based on two opposing indicators of teachers' well-being: work engagement and burnout. Using a person-centred approach, a latent profile analysis was employed to identify patterns of well-being indicators, thereby grouping teachers according to combined levels of their work engagement and burnout. This is one of few studies identifying profiles of work engagement and burnout, and the first one focusing on early-career teachers. Given the exploratory nature of this research, detailed hypotheses regarding the specific number and characteristics of distinct profiles were not defined. Considering the relatively high average values of work engagement and low values of burnout among teachers, it was more broadly hypothesised that distinct teachers' profiles of well-being would emerge. Further, it was hypothesised that these profiles would differentiate those with high occupational well-being (characterised by high work engagement and low burnout) from those whose well-being might be at risk.

Additionally, this study also examined the differences among identified profiles of teachers concerning their job satisfaction and planned persistence in the profession as outcomes. It was assumed that profiles characterised by high level of burnout and lower level of work engagement would be associated with reduced job satisfaction and uncertainty regarding the intention to stay in the profession.

METHOD

Procedure and sample

The data was collected *via* an online questionnaire distributed to all elementary schools in Croatia during school year 2022/2023. School principals helped in distributing the questionnaire to all early-career subject teachers currently employed at their school. A total of 590 early-career subject teachers (81.3% female) from 280 elementary schools in Croatia participated in the study. Teachers had up to five years of teaching experience, averaging 2.65 years (M = 31.8 months, SD = 17.76), and taught 17

different school subjects. Participation in the study was on a voluntary basis and the study adhered to all ethical standards. Ethical approval was obtained by the Ethical committee of Institute for Social Research in Zagreb and the study was conducted with the consent of the Croatian Ministry of Science, Education and Youth.

Instruments

Work engagement was measured with *Engaged Teacher Scale* (ETS; Klassen et al., 2013). ETS measures four dimensions of work engagement: emotional (e.g., "I feel happy while teaching."), cognitive (e.g., "I try my hardest to perform well while teaching."), social with students (e.g., "In class, I show warmth to my students.") and social with colleagues (e.g., "At school, I connect well with my colleagues."). Each subscale consists of four items and the answers are given on a frequency scale ranging from 1 (Never) to 5 (Always).

The level of experienced professional burnout was assessed using *Burnout Assessment Tool* (BAT-23; Schaufeli et al., 2020). BAT measures four burnout symptoms: exhaustion (e.g., "At work, I feel mentally exhausted."), mental distance (e.g., "I struggle to find any enthusiasm for my work."), cognitive impairment (e.g., "At work, I have trouble staying focused.") and emotional impairment (e.g., "At work, I feel unable to control my emotions."). The exhaustion subscale consists of eight items, and the three other subscales of five items each. The answers are given on a frequency scale ranging from 1 (Never) to 5 (Always).

Job satisfaction was measured with *Teachers' Job Satisfaction Scale* adapted for TALIS (OECD, 2019). It consists of two subscales: job satisfaction with work environment (e.g., "I enjoy working at this school.") and job satisfaction with profession (e.g., "If I could decide again, I would still choose to work as a teacher."). Each subscale consists of four items and answers are given on a Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Persistence in teaching profession was assessed with one item from Watt and Richardson's scale (2008): "How sure are you that you will stay in the teaching profession?". Answers ranged from 1 (Not at all) to 7 (Extremely).

Internal reliability coefficients (Cronbach's alpha) for all measures are presented in Table 1.

Statistical analysis

Statistical analyses were conducted in three steps using Mplus v.8.11 (Muthén & Muthén, 1998–2017).

In the first step, descriptive statistics and bivariate Pearson correlations were calculated for all measures. Additional-

ly, the structural validity of all measures was assessed using confirmatory factor analysis (CFA). Several fit indices were considered to evaluate model fit: Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Square Residual (SRMR). A good model fit was indicated by TLI $\geq$ 0.95, CFI $\geq$ 0.95, RMSEA $<$ 0.06, and SRMR $\leq$ 0.06, while an adequate model fit was indicated by TLI $\geq$ 0.90, CFI $\geq$ 0.90, RMSEA $<$ 0.08, and SRMR $\leq$ 0.08 (Hu & Bentler, 1999; Schreiber et al., 2006).

In the second step, work engagement and burnout profiles were identified using latent profile analysis (LPA). Four aspects of work engagement and four symptoms of burnout were used as indicators for profile identification. Models with up to six profiles were tested using 500 random starts, 50 iterations each and 50 best solutions retained, to avoid local maxima. The best-fitting model was selected based on multiple criteria, including information criteria (AIC, BIC, SABIC), a relative fit index (BLRT), minimal and theoretical meaningfulness (Nylund-Gibson & Choi, 2018). Specifically, lower AIC, BIC, and SABIC values, along with higher entropy ($>$ 0.70), indicated a better model fit (Wang et al., 2017). Additionally, a scree plot of AIC, BIC, and SABIC values was examined to identify the point where the decrement in values diminished with each additional profile (Nylund-Gibson & Choi, 2018). The bootstrapped likelihood ratio test (BLRT) was also conducted, where statistical significance indicated that a model provided a significantly better fit than the model with k-1 profiles (Asparouhov & Muthén, 2012). To prevent the emergence of statistical artefact profiles, the size of the smallest profile in each model was considered, ensuring that it constitutes at least 5% of the sample (Spurk, 2020). Finally, theoretical meaningfulness and model parsimony were also considered when selecting the model (Spurk et al., 2020). To gain a deeper understanding of the profiles, a Wald test was conducted to examine statistically significant differences in all indicators across profiles. Bonferroni correction was applied to account for multiple comparisons and reduce the risk of Type I error (Armstrong, 2014).

In the third step, differences in distal outcomes (job satisfaction and planned persistence in the teaching profession) across identified profiles were examined using the automatic Bolck-Croon-Hagenaars (BCH) approach implemented in Mplus (Asparouhov & Muthén, 2021). This approach was chosen because it has been shown to produce the most robust results when distal outcomes are not normally distributed (Shin et al., 2019).

RESULTS

Descriptive statistics, Pearson correlations, and internal consistency reliability of the variables are presented in Table 1.

➲ TABLE 1
Descriptive statistics and Pearson correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Emotional engagement	1										
2 Social engagement with colleagues	0.500**	1									
3 Cognitive engagement	0.666**	0.533**	1								
4 Social engagement with students	0.582**	0.563**	0.619**	1							
5 Exhaustion	-0.553**	-0.257**	-0.386**	-0.306**	1						
6 Psychological distancing	-0.652**	-0.351**	-0.483**	-0.418**	0.724**	1					
7 Cognitive impairment	-0.520**	-0.283**	-0.499**	-0.374**	0.687**	0.701**	1				
8 Emotional impairment	-0.408**	-0.274**	-0.427**	-0.320**	0.619**	0.581**	0.703**	1			
9 Job satisfaction with work environment	0.511**	0.371**	0.337**	0.243**	-0.459**	-0.510**	-0.355**	-0.359**	1		
10 Job satisfaction with profession	0.583**	0.314**	0.343**	0.346**	-0.567**	-0.655**	-0.452**	-0.348**	0.570**	1	
11 Persistence in the profession	0.481**	0.274**	0.271**	0.261**	-0.455**	-0.540**	-0.363**	-0.270**	0.380**	0.679**	1
M	4.44	4.13	4.54	4.27	2.22	1.81	1.70	1.61	4.20	3.82	5.34
SD	0.61	0.57	0.48	0.59	0.67	0.59	0.55	0.53	0.79	0.94	1.59
α	0.91	0.74	0.82	0.83	0.89	0.77	0.85	0.79	0.88	0.86	-

Note: $^{**}p < 0.001$.

Early-career teachers reported work engagement and satisfaction with their work environment and profession above the mid-point of the scales used, burnout symptoms below the mid-point, and a high level of planned persistence in the teaching profession. Intercorrelations among aspects of work engagement and among the four burnout symptoms were moderate to high and positive. As expected, work engagement and burnout symptoms were moderately and negatively correlated. All correlations between professional well-being (work engagement and burnout), and distal outcomes (job satisfaction and planned persistence in the profession) were significant, low to moderate in strength, and in the expected direction. All measures demonstrated acceptable to high reliability, with Cronbach's α exceeding 0.70 for all scales.

To assess the structural validity of the measures, confirmatory factor analysis (CFA) was conducted. The model with four interrelated aspects of work engagement demonstrated a good fit to the data (TLI = 0.94, CFI = 0.95, RMSEA = 0.07, SRMR = 0.04), with high standardised factor loadings (minimum $\lambda = 0.566$). The measurement model with four interrelated burnout symptoms showed an acceptable fit (TLI = 0.89, CFI = 0.90, RMSEA = 0.07, SRMR = 0.05), with high standardised factor loadings (minimum $\lambda = 0.425$). Finally, the model with two interrelated aspects of job satisfaction demonstrated an acceptable fit, apart from a high RMSEA (TLI = 0.92, CFI = 0.88, RMSEA = 0.14, SRMR = 0.08). Moreover, all items had high standardised factor loadings (minimum $\lambda = 0.668$), indicating that they effectively capture the two aspects of job satisfaction.

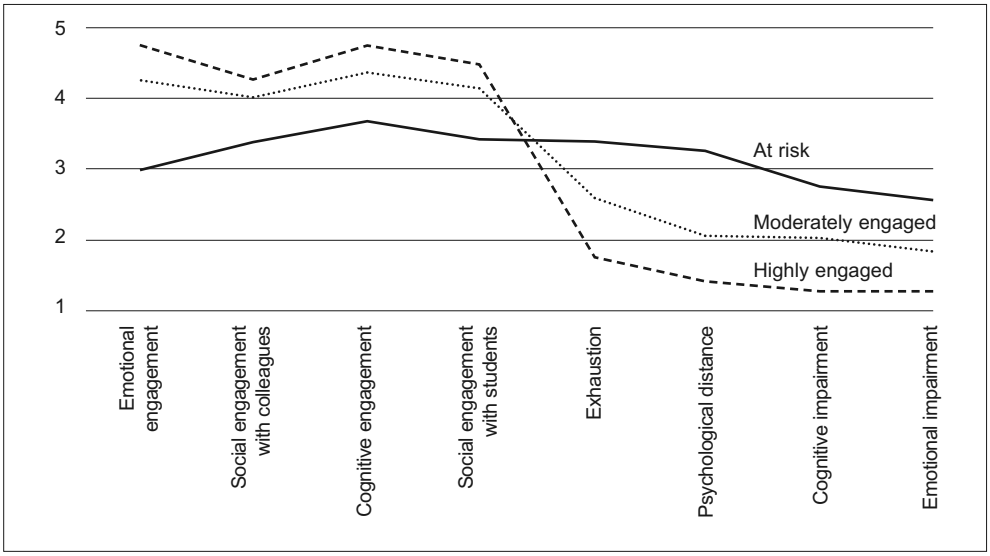
The model fit information of six LPA models is presented in Table 2. The size of the smallest profile was acceptable for all solutions (> 5 % of the sample), except for the six-profile model. Since the BLRT was significant for all models, it was not informative in selecting the optimal model. AIC, BIC, and SABIC indices decreased with each additional profile; however, the scree plot presented a diminishing point of decrement at the three-profile model (Appendix 1). Additionally, the three-profile model demonstrated the highest entropy. For this model, average posterior probabilities of class membership in the target profile varied from 0.933 – 0.990 ($M = 0.958$), and cross-probabilities were low (0.025 – 0.051, $M = 0.037$), indicating high reliability of classification into profiles. An examination of the identified profiles across models revealed that more complex models produced profiles qualitatively similar to those in the three-profile solution, hence not providing new meaningful information to the model. Considering all the aforementioned factors, the three-profile model was retained.

➲ TABLE 2
Fit indices of the tested latent profile models

Model (*k* profiles)	AIC	BIC	SABIC	Min %	BLRT (*p*)	Entropy
1	8127.021	8197.103	8146.309	-	-	
2	6794.427	6903.930	6824.563	33.85	< 0.001	0.873
3	**6184.524**	**6333.448**	**6225.510**	**6.00**	**< 0.001**	**0.886**
4	5951.365	6139.711	6003.200	5.43	< 0.001	0.835
5	5753.102	5980.868	5815.785	5.42	< 0.001	0.846
6	5584.239	5851.427	5657.772	0.17	< 0.001	0.866

Note: Fit indices for the chosen model are presented in bold.

The three-profile model is depicted in Figure 1. The first profile (50.30 %, $n = 297$), labelled *Highly engaged teachers*, is characterised with high levels of work engagement ($M = [4.32 – 4.78]$) and low levels of burnout ($M = [1.29 – 1.78]$). The second profile (43.70 %, $n = 258$) is labelled as *Moderately engaged teachers* and is qualitatively similar to the highly engaged profile, but has lower levels of work engagement ($M = [4.02\text{-}4.39]$) and higher levels of burnout ($M = [1.85\text{-}2.58]$). The final profile (6.00 %, $n = 35$), labelled as *Teachers at risk*, is characterised with around average values of both work engagement ($M = [3.00\text{-}3.70]$) and burnout ($M = [2.56\text{-}3.37]$). Highly and moderately engaged profiles, exhibited relatively lower levels of social engagement (both with students and colleagues) compared to other work engagement dimensions, as well as relatively higher level of exhaustion in comparison to other burnout symptoms. At risk profile exhibited relatively higher levels of cognitive engagement in comparison to other work engagement dimensions and higher levels of exhaustion and psychological distance in comparison to cognitive and emotional impairment.



❶ FIGURE 1
Mean levels of work engagement dimensions and burnout symptoms in the three latent profiles

To gain a deeper understanding in the quantitative differences between the three profiles, mean levels of eight indicators were compared across the profiles. The results of pairwise comparisons are presented in Appendix 2. All comparisons were statistically significant (at $p < 0.001$), indicating that the three profiles quantitatively differ in mean level of all work engagement dimensions and all burnout symptoms.

Lastly, differences in distal outcomes (persistence in teaching profession and job satisfaction) were examined across profiles. The overall Wald test indicated significant differences in planned persistence in the teaching profession ($\chi^2 = 148.819$, $p < 0.001$), job satisfaction with profession ($\chi^2 = 255.373$, $p < 0.001$) and job satisfaction with work environment ($\chi^2 = 118.228$, $p < 0.001$) across profiles. Further pairwise comparisons revealed that the differences among all profiles in the three distal outcomes are statistically significant (Table 3). Highly engaged teachers reported the highest persistence in the teaching profession, followed by moderately engaged teachers, while teachers at risk had the lowest persistence. Similarly, highly engaged teachers exhibited the highest job satisfaction with both teaching profession and work environment, followed by moderately engaged teachers, and with teachers at risk reporting the lowest satisfaction.

TABLE 3
Means, standard errors and statistically significant differences in distal outcomes across three latent profiles

Distal outcome		Profile: Highly engaged teachers (a)	Moderately engaged teachers (b)	Teachers at risk (c)
Persistence in the teaching profession	*M* (*SE*)	6.02 (0.077)$_{bc}$	4.88 (0.100)$_{ac}$	2.98 (0.297)$_{ab}$
Job satisfaction with the profession	*M* (*SE*)	4.51 (0.040)$_{bc}$	4.00 (0.049)$_{ac}$	3.02 (0.167)$_{ab}$
Job satisfaction with work environment	*M* (*SE*)	4.33 (0.045)$_{bc}$	3.45 (0.055)$_{ac}$	2.34 (0.148)$_{ab}$

Note: Subscripts denote profiles which differ significantly at $p < 0.001$.

DISCUSSION

The results of this study provide a closer insight into early-career subject-teachers' well-being profiles in terms of specific patterns of engagement and burnout. The identified profiles distinguish between teachers who have a preferable level of occupational well-being and those whose levels of engagement and burnout are somewhat departing. On average, teachers from this sample demonstrate higher levels of work engagement and lower levels of burnout, aligning with previous studies (e.g. Holström et al., 2023; Salmela-Aro et al., 2019; Van der Vaart & De Beer, 2021). Interestingly, the previously identified profile characterised by both high burnout and high

work engagement (e.g., Salmela-Aro et al., 2019) was not observed among Croatian early-career teachers. In addition, by analysing profiles of highly educated employees, Innanen et al. (2014) found that highly educated employees are more likely to fall into engaged profile rather than in the exhausted--workaholic one, and similarly, Boersma and Lindblom (2009) reported that highly educated employees are generally more engaged and committed. Considering that subject teachers are highly educated, the obtained results regarding the prevalence of the highly engaged profile in this study align with previous findings from a few studies that have implemented a person-centred approach to teacher well-being. More specifically, the identified profiles show some similarities to the three profiles identified in a sample of Finnish teachers, where the engaged profile was also found to be the most common (Holström et al., 2023). On the other hand, Salmela-Aro et al. (2019) found that the most prevalent profile among Finnish teachers was the one characterised by high levels of both engagement and burnout. Additionally, Herman et al. (2020) explored profiles based on the levels of stress and coping of middle school teachers in the USA, and obtained that two out of three profiles are characterised by high stress.

Consistent with previous research (e.g. Madigan & Kim, 2021; Skaalvik & Skaalvik, 2018), the obtained findings highlight the essential role of teachers' occupational well-being for their job satisfaction and intention to remain in the profession. This is particularly important in the early years of teaching, in line with evidence that early-career teachers' work engagement is positively related to their job satisfaction (Høigaard et al., 2011; Wang et al., 2024). Furthermore, this aligns with recent meta-analytic findings on employees across various sectors, showing that work engagement positively correlates with job satisfaction and negatively with turnover intentions (Mazzetti et al., 2023).

Although, on average, teachers in the overall sample reported high levels of work engagement and low levels of burnout, three distinct profiles significantly differed in levels of work engagement aspects and burnout symptoms. In this manner, the profile of teachers at risk represents the most vulnerable group, given that their occupational well-being seems to be diminished soon after entering the profession. Consequently, these teachers report lower job satisfaction and are least convinced to stay in the profession. This finding calls for additional attention in practice, given that turnover intentions tend to remain rather consistent over time (Rasanen et al., 2020).

Furthermore, from the perspective of the JD-R model, job resources play a crucial role when facing high job demands (Granziera et al., 2021). Given that early-career teachers encounter high demands in terms of new challenges and lack of

practical experience, additional support from colleagues and school principals can significantly contribute to their well-being and future career plans. Empirical evidence indicates that job resources such as supervisor support and organisational climate can significantly buffer the adverse effects of job demands on teacher work engagement (Bakker at al., 2007). According to Schaufeli and Bakker (2004), different patterns of causes and consequences of burnout imply the need for different intervention strategies in terms of reducing burnout and/or enhancing engagement. Therefore, a clear understanding of the similarities and differences among various well-being profiles of teachers could help in developing tailored, more nuanced interventions that are grounded on novice teachers' individual experiences. Since early years of teaching are a critical period for the transition into the profession and future career plans, it is important to timely identify teachers who are at risk and provide them with adequate, tailored support. Intentions to leave the profession increase when job demands exceed available job resources (Madigan & Kim, 2021). Therefore, providing timely interventions is crucial for avoiding teacher attrition in the early years of their career. Our findings suggest that interventions aimed at developing teachers' resilience to stress and burnout, as well as enhancing their work engagement, could be particularly beneficial for novice teachers, supporting their job satisfaction and long-term commitment to the profession. Such support is even more critical in the light of increasing challenges with the recruitment and retention of subject teachers.

Limitations

Our study has several limitations that refer to the sampling and data collection procedure. Invitations were sent to all elementary schools in Croatia, requesting them to identify teachers up to five years in teaching and ask them to participate in the study. However, precise data on the number of early-career teachers in elementary schools in Croatia are unavailable. We estimate that the teacher response rate was approximately 50%. Our sample is likely influenced by self-selection bias, as teachers who chose to participate may be those who are highly motivated and more resilient to stress, potentially reducing the variability of well-being variables. The second limitation of our study is the use of self-report instruments to assess the elements of well-being, which could lead to acquiescence bias in responding and further reduce the data variability. Future research could address these limitations using observer ratings, or complementary student data to assess teacher engagement. The cross-sectional nature of our data further limits the conclusions about the temporal ordering of the relations between well-being and its outcomes. Longitudinal studies could assess

job satisfaction and career intentions among profiles of early-career teachers at various time-points, providing insights into the long-term role of work engagement and stress in their teaching experiences and career trajectories.

CONCLUSIONS

Using a person-centred approach, three different profiles of teachers based on their levels of work engagement and burnout were identified in this study: highly engaged teachers, moderately engaged teachers, and teachers at risk. Additionally, analysis of differences in job satisfaction and planned persistence in the teaching profession across the three profiles indicated that highly engaged teachers reported the highest persistence in the profession, while teachers at risk demonstrated the lowest persistence. Similarly, highly engaged teachers reported the highest job satisfaction, while teachers at risk expressed the lowest satisfaction. Our findings align with previous variable-centred research, underscoring the importance of two complementary aspects of occupational well-being – work engagement and burnout – in relation to teachers' job satisfaction and career plans. The main strength of our study is the use of the person-centred approach, which allows for a simultaneous analysis of various aspects of well-being in profiling the subgroups of teachers in our sample. This approach enables the identification of teachers who are particularly at risk of diminished well-being.

Funding

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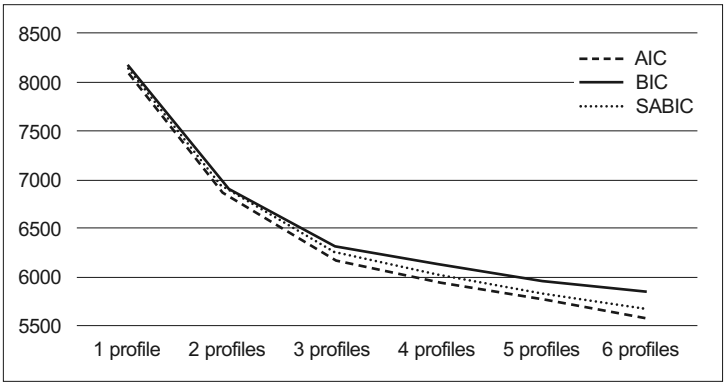
APPENDIX

1 Scree plot of model fit indices AIC, BIC and SABIC



2

Results of pairwise comparisons (Wald test) of work engagement aspects and burnout symptoms between the three latent profiles

Indicator	Comparison		χ^2	*df*	*p*
	Profile 1	Profile 2			
Emotional engagement	Highly engaged	Moderately engaged	32.420	1	< 0.001
	Highly engaged	At risk	134.188	1	< 0.001
	Moderately engaged	At risk	81.078	1	< 0.001
Social engagement with colleagues	Highly engaged	Moderately engaged	18.068	1	< 0.001
	Highly engaged	At risk	45.773	1	< 0.001
	Moderately engaged	At risk	21.095	1	< 0.001
Cognitive engagement	Highly engaged	Moderately engaged	42.974	1	< 0.001
	Highly engaged	At risk	43.715	1	< 0.001
	Moderately engaged	At risk	19.066	1	< 0.001
Social engagement with students	Highly engaged	Moderately engaged	27.483	1	< 0.001
	Highly engaged	At risk	64.058	1	< 0.001
	Moderately engaged	At risk	25.306	1	< 0.001
Exhaustion	Highly engaged	Moderately engaged	237.191	1	< 0.001
	Highly engaged	At risk	189.112	1	< 0.001
	Moderately engaged	At risk	57.890	1	< 0.001
Psychological distance	Highly engaged	Moderately engaged	302.728	1	< 0.001
	Highly engaged	At risk	209.971	1	< 0.001
	Moderately engaged	At risk	103.477	1	< 0.001
Cognitive impairment	Highly engaged	Moderately engaged	315.269	1	< 0.001
	Highly engaged	At risk	172.866	1	< 0.001
	Moderately engaged	At risk	51.093	1	< 0.001
Emotional impairment	Highly engaged	Moderately engaged	171.483	1	< 0.001
	Highly engaged	At risk	72.975	1	< 0.001
	Moderately engaged	At risk	23.594	1	< 0.001

REFERENCES

Admiraal, W., & Kittelsen Røberg, K.-I. (2023). Teachers' job-demands, resources and their job satisfaction: Satisfaction with school, career choice and teaching profession of teachers in different career stages. *Teaching and Teacher Education, 125,* 104063. https://doi.org/10.1016/j.tate.2023.104061

Admiraal, W., Kittelsen Røberg, K.-I., Wiers-Jensen, J., & Saab, N. (2023). Mind the gap: Early-career teachers' level of preparedness, professional development, working conditions, and feelings of distress. *Social Psychology of Education, 26,* 1759–1787. https://doi.org/10.1007/s11218-023-09819-6

Arens, A. K., & Morin, A. J. S. (2016). Relations between teachers' emotional exhaustion and students' educational outcomes. *Journal of Educational Psychology, 108*(6), 800–813. https://doi.org/10.1037/edu0000105

Armstrong, R. A. (2014). When to use the Bonferroni correction. *Ophthalmic and Physiological Optics, 34*(5), 502–508. https://doi.org/10.1111/opo.12131

Asparouhov, T., & Muthén, B. (2012). Using Mplus TECH11 and TECH14 to test the number of latent classes. *Mplus Web Notes, 14*(22), 1–17.

Asparouhov, T., & Muthén, B. (2021). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model. *Mplus Web Notes, 21*(11), 1–80.

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. *Annual Review of Organizational Psychology and Organizational Behavior, 10*(1), 25–53. https://doi.org/10.1146/annurev-orgpsych-120920-053933

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology, 99*(2), 274–284. https://doi.org/10.1037/0022-0663.99.2.274

Boersma, K., & Lindblom, K. (2009). Stability and change in burnout profiles over time: A prospective study in the working population. *Work & Stress: An International Journal of Work, Health & Organisations, 23*(3), 264–283. https://doi.org/10.1080/02678370903265860

Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*(4), 915–934. https://doi.org/10.1348/096317909X478557

Castro Silva, J., Peixoto, F., Galhoz, A., & Gaitas, S. (2026). Job demands and resources as predictors of well-being in Portuguese teachers. *European Journal of Teacher Education, 49*(1), 84–107. https://doi.org/10.1080/02619768.2023.2288552

Domović, V., & Drvodelić, M. (2025). Teacher shortage in Croatia – A challenge for educational policy, initial teacher education and educational institutions. *European Journal of Teacher Education, 48*(1), 64–80. https://doi.org/10.1080/02619768.2024.2430251

Dreer, B. (2021). Teachers' well-being and job satisfaction: The important role of positive emotions in the workplace. *Educational Studies, 50*(1), 61–77. https://doi.org/10.1080/03055698.2021.1940872

Dreer, B. (2023). On the outcomes of teacher wellbeing: A systematic review of research. *Frontiers in Psychology, 14,* 1205179. https://doi.org/10.3389/fpsyg.2023.1205179

Granziera, H., Collie, R., & Martin, A. (2021). Understanding teacher wellbeing through job demands-resources theory. In C. F. Mansfield (Ed.), *Cultivating teacher resilience* (pp. 229–244). Springer. https://doi.org/10.1007/978-981-15-5963-1_14

Granziera, H., Martin, A., & Collie, R. (2023). Teacher well-being and student achievement: A multilevel analysis. *Social Psychology of Education, 26,* 279–291. https://doi.org/10.1007/s11218-022-09751-1

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 43*(6), 495–513. https://doi.org/10.1016/j.jsp.2005.11.001

Hascher, T., & Waber, J. (2021). Teacher well-being: A systematic review of the research literature from the year 2000–2019. *Educational Research Review, 34,* 100411. https://doi.org/10.1016/j.edurev.2021.100411

Herman, K. C., Prewitt, S. L., Eddy, C. L., Savale, A., & Reinke, W. (2020). Profiles of middle school teachers stress and coping: Concurrent and prospective correlates. *Journal of School Psychology, 78,* 54–68. https://doi.org/10.1016/j.jsp.2019.11.003

Høigaard, R., Giske, R., & Sundsli, K. (2011). Newly qualified teachers' work engagement and teacher efficacy influences on job satisfaction, burnout, and the intention to quit. *European Journal of Teacher Education, 35*(3), 347–357. https://doi.org/10.1080/02619768.2011.633993

Holmström, A., Tuominen, H., Laasanen, M., & Veermans, M. (2023). Teachers' work engagement and burnout profiles: Associations with sense of efficacy and interprofessional collaboration in school. *Teaching and Teacher Education, 132*, 104251. https://doi.org/10.1016/j.tate.2023.104251

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Innanen, H., Tolvanen, A., & Salmela-Aro, K. (2014). Burnout, work engagement and workaholism among highly educated employees: Profiles, antecedents and outcomes. *Burnout Research, 1*(1), 38–49. https://doi.org/10.1016/j.burn.2014.04.001

Kern, M. L., Waters, L. E., Adler, A., & White, M. A. (2014). Assessing employee wellbeing in schools using a multifaceted approach: Associations with physical health, life satisfaction, and professional thriving. *Psychology, 5*(6), 500–513. https://doi.org/10.4236/psych.2014.56060

Kim, L. E., & Burić, I. (2020). Teacher self-efficacy and burnout: Determining the directions of prediction through an autoregressive cross-lagged panel model. *Journal of Educational Psychology, 112*(8), 1661–1676. https://doi.org/10.1037/edu0000424

Klassen, R. M., Yerdelen, S., & Durksen, T. L. (2013). Measuring teacher engagement: Development of the engaged teachers scale (ETS). *Frontline Learning Research, 1*(2), 33–52. https://doi.org/10.14786/flr.v1i2.44

la Velle, L. (2019). Motivation and provision in teacher education: Context, culture and capacity. *Journal of Education for Teaching, 45*(5), 491–493. https://doi.org/10.1080/02607476.2019.1675356

Leal-Soto, F., Carmona-Halty, M., Dávila-Ramírez, J., & Valdivia, Y. (2018). Work engagement, teaching practices with motivational effects, and learning-oriented classroom motivational climate. *Revista Interamericana de Psicologia / Interamerican Journal of Psychology, 52*(2), 162–170. https://doi.org/10.30849/rip/ijp.v52i2.106

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, 103425. https://doi.org/10.1016/j.tate.2021.103425

Marušić, I., Jagodić, G. K., Erceg, I., & Šabić, J. (2020). Longitudinal study of individual, environmental and contextual factors predicting adaptation to the transition to lower secondary education. *Learning*

and Individual Differences, 83-84, Article 101946. https://doi.org/10.1016/j.lindif.2020.101946

Mazzetti, G., Robledo, E., Vignoli, M., Topa, G., Guglielmi, D., & Schaufeli, W. B. (2023). Work engagement: A meta-analysis using the job demands-resources model. *Psychological Reports, 126*(3), 1069–1107. https://doi.org/10.1177/00332941211051988

Morin, A. J. S., Bujacz, A., & Gagné, M. (2018). Person-centered methodologies in the organizational sciences: Introduction to the feature topic. *Organizational Research Methods, 21*(4), 803–813. https://doi.org/10.1177/1094428118773856

Moyano, N., Perez-Yus, M. C., Herrera-Mercadal, P., Navarro-Gil, M., Valle, S., & Montero-Marin, J. (2020). Burned or engaged teachers? The role of mindfulness, self-efficacy, teacher and students' relationships, and the mediating role of intrapersonal and interpersonal mindfulness. *Current Psychology, 42,* 11719–11732. https://doi.org/10.1007/s12144-021-02433-9

Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus User's Guide*. Eighth Edition. Muthén & Muthén

Nylund-Gibson, K., & Choi, A. Y. (2018). Ten frequently asked questions about latent class analysis. *Translational Issues in Psychological Science, 4*(4), 440. https://doi.org/10.1037/tps0000176

OECD (2019). *TALIS 2018 Technical Report*. https://www.oecd.org/content/dam/oecd/en/about/programmes/edu/talis/talis2018supportmaterials/TALIS_2018_Technical_Report.pdf

Ostermeier, T. C. J., Koops, W., & Peccei, R. (2023). Effects of job demands and resources on the subjective well-being of teachers. *Review of Education, 11*(3), e3416. https://doi.org/10.1002/rev3.3416

Räsänen, K., Pietarininen, J., Pyhältö, K., Soini, T., & Väisänen, P. (2020). Why leave the teaching profession? A longitudinal approach to the prevalence and persistence of teacher turnover intentions. *Social Psychology of Education, 23,* 837–859. https://doi.org/10.1007/s11218-020-09567-x

Salmela-Aro, K., Hietajärvi, L., & Lonka, K. (2019). Work burnout and engagement profiles among teachers. *Frontiers in Psychology, 10*, 2254. https://doi.org/10.3389/fpsyg.2019.02254

Schaufeli, W. B., & Bakker, A. B. (2010). Defining and measuring work engagement: Bringing clarity to the concept. In W. B. Schaufeli, A. B. Bakker, & M. P. Leiter (Eds.), *Work engagement. A Handbook of essential theory and research* (pp. 10–24). Psychology Press.

Schaufeli, W. B., & Bakker, A. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*(3), 293–325. https://doi.org/10.1002/job.248

Schaufeli, W. B., Desart, S., & De Witte, H. (2020). Burnout Assessment Tool (BAT) – development, validity, and reliability. *International Journal of Environmental Research and Public Health, 17*(24), 9495. https://doi.org/10.3390/ijerph17249495

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor

analysis results: A review. *The Journal of Educational Research, 99*(6), 323–337. https://doi.org/10.3200/JOER.99.6.323-338

Schuck, S., Aubusson, P., Buchanan, J., Varadharajan, M., & Burke, P. F. (2018). The experiences of early career teachers: New initiatives and old problems. *Professional Development in Education, 44*(2) 1–13. https://doi.org/10.1080/19415257.2016.1274268

Shin, M., No, U., & Hong, S. (2019). Comparing the robustness of stepwise mixture modeling with continuous nonnormal distal outcomes. *Educational and Psychological Measurement, 79*(6), 1156–1183. https://doi.org/10.1177/0013164419839770

Skaalvik, E. M., & Skaalvik, S. (2016). Teacher stress and teacher self-efficacy as predictors of engagement, emotional exhaustion, and motivation to leave the teaching profession. *Creative Education, 7*(13), 1785–1799. https://doi.org/10.4236/ce.2016.713182

Skaalvik, E. M., & Skaalvik, S. (2017). Motivated for teaching? *Teaching and Teacher Education, 67,* 152–160. https://doi.org/10.1016/j.tate.2017.06.006

Skaalvik, E. M., & Skaalvik, S. (2018). Job demands and job resources as predictors of teacher motivation and well-being. *School Psychology of Education, 21*(5), 1251–1275. https://doi.org/10.1007/s11218-018-9464-8

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and "how to" guide of its application within vocational behavior research. *Journal of Vocational Behavior, 120*, 103445. https://doi.org/10.1016/j.jvb.2020.103445

Timms, C., & Brough, P. (2013). "I like being a teacher": Career satisfaction, the work environment and work engagement. *Journal of Educational Administration, 51*(6), 768–789. https://doi.org/10.1108/JEA-06-2012-0072

Turner, K., Thielking, M., & Meyer, D. (2021). Teacher wellbeing, teaching practice and student learning. *Issues in Educational Research, 31*(4), 1293–1311.

Van der Vaart, L., & De Beer, L. T. (2021). Engaged but exhausted: Work-related wellbeing profiles of South African employees. *International Journal of Wellbeing, 11*(4), 88–105. https://doi.org/10.5502/ijw.v11i4.1823

Wang, J., Zhang, X., & Zhang, L. J. (2022). Effects of teacher engagement on students' achievement in an online English as a foreign language classroom: The mediating role of autonomous motivation and positive emotions. *Frontiers in Psychology, 13,* 950652. https://doi.org/10.3389/fpsyg.2022.950652

Wang, M.-C., Deng, Q., Bi, X., Ye, H., & Yang, W. (2017). Performance of the entropy as an index of classification accuracy in latent profile analysis: A Monte Carlo simulation study. *Acta Psychologica Sinica, 49*(11), 1473–1482. https://doi.org/10.3724/SP.J.1041.2017.01473

Wang, Z., Jiang, H., Jin, W., Jiang, J., Liu, J., Guan, J., Liu, Y., & Bin, E. (2024). Examining the antecedents of novice STEM teachers' job satisfaction: The roles of personality traits, perceived social support, and work engagement. *Behavioral Sciences, 14*(3), 214. https://doi.org/10.3390/bs14030214

Watt, H. M., & Richardson, P. W. (2008). Motivations, perceptions, and aspirations concerning teaching as a career for different types of beginning teachers. *Learning and Instruction, 18*(5), 408–428. https://doi.org/10.1016/j.learninstruc.2008.06.002

Napredovati ili preživjeti? Profili radne angažiranosti i sagorijevanja učitelja u ranoj fazi karijere

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Cilj ovog rada bio je identificirati profile učitelja u ranoj fazi karijere na temelju njihove profesionalne dobrobiti, odnosno radne angažiranosti i sagorijevanja, te ispitati razlike u zadovoljstvu poslom i namjeri ostanka u učiteljskoj profesiji između profila. Ukupno 599 predmetnih učitelja do pet godina radnog iskustva u nastavi ispunilo je mrežni upitnik kojim su procjenjivali svoju profesionalnu dobrobit i povezane ishode. Analizom latentnih profila identificirana su tri distinktivna profila učitelja: visoko angažirani (50,3 %), umjereno angažirani (43,7 %) i u riziku (6,0 %). Dok su visoko i umjereno angažirani učitelji iskazali visoke, odnosno umjerene razine radne angažiranosti i niske razine sagorijevanja, učitelje u riziku karakterizirale su prosječne razine obaju pokazatelja. Učitelji visoko angažiranoga profila iskazali su najveće zadovoljstvo poslom i najveću namjeru ostanka u profesiji, potom su slijedili učitelji umjereno angažiranoga profila, dok su učitelji u riziku iskazali najniže razine zadovoljstva i namjere ostanka. Ovi rezultati potvrđuju ranija istraživanja, naglašavajući ključnu ulogu profesionalne dobrobiti u poticanju zadovoljstva poslom učitelja i njihova zadržavanja u profesiji.

Ključne riječi: profesionalna dobrobit učitelja, radna angažiranost, sagorijevanje, učitelji u ranoj fazi karijere, pristup usmjeren na osobu



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WELL-BEING AND STRESS OF TEACHERS IN MARGINALISED COMMUNITIES: A SYSTEMATIC REVIEW

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Reported teacher stress and teacher attrition are at alarming levels. These trends have led to a number of studies on the well--being and stress of teachers. Additionally, evidence suggests that teachers' well-being is more severely threatened in marginalised and low-income communities. This systematic review aims to synthesise the current research evidence examining the well-being and stress of teachers in marginalised communities. The review included a systematic search of both qualitative and quantitative peer-reviewed and unpublished empirical studies and dissertations. Of the forty-five studies included in the review, 44% highlighted considerable stress and compromised well--being among teachers. However, 15% also revealed a strong sense of purpose and a high level of involvement and commitment of teachers. Additionally, 18% of the studies emphasised the importance of positive relationships between teachers, their colleagues, and school management, as well as the role of institutional support in promoting teacher well-being. Based on the results of the review and risk of bias assessment, we recommend that future studies: 1) clearly define the target population and pay more attention to the sample selection process, 2) include the non-responding in the analysis and description, and 3) place greater emphasis on ethical considerations.

Keywords: teacher, well-being, stress, work stress, marginalised

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INTRODUCTION

The teaching profession can provide a sense of fulfilment, as it is widely perceived by teachers themselves as meaningful and impactful work (Karataş & Özdemir, 2022; Trillo et al., 2024). However, it can also be demanding due to the work's emotionally, cognitively, and administratively challenging nature. Teachers are often required to manage diverse classrooms, meet high-performance expectations, handle administrative tasks, and respond to students' social and emotional needs – all of which contribute to the overall complexity of the profession. According to the OECD (2019), teachers reporting high workplace stress are significantly more likely to want to quit within five years, reflecting how over a third of teachers experience stress-related turnover intentions. Elevated rates of teacher turnover have been consistently reported across various scholarly studies (Ingersoll, 2001; Simon, & Johnson, 2015). Well--being is crucial for all teachers, but it is particularly important for teachers in low-resource, crisis, or marginalised contexts (Falk et al., 2019), as it is threatened to a higher degree. In these settings, teacher well-being is more severely undermined due to the accumulation of specific stressors (such as Bottiani et al., 2019) that require targeted support and systemic-level interventions (Janik Blašková & Winter, 2025). Research by Rosinský et al. (2009) shows teachers in marginalised communities face unique demands including pupils' poor home preparation, behavioural issues, and challenging parent interactions. Ďurkovská and Kentoš (2024) identify behaviour-related stressors – aggressive conduct, low motivation, and poor parental cooperation – as key factors in emotional exhaustion, alongside insufficient state support and excessive administrative workload. These cumulative challenges can lead to frustration, burnout, and ultimately higher attrition, echoing broader international findings on teacher stress and retention (Skaalvik & Skaalvik, 2011).

Although there are dozens of reviews examining teacher well-being (e.g. Dreer, 2023; Na'imah et al., 2021; Zhou et al., 2024), none of them focus on the well-being of teachers in marginalised communities. Marginalised groups refer to individuals or communities that are systematically pushed to the margins of society and experience unequal access to resources and services – often as a result of a combination of factors such as poverty, ethnicity, or health-related disadvantages (Causadias & Umaña-Taylor, 2018; Fluit et al., 2024). The operationalisation of the term "marginalised" in studies depends on the specific context. In the present study, the degree of marginalisation is determined by affiliation with the Roma minority, poverty index (low-income communities), and indicators of social exclusion (e.g., access to housing, healthcare, and infrastructure).

Teacher stress has a fairly unified definition which emphasises the role of individual stressors categorised under three broad areas: work stress (teaching workload, administrative workload), organisational-level stress (relationships with colleagues, school management), and student-related stress (students' behaviour, and achievements) (Collie et al., 2012). These factors are also relevant to teacher well-being (Konu et al., 2010). However, teacher well-being has varied conceptualisations across different research models, potentially affecting the relationship between teacher stress and well-being. In some models and approaches, stress-related mechanisms such as job demands, coping, or resilience are seen as part of well-being (Bermejo-Toro et al., 2016); in others, the concepts are separate (Turner & Gavis, 2023). However, all definitions and models concur that teacher stress and teacher well-being have a close, intertwined relationship. Recent studies show teacher well-being correlates negatively with stress and burnout, with longitudinal research demonstrating that increased burnout corresponds to declining well-being over time (Burić et al., 2019; Emeljanovas et al., 2023). Cross-national evidence confirms that teacher stress and burnout elevate anxiety and depression globally (Iriarte Redín & Erro-Garcés, 2020), while systematic reviews identify stress as a key factor undermining teacher well-being (Hascher & Waber, 2021).

Evidence suggests teacher well-being faces greater threats in marginalised communities, where children from low socio-economic backgrounds experience higher rates of health problems, learning disorders, and disciplinary issues (Arrhenius et al., 2018). Additionally, stigmatisation of disadvantaged schools contributes to socio-economic segregation as affluent parents avoid them (OECD, 2012). All these factors may, in turn, impact teachers' mental and physical health, particularly when combined with other well-researched sources of strain such as work overload, stress, and lack of social support (Rajaee et al., 2022; Temam et al., 2019).

This systematic review aims to synthesise the current research evidence examining the well-being and stress of teachers in marginalised communities at the primary or secondary school level. The following research questions guided our review:

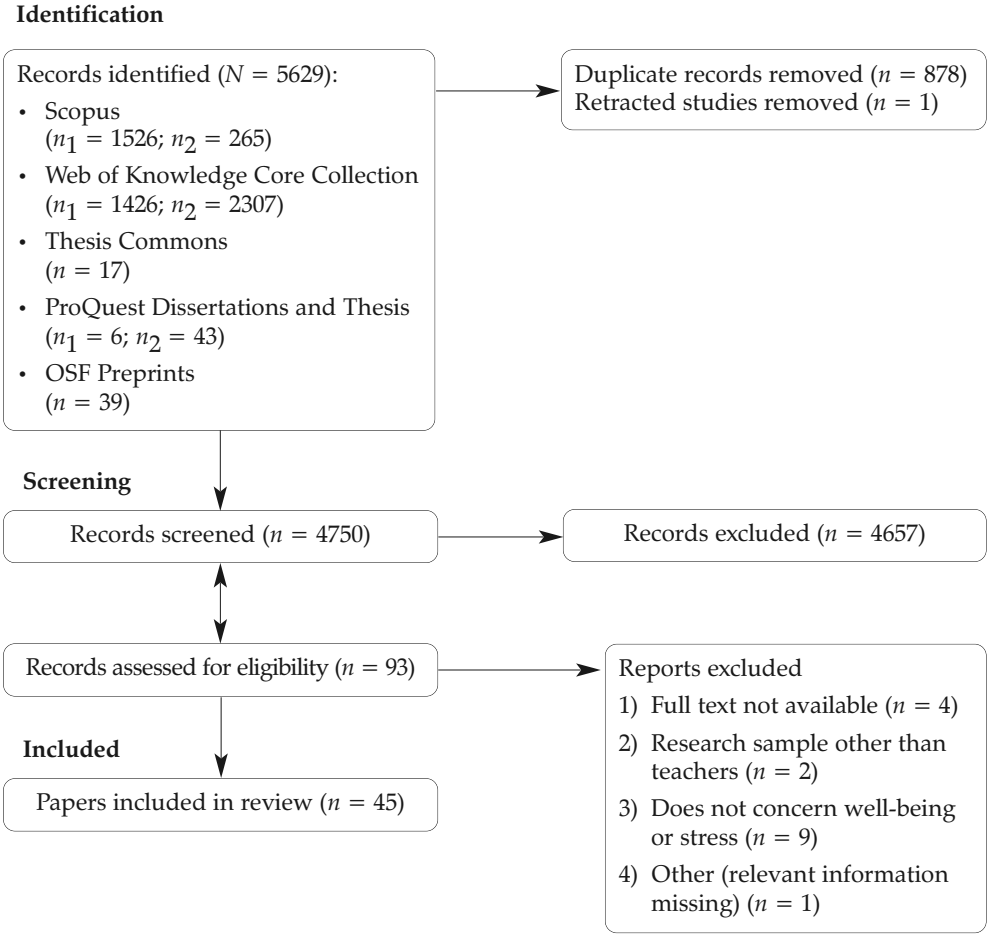
1. What is the state of well-being and stress of teachers in marginalised communities? Which aspects of their work do teachers perceive as particularly rewarding, and which as especially challenging, when teaching in marginalised communities?
2. Are there differences between findings in studies using a qualitative approach compared to those using a quantitative approach?

METHOD

Literature search

We have screened Scopus and Web of Knowledge databases for published empirical work and Thesis Commons, ProQuest Dissertations and Thesis, OSF Preprints, and Google Scholar (first 15 pages per 10 studies) for unpublished work. After the initial search, a broader follow-up search further expanded the focus on marginalised communities. The full search string for each database is available at https://osf.io/qgbm9.

FIGURE 1
PRISMA Flowchart



Inclusion and exclusion criteria

Identified articles were further screened and included in our review if they met the following inclusion criteria: were either peer-reviewed (including conference papers) or unpublished (including working papers, preprints, and dissertations), empirical in nature, quantitative or qualitative, and available in

the English language. Included papers should represent empirical studies and discuss either well-being or stress perceived by teachers working with marginalised groups. Non-empirical papers (reviews, letters, newspapers, commentaries, etc.), studies for which full texts were unavailable, and studies that did not specifically examine teacher well-being/stress in the context of marginalised environments were excluded.

Selection and data extraction process

After removing the duplicates, two authors (masked for review) independently screened the titles and abstracts of all studies in Rayyan (Ouzzani et al., 2016), unaware of each other's decisions. Studies were included for further full-text screening only when agreed by both authors. When a conflict in decision emerged, a third author (masked for review) was consulted. For studies for which we could not find the full text, we have emailed the authors with 1 gentle reminder to provide us with the full text. Each included study was coded by two team members, followed by a reconciliation process.

Risk of bias assessment

To assess the risk of bias in each included study, we have applied the JBI Critical Appraisal Checklist (Lockwood et al., 2015) for qualitative studies, and the Appraisal Tool for Cross-Sectional Studies AXIS for quantitative studies (Downes et al., 2016).

RESULTS

The systematic review identified a total of 45 studies examining well-being and stress. Of these, 20 studies employed quantitative methodologies, 24 utilised qualitative approaches, and 1 study implemented a mixed-methods design. Geographically, the studies spanned multiple continents, with the majority (21 studies) conducted in North America (USA and Canada), followed by Europe (8 studies), Asia (7 studies), Australia (5 studies), and Africa (4 studies). In terms of the primary variables investigated, 25 studies focused specifically on well-being, 18 studies examined stress, and 2 studies explored both well-being and stress simultaneously. More detailed information about each study is presented in Table 1.

TABLE 1
Basic summary of all included studies

Study		
Abel et al. (1999)**	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	52 rural and 46 urban secondary school teachers
	Type of marginalisation	nondefined
	Teacher type	secondary school
	Mean age / years of experience	NA / 15.35 for rural; 15.70 for urban

Continues

Study	Continued	
Angelini et al. (2024)	Type of study / studied variables	quantitative / well-being
	Country of origin	Italy
	Sample	488 general and special education teachers
	Type of marginalisation	nondefined
	Teacher type	primary school
	Mean age / years of experience	40.32 / 7.17
Biasutti et al. (2020)*	Type of study / studied variables	qualitative / well-being
	Country of origin	Italy
	Sample	29 Italian teachers
	Type of marginalisation	migrant, refugee
	Teacher type	primary and middle school
	Mean age / years of experience	50 / NA
Bottiani et al. (2019)**	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	255 teachers from urban low-income middle grade schools
	Type of marginalisation	low income / ethnic minority
	Teacher type	middle school
	Mean age / years of experience	NA / approx. 50% (4 or more), approx. 50% (less than 4)
Brady et al. (2024)	Type of study / studied variables	quantitative / well-being
	Country of origin	USA
	Sample	109 teachers in majority-minoritised schools
	Type of marginalisation	ethnic minority
	Teacher type	elementary and secondary school
	Mean age / years of experience	NA / first-year teachers
Brown & L'Estrange (2023)	Type of study / studied variables	qualitative / well-being
	Country of origin	Australia
	Sample	7 trauma-informed teachers in Australia
	Type of marginalisation	trauma informed
	Teacher type	secondary school
	Mean age / years of experience	30-39 / 11-15
Cui et al. (2022)	Type of study / studied variables	qualitative / well-being
	Country of origin	China
	Sample	10 rural teachers
	Type of marginalisation	rural areas
	Teacher type	primary / elementary, middle school
	Mean age / years of experience	46.2 / 20-30
Elliott (2021)	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	103 teachers from general or special education working in high poverty urban schools
	Type of marginalisation	low income
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / NA
Ellison (2022)	Type of study / studied variables	qualitative / well-being
	Country of origin	USA
	Sample	two elementary school teachers from high-poverty school
	Type of marginalisation	low income
	Teacher type	middle school
	Mean age / years of experience	40 / 11

Continues

Study	Continued	
Fleckman et al. (2022)	Type of study / studied variables	quantitative, qualitative / well-being, stress
	Country of origin	USA
	Sample	teachers working in marginalised communities (N_1=122, N_2=130, N_3=140, N_4=145)
	Type of marginalisation	marginalised communities / children exposed to trauma
	Teacher type	primary / elementary school, secondary / high school
	Mean age / years of experience	NA / NA
Gaspar et al. (2022)	Type of study / studied variables	quantitative / stress
	Country of origin	Portugal
	Sample	65 teachers working with children from economically disadvantaged families
	Type of marginalisation	low income
	Teacher type	kindergarten
	Mean age / years of experience	52 / 29
Hine et al. (2022)	Type of study / studied variables	qualitative / well-being
	Country of origin	Australia
	Sample	heterogeneous group of 49 teachers (including from rural and remote communities, Aboriginal, LGBQTIA, etc.)
	Type of marginalisation	ethnic minority
	Teacher type	primary / elementary, middle school
	Mean age / years of experience	19-68 / 1-33
Holzner & Gaunt (2023)	Type of study / studied variables	qualitative / well-being
	Country of origin	Australia
	Sample	5 Tasmanian support teachers from rural and urban primary schools
	Type of marginalisation	rural teachers
	Teacher type	primary school
	Mean age / years of experience	49.4 / 22.8
Christian--Brandt et al. (2020)**	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	163 teachers in underserved elementary schools serving low income, English-language learner, Latinx students
	Type of marginalisation	low income
	Teacher type	primary / elementary school
	Mean age / years of experience	40 / 13
Johnson et al. (2020)	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	113 early care and education teachers
	Type of marginalisation	low income
	Teacher type	kindergarten
	Mean age / years of experience	NA / 14
Johnson et al. (2021)	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	113 early care and education teachers
	Type of marginalisation	low income
	Teacher type	kindergarten
	Mean age / years of experience	43 / 14

Continues

Study	Continued	
Leckey et al. (2016)	Type of study / studied variables	qualitative / well-being
	Country of origin	Ireland
	Sample	6 teachers from disadvantaged areas
	Type of marginalisation	pupils from disadvant. areas / behavioural problems
	Teacher type	primary / elementary school
	Mean age / years of experience	30 / 9
Lemke et al. (2021)	Type of study / studied variables	qualitative case study / stress
	Country of origin	USA
	Sample	16 school administrators and 9 teachers
	Type of marginalisation	refugee and hurricane displaced students
	Teacher type	high school
	Mean age / years of experience	NA / 12-28
Martin & Amin (2020)	Type of study / studied variables	qualitative / well-being
	Country of origin	South Africa
	Sample	four Black African teachers working in location characterised by extreme inequality and deprivation
	Type of marginalisation	low income
	Teacher type	NA
	Mean age / years of experience	NA / NA
Masedi et al. (2023)	Type of study / studied variables	qualitative / well-being
	Country of origin	South Africa
	Sample	8 teachers in a semi-urban area in the North West province of South Africa
	Type of marginalisation	teachers of adolescents with behavioural difficulties
	Teacher type	secondary school
	Mean age / years of experience	NA / 2+
Mehta et al. (2013)*	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	74 teachers from high-poverty urban schools
	Type of marginalisation	low income / ethnic minority
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / 13
Menden--Hall et al. (2021)*	Type of study / studied variables	qualitative / well-being
	Country of origin	Kenya
	Sample	teachers in Kakuma refugee camp, Kenya N_1=27; N_3=33
	Type of marginalisation	refugee students
	Teacher type	primary school
	Mean age / years of experience	M_1= 26.29; M_3= 29.36 / NA
Morrison (2013)	Type of study / studied variables	qualitative / well-being, stress
	Country of origin	Australia
	Sample	one teacher from disadvantaged rural school
	Type of marginalisation	low income
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / < 1
Mosley et al. (2023)	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	7540 teachers working in US elementary schools
	Type of marginalisation	ethnic minority
	Teacher type	elementary school
	Mean age / years of experience	41.47 / 13.6

Continues

Study	Continued	
Nehmeh & Kelly (2018)*	Type of study / studied variables	qualitative / stress
	Country of origin	USA
	Sample	2 physics teachers in New York City
	Type of marginalisation	professional isolation
	Teacher type	high school
	Mean age / years of experience	NA / 4
Neuen-schwander et al. (2017)*	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	33 teachers working in high-poverty schools
	Type of marginalisation	low income
	Teacher type	kindergarten
	Mean age / years of experience	45 / 16
Norozi & Ness (2023)	Type of study / studied variables	qualitative / well-being
	Country of origin	Norway
	Sample	Norwegian reception teacher in elementary school
	Type of marginalisation	newly arrived immigrant pupils
	Teacher type	elementary school
	Mean age / years of experience	NA / 5
Olsen (2013)	Type of study / studied variables	qualitative / well-being
	Country of origin	South Africa
	Sample	10 teachers from schools in poor socio-economic areas
	Type of marginalisation	low income HIV/AIDS group
	Teacher type	NA
	Mean age / years of experience	NA / NA
Ouellette et al. (2018)**	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	54 teachers from schools in urban high poverty communities
	Type of marginalisation	low income
	Teacher type	primary / elementary school
	Mean age / years of experience	40.4 / 13
O'Donnell et al. (2008)*	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	521 teachers from schools characterised by a wide range of geographic, socio-economic, and cultural diversity
	Type of marginalisation	low income / ethnic minority
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / 12
O'Toole & Simovska (2022)	Type of study / studied variables	qualitative / well-being
	Country of origin	Ireland
	Sample	15 education professionals working in disadvantaged and non-disadvantaged schools
	Type of marginalisation	low income
	Teacher type	primary / elementary school, secondary / high school
	Mean age / years of experience	NA / NA
Parrello et al. (2019)	Type of study / studied variables	qualitative / well-being
	Country of origin	Italy
	Sample	39 teachers from suburbs
	Type of marginalisation	disadvantaged areas
	Teacher type	middle, secondary / high school
	Mean age / years of experience	NA / NA

Continues

Study	Continued	
Paudel et al. (2024)	Type of study / studied variables	quantitative / stress
	Country of origin	Nepal
	Sample	218 community secondary school teachers in Kathmandu district, Nepal
	Type of marginalisation	NA
	Teacher type	secondary school
	Mean age / years of experience	< 40 y = 133, ≥ 40 y = 85 / < 5 y = 27, 5–20 y= 145, ≥ 21 y = 46
Perry et al. (2015)*	Type of study / studied variables	qualitative / well-being
	Country of origin	Canada
	Sample	one teacher from large urban school engaged in Alternative Education Programme working with marginalised adolescents
	Type of marginalisation	"marginalis. youth" – students residing in foster care or group homes, had histories of drugabuse, drop outs
	Teacher type	secondary / high school
	Mean age / years of experience	NA / 6
Rajaee et al. (2022)	Type of study / studied variables	quantitative / stress
	Country of origin	USA
	Sample	59 kindergartens through K-12 grade teachers from low- and high-income areas
	Type of marginalisation	low income
	Teacher type	primary / elementary school, middle, secondary / high school
	Mean age / years of experience	44.3 / 12
Santoro (2007)**	Type of study / studied variables	qualitative / well-being
	Country of origin	Australia
	Sample	three teachers working in low socio-economic areas with high migrant and refugee populations
	Type of marginalisation	low income
	Teacher type	secondary / high school
	Mean age / years of experience	NA / 20
Shernoff et al. (2011)	Type of study / studied variables	qualitative / stress
	Country of origin	USA
	Sample	14 teachers from high-poverty urban neighbourhoods
	Type of marginalisation	low income/ ethnic minority
	Teacher type	primary / elementary school
	Mean age / years of experience	33 / 5
Tang (2018)	Type of study / studied variables	quantitative / well-being
	Country of origin	China
	Sample	3344 rural teachers
	Type of marginalisation	rural areas
	Teacher type	primary / elementary school, secondary / high school
	Mean age / years of experience	37.5 / NA
Tang et al. (2018)	Type of study / studied variables	quantitative / well-being
	Country of origin	China
	Sample	3155 rural teachers
	Type of marginalisation	rural areas
	Teacher type	NA
	Mean age / years of experience	37.7 / NA

Continues

Study	Continued	
Temam et al. (2019)	Type of study / studied variables	quantitative / well-being
	Country of origin	France
	Sample	1549 teachers from low-SES schools
	Type of marginalisation	socially disadvantaged schools
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / NA
Trickett et al. (2012)*	Type of study / studied variables	qualitative / well-being
	Country of origin	USA
	Sample	16 high school teachers of English language learners from urban areas
	Type of marginalisation	English language learners
	Teacher type	middle school
	Mean age / years of experience	NA / 13
Veronese et al. (2018a)	Type of study / studied variables	quantitative / well-being
	Country of origin	Israel
	Sample	153 Palestinian teachers from Occupied Palestinian Territory
	Type of marginalisation	ethnic minority / high conflict zones
	Teacher type	NA
	Mean age / years of experience	27.6 / NA
Veronese et al. (2018b)	Type of study / studied variables	qualitative / well-being
	Country of origin	Israel
	Sample	104 Palestinian teachers working in environments characterised by high levels of human insecurity, social exclusion, and marginalisation
	Type of marginalisation	ethnic minority / high conflict zones
	Teacher type	NA
	Mean age / years of experience	39.5 / NA
Wang & Chen (2022)	Type of study / studied variables	qualitative / well-being
	Country of origin	China
	Sample	46 teachers from various poverty-stricken mountainous counties
	Type of marginalisation	low income
	Teacher type	primary / elementary school
	Mean age / years of experience	NA / 0.5-35
Wiltshire (2022)	Type of study / studied variables	qualitative / stress
	Country of origin	USA
	Sample	6 Head start teachers (pre-kindergarten) of "at risk" of school failure children
	Type of marginalisation	"at risk" of school failure children (poverty, homelessness, lack of care)
	Teacher type	kindergarten
	Mean age / years of experience	NA / 14.5

Summary	Type of study (N)	Variable (N)	Country of origin (N)
	Qualitative (24)	Well-being (25)	North America (21)
	Quantitative (20)	Stress (18)	Europe (8)
	Mixed (1)	Well-being and stress (2)	Asia (7)
			Australia (5)
			Africa (4)

Research on teachers' stress

Six studies conducted in North America and South Africa focused on educators' occupational stress, utilising qualitative methodology. Five out of these studies (Masedi et al., 2023; Mendenhall et al., 2020; Olsen, 2013; Shernoff et al., 2011; Wiltshire, 2022) consistently reported that teachers of marginalised groups experienced increased levels of stress and fatigue. However, sources of stress were not only seen in work with marginalised communities (e.g., managing behaviour problems), but also in working conditions, especially lack of resources, lack of support in the workplace, especially from colleagues; excessive workload, and school-level disorganisation (Nehmeh & Kelly, 2018; Shernoff et al., 2011). Teachers reported that occupational stress significantly impacted their personal relationships and physical health, and identified human and material resources as most important to reducing work-related stress. The fourth qualitative study by Perry et al. (2015) described a resilient and optimistic teacher with a high sense of autonomy, belonging, and competence and an effective way to cope with stress, in a case study.

Studies utilising quantitative methodology are consistent with the above findings. The challenges associated with working with marginalised student populations – often reflected in the need to manage disruptive behaviour and address lower academic performance – have been identified as significant contributors to elevated levels of stress among teachers, encompassing both personal and economic dimensions (Bottiani et al., 2019; Elliott, 2021; Rajaee et al., 2022). A significant number of teachers are suffering from depression (Angelini et al., 2024; Johnson et al., 2020). However, the work of Abel and Sewell (1999) have shown no differences in burnout rates between teachers of marginalised communities and general education teachers. New teachers experience particularly high levels of stress during their first years of teaching. This stems from frustration over limited opportunities to develop both general pedagogical skills and specific knowledge and competencies needed for working with students from marginalised (culturally diverse) communities (Brown & L'Estrange, 2023; Mendenhall et al., 2020; Nehmeh & Kelly, 2018; Norozi & Ness, 2023).

An important role in reducing stress was played by the amount and nature of resources available to schools, but also higher self-efficacy (Bottiani et al., 2019), classes with fewer pupils (Abel & Sewell, 1999), and the quality of relations between colleagues and with school management (Elliott, 2021; Mehta et al., 2013). The need to reduce teachers' stress is particularly important in the context of the findings by Neuenschwander et al. (2017), that teacher stress can affect the development of students' executive functions.

Research on teachers' well-being

Ten qualitative studies discussed the well-being of teachers in marginalised communities and shared several common findings:

1) Teachers working in marginalised communities frequently construe their work as a mission, a perception that appears to enhance their well-being: they derive meaning from fostering students' growth, providing pastoral care and helping to transform life trajectories – a stance further reinforced by affirmative feedback from students (Cui et al., 2022; Fleckman et al., 2022; Martin & Amin, 2020; O'Toole & Simovska, 2022; Trickett et al., 2012). For many, this vocational orientation is rooted in personal biographies that mirror the socio-economic or ethnic backgrounds of their pupils, positioning them as salient positive role models (Santoro, 2007).

2) Even though working with marginalised communities fulfils a sense of purpose in one's work and mission, becoming too involved and worrying about one's students can lead to exhaustion. Simultaneously, the nature of working with marginalised communities (student difficulties, problem behaviours, cultural and linguistic diversity, etc.) places high emotional demands on teachers. Many teachers reported feeling emotionally drained, ineffective, powerless, physically exhausted, and undervalued (Fleckman et al., 2022; Hine et al., 2022; Holzner & Gaunt, 2023; Parrello et al., 2019). Not all teachers utilised various self-care strategies, such as exercise and vacations, which helped them cope with these difficulties (Hine et al., 2022). Others resorted to inappropriate coping mechanisms, such as overeating and increased drinking (Fleckman et al., 2022). Good collegial relationships, the presence of teacher assistants, family support, and the role of leaders were often mentioned as other important factors contributing to well-being and satisfaction. An autocratic style was seen as a threat to this positive function (Ellison, 2022; Fleckman et al., 2022; Hine et al., 2022; Morrison, 2013).

3) The lack of training to work specifically with marginalised communities, or the merely theoretical nature of this training, has been criticised (Hine et al., 2022; Mendenhall et al., 2020; Morrison, 2013; Parrello et al., 2019). These factors were perceived as threats to the creation of the aforementioned sense of meaning in one's work, self-efficacy, and job satisfaction.

4) Many teachers expressed a heavy workload, which interferes with their personal lives. Frustrations from work are often transferred to homes and result in strained relationships with family members (Masedi et al., 2023). Teachers with more years of experience reported an increase in workload in recent years (Cui et al., 2022; Hine et al., 2022). Often, teachers men-

tioned work or out-of-class activities overlapping with the normal duties and tasks placed on them. Examples include advocacy and teacher-initiated programmes for their students, visiting family homes, delivering educational resources by post, or even substituting for parents or friends (Martin & Amin, 2020; O'Toole & Simovska, 2022; Trickett et al., 2012).

TABLE 2
Risk of bias assessment for quantitative studies based on Appraisal Tool for Cross-Sectional Studies AXIS

	Introduction	Methods													Results						Discussion		Other	
	Clear objectives	Appropriate design	Justified sample size	Defined target population	Sample taken from appropriate population	Appropriate selection process	Non-responding addressed	Appropriate measurement	Valid measurement	Determination of statistical significance	Clear description of methods		Clear description of data	Non-response bias	Description of non-responders	Consistency of results	Presentation of all results		Justification of discussion	Discussion of limitations		Funding and COI	Ethical approval
Abel et al. (1999)**	+	+	-	+	+	-	+	+	+	+	+		-	-	-	+	+		+	+		-	?
Angelini et al. (2024)	+	+	-	+	+	?	-	+	+	+	+		+	?	-	+	+		+	+		-	+
Bottiani et al. (2019)**	+	+	+	+	+	+	+	+	+	+	+		+	+	-	+	+		+	+		?	?
Brady et al. (2024)	+	+	-	+	+	+	-	+	+	+	+		+	-	-	+	+		+	+		-	+
Elliott (2021)	+	+	-	+	+	+	-	+	+	+	+		+	+	+	-	+		+	+		?	+
Fleckman et al. (2022)	-	+	-	-	-	-	-	+	+	+	+		-	-	-	-	+		+	+		-	+
Gaspar et al. (2022)	+	+	-	+	-	-	+	+	+	+	-		+	-	-	+	-		+	+		+	+
Christian-Brandt et al. (2020)**	+	+	-	+	-	-	-	+	+	-	+		+	-	-	+	+		+	+		?	+
Johnson et al. (2020)	+	+	+	+	+	+	-	+	+	+	+		+	+	-	+	+		+	+		+	+
Johnson et al. (2021)	+	+	-	+	-	-	+	+	+	+	+		+	-	+	+	+		+	+		-	+
Mehta et al. (2013)*	+	+	-	?	?	?	?	+	+	+	+		+	+	-	+	+		+	+		+	?
Mosley et al. (2023)	+	+	-	+	+	+	+	+	+	+	?		+	?	-	+	+		+	+		-	-
Neuenschwander et al. (2017)*	+	+	+	+	+	?	?	+	+	+	+		+	?	?	+	+		+	+		?	?
Ouellette et al. (2017)**	+	+	+	-	+	+	?	+	+	+	+		+	+	-	+	+		+	+		?	?
O'Donnell et al. (2008)*	+	+	-	+	?	+	+	+	+	+	+		-	?	-	+	+		+	+		+	?
Paudel et al. (2024)	+	+	+	+	+	+	-	+	+	-	+		+	-	-	+	+		+	+		-	+
Rajaee et al. (2022)	+	+	-	+	-	-	?	+	-	+	+		+	-	-	+	+		+	+		-	+
Tang (2018)	+	+	+	+	+	+	-	+	+	+	+		+	+	-	+	+		+	+		+	-
Tang et al. (2018)	+	+	+	+	+	+	-	+	+	+	+		+	+	-	+	+		+	+		+	-
Temam et al. (2019)	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+		+	+		+	+
Veronese et al. (2018a)	+	+	-	-	?	?	-	+	+	+	+		+	?	-	?	+		+	+		+	+

Notes: + = meets the criterion, - = does not meet the criterion, ? = unclear

Quantitative studies confirmed a higher workload for teachers of marginalised communities (Holzner & Gaunt, 2023;

Tang, 2018). They also found a positive effect of pay satisfaction, professional learning, community engagement, and support from family and friends on well-being (Tang, 2018; Tang et al., 2018; Veronese et al., 2018a). Regarding stress, evidence is mixed. The results of Temam et al. (2019) observed no difference between teachers of marginalised communities and other teachers. However, the research of Fleckman et al. (2022) observed higher rates of secondary trauma stress. The risk of bias assessment is summarised in Tables 2 and 3.

TABLE 3
Risk of bias assessment for qualitative studies based on JBI Critical Appraisal Checklist for Qualitative Research

	Philosophical perspective – methodology congruence	Methodology – research question congruence	Methodology – data collection methods congruence	Methodology – analysis of data congruence	Methodology – interpretation of results congruence	Researcher background	Influence of the researcher on the research	Representation of participants	Ethics of the research	Conclusions drawn from analyses
Biasutti et al. (2020)*	+	+	+	+	+	-	-	+	+	+
Brown & L'Estrange (2023)	+	+	+	+	+	-	-	+	+	+
Cui et al. (2022)	+	+	+	+	+	-	-	+	+	+
Ellison (2022)	+	+	?	+	+	-	-	+	?	+
Fleckman et al. (2022)	+	+	+	-	-	-	-	-	+	+
Hine et al. (2022)	+	+	+	+	+	+	+	+	+	+
Holzner & Gaunt (2023)	+	+	+	+	+	-	-	+	+	+
Leckey et al. (2016)	+	+	?	+	+	-	-	+	?	+
Lemke et al. (2021)	+	+	+	+	+	-	+	+	+	+
Martin & Amin (2020)	+	+	+	+	+	-	-	+	+	+
Masedi et al. (2023)	+	+	+	+	+	-	-	+	+	+
Mendenhall et al. (2021)*	+	+	+	+	+	-	-	+	-	+
Morrison (2013)	+	+	+	+	+	+	?	+	+	+
Nehmeh & Kelly (2018)*	+	+	+	+	+	-	+	+	-	+
Norozi & Ness (2023)	+	+	+	+	+	-	-	+	+	+
Olsen (2013)	?	?	?	?	?	+	+	+	+	?
O'Toole & Simovska (2022)	+	+	+	+	+	-	-	+	+	+
Parrello et al. (2019)	+	+	+	+	+	+	+	+	+	+
Perry et al. (2015)*	+	+	?	+	+	-	-	+	?	+
Santoro (2007)**	+	+	+	?	+	+	+	+	?	+
Shernoff et al. (2011)	+	+	+	+	+	+	+	+	+	+
Trickett et al. (2012)*	+	+	+	+	+	-	-	+	+	+
Veronese et al. (2018b)	-	-	+	+	+	+	NA	+	+	+
Wang & Chen (2022)	+	+	+	+	+	-	-	+	?	+
Wiltshire (2022)	+	+	+	+	+	-	-	+	+	+

Notes: + = meets the criterion, - = does not meet the criterion, ? = unclear

DISCUSSION

A substantial research gap remains, as existing reviews on teacher well-being (e.g., Na'imah et al., 2021; Zhou et al., 2024) have not examined teachers in marginalised communities. The review identified 45 quantitative and qualitative studies, with quantitative research primarily addressing teacher stress and qualitative research predominantly exploring teacher well-being. Reviewed studies consistently highlight that teachers working in marginalised communities face elevated stress, burnout, and, in many cases, compromised well-being, with recently published research confirming these findings (Conroy et al., 2024; Ďurkovská & Kentoš, 2024). These challenges stem from systemic issues such as insufficient resources, professional isolation, institutional disorganisation, and student-related difficulties. Doan et al. (2024) also found that compared with their peers in mainstream settings, teachers in marginalised schools more frequently report restricted autonomy in decision-making. On the contrary, Temam et al. (2019) did not find differences in work-related well-being between teachers in marginalised and mainstream schools. This can be explained by the strong sense of purpose and engagement in teachers' roles (Cui et al., 2022; Martin & Amin, 2020; O'Toole & Simovska, 2022). Several studies reported that, despite facing structural disadvantages, teachers experienced a sense of well-being from supporting students and fostering community, maintaining workplace relationships and psychological resilience comparable to colleagues in more advantaged settings (Bottiani et al., 2019; Fleckman et al., 2022).

Another significant trend identified across the reviewed studies is the emphasis on the importance of positive relationships with colleagues and school leadership. This relational aspect of the school environment consistently emerges as a key protective factor against work-related stress, burnout and supportive element in the well-being of teachers working in marginalised communities (Conroy et al., 2024; Versfeld et al., 2025). In high-poverty schools, positive interpersonal dynamics are frequently cited as more influential than material resources in teachers' decisions to stay or leave (Simon & Johnson, 2015). Moreover, studies indicate that teachers who feel respected by school leaders and experience professional solidarity with peers demonstrate higher levels of resilience and job satisfaction (Tran et al., 2023; Collie, 2023).

The present results indicate that, although teachers frequently face high job demands and stress, their well-being is not necessarily compromised, nor do these conditions inevitably lead to burnout. The Job Demands–Resources (JD-R) model explains this resilience through a dual-path mechanism: while

excessive demands may result in exhaustion, the availability of resources can sustain motivation and engagement (Demerouti et al., 2001). Recent theoretical developments support that engagement constitutes the positive pathway of the model, with resources such as collegial support, constructive feedback, and a strong sense of purpose enabling employees to remain energetic and committed even under challenging conditions (Bakker & Demerouti, 2023; Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). In teaching, these protective factors often buffer the negative impact of stress, allowing educators to maintain motivation and well-being despite persistent stresses (Bottiani et al., 2019).

Limitations

While this review contributes meaningful insights, its conclusions must be considered in light of several methodological limitations. The relatively broad scope of marginalised communities included in our systematic review is a limiting factor. Although the inclusion of various types of marginalisation may appear somewhat heterogeneous, this broad approach allowed us to conduct a robust analysis with a sufficient number of studies. There is not yet sufficient evidence to differentiate between types of marginalisation, such as economic disadvantage versus ethnic diversity. A summary of study characteristics revealed that a significant proportion of quantitative studies worked with relatively small, non-representative, and diverse samples, restricting the generalisability of the findings. Due to the heterogeneity of variables across the included studies, we had insufficient data to conduct a full meta-analysis. Of all 45 included studies, 24 were conducted in China or the USA, where larger research samples were likewise predominantly observed. This fact also points to the uneven global distribution of research on teachers in marginalised communities. Our review only included studies written in English, so we have likely omitted evidence published in other languages.

Implications

Within the risk of bias assessment for quantitative studies, we identified three areas that raised the biggest concerns about possible bias and should be addressed in future studies:

(1) the target population to which conclusions are to be generalised should be clearly defined along with the selection process which should ensure the similarity of the sample to the population. It is highly recommended to justify the sample size (e.g., use a-priori statistical power or precision-based analysis);

(2) non-responding (the presence of missing data) should be included in the analysis and description (e.g., what was the nature and extent of the missing data, were participants with missing data removed, or were the missing data imputed? If imputed, how?); and

(3) research involving human subjects should be evaluated and approved by an appropriate ethics committee. We also identified the same two topics within the risk of bias assessment for qualitative studies, namely lack of information about the ethical approval and whether the methods used to collect data are in line with the research question and methodology. Specifically for qualitative studies, there is a need to formulate positionality and consider how the researchers' background may affect the research in question.

The review also points to the global imbalance in research distribution, calling for increased empirical attention to underrepresented regions. Finally, by considering a broad range of marginalised contexts, it allows for a more inclusive view of the difficulties and strengths found in these educational settings. This can serve as a starting point for future research comparing different types of marginalisation or school environments.

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Data availability statement

The data and PRISMA checklist are openly available at https://osf.io/vhtnk/?view_only=08fe2723104f4bb090b53416adb7cc70

REFERENCES

Abel, M. H., & Sewell, J. (1999). Stress and burnout in rural and urban secondary school teachers. *The Journal of Educational Research, 92*(5), 287–293. https://doi.org/10.1080/00220679909597608

Angelini, G., Schonfeld, I. S., Bianchi, R., & Fiorilli, C. (2024). Flourishing and occupational depression: A comparison of general and special education teachers. *European Journal of Special Needs Education,* 1–11. https://doi.org/10.1080/08856257.2024.2334536

Arrhenius, B., Gyllenberg, D., Chudal, R., Lehti, V., Sucksdorff, M., Sourander, O., Virtanen, J.-P., Torsti, J., & Sourander, A. (2018). Social risk factors for speech, scholastic and coordination disorders: A nationwide register-based study. *BMC Public Health, 18,* 739. https://doi.org/10.1186/s12889-018-5650-z

Bakker, A. B., & Demerouti, E. (2007). The job demands–resources model: State of the art. *Journal of Managerial Psychology, 22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2023). A meta-theoretical framework of work engagement. *Annual Review of Organizational Psychology and Organizational Behavior, 10,* 389–410. https://doi.org/10.1146/annurev-orgpsych-120920-053933

Beltman, S., Mansfield, C. F., & Harris, A. (2016). Quietly sharing the load? The role of school psychologists in enabling teacher resilience. *School Psychology International, 37*(2), 172–188. https://doi.org/10.1177/0143034315615939

Bermejo-Toro, L., Prieto-Ursúa, M., & Hernández, V. (2016). Towards a model of teacher well-being: Personal and job resources involved in teacher burnout and engagement. *Educational Psychology, 36*(3), 481–501. https://doi.org/10.1080/01443410.2015.1005006

Biasutti, M., Concina, E., & Frate, S. (2020). Working in the classroom with migrant and refugee students: The practices and needs of Italian primary and middle school teachers. *Pedagogy, Culture & Society, 28*(1), 113–129. https://doi.org/10.1080/14681366.2019.1611626

Bottiani, J. H., Duran, C. A. K., Pas, E. T., & Bradshaw, C. P. (2019). Teacher stress and burnout in urban middle schools: Associations with job demands, resources, and effective classroom practices. *Journal of School Psychology, 77*, 36–51. https://doi.org/10.1016/j.jsp.2019.10.002

Brady, S. T., Griffiths, C. M., & Cohen, G. L. (2024). The affirmed (White) teacher in a cross-race context. *Social Psychology of Education, 27*, 47–68. https://doi.org/10.1007/s11218-023-09812-z

Brown, M., & L'Estrange, L. (2023). Experienced, trauma-informed teachers working in remote Australia: What is required for their work to be effective? *Frontiers in Education, 8*, Article 1123586. https://doi.org/10.3389/feduc.2023.1123586

Burić, I., Slišković, A., & Penezić, Z. (2019). Understanding teacher well-being: A cross-lagged analysis of burnout, negative student-related emotions, psychopathological symptoms, and resilience. *Educational Psychology, 39*(9), 1136–1155. https://doi.org/10.1080/01443410.2019.1577952

Causadias, J. M., & Umaña-Taylor, A. J. (2018). Reframing marginalization and youth development: Introduction to the special issue. *American Psychologist, 73*(6), 707–712. https://doi.org/10.1037/amp0000302

Christian-Brandt, A. S., Santacrose, D. E., & Barnett, M. L. (2020). In the trauma-informed care trenches: Teacher compassion satisfaction, secondary traumatic stress, burnout, and intent to leave education within underserved elementary schools. *Child Abuse & Neglect, 110*(3), e104437. https://doi.org/10.1016/j.chiabu.2020.104437

Collie, R. J. (2023). Teacher well-being and turnover intentions: Investigating the roles of job resources and job demands. *British Journal of Educational Psychology, 93*(3), 712–726. https://doi.org/10.1111/bjep.12587

Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social-emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*(4), 1189–1204. https://doi.org/10.1037/a0029356

Conroy, K., Obee, A., Schiavone, E. M., Urcuyo, A. E., Cramer, E., Comer, J. S., & Frazier, S. L. (2024). Teachers as first responders in marginalized, urban communities: Stress and coping during unprecedented times for public education. *Children and Youth Services Review, 166,* Article 107961. https://doi.org/10.1016/j.childyouth.2024.107961

Cui, B., White, M. A., & McCallum, F. (2022). Exploring rural Chinese teachers' attitudes towards wellbeing: Qualitative findings from appreciative semi-structured interviews. *International Journal of Chinese Education, 11*(1). https://doi.org/10.1177/2212585X221092849

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology, 86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

Doan, S., Steiner, E., & Pandey, R. (2024). *Teacher well-being and intentions to leave: 2024 State of the American Teacher survey (RAND Research Report No. RRA1108-12).* RAND Corporation. https://www.rand.org/content/dam/rand/pubs/research_reports/RRA1100/RRA1108-12/RAND_RRA1108-12.pdf

Downes, M. J., Brennan, M. L., Williams, H. C., & Dean, R. S. (2016). Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ Open, 6*(12), e011458. https://doi.org/10.1136/bmjopen-2016-011458

Dreer, B. (2023). On the outcomes of teacher wellbeing: A systematic review of research. *Frontiers in Psychology, 14,* Article 1205179. https://doi.org/10.3389/fpsyg.2023.1205179

Ďurkovská, M., & Kentoš, M. (2024). They're different, but they're not bad. Stress and job demands of teachers of marginalized Roma communities in Slovakia. *Lifelong Learning – celoživotní vzdělávání, 14*(2), 127–143. https://doi.org/10.11118/lifele20241402127

Elliott, A. C. (2021). *Teacher stress and supports, classroom practices and student outcomes in high poverty urban elementary schools*. Rutgers: The State University of New Jersey, Graduate School of Applied and Professional Psychology ProQuest Dissertations Publishing. https://doi.org/doi:10.7282/t3-11pf-fd81

Ellison, D. W. (2022). Two physical educators' sense of purpose as an indicator of teaching sustainability over time in a high-poverty school setting. *European Physical Education Review, 28*(1), 40–56. https://doi.org/10.1177/1356336x211014546

Emeljanovas, A., Sabaliauskas, S., Mežienė, B., & Istomina, N. (2023). The relationships between teachers' emotional health and stress coping. *Frontiers in Psychology, 14,* 1276431. https://doi.org/10.3389/fpsyg.2023.1276431

Falk, D., Varni, E., Johna, J. F., & Frisoli, P. (2019). *Landscape review: Teacher well-being in low resource, crisis, and conflict-affected settings*. Education Equity Research Initiative. https://www.edu-links.org/sites/default/files/media/file/TWB%20Landscape%20Review_June%202019.pdf

Fleckman, J. M., Petrovic, L., Simon, K., Pugh, K., Ortiz, E., & Joseph, R. (2022). Compassion satisfaction, secondary traumatic stress, and burnout: A Mixed methods analysis in a sample of public-school educators working in marginalized communities. *School Mental Health, 14*(4), 933–950. https://doi.org/10.1007/s12310-022-09515-4

Fluit, S., Cortés-García, L., & von Soest, T. (2024). Social marginalization: A scoping review of 50 years of research. *Humanities and Social Sciences Communications, 11,* Article 1665. https://doi.org/10.1057/s41599-024-04210-y

Gaspar, M. F., Patras, J., Hutchings, J., Homem, T., Azevedo, A. F., Pimentel, M., Baptista, E., Major, S., Vale, V., & Seabra-Santos, M. (2022). Effects of a Teacher Classroom Management program on preschool teachers' practices and psychological factors: A randomized trial with teachers of children from economically disadvantaged families. *Early Education and Development, 34*(3), 626–647. https://doi.org/10.1080/10409289.2022.2063612

Hascher, T., & Waber, J. (2021). Teacher well-being: A systematic review of the research literature from the year 2000–2019. *Educational Research Review, 34,* Article 100411. https://doi.org/10.1016/j.edurev.2021.100411

Hine, R., Patrick, P., Berger, E., Diamond, Z., Hammer, M., Morris, Z. A., Fathers, C., & Reupert, A. (2022). From struggling to flourishing and thriving: Optimizing educator wellbeing within the Australian education context. *Teaching and Teacher Education, 115,* 103727. https://doi.org/10.1016/j.tate.2022.103727

Holzner, K.-L., & Gaunt, L. (2023). Wellbeing promotion in Tasmanian schools: Have we forgotten support teachers? *Australasian Journal of Special and Inclusive Education, 47*(2), 96–109. https://doi.org/10.1017/jsi.2023.10

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*(3), 499–534. https://doi.org/10.3102/00028312038003499

Iriarte Redín, C., & Erro-Garcés, A. (2020). Stress in teaching professionals across Europe. *International Journal of Educational Research, 103,* 101623. https://doi.org/10.1016/j.ijer.2020.101623

Janik Blaskova, L., & Winter, L. (2025). Mapping teacher wellbeing in Slovakia: Insights into resilience, relationships, and support needs. *Frontiers in Education, 10,* 1584696. https://doi.org/10.3389/feduc.2025.1584696

Johnson, A. D., Phillips, D. A., Partika, A., the Tulsa Seed Study Team, & Castle, S. (2020). Everyday heroes: The personal and economic stressors of early care and education teachers serving low-income children. *Early Education and Development, 31*(7), 973–993. https://doi.org/10.1080/10409289.2020.1785266

Johnson, A. D., Phillips, D. A., Schochet, O. N., Martin, A., & Castle, S. (2021). To whom little is given, much is expected: ECE teacher stressors and supports as determinants of classroom quality. *Early Childhood Research Quarterly, 54*, 13–30. https://doi.org/10.1016/j.ecresq.2020.07.002

Karataş, E., & Özdemir, M. (2022). Examining the relationship between meaningful work and job engagement. *Kuramsal Eğitimbilim Dergisi* (*Journal of Theoretical Educational Science*), *15*(3), 676–698. https://doi.org/10.30831/akukeg.1053090

Konu, A., Viitanen, E., & Lintonen, T. (2010). Teachers' wellbeing and perceptions of leadership practices. *International Journal of Workplace Health Management, 3*(1), 44–57. https://doi.org/10.1108/17538351011031939

Leckey, Y., Hyland, L., Hickey, G., Lodge, A., Kelly, P., Bywater, T., Comiskey, C., Donnelly, M., & McGilloway, S. (2016). A mixed-methods evaluation of the longer-term implementation and utility of a teacher classroom management training programme in Irish primary schools. *Irish Educational Studies, 35*(1), 35–55. https://doi.org/10.1080/03323315.2016.1147974

Lemke, M., Nickerson, A., & Saboda, J. (2021). Global displacement and local contexts: A case study of U.S. urban educational policy and practice. *International Journal of Leadership in Education, 27*(3), 471–494. https://doi.org/10.1080/13603124.2021.1884747

Lockwood, C., Munn, Z., & Porritt, K. (2015). Qualitative research synthesis: Methodological guidance for systematic reviewers utilizing meta-aggregation. *International Journal of Evidence-Based Healthcare, 13*(3), 179–187. https://doi.org/10.1097/XEB.0000000000000062

Martin, M., & Amin, N. (2020). Teacher care work in situations of severe deprivation. *Pastoral Care in Education, 38*(2), 156–173. https://doi.org/10.1080/02643944.2020.1725906

Masedi, P. A., Pila-Nemutandani, R. G., Kolobe, P. S., & Tsabedze, W. F. (2023). Mainstream teachers' lived experiences of adolescents with behavioural difficulties: An exploratory study. *South African Journal of Education, 43*(1). https://doi.org/10.15700/saje.v43n1a2108

Mehta, T. G., Atkins, M. S., & Frazier, S. L. (2013). The organizational health of urban elementary schools: School health and teacher functioning. *School Mental Health, 5,* 144–154. https://doi.org/10.1007/s12310-012-9099-4

Mendenhall, M., Cha, J., Falk, D., Bergin, C., & Bowden, L. (2020). Teachers as agents of change: Positive discipline for inclusive classrooms in Kakuma refugee camp. *International Journal of Inclusive Education, 25*(2), 1–19. https://doi.org/10.1080/13603116.2019.1707300

Morrison, C. M. (2013). Slipping through the cracks: One early career teacher's experiences of rural teaching and the subsequent impact on her personal and professional identities. *Australian Journal of Teacher Education (Online), 38*(6), 116–135. https://doi.org/10.14221/ajte.2013v38n6.10

Mosley, K. C., McCarthy, C. J., Lambert, R. G., Fitchett, P. G., & Dillard, J. B. (2023). Elementary teacher occupational health outcomes across schools with varying resources and demographics. *Psychology in the Schools, 60*(4), 943–964. https://doi.org/10.1002/pits.22814

Na'imah, T., Kasanah, R., & Rahmasari Qurrota Aeni, P. S. (2021). Systematic review on the factors that influence well-being among teachers. *Sains Humanika, 13*(2–3). https://doi.org/10.11113/sh.v13n2-3.1917

Nehmeh, G., & Kelly, A. M. (2018). Urban science teachers in isolation: Challenges, resilience, and adaptive action. *Journal of Science Teacher Education, 29*(6), 527–549. https://doi.org/10.1080/1046560X.2018.1474425

Neuenschwander, R., Friedman-Krauss, A., Raver, C., & Blair, C. (2017). Teacher stress predicts child executive function: Moderation by school poverty. *Early Education and Development, 28*(7), 880–900. https://doi.org/10.1080/10409289.2017.1287993

Norozi, S. A., & Ness, O. (2023). The teacher's wellbeing as a binary asset when working with newly arrived immigrant pupils. *Education Sciences, 13*(8), 800. https://doi.org/10.3390/educsci13080800

O'Donnell, M., Lambert, R. G., & McCarthy, C. J. (2008). School poverty status, time of year, and elementary teachers' perceptions of stress. *The Journal of Educational Research, 102*(2), 152–160. https://doi.org/10.3200/JOER.102.2.152-160

O'Toole, C., & Simovska, V. (2022). Same storm, different boats! The impact of COVID-19 on the wellbeing of school communities. *Health Education, 122*(1), 47–61. https://doi.org/10.1108/HE-02-2021-0027

OECD (2019). TALIS *2018 Results (Volume I): Teachers and school leaders as lifelong learners*. OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

OECD (2012). *Equity and quality in education. Supporting disadvantaged students and schools*. OECD Publishing. https://doi.org/10.1787/9789264130852-en

Olsen, S.-T. (2013). Support to teachers in a context of educational change and poverty: A case study from South Africa. *Policy Futures in Education, 11*(3), 241–255. https://doi.org/10.2304/pfie.2013.11.3.241

Ouellette, R. R., Frazier, S. L., Shernoff, E. S., Cappella, E., Mehta, T. G., Maríñez-Lora, A., Cua, G., & Atkins, M. S. (2018). Teacher job stress and satisfaction in urban schools: Disentangling individual-, classroom-, and organizational-level influences. *Behavior Therapy, 49*(4), 494–508. https://doi.org/10.1016/j.beth.2017.11.011

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan – a web and mobile app for systematic reviews. *Systematic Reviews, 5*(1). https://doi.org/10.1186/s13643-016-0384-4

Parrello, S., Iorio, I., Carillo, F., & Moreno, C. (2019). Teaching in the suburbs: Participatory action research against educational wastage. *Frontiers in Psychology, 10,* 2308. https://doi.org/10.3389/fpsyg.2019.02308

Paudel, N. R., KC, P., Ghimire, R., Nygård, C.-H., & Neupane, S. (2024). Occupational burnout and their determinants among schoolteachers in Nepal: A cross-sectional study. *BMC Psychiatry, 24,* 472. https://doi.org/10.1186/s12888-024-05923-9

Perry, N. E., Brenner, C., Collie, R. J., & Hofer, G. (2015). Thriving on challenge: Examining one teacher's view on sources of support for motivation and well-being. *Exceptionality Education International, 25*(1). https://doi.org/10.5206/eei.v25i1.7715

Rajaee, M., Karson, S. N., & McCullough, A. M. (2022). Teachers on the margins: How low-income public schools burden our teachers. *Work, 72*(3), 949–965. https://doi.org/10.3233/WOR-210010

Rosinský, R., Šramová, B., Klein, V., & Vanková, K. (2009). *Pedagogicko--psychologické a interkultúrne aspekty práce učiteľov žiakov zo sociálne znevýhodňujúceho prostredia* (*Pedagogical, psychological, and intercultural aspects of teachers' work with students from socially disadvantaged backgrounds*). FSVaZ, UKF.

Santoro, N. (2007). 'Outsiders' and 'others': 'different' teachers teaching in culturally diverse classrooms. *Teachers and Teaching, 13*(1), 81–97. https://doi.org/10.1080/13540600601106104

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands--resources model: Implications for improving work and health. In G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational and public health: A transdisciplinary approach* (pp. 43–68). Springer. https://doi.org/10.1007/978-94-007-5640-3_4

Shernoff, E. S., Mehta, T. G., Atkins, M. S., Torf, R., & Spencer, J. (2011). A qualitative study of the sources and impact of stress among urban teachers. *School Mental Health, 3,* 59–69. https://doi.org/10.1007/s12310-011-9051-z

Simon, N., & Johnson, S. M. (2015). Teacher turnover in high-poverty schools: What we know and can do. *Teachers College Record, 117*(3), 1–36. https://doi.org/10.1177/016146811511700305

Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education, 27*(6), 1029–1038. https://doi.org/10.1016/j.tate.2011.04.001

Tang, Y. (2018). What makes rural teachers happy? An investigation on the subjective well-being (SWB) of Chinese rural teachers. *International Journal of Educational Development, 62,* 192–200. https://doi.org/10.1016/j.ijedudev.2018.05.001

Tang, Y., He, W., Liu, L., & Li, Q. (2018). Beyond the paycheck: Chinese rural teacher well-being and the impact of professional learning and local community engagement. *Teachers and Teaching, 24*(7), 825–839. https://doi.org/10.1080/13540602.2018.1470972

Temam, S., Billaudeau, N., & Vercambre, M. (2019). Overall and work-related well-being of teachers in socially disadvantaged schools: A population-based study of French teachers. *BMJ Open, 9*(11), e030171. https://doi.org/10.1136/bmjopen-2019-030171

Tran, H., Cunningham, K., Yelverton, V., Osworth, D., & Hardie, S. (2023). How can school leaders retain teachers? The relative importance of different administrative supports for teacher retention in different types of schools. *NASSP Bulletin, 107*(3), 185–217. https://doi.org/10.1177/01926365231198858

Trickett, E. J., Rukhotskiy, E., Jeong, A., Genkova, A., Oberoi, A., Weinstein, T., & Delgado, Y. (2012). "The kids are terrific: It's the job that's tough": The ELL teacher role in an urban context. *Teaching and Teacher Education, 28*(2), 283–292. https://doi.org/10.1016/j.tate.2011.10.005

Trillo, A., González-Monteagudo, J., & Valls, R. (2024). Beyond occupational exhaustion: The influence of positive meaningful work on teachers' well-being. *Humanities & Social Sciences Communications, 11*(1), Article 348. https://doi.org/10.1057/s41599-024-02860-6

Turner, K., & Garvis, S. (2023). Teacher educator wellbeing, stress and burnout: A scoping review. *Education Sciences, 13*(4), 351. https://doi.org/10.3390/educsci13040351

Veronese, G., Pepe, A., Dagdukee, J., & Yaghi, S. (2018a). Social capital, affect balance and personal well-being among teachers in Israel and Palestine. *Teachers and Teaching, 24*(8), 951–964. https://doi.org/10.1080/13540602.2018.1508431

Veronese, G., Pepe, A., Dagdukee, J., & Yaghi, S. (2018b). Teaching in conflict settings: Dimensions of subjective wellbeing in Arab teachers living in Israel and Palestine. *International Journal of Educational Development 61*, 16–26, https://doi.org/10.1016/j.ijedudev.2017.11.009

Versfeld, J., Ebersöhn, L., Ferreira, R., & Graham, M. A. (2025). Social connectedness as a pathway to teacher resilience in challenged contexts. *International Journal of Educational Research, 131,* Article 102601. https://doi.org/10.1016/j.ijer.2025.102601

Wang, X., & Chen, Z. (2022). "It hits the spot": The impact of a professional development program on English teacher wellbeing in underdeveloped regions. *Frontiers in Psychology, 13*, 848322. https://doi.org/10.3389/fpsyg.2022.848322

Wiltshire, C. A. (2022). Early childhood education teacher well-being: Performativity as a means of coping. *Early Childhood Education Journal, 51*, 1385–1399. https://doi.org/10.1007/s10643-022-01387-2

Zhou, S., Slemp, G. R., & Vella-Brodrick, D. A. (2024). Factors associated with teacher wellbeing: A meta-analysis. *Educational Psychology Review, 36,* Article 63. https://doi.org/10.1007/s10648-024-09886-x

Dobrobit i stres učitelja u marginaliziranim zajednicama: sustavni pregled

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Iskazani stres učitelja i njihov odlazak iz profesije na alarmantnim su razinama. Ovi trendovi doveli su do mnogih studija o dobrobiti i stresu učitelja. Osim toga, dokazi upućuju na to da je dobrobit učitelja ozbiljnije ugrožena u marginaliziranim i zajednicama s niskim prihodima. Ovaj sustavni pregled ima za cilj sintetizirati trenutačne istraživačke dokaze koji ispituju dobrobit i stres učitelja u marginaliziranim zajednicama. Pregled je uključivao sustavno pretraživanje kvalitativnih i kvantitativnih recenziranih i neobjavljenih empirijskih studija i disertacija. Od četrdeset pet studija uključenih u pregled, 44 % istaknulo je znatan stres i ugroženu dobrobit među učiteljima. Međutim, 15 % također je otkrilo snažan osjećaj svrhe te visoku razinu uključenosti i predanosti učitelja. Nadalje, 18 % studija naglasilo je važnost pozitivnih odnosa između učitelja, njihovih kolega i uprave škole, kao i ulogu institucionalne podrške u promicanju dobrobiti učitelja. Na temelju rezultata pregleda i rizika od pristranosti u procjeni, preporučujemo da buduće studije: 1) jasno definiraju ciljanu populaciju i posvete više pažnje procesu odabira uzorka, 2) u analizu i opis uključe ispitanike koji nisu odgovorili, 3) te usmjere veću pozornost na etičke aspekte.

Ključne riječi: učitelj, dobrobit, stres, stres na poslu, marginalizirani

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PERSONALITY AND JOB SATISFACTION OF TEACHERS: THE MEDIATING ROLE OF SELF-EFFICACY AND WORK ENGAGEMENT

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This study examined whether self-efficacy and work engagement mediate the relationship between personality traits and job satisfaction among teachers. A sample of 133 teachers (85% female) from 17 Croatian grammar schools participated at two time points. At the first time point, they completed measures of the Big Five personality traits, teacher self-efficacy, and work engagement; two months later, they reported job satisfaction. Work engagement mediated the relationship between all five personality traits and job satisfaction: higher levels of extraversion, agreeableness, conscientiousness, and openness to experience, and lower negative emotionality were associated with greater engagement and ultimately higher job satisfaction. Teacher self-efficacy mediated the relationship between extraversion, agreeableness, and conscientiousness and job satisfaction. Crucially, serial mediation was also found for extraversion, agreeableness, and conscientiousness: higher trait levels were associated with higher self-efficacy, which was associated with greater work engagement and ultimately higher job satisfaction. The findings highlight the joint role of self-efficacy and work engagement in explaining how personality relates to teachers' job satisfaction.

Keywords: personality, teacher self-efficacy, work engagement

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INTRODUCTION

In the contemporary work environment, job satisfaction has emerged as a crucial factor influencing productivity, turnover, engagement, and overall employee well-being (Judge et al., 2020; Harter et al., 2002). Identifying the elements that enhance job satisfaction is essential for both individuals and organisations aiming to retain skilled employees and attain high performance levels. For teachers, job satisfaction not only affects their personal well-being but also has a profound effect on their effectiveness in the classroom and the learning experiences of their students (Toropova et al., 2021). Satisfied teachers enjoy improved well-being, which reduces their susceptibility to stress and burnout (Kyriacou & Sutcliffe, 1977; Skaalvik & Skaalvik, 2011). They also show greater commitment to their roles and are less likely to leave the profession (Blömeke et al., 2017; Klassen & Chiu, 2011). Ultimately, teachers who experience higher job satisfaction are inclined to deliver higher quality instruction and provide enhanced learning support for their students (Klusmann et al., 2008; Kunter et al., 2013).

Among the various psychological constructs associated with job satisfaction, personality traits have been particularly noteworthy. Research in this area suggests that an individual's personality can play a significant role in shaping their attitudes, behaviours, and reactions within the workplace, thereby influencing their overall job satisfaction (Judge et al., 2002; Judge & Bono, 2001; Christiansen et al., 2014). While the relationship between personality traits and job satisfaction is well-established, the specific mechanisms that underline this relationship are still not fully understood. In this context, self-efficacy and work engagement emerge as important variables that may help clarify this relationship. Previous research showed that teacher personality traits are significant predictors of their self-efficacy (e.g., Djigić et al., 2014; Ramdani et al., 2021; Sari et al., 2021) and work engagement (e.g., Li et al., 2021; Macey & Schneider, 2008), whereas self-efficacy and work engagement have been identified as key variables that play a role in determining teacher job satisfaction (Kalkan, 2020; Demir, 2020; Klassen & Chiu, 2011; Mache et al., 2014; Simbula & Guglielmi, 2013). Thus, exploring the roles of self-efficacy and work engagement is essential, as they may serve as mediators that enhance our understanding of how personality traits impact job satisfaction. This study aims to investigate the potential mediating roles of self-efficacy and work engagement in the relationship between personality traits and job satisfaction among teachers. Specifically, we are interested in whether self-efficacy

and work engagement act as simple mediators or if they exhibit a serial mediation effect (personality → self-efficacy → work engagement → job satisfaction).

Personality and job satisfaction

Research on the relationship between personality traits and job satisfaction has been extensively explored, particularly within the context of the Big Five model of personality. A comprehensive meta-analysis by Judge et al. (2002) revealed that extraversion, conscientiousness, and neuroticism are significantly related to job satisfaction. Extraverted individuals typically report higher job satisfaction due to their natural ability to form positive relationships with colleagues and their active engagement in work activities (Judge et al., 2002). Conscientiousness enhances job satisfaction as it encompasses dependability, organisation, and a strong work ethic, leading to more fulfilling rewards such as promotions and recognition (DeNeve & Cooper, 1998; Judge et al., 2002). Conversely, individuals high in neuroticism tend to experience reduced job satisfaction because their negative outlook predisposes them to focus on stress and difficulties in the workplace (Emmons et al., 1985; Judge et al., 2002).

Building on this foundational research, studies focused on teachers have provided further insights into how these personality traits influence job satisfaction within this unique professional context. In addition to extraversion, conscientiousness, and neuroticism, research specifically examining teachers has highlighted the significance of agreeableness. For instance, Mondal and Saha (2017) found that conscientious and agreeable teachers report high levels of satisfaction with their teaching roles, as their cooperativeness and empathy foster supportive classroom environments. Conversely, those exhibiting high levels of neuroticism tend to be less satisfied. Further investigation by Chandrasekara (2019) emphasised that agreeableness is the most influential personality trait regarding job satisfaction, with extraversion following closely behind, while the other three personality factors have a minimal effect. Additionally, a study by Li and colleagues (2021) confirmed that conscientiousness, agreeableness, and extraversion are positively associated with job satisfaction, while neuroticism correlates negatively. Notably, openness was not found to significantly impact job satisfaction. Together, these studies highlight the importance of specific personality traits, particularly agreeableness, conscientiousness and extraversion, in enhancing job satisfaction among teachers, while neuroticism appears to inhibit it.

Self-efficacy and work engagement as mediators of the relationship between personality and job satisfaction

Perceived self-efficacy refers to individuals' beliefs in their abilities to achieve certain levels of performance, which, in turn, influence the events that shape their lives. Beliefs about self--efficacy are crucial in determining how people feel, think, motivate themselves, and behave (Bandura, 1994). Teacher self-efficacy is specifically defined as "the teacher's judgement of their own capabilities to achieve desired outcomes with respect to student engagement and learning, even with students who are unmotivated" (Tschannen-Moran & Hoy, 2001, p. 783). Research indicates a strong link between teachers' self-efficacy and key dimensions of personality, particularly conscientiousness, extraversion, and openness to experiences (Djigić et al., 2014; Ramdani et al., 2021; Sari et al., 2021). Highly conscientious individuals are more likely to put in effort and work hard on tasks compared to those with lower conscientiousness. As a result, they tend to have greater confidence in their ability to succeed, which indicates higher self-efficacy (Chen et al., 2001; Gellatly, 1996). Similarly, extraverts may experience higher self-efficacy as their sociable nature enables them to build positive relationships and navigate social environments effectively (Esfandagheh et al., 2012). Finally, openness to experience is associated with a willingness to engage in new teaching strategies and adapt to diverse learning environments, which can further enhance teachers' self-efficacy (Lazarides & Warner, 2020).

Self-efficacy also plays a significant role in determining job satisfaction among teachers, as widely supported in the literature (Kalkan, 2020; Demir, 2020; Klassen & Chiu, 2011; Soto & Rojas, 2019). High levels of self-efficacy are associated with a greater sense of competence and accomplishment in one's profession, leading to increased job satisfaction. When teachers believe in their abilities to effectively engage students, manage classrooms, and deliver instruction, they are more likely to report higher levels of job satisfaction. This is because positive self-beliefs enable them to tackle challenges more effectively, contributing to a more fulfilling work experience.

Work engagement is described as a positive and fulfilling mental state related to work, characterised by vigour, dedication, and absorption (Schaufeli et al., 2002). Engaged workers invest energy, time, and effort into their tasks (the vigour aspect), perceive their work as important and meaningful (the dedication aspect), and maintain complete focus on their tasks while at work (the absorption aspect). Research has shown a significant relationship between the five basic personality traits

and teacher work engagement (Li et al., 2021; Macey & Schneider, 2008). Extraverted teachers tend to experience more positive emotions and deeply engage in work-related activities (Perera et al., 2018), resulting in a positive relationship between extraversion and work engagement (Woods & Sofat, 2013). Those with high conscientiousness typically exhibit greater perseverance, career optimism, and professional efficacy, contributing to enhanced work engagement (Daal et al., 2014; Kim et al., 2009; McIlveen & Perera, 2015). Additionally, teachers characterised by agreeableness often cultivate more harmonious relationships with colleagues and students (Cano-García et al., 2005), which can boost their work engagement (Collie et al., 2016). Teachers with lower levels of openness frequently report feelings of alienation from both students and colleagues, as well as a decreased sense of personal accomplishment (Kokkinos, 2007). This implies that those with higher openness are likely to form stronger relationships and find more fulfilment in their work, suggesting a positive correlation between openness and work engagement (Doo et al., 2020). Lastly, teachers with elevated levels of neuroticism are prone to experiencing negative emotions (Burns & Machin, 2013) and may focus more on their moods, leading to withdrawal or distraction from their work, which ultimately results in lower work engagement (Kokkinos, 2007; McIlveen & Perera, 2015; Perera et al., 2018).

Research has also demonstrated a positive association between teacher work engagement and job satisfaction (Mache et al., 2014; Simbula & Guglielmi, 2013). Teachers who are highly engaged often feel more fulfilled and motivated, contributing to a more productive and satisfying work environment. Those with high work engagement tend to have more positive experiences and form stronger bonds with their organisations (Sonnentag et al., 2008), which further enhances their overall job satisfaction (Weiss et al., 1999).

Considering the demonstrated relations between self-efficacy and work engagement with the five dimensions of personality and job satisfaction, it can be anticipated that these factors may serve as mediators in the relationship between personality traits and job satisfaction. Only a few studies have explored this topic, providing insights into how self-efficacy and work engagement influence the way personality traits affect overall job satisfaction, with even fewer specifically focused on teachers. For instance, Maggiori et al. (2016) conducted research among employees in Switzerland, finding that neuroticism is only partially mediated by occupational self-efficacy, while extraversion and conscientiousness exert an indirect effect on job satisfaction through this mediator. Similarly, Al-

kholy (2023) examined student teachers in Saudi Arabia, revealing that self-efficacy partially mediates the relationship between certain personality traits – specifically conscientiousness, agreeableness, and extraversion – and job satisfaction.

In the context of work engagement, to the best of our knowledge, no research has been conducted within the framework of the five-factor model. Yan (2019) studied nurses in China and found that work engagement partially mediated the association between proactive personality and job satisfaction. Additionally, Chandrawaty and Widodo (2020) explored the effects of unspecified personality traits among kindergarten teachers in Indonesia, highlighting the significant mediating role of self-efficacy.

Given the limited existing research, these findings underscore the need for further investigation, particularly focusing on teachers, to better understand how self-efficacy and work engagement serve as mediators in the relationship between personality traits and job satisfaction. This gap in the literature presents an opportunity for future studies to provide valuable insights into this important area.

The present study

This study aims to explore the mediating roles of self-efficacy and work engagement in the relationship between teacher personality traits and job satisfaction. In addition to testing whether self-efficacy and work engagement act as simple mediators, we also investigate a serial mediation pathway (personality → self-efficacy → work engagement → job satisfaction). The proposed ordering is grounded in social-cognitive theory, which conceptualises self-efficacy as a key belief shaping motivational investment and persistence in goal pursuit (Bandura, 1994). Moreover, consistent with the Job Demands-Resources model, self-efficacy represents a personal resource that supports motivation and goal pursuit and, in turn, fosters work engagement (Xanthopoulou et al., 2007; Xanthopoulou et al., 2009). Individuals with higher self-efficacy are more likely to invest effort and persist when facing difficulties, which facilitates sustained engagement in work tasks (Salanova et al., 2011; Vera et al., 2012).

Notably, only one prior study tested this same self-efficacy → work engagement serial sequence in teachers' job satisfaction, using proactive personality as the predictor (Li et al., 2017). Their research involved a sample of 352 primary and middle school teachers in China and examined self-efficacy and work engagement as mediators within both simple and serial mediation frameworks. The findings indicated that the

relationship between proactive personality and teacher job satisfaction was simply mediated by self-efficacy and work engagement, as well as sequentially mediated by self-efficacy–work engagement. This suggests that proactive individuals develop higher self-efficacy, which leads to increased work engagement and, ultimately, greater job satisfaction.

Our research introduces a novel approach by utilising the well-established five-factor personality model, in contrast to the proactive personality traits examined by Li et al. (2017), to investigate the relationship between personality traits and job satisfaction. In this context, we will assess a sample of Croatian teachers. While the study by Li et al. (2017) provided valuable insights, its geographic and demographic limitations highlight the need for further investigation in diverse cultural settings. By examining the mediating roles of self-efficacy and work engagement within the five-factor framework, we aim to contribute to understanding these complex relationships within the Croatian educational landscape.

Based on the theoretical considerations and previous research outlined in this paper, we postulate the following hypotheses:

Hypothesis 1. Teacher self-efficacy will mediate the relationship between five personality traits and job satisfaction.

Hypothesis 2. Teacher work engagement will mediate the relationship between five personality traits and job satisfaction.

Hypothesis 3. Teacher self-efficacy and teacher work engagement will serially mediate the relationship between personality traits and job satisfaction.

METHOD

Participants

At Time 1 (T1), the research was conducted on a convenience sample of 133 teachers (85% women) employed in 17 grammar schools in the Republic of Croatia (M_{age} = 41.19 years, SD = 9.00; M_{tenure} = 14.38 years, SD = 8.67). The teachers cover a wide range of subjects, including biology, chemistry, ecology, Croatian language, foreign languages (English, German, Italian, French, Portuguese, Russian and Latin), philosophy, ethics, logic, drama education, physics, geography, history, sociology, politics and economics, psychology, music art, visual art, computer science, mathematics, and religion. A condition for participation was that the teacher was employed full-time and taught the subject in the classroom. At Time 2 (T2), of the 133

teachers who participated at T1, 107 completed the job satisfaction measure, resulting in an attrition of 26 participants (19.5%). Attrition analyses showed that teachers who completed both waves did not differ from those who participated only at T1 in gender, age, or tenure. They also did not differ in self-efficacy, work engagement, job satisfaction, or in the personality traits of extraversion, open-mindedness, and negative emotionality. However, completers scored higher on agreeableness and conscientiousness than non-completers.

Procedure

The research was conducted as part of the project "Personality, Emotions, and Teacher Performance: A Dynamic Perspective," funded by the Croatian Science Foundation (IP-2019-04--5472). The schools included in the present study were selected from a larger pool of Croatian grammar schools participating in a broader research project. Because the present study involved a more demanding two-wave design and a more intensive data collection procedure, we included schools that expressed willingness and had the organisational capacity to participate in this part of the project. Before the research began, we contacted school psychologists, who served as school coordinators and assisted us in securing consent from school principals and recruiting teachers for participation. Teacher participation was voluntary. We collected data at two time points, via online questionnaires. In February 2023, teachers completed a five-factor personality questionnaire, a teacher self-efficacy scale, and a work engagement questionnaire. Two months later, they filled out a job satisfaction survey. The two--wave data collection was implemented for both practical and methodological reasons. Because the present study was part of a larger project that included a broad set of instruments, separating data collection into two waves reduced participant burden and survey fatigue. In addition, measuring job satisfaction at a later time point provided temporal separation from the predictors and mediators assessed at T1, thereby reducing common method bias and strengthening the interpretability of the proposed associations. We linked the data from both measurement points using a code that was assigned to each teacher by the school research coordinator, which we provided them with at the beginning of the study. The school coordinators did not have access to the data, and the research team was unaware of which code was assigned to each teacher. Since the research was part of a larger study, which required intensive participation, we incentivised teachers and school coordinators to engage by offering them a gift voucher for a drugstore (€50 for teachers and €25 for school coordinators).

Instruments

All instruments were administered in Croatian. We used Croatian versions of the measures that have been widely used in prior research in Croatia. In the present sample, the internal consistencies were satisfactory (see below).

Personality. Teacher personality was measured using the Big Five Inventory–2 (BFI-2; Soto & John, 2017). The inventory consisted of 30 items, measuring five personality domains (six items each): extraversion (e.g., I am someone who is outgoing, sociable), agreeableness (e.g., I am someone who is compassionate, has a soft heart), conscientiousness (e.g., I am someone who is dependable, steady), negative emotionality (e.g., I am someone who is moody, has up and down mood swings), and open-mindedness (e.g., I am someone who is curious about many different things). Teachers expressed their level of agreement with each statement on a five-point scale (1 – *strongly disagree*; 5 – *strongly agree*). The internal consistency for each dimension, indicated by Cronbach's alpha coefficient, was satisfactory, ranging from 0.67 for open-mindedness to 0.80 for negative emotionality.

Teacher self-efficacy. We measured teacher self-efficacy using a short form of the Ohio State Teacher Efficacy Scale (OSTES; Tschannen-Moran & Woolfolk Hoy, 2001). The scale consists of 12 items. A sample item is, "In the classroom, during teaching, to what extent can you craft good questions for your students?" Teachers rated their level of agreement with each statement on a 9-point Likert scale (1 – *not at all*, 9 – *very much*). Although the scale is based on three factors – Efficacy for Instructional Strategies, Efficacy for Classroom Management, and Efficacy for Student Engagement – it is also possible to calculate an overall teacher self-efficacy score, as indicated by Tschannen-Moran and Woolfolk Hoy (2001). In the present sample, the three subscales were moderately to strongly intercorrelated (r_s = 0.47–0.64, all $p_s < 0.001$), which supports the use of a total score in the present analyses. The reliability of the total score on the scale that we used, expressed by Cronbach's alpha coefficient of internal consistency, was 0.88.

Work engagement. We measured work engagement using the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006). The scale assesses three dimensions of work engagement: vigour, dedication, and absorption, with three items for each dimension, providing a total score on all nine items. Items were presented as statements to which participants responded on a seven-point scale, with anchors ranging from 0 (*never*) to 6 (*always*) (e.g., "At my work, I feel bursting with energy"). In this research, we used the total score, which demonstrated satisfactory reliability, indicated by a Cronbach's alpha coefficient of internal consistency (0.94).

Job satisfaction. Teacher job satisfaction was measured using the Job Satisfaction Scale (Judge et al., 1998). The scale contains five items assessing general job satisfaction. A sample item is, "I feel fairly satisfied with my present job." Participants rated their agreement with the items on a five-point scale (1 – *completely disagree* to 5 – *completely agree*). The internal consistency, indicated by Cronbach's alpha coefficient, was satisfactory: 0.89.

RESULTS

Given that we used self-report questionnaires to assess five personality traits, self-efficacy, work engagement, and job satisfaction, we examined the extent to which a common method factor might have influenced our data. We conducted Harman's single-factor test by performing an exploratory principal components analysis on all self-reported items (Podsakoff et al., 2003). The factor analysis extracted 14 factors, which accounted for 73.50% of the total variance, with the first factor explaining 26.03% of the variance. Since the variance explained by a single factor is below the recommended cut-off value of 50%, we can conclude that common method bias is not a significant concern in this study.

Missing data were handled as follows: descriptive statistics and correlations were computed using all available data, whereas the PROCESS mediation analyses used listwise deletion for cases with missing values on any model variable. The descriptive statistics and bivariate correlations for all variables in the study are presented in Table 1. The mean scores for extraversion, agreeableness, conscientiousness, and open-mindedness are slightly above the average scale values, while the mean score for negative emotionality is slightly below the average scale value, consistent with the findings reported by Soto and John (2017). Furthermore, teachers exhibited mean scores that were slightly above the average scale midpoints for self-efficacy, work engagement, and job satisfaction, suggesting moderate levels of these work-related constructs in this sample.

Considering the obtained correlations, our results revealed that extraversion ($r = 0.272$, $p < 0.01$) and agreeableness ($r = 0.384$, $p < 0.01$) are positively correlated with job satisfaction among teachers, while negative emotionality ($r = -0.382$, $p < 0.01$) is negatively correlated with job satisfaction. Furthermore, all personality traits show a moderate correlation with work engagement ($r = 0.191$; $p < 0.05$ for open-mindedness to $r = 0.318$; $p < 0.01$ for agreeableness), with negative emotionality exhibiting a negative correlation ($r = -0.314$; $p < 0.01$). Additionally, three personality dimensions, extraversion ($r = 0.293$, $p < 0.01$), agreeableness ($r = 0.308$, $p < 0.01$), and conscientiousness ($r = 0.428$, $p < 0.01$), are positively correlated with

teacher self-efficacy. A strong positive correlation exists between teacher self-efficacy and work engagement ($r = 0.57$, $p < 0.01$), suggesting that teachers who believe in their capabilities are more engaged in their work. Finally, both self-efficacy and work engagement are positively correlated with job satisfaction ($r = 0.45$, $p < 0.01$ for self-efficacy; $r = 0.74$, $p < 0.01$ for work engagement), indicating that higher self-efficacy and increased engagement contribute to enhanced job satisfaction.

	M	*SD*	1	2	3	4	5	6	7
1 Extraversion	3.53	0.60							
2 Agreeableness	4.08	0.54	0.043						
3 Conscientiousness	4.04	0.61	0.206*	0.504**					
4 Negative emotionality	2.71	0.68	-0.506**	-0.214*	-0.409**				
5 Open-mindedness	3.74	0.58	0.138	0.059	-0.051	-0.020			
6 Self-efficacy	7.27	0.78	0.293**	0.308**	0.428**	-0.161	0.134		
7 Work engagement	4.29	0.91	0.276**	0.318**	0.298**	-0.314**	0.191*	0.573**	
8 Job satisfaction	4.08	0.77	0.272**	0.384**	0.150	-0.382**	0.170	0.448**	0.737**

TABLE 1
Descriptive statistics and correlations of all study variables

Notes. For all variables except job satisfaction, $N = 133$. Job satisfaction was assessed at T2 and is therefore based on $n = 107$. Correlations involving job satisfaction are based on participants with available T2 data. M and SD are calculated only on the participants with data on the corresponding variables. $^*p < 0.05$; $^{**}p < 0.01$

In order to test our hypotheses, we conducted a series of mediation analyses. Separate models were estimated for each personality trait (i.e., five independent sets of models), such that in each model one Big Five dimension served as the predictor while job satisfaction was the outcome. Specifically, for each trait we tested (a) a simple mediation model with teacher self-efficacy as the mediator, (b) a simple mediation model with work engagement as the mediator, and (c) a serial mediation model in which self-efficacy preceded work engagement (personality trait → self-efficacy → work engagement → job satisfaction). It is important to note that we measured five personality traits, self-efficacy, and work engagement at the first time point, while job satisfaction was measured two months later, at the second time point. We performed mediation analyses using the PROCESS macro for SPSS developed by Hayes (2013), Model 4 for simple mediations and Model 6 for serial mediation. The statistical significance of the indirect effects was assessed using the Bootstrap technique for confidence intervals at 95%, establishing statistical significance where the CI did not encompass zero (Hayes, 2018). We controlled for gender and tenure in all analyses to mitigate potential confounding effects.

In the case where teacher self-efficacy served as a mediator (Table 2), the results indicated significant indirect effects

for several personality traits. Aligning with our *H1*, extraversion, agreeableness, and conscientiousness exhibited significant positive indirect effects on job satisfaction through self-efficacy (extraversion: $b = 0.14$; 95% C.I. [0.05, 0.27]; agreeableness: $b = 0.16$; 95% C.I. [0.03, 0.28]; conscientiousness: $b = 0.27$; 95% C.I. [0.13, 0.44]). This suggests that teachers who are more extraverted, agreeable, and conscientious report higher self-efficacy, which is in turn associated with higher job satisfaction.

		Effect	SE	LLCI	ULCI
Extraversion	Indirect effect via TSE	0.15	0.06	0.05	0.27
	Direct effect	0.20	0.11	-0.02	0.42
Agreeableness	Indirect effect via TSE	0.16	0.06	0.03	0.28
	Direct effect	0.39	0.13	0.14	0.64
Conscientiousness	Indirect effect via TSE	0.27	0.08	0.13	0.44
	Direct effect	-0.02	0.14	-0.29	0.25
Negative emotionality	Indirect effect via TSE	-0.09	0.05	-0.19	0.00
	Direct effect	-0.32	0.10	-0.52	-0.11
Open-mindedness	Indirect effect via TSE	0.05	0.06	-0.06	0.18
	Direct effect	0.22	0.11	0.01	0.44

TABLE 2
Mediation effects of teacher self-efficacy on the relationship between five personality traits and job satisfaction (unstandardised)

Notes. For indirect effects, standard errors and 95% confidence intervals were calculated through a bootstrapping procedure with 5.000 bootstrap samples. In all the analyses, we controlled for gender and tenure. LLCI = lower limit confidence interval; ULCI = upper limit confidence interval; TSE = teacher self-efficacy

However, these indirect effects were relatively modest in magnitude and should therefore be interpreted with caution. A significant direct effect of agreeableness supports the notion of partial mediation, while no significant direct effects were identified for extraversion and conscientiousness, suggesting full mediation. In contrast, for both negative emotionality and open-mindedness, the indirect effects on job satisfaction via self-efficacy did not reach statistical significance (negative emotionality: $b = -0.09$, 95% C.I. [-0.19, 0.00]; open-mindedness: $b = 0.05$, 95% C.I. [-0.06, 0.18]). However, the direct effects on job satisfaction remained statistically significant, suggesting that open-mindedness was positively, whereas negative emotionality was negatively, associated with job satisfaction.

The analysis of work engagement as a mediator (Table 3) revealed a similar pattern of results. All five personality traits exhibited significant positive indirect effects on job satisfaction through work engagement, fully aligning with our expectations outlined in *H2* (extraversion: $b = 0.26$, 95% CI [0.09, 0.44]; agreeableness: $b = 0.34$, 95% CI [0.10, 0.58]; conscientiousness: $b = 0.33$, 95% CI [0.11, 0.51]; open-mindedness: $b = 0.23$,

95% CI [0.06, 0.42]). These results indicate that teachers who are more extraverted, agreeable, conscientious, and open-minded tend to be more engaged in their work, leading to increased job satisfaction. In contrast, negative emotionality demonstrated a significant negative indirect effect on job satisfaction mediated by work engagement (b = -0.27, 95% CI [-0.44, -0.10]). This finding suggests that higher levels of negative emotionality lead to decreased job satisfaction by reducing teachers' work engagement. Furthermore, a significant direct effect was identified only for agreeableness, indicating that it involves partial mediation, whereas for the remaining four personality dimensions, full mediation was observed.

TABLE 3
Mediation effects of work engagement on the relationship between five personality traits and job satisfaction (unstandardised)

		Effect	SE	LLCI	ULCI
Extraversion	Indirect effect via WE	0.26	0.09	0.09	0.44
	Direct effect	0.09	0.09	-0.08	0.26
Agreeableness	Indirect effect via WE	0.34	0.12	0.10	0.58
	Direct effect	0.23	0.10	0.03	0.44
Conscientiousness	Indirect effect via WE	0.33	0.10	0.11	0.51
	Direct effect	-0.08	0.09	-0.27	0.10
Negative emotionality	Indirect effect via WE	-0.27	0.09	-0.44	-0.10
	Direct effect	-0.16	0.08	-0.32	0.01
Open-mindedness	Indirect effect via WE	0.23	0.09	0.06	0.42
	Direct effect	0.02	0.09	-0.15	0.19

Notes. For indirect effects, standard errors and 95% confidence intervals were calculated through a bootstrapping procedure with 5.000 bootstrap samples. In all the analyses, we controlled for gender and tenure. LLCI = lower limit confidence interval; ULCI = upper limit confidence interval; WE = work engagement

Finally, the results of the serial mediation analysis, investigating whether teacher self-efficacy and work engagement sequentially mediated the relationship between personality traits and job satisfaction, are presented in Table 4. The findings revealed patterns consistent with the simple mediation models. In accordance with our expectations in *H3*, extraversion, agreeableness, and conscientiousness demonstrated significant indirect effects via the serial mediation pathway, indicating that these traits influence job satisfaction by impacting both self-efficacy and subsequently, work engagement (extraversion: b = 0.13, 95% CI [0.04, 0.23]; agreeableness: b = 0.14, 95% CI [0.04, 0.25]; conscientiousness: b = 0.21, 95% CI [0.11, 0.35]). Teachers with higher levels of extraversion, agreeableness, and conscientiousness have higher self-efficacy, which is associated with greater work engagement and, ultimately, higher job satisfaction. In all cases, this constitutes full mediation, as the direct effects were not significant for any personality trait. However, the serial mediation effect was not statistically significant for negative emotionality (b = -0.08, 95%

CI [-0.17, 0.00]) and open-mindedness (b = 0.04, 95% CI [-0.05, 0.14]). These results do not support the proposed sequential indirect pathway (self-efficacy → work engagement) for these traits, suggesting that their associations with job satisfaction may be better explained by other mechanisms beyond this specific serial mediation model.

		Effect	SE	LLCI	ULCI
Extraversion	Indirect effect via TSE → WE	0.13	0.05	0.04	0.23
	Direct effect	0.07	0.09	-0.10	0.25
Agreeableness	Indirect effect via TSE → WE	0.14	0.05	0.04	0.25
	Direct effect	0.21	0.10	-0.00	0.42
Conscientiousness	Indirect effect via TSE → WE	0.21	0.06	0.11	0.35
	Direct effect	-0.17	0.10	-0.38	0.03
Negative emotionality	Indirect effect via TSE → WE	-0.08	0.04	-0.17	0.00
	Direct effect	-0.13	0.08	-0.29	0.04
Open-mindedness	Indirect effect via TSE → WE	0.04	0.05	-0.05	0.14
	Direct effect	0.05	0.09	-0.12	0.23

TABLE 4
Serial mediation effects of self-efficacy and work engagement on the relationship between five personality traits and job satisfaction (unstandardised)

Notes. For indirect effects, standard errors and 95% confidence intervals were calculated through a bootstrapping procedure with 5.000 bootstrap samples. In all the analyses, we controlled for gender and tenure. LLCI = lower limit confidence interval; ULCI = upper limit confidence interval; TSE = teacher self-efficacy; WE = work engagement

DISCUSSION

This study investigated the mediating roles of self-efficacy and work engagement in the relationship between personality traits and job satisfaction among teachers. The results revealed significant mediating effects for both factors. Self-efficacy and work engagement proved to be significant simple and serial mediators in the relationship between three personality dimensions – extraversion, agreeableness, and conscientiousness – and job satisfaction. These findings support the hypothesised mediating roles of self-efficacy and work engagement in the teacher personality–job satisfaction model, aligning with previous empirical findings that have shown a positive association of these two constructs with both personality traits and job satisfaction (e.g., Sari et al., 2021; Li et al., 2021; Kalkan, 2020; Mache et al., 2014). Additionally, the results are comparable to the findings of Li et al. (2017), which indicated that the relationship between proactive personality and teacher job satisfaction was simply, as well as sequentially mediated by self-efficacy and work engagement.

Teachers high on extraversion, agreeableness, and conscientiousness likely experience higher self-efficacy because they possess the organisational skills (conscientiousness), interper-

sonal skills (agreeableness), and proactiveness (extraversion) conducive to successful teaching (Patrick, 2011). This enhanced self-efficacy translates into greater work engagement, as individuals with high self-efficacy feel more confident in their abilities to perform their tasks effectively. This confidence fosters a sense of competence and control, leading to increased energy and persistence (vigour), a strong sense of purpose and meaning in their work (dedication), and a state of focused concentration (absorption) – all key components of work engagement (Schaufeli et al., 2002). Essentially, believing in one's capabilities makes it more likely that one will invest fully in their work. Finally, increased work engagement leads to increased job satisfaction; highly engaged teachers are more likely to experience positive emotions and a sense of accomplishment in their work (Sonnentag et al., 2008). This positive work experience directly contributes to their overall job satisfaction, fuelling a cycle of positive affect that increases both the quality and enjoyment of work, further reinforcing job satisfaction.

For all personality traits, except agreeableness, full mediation was observed. In the case of agreeableness, only partial mediation was identified, as a significant direct relationship between agreeableness and job satisfaction remained in the presence of both mediators (self-efficacy and work engagement). This indicates that agreeableness may independently contribute to job satisfaction through mechanisms not fully captured by self-efficacy and work engagement, such as fostering positive relationships with students and colleagues (Mondal & Saha, 2017).

For negative emotionality, the mediating effect was established only in the context of work engagement as a mediator, suggesting that the relationship between negative emotionality and job satisfaction is best understood through the lens of work engagement. Teachers with high negative emotionality may struggle to engage with their work, which, in turn, may reduce their job satisfaction. In the case of open-mindedness, significant mediation was also found solely when work engagement acted as the mediator. This indicates that the relationship between open-mindedness and job satisfaction is largely influenced by the level of engagement teachers have with their work. Teachers who possess high levels of openness tend to be more receptive to new ideas, experiences, and methods (McCrae & Costa, 1997), which can foster a deeper commitment to their teaching practices.

Several limitations should be considered when interpreting these findings. First, the study relied on a convenience sample of teachers from 17 grammar schools in Croatia, which limits the representativeness of the sample and the generalisability of the findings. In addition, participation was voluntary, which

may have introduced self-selection bias. The sample included a somewhat higher proportion of women (85%) than is observed in the population of teachers in Croatian grammar schools (74.9%; Croatian Bureau of Statistics, 2025), which should be taken into account when interpreting the findings and their external validity. Also, the relatively small sample may have reduced statistical power and the stability of indirect-effect estimates, increasing the risk of Type II errors; replication in larger samples is therefore needed.

Second, teachers were nested within schools, and contextual factors related to school placement (e.g., organisational climate, leadership, workload) may influence work-related outcomes. Future research should explicitly account for school-level influences (e.g., by including school as a clustering variable or using multilevel designs) and consider relevant school-level covariates in addition to individual-level controls (e.g., gender and tenure).

Third, the predominantly cross-sectional nature of our design limits causal inference; although we observed the expected associations, we cannot draw firm conclusions about the directionality of effects, particularly between self-efficacy and work engagement. As recommended by Hayes (2018), alternative specifications should be considered; however, we did not identify equally compelling alternatives given the stability of personality traits and the fact that job satisfaction was the focal outcome measured at T2. The only plausible alternative model we considered was a reversed serial ordering of the mediators (personality → work engagement → self-efficacy → job satisfaction), but we did not test it because two-wave data provide limited leverage for distinguishing competing sequential mechanisms, especially when the two mediators are strongly related. Future longitudinal multi-wave studies should therefore examine temporal precedence more rigorously and explicitly test alternative and reciprocal specifications between self-efficacy and work engagement (e.g., Xanthopoulou et al., 2009; Salanova et al., 2011).

Fourth, although the two-wave design provided temporal separation between the predictors and mediators assessed at T1 and job satisfaction assessed at T2, it also leaves open the possibility that unmeasured events occurring between the two waves may have influenced the outcome variable. This should be taken into account when interpreting the findings, as it represents a potential threat to internal validity.

Finally, the study relied solely on self-reported measures, raising the potential concern of common method bias, where responses may be influenced by the method of data collection rather than the actual constructs being measured. Although we conducted Harman's test, it does not guarantee the absence of common method bias. Future research might incor-

porate multiple methods, such as combining self-report measures with observational data or performance evaluations, to mitigate this issue.

This research has practical implications for enhancing the educational environment and supporting teacher well-being. The findings point to two strategies for improving teacher job satisfaction. First, personality-related tendencies are associated with job satisfaction; in practice, this knowledge can inform recruitment communication and guide onboarding and early support (e.g. mentoring) to help teachers build on their strengths and identify areas where additional support may be useful. Given current recruitment challenges, we caution against using personality as a primary basis for selection, and we note that students benefit from exposure to teachers with diverse personality profiles and teaching approaches. Second, professional development should explicitly target teachers' self-efficacy and work engagement. Training in classroom management, effective instructional strategies, and communication with students can strengthen self-efficacy, while initiatives that foster collaboration, mentoring, and a sense of community can enhance engagement. These programmes should be tailored to teachers' needs and school contexts.

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REFERENCES

Alkholy, A. A. (2023). The Big Five and job satisfaction: The mediating role of general self-efficacy among student teachers. *Information Sciences Letters, 12*(5), 1947–1955. https://doi.org/10.18576/isl/120536

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of Human Behavior* (Vol. 4, pp. 71–81). Academic Press.

Blömeke, S., Houang, R., Hsieh, F. J., & Wang, T. Y. (2017). Effects of job motives, teacher knowledge and school context on beginning teachers' commitment to stay in the profession: A longitudinal study in Germany, Taiwan and the United States. In G. K. LeTendre & M. Akiba (Eds.), *International handbook of teacher quality and policy* (pp. 374–387). Routledge. https://doi.org/10.4324/9781315710068-24

Burns, R. A., & Machin, M. A. (2013). Employee and workplace wellbeing: A multi-level analysis of teacher personality and organizational climate in Norwegian teachers from rural, urban and city schools. *Scandinavian Journal of Educational Research, 57*(3), 309–324. https://doi.org/10.1080/00313831.2012.656281

Cano-García, F. J., Padilla-Muñoz, E. M., & Carrasco-Ortiz, M. Á. (2005). Personality and contextual variables in teacher burnout. *Personality and Individual Differences, 38*(4), 929–940. https://doi.org/10.1016/j.paid.2004.06.018

Chandrasekara, W. (2019). Relationship among Big Five personality traits, job performance & job satisfaction: A case of school teachers in Sri Lanka. *International Journal of Information, Business and Management, 11*(2), 219–232. https://doi.org/10.20472/IAC.2018.044.009

Chandrawaty, C., & Widodo, W. (2020). The mediation mechanism effect of self-efficacy and achievement motivation on job satisfaction: The personality perspective. *Journal of Xi'an University of Architecture & Technology, 12*(5), 258–266. https://doi.org/10.37896/JXAT12.05/1426

Chen, G., Casper, W. J., & Cortina, J. M. (2001). The roles of self-efficacy and task complexity in the relationships among cognitive ability, conscientiousness, and work-related performance: A meta-analytic examination. *Human Performance, 14*(3), 209–230. https://doi.org/10.1207/S15327043HUP1403_1

Christiansen, N., Sliter, M., & Frost, C. T. (2014). What employees dislike about their jobs: Relationship between personality-based fit and work satisfaction. *Personality and Individual Differences, 71,* 25–29. https://doi.org/10.1016/j.paid.2014.07.013

Collie, R. J., Shapka, J. D., Perry, N. E., & Martin, A. J. (2016). Teachers' psychological functioning in the workplace: Exploring the roles of contextual beliefs, need satisfaction, and personal characteristics. *Journal of Educational Psychology, 108*(6), 788–799. https://doi.org/10.1037/edu0000088

Croatian Bureau of Statistics. (2025). *Upper secondary schools, end of 2023/2024 school year and beginning of 2024/2025 school year*.

Daal, T. V., Donche, V., & De Maeyer, S. (2014). The impact of personality, goal orientation and self-efficacy on participation of high school teachers in learning activities in the workplace. *Vocations and Learning, 7*(1), 21–40. https://doi.org/10.1007/s12186-013-9105-5

Demir, S. (2020). The role of self-efficacy in job satisfaction, organizational commitment, motivation, and job involvement. *Eurasian Journal of Educational Research, 20*(85), 205–224. https://doi.org/10.14689/ejer.2020.85.10

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin, 124*(2), 197–229. https://doi.org/10.1037//0033-2909.124.2.197

Djigić, G., Stojiljković, S., & Dosković, M. (2014). Basic personality dimensions and teachers' self-efficacy. *Procedia – Social and Behavioral Sciences, 112*, 593–602. https://doi.org/10.1016/j.sbspro.2014.01.1206

Doo, M. Y., Zhu, M., Bonk, C. J., & Tang, Y. (2020). The effects of openness, altruism and instructional self–efficacy on work engagement of MOOC instructors. *British Journal of Educational Technology, 51*(3), 743–760. https://doi.org/10.1111/bjet.12882

Emmons, R. A., Diener, E., & Larsen, R. J. (1985). Choice of situations and congruence models of interactionism. *Personality and Individual Differences, 6*(6), 693–702. https://doi.org/10.1016/0191-8869(85)90080-7

Esfandagheh, F. B., Harris, R., & Oreyzi, H. R. (2012). The impact of extraversion and pre-training self-efficacy on levels of training outcomes. *Human Resource Development International, 15*(2), 175–191. https://doi.org/10.1080/13678868.2011.647460

Gellatly, I. R. (1996). Conscientiousness and task performance: Test of a cognitive process model. *Journal of Applied Psychology, 81*(5), 474–482. https://doi.org/10.1037//0021-9010.81.5.474

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268–279. https://doi.org/10.1037/0021-9010.87.2.268

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press. https://doi.org/10.1111/jedm.12050

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86*(1), 80–92. https://doi.org/10.1037/0021-9010.86.1.80

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*(3), 530. https://doi.org/10.1037//0021-9010.87.3.530

Judge, T. A., Zhang, S. C., & Glerum, D. R. (2020). *Job satisfaction.* In *Essentials of job attitudes and other workplace psychological constructs* (pp. 207–241). Routledge. https://doi.org/10.4324/9780429325755-11

Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology, 83*(1), 17–34. https://doi.org/10.1037/0021-9010.83.1.17

Kalkan, F. (2020). The relationship between teachers' self-efficacy beliefs and job satisfaction levels: A meta-analysis study. *Education and Science, 45*(204), 317–343. https://doi.org/10.15390/EB.2020.8549

Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the Big Five personality dimensions. *International Journal of Hospitality Management, 28*(1), 96–104. https://doi.org/10.1016/j.ijhm.2008.06.001

Klassen, R. M., & Chiu, M. M. (2011). The occupational commitment and intention to quit of practicing and pre-service teachers: Influence of self-efficacy, job stress, and teaching context. *Contemporary Educational Psychology, 36*(2), 114–129. https://doi.org/10.1016/j.cedpsych.2011.01.002

Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Teachers' occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology, 100*(3), 702–715. https://doi.org/10.1037/0022-0663.100.3.702

Kokkinos, C. M. (2007). Job stressors, personality and burnout in primary school teachers. *British Journal of Educational Psychology, 77*(1), 229–243. https://doi.org/10.1348/000709905X90344

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*(3), 805–820. https://doi.org/10.1037/a0032583

Kyriacou, C., & Sutcliffe, J. (1977). Teacher stress: A review. *Educational Review, 29*(4), 299–306. https://doi.org/10.1080/0013191770290407

Lazarides, R., & Warner, L. M. (2020, May 29). *Teacher self-efficacy.* In K. Hytten (Ed.), *Oxford research encyclopedia of education*. Online edn, Oxford Academic. https://doi.org/10.1093/acrefore/9780190264093.013.890

Li, J., Yao, M., Liu, H., & Zhang, L. (2021). Influence of personality on work engagement and job satisfaction among young teachers: Mediating role of teaching style. *Current Psychology, 42*(3), 1817–1827. https://doi.org/10.1007/s12144-021-01565-2

Li, M., Wang, Z., Gao, J., & You, X. (2017). Proactive personality and job satisfaction: The mediating effects of self-efficacy and work engagement in teachers. *Current Psychology, 36*(1), 48–55. https://doi.org/10.1007/s12144-015-9383-1

Macey, W., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology, 1*(1), 3–30. https://doi.org/10.1111/j.1754-9434.2007.0002.x

Mache, S., Vitzthum, K., Klapp, B. F., & Danzer, G. (2014). Surgeons' work engagement: Influencing factors and relations to job and life satisfaction. *The Surgeon, 12*(4), 181–190. https://doi.org/10.1016/j.surge.2013.11.015

Maggiori, C., Johnston, C. S., & Rossier, J. (2016). Contribution of personality, job strain, and occupational self-efficacy to job satisfaction in different occupational contexts. *Journal of Career Development, 43*(3), 244–259. https://doi.org/10.1177/0894845315597474

McCrae, R. R., & Costa Jr, P. T. (1997). Conceptions and correlates of openness to experience. In *Handbook of personality psychology* (pp. 825–847). Academic Press. https://doi.org/10.1016/B978-012134645-4/50032-9

McIlveen, P., & Perera, H. N. (2015). Career optimism mediates the effect of personality on teachers' career engagement. *Journal of Career Assessment, 24*(4), 623–636. https://doi.org/10.1177/1069072715616059

Mondal, A., & Saha, B. (2017). Job satisfaction of secondary school teachers in relation to personality and emotional intelligence. *American Journal of Educational Research, 5*(10), 1097–1101. https://doi.org/10.5901/jesr.2014.v4n3p487

Patrick, C. L. (2011). Student evaluations of teaching: Effects of the Big Five personality traits, grades and the validity hypothesis. *Assessment & Evaluation in Higher Education, 36*(2), 239–249. https://doi.org/10.1080/02602930903308258

Perera, H. N., Granziera, H., & McIlveen, P. (2018). Profiles of teacher personality and relations with teacher self-efficacy, work engagement, and job satisfaction. *Personality and Individual Differences, 120*, 171–178. https://doi.org/10.1016/j.paid.2017.08.034

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Ramdani, Z., Prakoso, B., Tae, L., & Luanganggoon, N. (2021). Personality trait, self-efficacy, and individual work performance on science teachers in Indonesia Bagus Hary Prakoso. *Advances in Social Science,*

Education and Humanities Research, 545, 16–21. https://doi.org/10.2991/assehr.k.210423.058

Salanova, M., Llorens, S., & Schaufeli, W. B. (2011). Yes, I can, I feel good, and I just do it! On gain cycles and spirals of efficacy beliefs, affect, and engagement. *Applied Psychology: An International Review, 60*(2), 255–285. https://doi.org/10.1111/j.1464-0597.2010.00435.x

Sari, T., Atik, S., & Çelik, O. T. (2021). Do the personality traits of teacher candidates predict the perception of self-efficacy and alienation from school? *Participatory Educational Research, 8*(4), 439–453. https://doi.org/10.17275/per.21.99.8.4

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement, 66*(4), 701–716. https://doi.org/10.1177/0013164405282471

Schaufeli, W., Salanova, M., Gonzalez-Roma, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *The Journal of Happiness Studies, 3*, 71–92. https://doi.org/10.1023/A:1015630930326

Simbula, S., & Guglielmi, D. (2013). I am engaged, I feel good, and I go the extra-mile: Reciprocal relationships between work engagement and consequences. *Journal of Work and Organizational Psychology, 29*(3), 117–125. https://doi.org/10.5093/tr2013a17

Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education, 27*(6), 1029–1038. https://doi.org/10.1016/j.tate.2011.04.001

Sonnentag, S., Mojza, E. J., Binnewies, C., & Scholl, A. (2008). Being engaged at work and detached at home: A week-level study on work engagement, psychological detachment, and affect. *Work and Stress, 22*(3), 257–276. https://doi.org/10.1080/02678370802379440

Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology, 113*(1), 117–143. https://doi.org/10.1037/pspp0000096

Soto, M., & Rojas, O. (2019). Self-efficacy and job satisfaction as antecedents of citizenship behaviour in private schools. *International Journal of Management in Education, 13*(1), 82–96. https://doi.org/10.1504/IJMIE.2019.096472

Toropova, A., Myrberg, E., & Johansson, S. (2021). Teacher job satisfaction: The importance of school working conditions and teacher characteristics. *Educational Review, 73*(1), 71–97. https://doi.org/10.1080/00131911.2019.1705247

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Vera, M., Salanova, M., & Lorente, L. (2012). The predicting role of self-efficacy in the Job Demands–Resources model: A longitudinal study. *Estudios de Psicología, 33*(2), 167–178. https://doi.org/10.1174/021093912800676439

Weiss, H. M., Nicholas, J. P., & Daus, C. S. (1999). An examination of the joint effects of affective experiences and job beliefs on job satisfaction and variations in affective experiences over time. *Organizational Behavior and Human Decision Processes, 78*(1), 1–24. https://doi.org/10.1006/obhd.1999.2824

Woods, S. A., & Sofat, J. A. (2013). Personality and engagement at work: The mediating role of psychological meaningfulness. *Journal of Applied Social Psychology, 43*(11), 2203–2210. https://doi.org/10.1111/jasp.12171

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the Job Demands–Resources model. *International Journal of Stress Management, 14*(2), 121–141. https://doi.org/10.1037/1072-5245.14.2.121

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behavior, 74*, 235–244. https://doi.org/10.1016/j.jvb.2008.11.003

Yan, X., Su, J., Wen, Z., & Luo, Z. (2019). The role of work engagement in the relationship between personality and job satisfaction in Chinese nurses. *Current Psychology, 38*(3), 873–878. https://doi.org/10.1007/s12144-017-9667-8

Ličnost i zadovoljstvo poslom nastavnika: medijacijska uloga samoefikasnosti i radne angažiranosti

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Cilj ovog istraživanja bio je ispitati medijacijsku ulogu samoefikasnosti i radne angažiranosti u odnosu između osobina ličnosti i zadovoljstva poslom kod nastavnika. U istraživanju su sudjelovala 133 nastavnika (85 % žena) iz 17 hrvatskih gimnazija u dvije vremenske točke. U prvoj vremenskoj točki sudionici su ispunili mjere petfaktorskoga modela ličnosti, nastavničke samoefikasnosti i radne angažiranosti; dva mjeseca kasnije izvijestili su o zadovoljstvu poslom. Radna angažiranost posredovala je u odnosu između svih pet osobina ličnosti i zadovoljstva poslom: više razine ekstraverzije, ugodnosti, savjesnosti i otvorenosti prema iskustvu te niža razina negativne emocionalnosti bile su povezane s većom angažiranosti i, u konačnici, višim zadovoljstvom poslom. Nastavnička samoefikasnost posredovala je u odnosu između ekstraverzije, ugodnosti i savjesnosti te zadovoljstva poslom. Ključno, za ove tri osobine utvrđena je i serijalna medijacija: više razine tih osobina bile su povezane s višom

samoefikasnosti, koja je bila povezana s većom radnom angažiranosti i, u konačnici, većim zadovoljstvom poslom. Nalazi ističu zajedničku ulogu samoefikasnosti i radne angažiranosti u objašnjenju načina na koji je ličnost povezana sa zadovoljstvom poslom kod nastavnika.

Ključne riječi: ličnost, nastavnička samoefikasnost, radna angažiranost



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THE INTERPLAY BETWEEN TEACHERS' SOCIAL AND EMOTIONAL COMPETENCIES AND BURNOUT: A RECIPROCAL ANALYSIS

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Teachers' social and emotional competencies (SEC) are relevant for a range of outcomes such as relationships with students, occupational well-being and burnout. However, the role of burnout in the development of teachers' SEC has been underresearched, and it is possible to assume that it weakens teachers' capacities for self-awareness, emotion regulation, and empathy. The aim of this paper was to examine reciprocal relationships between SEC and teacher burnout in early-career teachers. The research was conducted longitudinally at two time points, and 911 subject teachers with up to 5 years of work experience participated. The results indicate that burnout is a better predictor of teachers' SEC than teachers' SEC are the predictors of burnout. Of all burnout symptoms, SEC are best predicted by impaired cognitive functioning, which negatively predicts self-awareness, cognitive reappraisal as an emotion regulation strategy, and affective empathy. The findings of this research suggest the negative impact of teachers' burnout on their personal resources. The implications of the study are discussed in terms of burnout prevention and preserving social and emotional competencies.

Keywords: burnout, social and emotional competencies, teachers, longitudinal design

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INTRODUCTION

Teachers' social and emotional competencies

Social and emotional competencies (SEC) play a crucial role in promoting positive outcomes for students, classrooms, and teachers themselves. Following the CASEL (Collaborative for Academic, Social, and Emotional Learning, 2003) framework, SEC are typically organised into five dimensions: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Within this framework, self-awareness and self-management are often described as *emotional* competencies because they focus primarily on intrapersonal processes, including recognising, understanding, and regulating one's own emotions. In contrast, empathy and relationship skills are frequently conceptualised as *social* competencies, as they involve understanding others' perspectives and emotions and responding effectively in interpersonal contexts. At the same time, prior literature emphasises that SEC are inherently intertwined (Brackett et al., 2011; Jennings & Greenberg, 2009). Effective emotion regulation supports adaptive social functioning, while social competencies such as empathy rely on emotional awareness and regulation (Gross, 2015; Decety & Jackson, 2004). Accordingly, contemporary conceptualisations of SEC emphasise the interrelated nature of these competencies and acknowledge that they operate as mutually reinforcing rather than entirely independent domains (CASEL, 2003). In the present study, the CASEL framework serves as a conceptual framework for organising the selected competencies, rather than as a theory explaining their relationships with burnout. It provides a basis for conceptualising self-awareness and emotion regulation as intrapersonal competencies and empathy as a component of social awareness, while recognising that these competencies are interrelated (CASEL, 2003; Brackett et al., 2011; Jennings & Greenberg, 2009).

In practice, teachers with strong SEC are aware of their emotions and behaviours and understand how they influence their students. They are able to regulate their emotional responses, which is particularly important in high-pressure classroom situations, and demonstrate social awareness by being attuned to students' diverse backgrounds, fostering empathy towards students and colleagues. As a result, teachers' SEC support the development of positive relationships with students, colleagues, and parents.

Although all dimensions of teachers' SEC are relevant to occupational well-being, the present study focuses specifically on competencies that are more strongly emotional in nature: self-awareness, emotion regulation as an aspect of self-management, and empathy as an aspect of social awareness. The

focus on these specific competencies is guided by prior research highlighting the central role of teachers' emotions in outcomes such as burnout and leaving the profession (Chang, 2009). Given the substantial emotional demands teachers face on a daily basis, emotional aspects of SEC may serve as key personal resources that help teachers cope with these challenges and experience greater enjoyment in their work. While existing research identifies these competencies as relevant for teachers' occupational well-being (e.g., Bakker & Schaufeli, 2000; Brackett et al., 2010; Mérida-López et al., 2020), their role in burnout has yet to be examined in sufficient depth. Accordingly, the present study focused on selected emotion-related components of the CASEL framework rather than attempting to assess all CASEL domains.

Teacher burnout

Burnout is recognised as a significant challenge among teachers (Bakker & Schaufeli, 2000), leading to extensive research on its predictors, symptoms, and effects. Schaufeli et al. (2020) recently identified four main dimensions of burnout: exhaustion, cognitive impairment, emotional impairment, and mental distance. *Exhaustion*, a key feature of burnout, is characterised by depletion of physical or mental energy available for work. *Cognitive impairment* describes difficulties in managing cognitive functions like memory and attention, while *emotional impairment* involves challenges in regulating emotions. *Mental distance* encompasses psychological withdrawal and detachment from work, often seen as a coping mechanism for exhaustion. In teachers, burnout frequently stems from regular, demanding interactions with students, leading to feelings of ineffectiveness and low self-efficacy (Rey et al., 2016). Mijakoski et al. (2022) synthesised longitudinal studies on the topic, revealing that predictors of burnout in teachers often include low job satisfaction, work pressure, teacher self-efficacy, neuroticism, perceived collective exhaustion, and classroom disruptions. Experiencing burnout significantly impacts teacher attrition, making it a critical issue in education, particularly for early-career teachers who are more prone to leaving the profession (Borman & Dowling, 2008; Madigan & Kim, 2021).

Dynamic relations between teachers' SEC and burnout

Within the CASEL framework, self-awareness is defined as the ability to recognise and understand one's own emotions, thoughts, and behavioural tendencies, as well as their influence on behaviour (CASEL, 2003). More broadly, self-awareness refers to individuals' awareness and understanding of their internal states and their effects (Cherniss & Goleman, 2001). Thus, while the CASEL conceptualisation emphasises

awareness of emotions, thoughts, and behaviour as a social and emotional competency relevant to functioning in educational contexts, broader psychological conceptualisations focus more generally on awareness and understanding of one's internal experiences and behavioural patterns. Research in psychology suggests that self-awareness is relevant to how individuals monitor and understand their internal experiences and regulate their behaviour, although the construct has been conceptualised and operationalised in diverse ways across research traditions (Sutton, 2016; Chon & Sitkin, 2021). Consequently, research examining direct associations between self-awareness and well-being remains relatively limited and conceptually fragmented, particularly in occupational contexts (Sutton, 2016; Chon & Sitkin, 2021). For teachers, evidence concerning the role of self-awareness in occupational well-being is therefore still limited and largely indirect, with relevant insights coming from research on conceptually related constructs, particularly mindfulness.

Although mindfulness and self-awareness overlap in their emphasis on attending to one's internal experiences, the constructs are not equivalent. Self-awareness primarily refers to recognising and understanding one's emotions, thoughts, and behavioural tendencies, whereas mindfulness additionally emphasises maintaining present-moment attention with an attitude of openness and non-judgemental acceptance (Bishop et al., 2004; Brown et al., 2007). Thus, mindfulness can be viewed as involving self-awareness but also encompassing additional attentional and attitudinal components. It can be conceptualised both as a relatively stable individual disposition (trait mindfulness) and as a malleable capacity that can be developed through mindfulness-based interventions (Brown et al., 2007).

A growing body of research suggests that both trait mindfulness and mindfulness-enhancing interventions are associated with teachers' occupational well-being. For example, Abenavoli et al. (2013) found that teachers' mindfulness was negatively related to all three components of burnout as conceptualised by Maslach et al. (2001) – emotional exhaustion, depersonalisation, and reduced personal accomplishment. A meta-analysis by Zarate et al. (2019) further demonstrated that mindfulness-based interventions effectively reduce stress, anxiety, depression, and burnout in teachers. These findings provide indirect support for the potential relevance of self-awareness to teachers' occupational well-being, while also underscoring the need to distinguish evidence concerning mindfulness from evidence concerning self-awareness per se.

Emotion regulation is examined in the present study as a key component of CASEL's *self-management* dimension and refers to the processes by which individuals influence the experience, intensity, and expression of their emotions. Teach-

ing is an emotionally demanding profession frequently exposed to situations that require sustained emotional regulation (Jennings & Greenberg, 2009). Managing negative emotional responses has been identified as a major source of stress for teachers (Sutton, 2004), and difficulties in emotion regulation have been consistently linked to burnout, particularly emotional exhaustion (Brackett et al., 2010).

Empirical research further indicates that different emotion regulation strategies have distinct implications for teacher well-being. In line with the process model of emotion regulation (Gross & John, 2003), adaptive strategies such as cognitive reappraisal and problem solving are associated with higher well-being and job satisfaction, whereas maladaptive strategies such as expressive suppression are linked to burnout and reduced well-being (Burić et al., 2017; Wang et al., 2023). Moreover, interventions aimed at strengthening teachers' SEC, including emotion regulation skills, have been shown to reduce occupational stress and emotional exhaustion (Oliveira et al., 2022).

Empathy is generally defined as the ability to understand and share another person's emotional experiences (Davis, 1983). Contemporary conceptualisations view empathy as a multidimensional construct comprising both cognitive and affective components, as well as additional facets such as fantasy and personal distress (Davis, 1983). Within the CASEL framework, empathy represents a central component of social awareness and primarily refers to recognising others' emotions, understanding their perspectives, and responding with care and concern. The present study focused specifically on cognitive and affective empathy because these components most closely correspond to the social awareness domain of the CASEL framework. Cognitive empathy reflects the ability to understand another person's perspective, whereas affective empathy refers to sharing or resonating with another person's emotional experiences. Although Davis's multidimensional model also includes fantasy and personal distress, these dimensions represent imaginative engagement with fictional characters and self-oriented emotional reactions, respectively, and therefore align less directly with the conceptualisation of social awareness emphasised in the CASEL framework. In teaching, empathy is essential for building supportive relationships with students, particularly those facing academic, social, or emotional challenges. However, sustained empathic engagement can also place teachers at risk for emotional overload and diminished well-being (Jennings & Min, 2023). Teachers who provide ongoing emotional support to students experiencing adversity may develop empathy-based stress, which can contribute to burnout, especially early in their careers (Rauvola et al., 2019; Schmidt et al., 2022).

Empirical findings on the role of empathy in teacher burnout are mixed. While some studies suggest higher empathy is associated with increased burnout (Wróbel, 2013), evidence indicates this relationship depends on specific empathy components. For instance, Medvedskaya and Sheryagina (2017) found that among perspective taking, fantasy, empathic concern, and personal distress, only personal distress was significantly related to burnout, highlighting the importance of teachers' own negative emotional experiences. Similarly, recent evidence suggests that the relationship between empathy and burnout depends on the specific empathy components examined, as well as contextual and mediating factors (Zhou, 2025). These mixed and inconclusive findings underscore the need for further investigation, particularly from a longitudinal perspective that allows for reciprocal relations between burnout and teachers' SEC.

Whereas the CASEL framework guides the selection and conceptual organisation of the competencies examined in this study, the prosocial classroom model and resource-based theories provide the theoretical rationale for expecting reciprocal associations between teachers' SEC and burnout. The prosocial classroom model (Jennings & Greenberg, 2009) highlights a dynamic interplay between teachers' SEC, classroom processes, and teacher well-being, whereby diminished resources for coping with social and emotional demands can negatively affect classroom climate and student outcomes, further exacerbating teacher stress and burnout. From this perspective, burnout may not only be an outcome of insufficient SEC, but also a factor that undermines teachers' existing social and emotional resources. This assumption is further supported by resource-based theories, such as conservation of resources theory (Hobfoll, 1989, 2001). Experiencing burnout may therefore reduce teachers' capacity for self-awareness, emotion regulation, and empathy, as resource loss limits the cognitive and emotional energy required to engage in reflective and relational processes. Conversely, theories emphasising resource gain, such as the broaden-and-build theory (Fredrickson, 2004), suggest that positive work-related experiences may strengthen teachers' SEC over time. Together, these frameworks provide a theoretical rationale for examining reciprocal relations between burnout and teachers' SEC.

THE PRESENT STUDY

This study aimed to provide insight into the complex relations between teachers' SEC and burnout, since temporal relations between these constructs have been scarcely explored in previous research. We hypothesised that higher levels of teachers' SEC (i.e., self-awareness, emotion regulation, and cogni-

tive and affective empathy) would predict lower levels of burnout (i.e., exhaustion, mental distance, cognitive impairment, and emotional impairment) over time. Conversely, we expected that higher levels of burnout would predict lower levels of teachers' SEC over time.

METHOD

Participants

This study was part of a project titled (anonymised title of the project and funder). To achieve a nationally representative sample and reach as many early-career subject teachers as possible, an online questionnaire was distributed to all primary schools in Croatia. Eligibility for participation required teachers to have no more than 5 years of experience and teach upper primary grades (5th to 8th). School principals and counsellors assisted in recruiting participants by distributing questionnaires to those who met the criteria. A total of 728 teachers took part at the first time point (T1), and 381 teachers participated at the second (T2). The participants' average age was 31 years (M = 30.72, SD = 5.73), with women comprising the majority of the sample (80.2%). Teachers from 370 schools participated in the study, representing 40% of all schools in Croatia.

Procedure

Prior to data collection, approval from the (relevant ministry) was obtained, and the whole research project was approved by the Ethics Committee of the (author's institution). Participation was voluntary and anonymous, albeit by using personalised codes to match the questionnaires from T1 and T2. The time lag between time points was 6 months (November – May). Teachers participated in the study by filling out an online questionnaire which was distributed to them via e-mail.

Instruments

Self-awareness was measured by the self-awareness subscale from the Social and Emotional Competencies Questionnaire (SEC-Q; Zych et al., 2018). The scale consists of four items (e.g., *I know how my emotions affect what I do*), and participants were asked to rate how much each statement applied to them on a Likert-type scale (1 = strongly disagree, 5 = strongly agree). Cronbach's alpha reliability for the scale was 0.86 at T1, and 0.83 at T2.

Empathy was measured by the Basic Empathy Questionnaire (BES, Jolliffe & Farrington, 2006). The questionnaire consists of 20 items that measure cognitive (e.g., *I am usually*

able to recognise others' emotions before they tell me how they feel) and affective (e.g., *I usually get sad while watching sad TV programmes or movies*) aspects of empathy, and the answers are marked on a five-point Likert-type scale (1 = do not agree at all, 5 = completely agree). Cronbach's alpha reliability for the subscale affective empathy was 0.77 at T1 and 0.76 at T2. The reliability for the subscale cognitive empathy was 0.81 at T1 and 0.81 at T2.

Emotion regulation was measured by the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The questionnaire contains 10 items that measure the use of two emotion regulation strategies: reappraisal (e.g., *When I want to feel more positive emotions (such as joy or amusement), I change what I'm thinking about*) and suppression (e.g., *When I am feeling negative emotions, I make sure not to express them*). Answers are marked on a seven-point Likert scale (1 = do not agree at all, 7 = completely agree). Cronbach's alpha reliability for the subscale reappraisal was 0.86 at T1 and 0.87 at T2. The reliability of the subscale suppression was 0.75 at T1 and 0.74 at T2.

Burnout was measured by the Burnout Assessment Tool – BAT 23 (Schaufeli et al., 2020). The questionnaire consists of 23 items that measure four core symptoms of the burnout syndrome at work – exhaustion (e.g., *At work, I feel mentally exhausted*), mental distance (*I struggle to find any enthusiasm for my work*), cognitive impairment (e.g., *At work I struggle to think clearly*) and emotional impairment (e.g., *During my work I become irritable when things don't go my way*). Answers are marked on a 5-point frequency scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always), with a higher score suggesting a greater risk of burnout at work. Cronbach's alpha reliability for the subscales were as follows: exhaustion – 0.89 at T1, 0.87 at T2; mental distance – 0.77 at T1, 0.72 at T2; cognitive impairment – 0.85 at T1, 0.84 at T2; emotional impairment – 0.79 at T1, 0.78 at T2.

The SEC-Q was translated into Croatian by the research team using a forward–backward translation procedure. First, the original Spanish version was translated into Croatian. The Croatian version was then independently back-translated into Spanish by a professional translator who was not involved in the initial translation. Discrepancies between the original and back-translated versions were discussed by the research team until conceptual equivalence was achieved. The translated questionnaire was subsequently pilot-tested with a small group of early-career teachers, who were asked to complete the questionnaire and provide feedback regarding the clarity and wording of the items. Based on their feedback, minor linguistic modifications were made to improve clarity. Factorial validity of the Croatian SEC-Q was examined using confir-

matory factor analysis (CFA). The hypothesised factor structure showed acceptable fit to the data, $\chi^2(420) = 790.597$, $p < 0.001$, $\chi^2/df = 1.88$, RMSEA = 0.034, CFI = 0.938, TLI = 0.927, and SRMR = 0.052. The ERQ and the BAT were administered using Croatian versions with established translation and validation evidence in Croatia (Gračanin et al., 2019; Maslić Seršić et al., 2025).

Data analysis

Data analysis was conducted in several steps. First, a detailed analysis of missing data was conducted. We conducted Little's MCAR test (Little, 1988) and compared teachers who participated at both time points to those who participated at only one, to see whether attrition was related to teacher demographics (gender, age, work experience) and/or substantive variables, and to determine which method of missing data treatment was appropriate. No significant differences emerged on any of the main study variables. Small, marginal differences were observed for some demographic variables (e.g., age: M1 = 29.9 vs. M2 = 30.9), but these differences were minimal and unlikely to meaningfully affect the representativeness of the longitudinal sample.

Since Little's MCAR test was non-significant at the item level ($\chi^2 = 4029.922$, df = 3976, $p = 0.271$) and effect sizes for existing differences were small and marginally significant, it was decided that missing data in this study will be treated by implementing full information maximum likelihood (FIML). FIML makes use of all available data for each participant by analysing the incomplete data set. The Results section therefore reflects the full sample.

Second, descriptive statistics and correlation coefficients were calculated. Third, we tested longitudinal measurement invariance of used variables and evaluated whether the configuration of latent variables and their indicators (i.e., configural invariance) as well as the size of unstandardised factor loadings (i.e., metric invariance) hold equal across time points by using confirmatory factor analysis (CFA) and exploratory structural equation modelling (ESEM) models. In the measurement models, SEC and burnout were conceptualised and modelled at the level of their theoretically defined dimensions. Specifically, the subscales of self-awareness, emotion regulation strategies, empathy, and burnout symptoms were treated as distinct but correlated latent factors, rather than as indicators of higher-order constructs. This approach was chosen to allow for a more fine-grained examination of potentially differential stability and reciprocal relations between specific competencies and burnout dimensions over time, which may be obscured in higher-order models. Accordingly, all

autoregressive cross-lagged (ARCL) models were specified at the level of these subdimensions. ESEM models were estimated using geomin rotation, allowing for small cross-loadings across factors.

Finally, the hypothesised reciprocal relationships between teachers' SEC and burnout were analysed by using ARCL analysis, an analytical strategy used to describe reciprocal relationships between variables over time (Selig & Little, 2012). In line with the suggestion by Morin et al. (2020) that researchers turn to ESEM when using multidimensional measures, reciprocal relations were analysed within the ESEM framework. Since ESEM models are still not entirely suited for testing structural models, we used the ESEM-within-CFA (EwC) approach to establish measurement models within structural models (Marsh et al., 2014). This implies fixing factor loadings from longitudinal measurement invariance models in confirmatory factor analysis. EwC yields the same model fit results as ESEM, providing basis for further analysis within the SEM framework.

Testing structural relations was done by testing and comparing stability and reciprocal models, which included the measurement models from the previous step, depending on the level of measurement invariance established, along with autoregressive and/or cross-lagged paths. Stability models included only autoregressive paths and correlations between latent variables within the same time point. In order to control for method variance, item residuals were also allowed to correlate between time points. Reciprocal models, on the other hand, included the same paths as the stability models, with the addition of cross-lagged paths. Reciprocal models were then compared to stability models.

The data were analysed using IBM SPSS 20.0 and Mplus 8.2 (Muthén i Muthén, 2017). We used the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), and the standardised root mean square residual (SRMR) as indicators of model fit. According to Hu and Bentler (1999) and Browne and Cudeck (1992), RMSEA < 0.06, TLI > 0.95, CFI > 0.95, and SRMR < 0.08 represent excellent fit, whereas RMSEA < 0.08, TLI > 0.90, and CFI > 0.90 are deemed indices of adequate fit. Nested models were compared by using the Satorra-Bentler $\chi 2$ difference test as the estimator used was maximum likelihood robust (MLR).

RESULTS

Early-career teachers in Croatia perceive their SEC as above the scale midpoint, while also reporting low levels of burnout. Generally speaking, teachers' SEC were moderately correlated with burnout symptoms at both time points. Descriptive statistics and correlations at both time points are shown in Table 1.

		1	2	3	4	5	6	7	8	9
1	Self-awareness	1	0.37**	0.03	0.29**	-0.12*	-0.28**	-0.29**	-0.35**	-0.36**
2	Cognitive empathy	0.45**	1	0.48**	0.16**	-0.27**	-0.10	-0.26**	-0.31**	-0.25**
3	Affective empathy	0.12**	0.44**	1	0.05	-0.22**	0.08	-0.10	-0.06	0.06
4	Reappraisal	0.33**	0.19**	0.11**	1	0.11*	-0.32**	-0.28**	-0.33**	-0.33**
5	Suppression	-0.03	-0.20**	-0.15**	0.17**	1	0.09	0.18**	0.08	-0.03
6	Exhaustion	-0.22**	-0.16**	0.01	-0.31**	0.08*	1	0.68**	0.60**	0.53**
7	Mental distance	-0.26**	-0.26**	-0.16**	-0.31**	0.14**	0.72**	1	0.64**	0.57**
8	Cognitive impairment	-0.33**	-0.31**	-0.10*	-0.26**	0.07	0.69**	0.70**	1	0.66**
9	Emotional impairment	-0.30**	-0.28**	-0.05	-0.27**	-0.00	0.62**	0.58**	0.70**	1
	M_{T1}	4.43	4.22	3.75	5.09	3.73	2.22	1.81	1.70	1.61
	M_{T2}	4.38	4.12	3.72	4.99	3.82	2.38	1.95	1.83	1.67
	SD_{T1}	0.53	0.47	0.53	1.06	1.26	0.67	0.59	0.55	0.53
	SD_{T2}	0.46	0.47	0.50	1.03	1.19	0.65	0.58	0.55	0.54

Notes: * $p < 0.05$; ** $p < 0.01$; correlations at T1 are shown under the diagonal, and correlations at T2 are shown above the diagonal.

TABLE 1
Descriptive statistics and Pearson correlations for teachers' SEC and burnout

The next step was to test for longitudinal measurement invariance to determine whether instruments measure the same constructs over time. Fit indices and comparisons of longitudinal measurement invariance models are shown in Table 2.

Model						
Self-awareness and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Configural invariance	2012.341	1191	0.030 (0.027-0.032)	0.929	0.915	0.043
Metric invariance	1976.500	1270	0.027 (0.024-0.029)	0.939	0.931	0.046
Scalar invariance	2007.260	1292	0.027 (0.024-0.029)	0.938	0.931	0.046
			CD	TRd	*Δdf*	*p*
Metric – configural			1.887	39.364	79	0.9999
Scalar – metric			1.343	31.508	22	0.0862
Emotion regulation and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Configural invariance	3321.314	1850	0.032 (0.030-0.034)	0.900	0.884	0.056
Metric invariance	3273.167	1942	0.030 (0.028-0.031)	0.909	0.900	0.058
Scalar invariance	3297.023	1969	0.029 (0.028-0.031)	0.909	0.901	0.058
			CD	TRd	*Δdf*	*p*
Metric – configural			1.900	50.074	92	0.9999
Scalar – metric			1.317	28.587	27	0.3812
Empathy and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Configural invariance	5106.165	3178	0.028 (0.026-0.029)	0.887	0.870	0.060
Metric invariance	5150.268	3290	0.027 (0.026-0.028)	0.891	0.878	0.063
			CD	TRd	Δ*df*	*p*
Metric – configural			6.583	155.355	112	0.0042

Notes: CD = difference test scaling correction; TRd = Satorra-Bentler scaled chi-square difference; Δ*df* = difference in degrees of freedom.

TABLE 2
Fit indices and comparisons of longitudinal measurement invariance models

To assure that there were no significant differences between models assuming different levels of invariance, we com-

pared the models using the Satorra-Bentler χ^2 difference test. For self-awareness and burnout, and emotion regulation and burnout, scalar models provided adequate fit indices which did not significantly differ from more complex models, therefore these combinations of constructs demonstrated equivalent factor loadings and intercepts across time points. However, the metric model including empathy and burnout fit the data significantly worse than the configural. Since testing for partial metric invariance is currently not a possibility for ESEM models (Marsh et al., 2020), and the configural model itself demonstrated unsatisfactory fit, failing to establish measurement invariance, it was decided to conduct the analyses with dimensions of empathy as separate variables. Fit indices and Satorra-Bentler χ^2 difference test results are presented in Table 3.

TABLE 3
Fit indices and comparisons of longitudinal measurement invariance models for affective and cognitive empathy, and burnout

Model						
Affective empathy and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Configural invariance	3218.231	1967	0.029 (0.027-0.030)	0.905	0.890	0.065
Metric invariance	3218.643	2053	0.027 (0.025-0.029)	0.912	0.902	0.067
Scalar invariance	3249.290	2082	0.027 (0.025-0.029)	0.911	0.903	0.067
			CD	TRd	*Δdf*	*p*
Metric – configural			1.6365	52.1757	86	0.9985
Scalar – metric			1.1476	32.1096	29	0.3151
Cognitive empathy and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Configural invariance	2788.210	1725	0.028 (0.026-0.030)	0.917	0.903	0.049
Metric invariance	2795.664	1809	0.026 (0.025-0.028)	0.923	0.914	0.052
Scalar invariance	2831.381	1836	0.026 (0.024-0.028)	0.922	0.915	0.052
			CD	TRd	*Δdf*	*p*
Metric – configural			1.6200	54.9503	84	0.9941
Scalar – metric			1.2244	36.7035	27	0.1007

As shown in Table 3, the models including burnout and separate dimensions of empathy demonstrated good fit and scalar invariance.

To test the hypothesised relationships between early-career teachers' SEC and burnout, we tested cross-lagged panel models based on the results of testing for longitudinal measurement invariance. For each model, we first estimated a stability model, which only included autoregressive paths. We then added reciprocal effects and compared these models to those including only stability coefficients to see whether they improve model fit. Model fit indices and results of comparisons between stability and reciprocal models are presented in Table 4.

As can be seen from Table 4, reciprocal models performed better than stability models for the models including self-awareness and burnout, and affective empathy and burnout, while the reciprocal model including emotion regulation and burn-

out had a marginally better fit than the stability model. This indicates that potential causal relationships between these constructs need to be considered. The reciprocal model including cognitive empathy and burnout performed as well as the stability model, indicating that there are no causal relations between these constructs.

Model						
Self-awareness and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Stability	2038.145	1312	0.027 (0.024-.029)	0.937	0.931	0.054
Reciprocal	2015.493	1304	0.026 (0.024-.029)	0.938	0.932	0.049
			CD	TRd	*Δdf*	*p*
Satorra-Bentler χ^2 difference test			0.8448	25.232	8	0.001
Emotion regulation and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Stability	3328.078	1999	0.029 (0.027-0.031)	0.909	0.903	0.062
Reciprocal	3302.028	1983	0.029 (0.027-0.031)	0.910	0.903	0.058
			CD	TRd	*Δdf*	*p*
Satorra-Bentler χ^2 difference test			1.0444	26.057	16	0.053
Affective empathy and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Stability	3282.823	2102	0.027 (0.025-0.028)	0.910	0.903	0.069
Reciprocal	3255.258	2094	0.027 (0.025-0.028)	0.912	0.904	0.068
			CD	TRd	*Δdf*	*p*
Satorra-Bentler χ^2 difference test			0.6685	35.857	8	0.0001
Cognitive empathy and burnout	χ^2	*df*	RMSEA (90% C.I.)	CFI	TLI	SRMR
Stability	2844.622	1856	0.026 (0.024-0.028)	0.923	0.916	0.056
Reciprocal	2832.037	1848	0.026 (0.024-0.028)	0.923	0.916	0.052
			CD	TRd	*Δdf*	*p*
Satorra-Bentler χ^2 difference test			1.1657	12.546	8	0.1284

TABLE 4
Fit indices and comparisons of stability and reciprocal models

In the model including self-awareness and burnout, self-awareness at T1 positively predicted mental distance at T2 (β = 0.121, p = 0.044), whereas cognitive impairment at T1 negatively predicted self-awareness at T2 (β = -0.289, p = 0.016), which indicates that there is a reciprocal relationship between self-awareness and burnout. However, it has to be noted that the bivariate correlation between self-awareness and mental distance at both time points was negative, and non-significant between time points (r_{T1} = -0.26, $p < 0.000$; r_{T2} = -0.29, $p < 0.000$; r_{T1T2} = -0.08, p = 0.396), which would lead us to conclude that higher levels of self-awareness are connected to lower levels of mental distance. The change in direction probably occurred due to suppression, as dimensions of burnout are moderately correlated with one another, and not all of them are related to self-awareness.

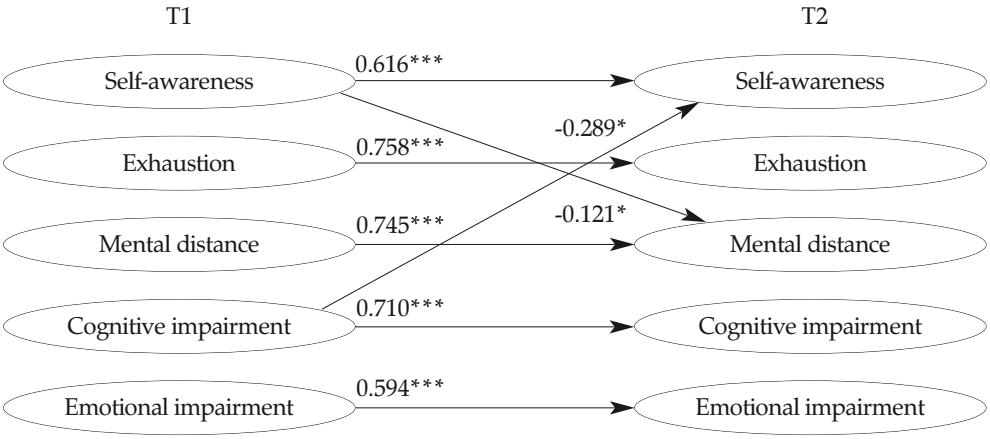
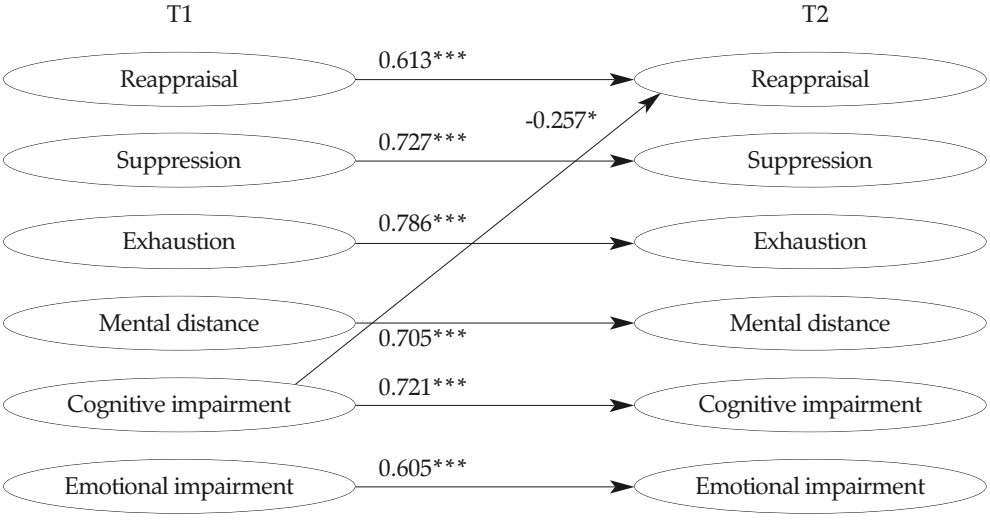


FIGURE 1
Results of the model including self-awareness and burnout

Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; For the sake of clarity, only statistically significant paths were shown.

Although the reciprocal model showed only a marginal improvement in overall fit compared to the stability model, it was retained for interpretation because it allows for the examination of theoretically meaningful cross-lagged effects. Importantly, the model revealed a statistically significant cross-lagged path from cognitive impairment to subsequent use of reappraisal ($\beta = -0.257$, $p = 0.047$). This finding suggests that difficulties with concentration, attention, and cognitive functioning associated with burnout may undermine teachers' ability to engage in cognitively demanding emotion regulation strategies such as reappraisal.

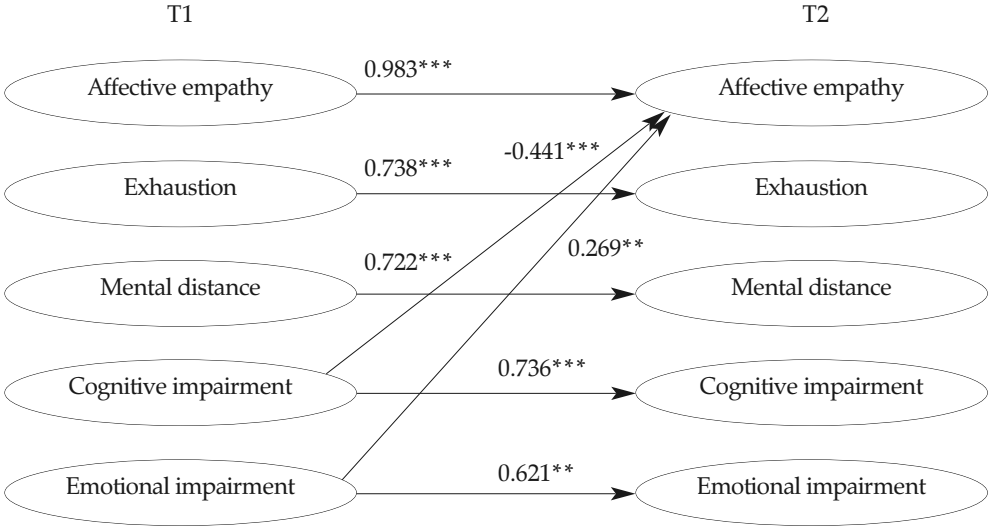
FIGURE 2
Results of the model including emotion regulation and burnout



Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; For the sake of clarity, only statistically significant paths were shown.

When it comes to the relations between affective empathy and burnout, cognitive impairment at T1 negatively predicted affective empathy at T2 ($\beta = -0.441$, $p < 0.001$), whereas emotional impairment at T1 positively predicted affective empathy at T2 ($\beta = 0.296$, $p = 0.002$). It should be noted that affective empathy demonstrated very high temporal stability across the two measurement occasions ($\beta = 0.983$), indicating that only a small proportion of variance remained to be explained over time. Accordingly, both cross-lagged effects should be interpreted with caution, as they represent prospective associations after accounting for the autoregressive stability of affective empathy and the other associations specified in the model. Notably, the corresponding bivariate correlations between T1 cognitive or emotional impairment and T2 affective empathy were small and non-significant (cognitive impairment: $r = -0.10$, $p = 0.315$; emotional impairment: $r = 0.01$, $p = 0.826$). Thus, the cross-lagged coefficients should not be interpreted as simple bivariate associations, but as conditional prospective associations that emerge after accounting for the other paths in the model.

FIGURE 3
Results of the model including affective empathy and burnout



Notes: $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$; For the sake of clarity, only statistically significant paths were shown.

Taken together, the results suggest that higher cognitive impairment may be associated with subsequent decreases in affective empathy, whereas higher emotional impairment may be associated with subsequent increases in affective empathy. Given the high temporal stability of affective empathy and the discrepancy between the bivariate and cross- lagged associations, these findings should be considered exploratory and interpreted cautiously.

DISCUSSION

The aim of this study was to examine reciprocal relations between early-career teachers' SEC and burnout. In general, no consistent reciprocal effects were found between teachers' SEC and burnout. Rather, some burnout symptoms were prospectively associated with subsequent levels of teachers' SEC. Namely, cognitive impairment negatively predicted self-awareness, but self-awareness did not predict any of the burnout symptoms. When it comes to the relationship between emotion regulation and burnout, neither reappraisal nor suppression predicted any of the burnout dimensions. However, cognitive impairment negatively predicted future use of the reappraisal strategy, which supports our hypothesis that burnout would negatively predict reappraisal. This finding suggests that difficulties with concentration and focus may be associated with reduced use of cognitive strategies for reframing emotional experiences over time. Emotional impairment, which includes symptoms related to difficulties in emotional functioning, neither predicted nor was predicted by emotion regulation after accounting for autoregressive effects and the other cross-lagged paths included in the model. Overall, these findings suggest that the prospective associations between burnout and emotion regulation may be more closely related to cognitive than to emotional impairment. Our findings partly differ from those reported by Brandão et al. (2025), who found that emotion regulation was associated with lower levels of teacher burnout in a cross-sectional design. One possible explanation for this discrepancy lies in the longitudinal nature of the present study, which examined prospective relations after accounting for autoregressive effects. This suggests that although emotion regulation may be associated with burnout concurrently, its prospective associations with burnout may be weaker than previously assumed.

The analyses of the relations between empathy and burnout presented similar results. While neither cognitive nor affective empathy significantly predicted any of the burnout symptoms, cognitive impairment negatively predicted future levels of affective empathy. Similarly, Brandão et al. (2025) reported significant associations between empathy and burnout among teachers. The present findings suggest that higher levels of cognitive impairment are prospectively associated with lower subsequent levels of affective empathy, although this association should be interpreted cautiously given the very high temporal stability of affective empathy. Such high temporal stability also represents an important limitation for interpreting cross-lagged coefficients within the conventional cross-lagged panel model (CLPM), as highly stable, trait-like constructs may leave relatively little residual variance to be explained and may result in cross-lagged estimates that are difficult to interpret (Hamaker

et al., 2015). Importantly, the cross-lagged association should therefore not be interpreted as evidence of a direct causal effect, particularly because the corresponding bivariate association was small and non-significant. The fact that cognitive impairment was associated with subsequent affective, but not cognitive, empathy may indicate that difficulties in concentration and cognitive functioning are more closely related to the affective than the cognitive aspects of empathic responding. While these findings highlight cognitive impairment as a potential correlate of subsequent changes in selected SEC, the reverse direction of influence cannot be ruled out, and other unmeasured factors may contribute to these associations. Taken together, the findings are consistent with the possibility that burnout-related cognitive difficulties may coincide with reduced availability of resources relevant to maintaining teachers' SEC, although this interpretation requires further investigation.

The findings of this study can also be interpreted in light of theoretical models emphasising the close interdependence between cognitive and emotional functioning. Cognitive resources such as attention, working memory, and cognitive flexibility are considered important for effective emotion regulation and empathic responding, as they enable individuals to monitor emotional cues, inhibit automatic responses, and reappraise emotionally demanding situations (Gross, 2015; Ochsner & Gross, 2005; Zelazo & Cunningham, 2007). When these cognitive resources are compromised – as reflected in cognitive impairment symptoms of burnout – teachers may have fewer resources available for reflective emotional processing, which may help explain the observed associations with subsequent self-awareness, reappraisal, and affective empathy. From this perspective, the findings are consistent with conservation of resources theory, which posits that resource loss may reduce individuals' capacity to cope with ongoing demands (Hobfoll, 2001). However, because the present study examined prospective associations rather than causal mechanisms, this interpretation should be considered tentative. These findings nonetheless highlight the potential importance of preserving cognitive functioning for emotion regulation and interpersonal engagement in early-career teachers.

The present findings can also be interpreted within the CASEL framework. Specifically, the three domains examined in this study – self-awareness, self-management (operationalised through emotion regulation), and social awareness (operationalised through empathy) – were not found to prospectively protect early-career teachers from subsequent burnout. Instead, selected burnout symptoms, particularly cognitive impairment, were prospectively associated with lower subsequent levels of competencies representing these CASEL domains. These findings suggest that the competencies described within the CASEL

framework may not only function as potential resources for effective teaching but may also be vulnerable to occupational strain. Consequently, supporting teachers' well-being may be important for maintaining the SEC emphasised by the CASEL framework.

Taken together, our findings extend previous cross-sectional evidence (e.g., Brandão et al., 2025) by showing that the longitudinal associations between burnout and SEC may be predominantly characterised by associations from burnout to subsequent SEC rather than the reverse. Considering the importance of teachers' SEC for the development of students' SEC and overall school climate (Jennings & Greenberg, 2009), the findings of this study provide support for initiatives aimed at preventing teacher burnout in order to preserve teachers' personal resources, especially at the beginning of their careers.

The present study makes several contributions to the literature on teachers' SEC and burnout. First, unlike the predominantly cross-sectional evidence available to date (Brackett et al., 2010; Burić et al., 2017; Wróbel, 2013; Medvedskaya & Sheryagina, 2017), this study employed a longitudinal design to examine reciprocal relations between burnout and selected SEC in early-career teachers. Second, by simultaneously modelling autoregressive and cross-lagged effects, the study provides evidence of prospective associations between burnout – particularly cognitive impairment – and subsequent levels of self-awareness, emotion regulation, and affective empathy, rather than these competencies acting as prospective protective factors against burnout. These findings should nevertheless be interpreted as prospective associations rather than evidence of causal effects. Finally, using the CASEL framework to organise the selected competencies, this study extends the limited longitudinal evidence on the reciprocal associations between teachers' SEC and burnout. These findings highlight the importance of supporting teachers' well-being not only as an outcome in itself but also as a prerequisite for maintaining the competencies that are essential for effective teaching.

Methodological limitations and recommendations for future research

Several limitations of this study should be considered in order to understand and accurately interpret the presented results. One of the drawbacks of this study most certainly has to do with its sample. Although attrition was expected in this longitudinal study, it was substantial. This may partly reflect the employment conditions of early-career teachers in Croatia, where many work on short-term contracts and frequently leave the profession, reducing the available pool of participants. It is plausible to assume that part of the attrition from the research was accounted for by teachers actually leaving the profession.

Furthermore, as is the case with most research on SEC, the instruments used in this study were self-report measures.

Self-report measures are less than ideal when measuring con structs that have to do with individual characteristics, as they have been proven to be susceptible to faking and socially desirable responding (Abrahams et al., 2019; Paulhus, 1991). Additionally, when measuring SEC, it is important to bear in mind that successful responding to self-report measures depends on the variables being measured, such as self-awareness, which may influence self-ratings (Brackett et al., 2006). This is evident from the results obtained on SEC measures – teachers described themselves as highly self-aware, empathic and emotionally regulated. While having higher SEC is expected from teachers, these results may also have been influenced by the use of self-report measures. However, certain aspects of SEC cannot be accurately measured through methods other than self-report, which is why they remain the most commonly used method of SEC assessment (Müller et al., 2020). This is why researchers are dedicating their time to developing context-specific measures and situational judgement tests which would directly measure the use of competencies in realistic situations and everyday challenges. Another approach to measuring SEC is by using other-reports. As mentioned above, some elements of SEC, mostly within the domain of emotional competence, may not be observable by others and therefore cannot be measured by other-reports. However, other constructs, such as most aspects of social competence, can be observed by others and are appropriate for measurement via the use of other-reports. Still, other-reports of teachers' SEC have been used in a minority of existing studies and have yet to be incorporated into instruments measuring SEC (Müller et al., 2020).

CONCLUSION

The results of this study indicate that cognitive impairment, one of the core symptoms of burnout, is prospectively associated with subsequent levels of teachers' SEC. This finding highlights the need for further research on the directionality and mechanisms underlying the relationship between burnout and SEC, as difficulties in cognitive functioning at work may be associated with reduced capacity for effective emotion regulation, emotional awareness, and empathy. More broadly, the findings point to the dynamic interplay between cognitive and emotional functioning as an important aspect of teachers' occupational well-being.

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REFERENCES

Abenavoli, R. M., Jennings, P. A., Greenberg, M. T., Harris, A. R., & Katz, D. A. (2013). The protective effects of mindfulness against burnout among educators. *Psychology of Education Review, 37*(2), 57–69. https://doi.org/10.53841/bpsper.2013.37.2.57

Abrahams, L., Pancorbo, G., Primi, R., Santos, D., Kyllonen, P., John, O. P., & De Fruyt, F. (2019). Social-emotional skill assessment in children and adolescents: Advances and challenges in personality, clinical, and educational contexts. *Psychological Assessment, 31*(4), 460–473. https://doi.org/10.1037/pas0000591

Bakker, A. B., & Schaufeli, W. B. (2000). Burnout contagion processes among teachers. *Journal of Applied Social Psychology, 30*(11), 2289–2308. https://doi.org/10.1111/j.1559-1816.2000.tb02437.x

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*(3), 230–241. https://doi.org/10.1093/clipsy.bph077

Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*(3), 367–409. https://doi.org/10.3102/0034654308321455

Brackett, M. A., Rivers, S. E., & Salovey, P. (2011). Emotional intelligence: Implications for personal, social, academic, and workplace success. *Social and Personality Psychology Compass, 5*(1), 88–103. https://doi.org/10.1111/j.1751-9004.2010.00334.x

Brackett, M. A., Palomera, R., Mojsa-Kaja, J., Reyes, M. R., & Salovey, P. (2010). Emotion-regulation ability, burnout, and job satisfaction among British secondary-school teachers. *Psychology in the Schools, 47*(4), 406–417. https://doi.org/10.1002/pits.20478

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology, 91*(4), 780–795. https://doi.org/10.1037/0022-3514.91.4.780

Brandão, T., Alfacinha, L., Brites, R., & Diniz, E. (2025). Burnout in teachers: The role of emotion regulation, empathy, and educational level taught. *School Mental Health, 17*(3), 1014–1025. https://doi.org/10.1007/s12310-025-09794-7

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211–237. https://doi.org/10.1080/10478400701598298

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230–258. https://doi.org/10.1177/0049124192021002005

Burić, I., Penezić, Z., & Sorić, I. (2017). Regulating emotions in the teacher's workplace: Development and initial validation of the Teacher

Emotion-Regulation Scale. *International Journal of Stress Management, 24*(3), 217–246. https://doi.org/10.1037/str0000035

Chang, M. L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193–218. https://doi.org/10.1007/s10648-009-9106-y

Cherniss, C., & Goleman, D. (2001). *An EI-based theory of performance. The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations*. Jossey-Bass.

Chon, D., & Sitkin, S. B. (2021). Disentangling the process and content of self-awareness: A review, critical assessment, and synthesis. *Academy of Management Annals, 15*(2), 607–651. https://doi.org/10.5465/annals.2018.0079

Collaborative for Academic, Social, and Emotional Learning. (2003). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning (SEL) programs*.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113–126. https://doi.org/10.1037/0022-3514.44.1.113

Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews, 3*(2), 71–100. https://doi.org/10.1177/1534582304267187

Fredrickson, B. L. (2004). The broaden–and–build theory of positive emotions. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 359*(1449), 1367–1377. https://doi.org/10.1098/rstb.2004.1512

Gračanin, A., Kardum, I., & Gross, J. J. (2020). The Croatian version of the Emotion Regulation Questionnaire: Links with higher- and lower-level personality traits and mood. *International Journal of Psychology, 55*(4), 609–617. https://doi.org/10.1002/ijop.12624

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry, 26*(1), 1–26. https://doi.org/10.1080/1047840X.2014.940781

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods, 20*(1), 102–116. https://doi.org/10.1037/a0038889

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology, 50*(3), 337–421. https://doi.org/10.1111/1464-0597.00062

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research, 79*(1), 491–525. https://doi.org/10.3102/0034654308325693

Jennings, P. A., & Min, H. H. (2023). Transforming empathy-based stress to compassion: Skillful means to preventing teacher burnout. *Mindfulness, 14,* 2311–2322. https://doi.org/10.1007/s12671-023-02115-6

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence, 29*(4), 589–611. https://doi.org/10.1016/j.adolescence.2005.08.010

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198–1202. https://doi.org/10.1080/01621459.1988. 10478722

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, Article 103425. https://doi.org/10.1016/j.tate.2021.103425

Marsh, H. W., Morin, A. J. S., Parker, P. D., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology, 10,* 85–110. https://doi.org/10.1146/annurev-clinpsy-032813-153700

Marsh, H. W., Guo, J., Dicke, T., Parker, P. D., & Craven, R. G. (2020). Confirmatory factor analysis (CFA), exploratory structural equation modeling (ESEM), and set-ESEM: Optimal balance between goodness of fit and parsimony. *Multivariate Behavioral Research, 55*(1), 102–119. https://doi.org/10.1080/00273171.2019.1602503

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

Maslić Seršić, D., Rebernjak, B., Mikac, U., Buško, V., Tomas, J., & De Witte, H. (2025). Measuring burnout syndrome in Croatia using the BAT-23: Validation study and statistical norms. *Psihologijske teme, 34*(3), 729–751. https://doi.org/10.31820/pt.34.3.4

Medvedskaya, E. I., & Sheryagina, E. V. (2017). Empathy and professional burnout of Russian and Belarusian teachers. *Counseling Psychology and Psychotherapy, 25*(2), 59–74. https://doi.org/10.17759/cpp.2017 250204

Mérida-López, S., Sánchez-Gómez, M., & Extremera, N. (2020). Leaving the teaching profession: Examining the role of social support, engagement, and emotional intelligence in teachers' intentions to quit. *Psychosocial Intervention, 29*(3), 141–151. https://doi.org/10.5093/pi2020a10

Mijakoski, D., Cheptea, D., Marca, S. C., Shoman, Y., Caglayan, C., Bugge, M. D., Canu, I. G., & Kromhout, H. (2022). Determinants of burnout among teachers: A systematic review of longitudinal studies. *International Journal of Environmental Research and Public Health, 19*(9), Article 5776. https://doi.org/10.3390/ijerph19095776

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Muthén & Muthén. https://doi.org/10.1201/9781315117430-28

Müller, F., Denk, A., Lubaway, E., Sälzer, C., Kozina, A., Perše, T. V., Rasmusson, M., Jugović, I., Nielsen, B. L., Rozman, M., & Ojsteršek, A. (2020). Assessing social, emotional, and intercultural competences of students

and school staff: A systematic literature review. *Educational Research Review, 29*, Article 100304. https://doi.org/10.1016/j.edurev.2019. 100304

Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences, 9*(5), 242–249. https://doi.org/10.1016/j.tics. 2005.03.010

Oliveira, S., Roberto, M. S., Veiga-Simão, A. M., & Marques-Pinto, A. (2022). Effects of the A+ intervention on elementary-school teachers' social and emotional competence and occupational health. *Frontiers in Psychology, 13,* Article 957249. https://doi.org/10.3389/fpsyg.2022.957249

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17–59). Academic Press. https://doi.org/10.1016/B978-0-12-590241-0.50006-X

Rauvola, R. S., Vega, D. M., & Lavigne, K. N. (2019). Compassion fatigue, secondary traumatic stress, and vicarious traumatization: A qualitative review and research agenda. *Occupational Health Science, 3,* 297–336. https://doi.org/10.1007/s41542-019-00045-1

Rey, L., Extremera, N., & Peña, M. (2016). Emotional competence relating to perceived stress and burnout in Spanish teachers: A mediator model. *PeerJ, 4,* Article e2087. https://doi.org/10.7717/peerj.2087

Schaufeli, W. B., Desart, S., & De Witte, H. (2020). Burnout Assessment Tool (BAT): Development, validity, and reliability. *International Journal of Environmental Research and Public Health, 17*(24), Article 9495. https://doi.org/10.3390/ijerph17249495

Schmidt, K. J., Milliken, D. B., Morales, A. M. G., Traini, H. Q., & Velez, J. J. (2022). When teaching hurts: Exploring the secondary traumatic stress experiences of early-career SBAE teachers. *Journal of Agricultural Education, 63*(3), 216–232. https://doi.org/10.5032/jae.2022.03216

Selig, J. P., & Little, T. D. (2012). Autoregressive and cross-lagged panel analysis for longitudinal data. In B. Laursen, T. D. Little, & N. A. Card (Eds.), *Handbook of developmental research methods* (pp. 265–278). The Guilford Press.

Sutton, A. (2016). Measuring the effects of self-awareness: Construction of the self-awareness outcomes questionnaire. *Europe's Journal of Psychology, 12*(4), 645. https://doi.org/10.5964/ejop.v12i4.1178

Sutton, R. E. (2004). Emotional regulation goals and strategies of teachers. *Social Psychology of Education, 7*(4), 379–398. https://doi.org/10.1007/s11218-004-4229-y

Wang, H., Burić, I., Chang, M. L., & Gross, J. J. (2023). Teachers' emotion regulation and related environmental, personal, instructional, and well-being factors: A meta-analysis. *Social Psychology of Education, 26*, 1651–1696. https://doi.org/10.1007/s11218-023-09810-1

Wróbel, M. (2013). Can empathy lead to emotional exhaustion in teachers? The mediating role of emotional labor. *International Journal of Occupational Medicine and Environmental Health, 26*(4), 581–592. https://doi.org/10.2478/s13382-013-0123-1

Zarate, K., Maggin, D. M., & Passmore, A. (2019). Meta-analysis of mindfulness training on teacher well-being. *Psychology in the Schools, 56*(10), 1700–1715. https://doi.org/10.1002/pits.22308

Zelazo, P. D., & Cunningham, W. A. (2007). Executive function: Mechanisms underlying emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 135–158). Guilford Press.

Zhou, H. (2025). Relationship between empathy and burnout as well as potential affecting and mediating factors from the perspective of clinical nurses: A systematic review. *BMC Nursing, 24*(1), Article 38. https://doi.org/10.1186/s12912-025-02701-0

Zych, I., Ortega-Ruiz, R., Muñoz-Morales, R., & Llorent, V. J. (2018). Dimensions and psychometric properties of the Social and Emotional Competencies Questionnaire (SEC-Q) in youth and adolescents. *Revista Latinoamericana de Psicología, 50*(2), 98–106. https://doi.org/10.14349/rlp.2018.v50.n2.3

Međuodnos socioemocionalnih kompetencija učitelja i sagorijevanja: recipročna analiza

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Socioemocionalne kompetencije (SEK) učitelja relevantne su za niz ishoda poput odnosa s učenicima, profesionalne dobrobiti i sagorijevanja. Međutim, slabije je istražena uloga doživljaja sagorijevanja na oblikovanje SEK učitelja, pa se može pretpostaviti da ono slabi učiteljske kapacitete za svijest o emocijama, regulaciju emocija te empatiju. Cilj ovog rada bio je ispitati recipročne odnose između SEK i sagorijevanja učitelja na početku karijere. Istraživanje je provedeno longitudinalno u dvije vremenske točke, a u njemu je sudjelovalo 911 predmetnih učitelja/ica s radnim iskustvom u nastavi do pet godina. Rezultati upućuju na to da doživljaj sagorijevanja bolje predviđa učiteljske SEK nego što učiteljske SEK predviđaju sagorijevanje. Od svih simptoma sagorijevanja SEK najbolje predviđa narušeno kognitivno funkcioniranje, koje se pokazalo kao negativni prediktor svijesti o sebi, primjene kognitivne reprocjene kao strategije regulacije emocija i afektivne empatije. Nalazi ovog istraživanja upućuju na mogući negativni utjecaj sagorijevanja na osobne resurse učitelja. Razmatraju se implikacije dobivenih rezultata za prevenciju sagorijevanja, kao i očuvanje socioemocionalnih kompetencija učitelja.

Ključne riječi: sagorijevanje, socioemocionalne kompetencije, učitelji, longitudinalni nacrt



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TEACHERS' CAREER STAGES AS PREDICTORS OF TEACHERS' BURNOUT IN SLOVENIA: THE ROLE OF EMOTION REGULATION DIFFICULTIES

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As the stressors faced by teachers are often social and emotional in nature and as the quantity and quality of these stressors change throughout the teachers' career, the association between career stages, emotion regulation, and burnout, are the focus of the current study. We are interested in whether the career stages predict the levels of burnout, its cognitive, emotional, and physical dimension, and whether interaction between career stages and emotion regulation predict all three dimensions of burnout. The sample included 1468 Slovene pre- and in-service teachers. The findings show significant differences in emotion regulation between career stages in all three dimensions of burnout. Teachers who reported less emotion regulation difficulties reported lower levels of all three burnout dimensions. Pre-service teachers and early-career teachers reported higher levels of all three burnout dimensions indicating the need to pay special attention to teachers' transition to the workplace.

Keywords: teachers, career stages, emotion regulation difficulties, burnout, Slovenia

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INTRODUCTION

Teachers' careers have been traditionally considered to consist of two parts: pre-service, which refers to the initial teacher education (universities or colleges), and in-service (from entry and exit from the profession). The pre-service period is a period of acquiring knowledge, competencies, and skills needed for the teaching profession in the process of professional identity formation (Pendergast et al., 2011). The in-service period is further characterised by different stages. In career stages research, two types of theoretical models are recognised, the first describing career progression as a linear path with stages of progression (e.g., Berliner, 1994; Huberman, 1995; Katz, 1972) and the second describing career development as a cycle with progression and withdrawals (e.g. Fessler, 1992). In Slovenia, Huberman's (1995) model has shown a good fit and a valid representation of qualitatively different career stages (Čotar Konrad et al., 2022; Štemberger, 2020). Huberman (1995), based on extensive qualitative research, divides career stages into five stages: survival and discovery (1–3 years of work experience), stabilisation (4–6 years of teaching experience), experimentation/diversification or stock-taking/interrogations (teachers with 7–18 years of work experience), conservatism or clarity (teachers with 19–30 years of work experience). The final stage is disengagement (teachers with more than 30 years of work experience).

There are challenges associated with increased stress and burnout in each stage. At the pre-service level, teacher students are troubled by high academic demands (low academic self-efficacy) in addition to other personal (forming professional identity), economic (expenses associated with independent living and at the same time not having an income), and social factors (e.g. moving away from home) associated with the transition from adolescence to adulthood (García-Martínez et al., 2021). In light of these challenges, increased levels of stress are reported in university level students (Enns et al., 2018; Levine et al., 2020). Since we cannot refer to the increased level of stress as burnout at this stage – the students are not yet in the working environment – the level of stress is still informative as it impacts their transition to the workplace (Golubtscih, 2024). It is, however, equally important to emphasise that pre-service teachers in Slovenia are systematically exposed to various dimensions of the teaching profession. They are regularly engaged in the preparation and delivery of teaching sessions and maintain a continuous presence in schools throughout their studies. During the initial stages, their role is primarily observational, whereas in the later phases they progressively assume more active responsibilities in classroom instruction. In the fourth and

fifth years of study, pre-service teachers undertake extended periods of independent teaching (with ongoing mentor support) within designated classes as part of their practicum.

After the pre-service stage, burnout can develop at any stage of a teaching career, however, the first three years are crucial (Yaghaubi & Habibineja, 2015). The entry to the teaching profession stage is characterised by low self-efficacy, emotional exhaustion, and adaptation difficulties which in combination with lower teaching motivation and problems with classroom management contribute to early-career teachers having a heightened risk of leaving the profession (De Witte et al., 2024; Hellebaut et al., 2023; Van den Borre, 2021) and being more prone to burnout (Carroll et al., 2022). The characteristics of the first (survival and discovery) and the second stage (stabilisation), at the in-service level, do not differ a lot. Researchers indicate that the second stage is more structured and clearer in goals, on one hand, and, on the other hand, can lead to identity risk (Hellebaut et al., 2023). The third stage (experimentation/diversification or stock-taking/interrogations) is characterised by taking on additional tasks and roles outside the classroom that can lead to more responsibilities which, when combined with low resources, can lead to higher stress and potential burnout. The fourth stage (conservatism or clarity) is characterised by a heavy workload with value consonance playing an important role in defining the mechanisms leading to burnout. When teachers through their accumulated teaching experiences perceive a high level of shared values with school values, their stress level is lower (Hellebaut et al., 2023). The mechanism that can possibly lead to burnout in the last stages (disengagement) is the loss of commitment (Hellebaut et al., 2023).

Regardless of the career stage, the teaching profession, characterised by high emotional demands, is often associated with significant stress and burnout (Jennings & Greenberg, 2009; McCarthy et al., 2016), making the teaching profession one of the professions more prone to burnout (Garrick et al., 2014). Slovenia ranks among the top five EU countries where teachers report high levels of work-related stress. Nearly half (46.4%) of the teachers indicated experiencing "a lot" or "quite a bit" of stress during their work, while only 4.9% reported being entirely free from stress at work (OECD, 2020). Teachers who reported higher levels of work-related stress were more likely to consider leaving the profession within five years (OECD, 2020). Long-term occupational stress in teachers often results in burnout (Maslach et al., 2001; Skaalvik & Skaalvik, 2020).

Burnout is defined as a gradual depletion of an individual's coping mechanisms following prolonged exposure to work-related stress (Shirom, 2003). It manifests through emotional, cognitive, and physical dimensions (Schaufeli & Greenglass,

2001), with emotional exhaustion – marked by diminished emotional and psychological resources – being its central feature (Maslach et al., 2016). Social and emotional challenges have been found to play a critical role in the development of burnout, since teachers who experienced heightened social and emotional demands paired with insufficient resources were more likely to face burnout (McCarthy et al., 2016). These challenges frequently require teachers to regulate intense emotions, such as frustration and anxiety, which can contribute to the prevalence and severity of emotional difficulties (Collie et al., 2012; Donahue-Keegan et al., 2019; Oliveira et al., 2021). Emotional regulation difficulties are therefore one of the prominent factors contributing to burnout.

The research on the levels of burnout in different career stages is inconsistent. Some studies (e.g. Chang, 2013) show non-significant associations, some negative associations (e.g. Gavish & Friedman, 2012), and some positive associations (e.g. Hellebaut et al., 2023). Most of the studies focus on early-career teachers, as the first years in the teaching profession are often a challenge, with many early-career teachers experiencing significant concerns. It is, however, difficult to compare studies, as they tend not to use the same career-stages categories when doing the comparisons. For instance, Gonzales et al. (2020) compared teachers with less than 5 years of teaching experience to the rest and found no differences in burnout, while Antoniou et al. (2006) compared teachers with less than 10 years of experiences to the rest and found significant differences, with more experienced teachers reporting lower levels of burnout. On the other hand, Day et al. (2007), based on their qualitative data, indicated that mid-career teachers (8-15 years of teaching experience) were more prone to burnout, while the period after 19 years of teaching experience would be calmer. Hellebaut et al. (2023) similarly established, using quantitative data, that teachers beyond 8 years of teaching experience reported more burnout compared to teachers with fewer years of teaching experience. In a Slovenian study (Dolenc, 2023), teachers reported a medium level of burnout, while no significant differences were found in work-related burnout according to the length of teaching experience. It is a fact that additional studies in the field are needed. One of the possible explanations of this inconsistency is the non-linearity of the relationship or the possible influence of emotion regulation as a contributing factor, as suggested by previous studies (Mendes & Miguel, 2024).

Emotion regulation is a key process worth exploring while disentangling the mechanisms of teachers' burnout. Emotions are functional, providing information about our environment

and motivating behaviours that may facilitate adaptation (Reeve, 2015). Therefore, difficulties in emotion regulation can contribute to a wide range of negative outcomes. Generally, two directions of research and conceptualisation on emotion regulation exist in the literature (Gratz & Roemer, 2004). The first group consists of control-oriented approaches with a focus on managing emotional experience and expression, particularly controlling negative emotions and reducing emotional arousal. The second group consists of functional-oriented approaches highlighting the adaptive role of emotions and the ability to fully experience, differentiate, and respond to emotions. Maladaptive outcomes can arise from either excessive control or insufficient modulation of experiencing emotions. Adaptive regulation modifies the intensity or duration of an emotion rather than changing the emotion and involves flexibility in the use of emotion regulation strategies (Thompson, 1994). In summary, emotion regulation may be conceptualised as involving the (a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviours and behave in accordance with desired goals when experiencing negative emotions, and (d) ability to use situationally appropriate emotion regulation strategies flexibly to modulate emotional responses as desired in order to meet individual goals and situational demands. The relative absence of any or all of these abilities would indicate the presence of difficulties in emotion regulation, or emotion dysregulation (Gratz & Roemer, 2004). Difficulties in emotion regulation have been linked to emotional exhaustion (Chang, 2013).

Emotion regulation develops with age, with older adults using more adaptive regulation of emotions (Scheibe & Moghimi, 2021; Urry & Gross, 2010). Specifically, studies (Orgeta, 2009) show improvement in emotional functioning with age, with older participants reporting more positive affects, less negative affects and responding to negative affects more constructively (i.e., they tend to use more functional-oriented approaches). These changes are more pronounced during middle adulthood and for females. As emotion regulation develops throughout the lifespan and with experiences (Urry & Gross, 2010), we would assume that the emotion regulation is different in different career stages of a teacher. Further on, it is necessary to note that emotion regulation is context-dependent, therefore it needs to be studied inside the context where it is used – in the case of teaching that is in the classroom. Studies on teacher samples show early-career teachers reported more difficulties in emotion regulation and that mid- and late-career colleagues would use the strategies of emotion regulation more adaptively (Doyle et al., 2024; Orgeta, 2009).

Current study

In recent years, a shortage of teachers emerged as a significant issue in Slovenia, exacerbated by increasing levels of stress and burnout among teachers. This issue is particularly pronounced among early-career teachers, who are more prone to leaving the profession.

Even though teacher burnout is a complex phenomenon influenced by a variety of individual and contextual factors, research indicates that particularly emotional difficulties can contribute to the risk of increased stress, which can consequently lead to burnout. However, there is inconsistency in the research regarding the interplay between burnout and teaching experience. Additionally, the role of emotion regulation in this relationship is to the best of our knowledge not yet explored. Studies indicate that early-career teachers struggle more with emotion regulation and are consequently more prone to burnout, whereas more experienced teachers may employ more adaptive emotional coping strategies. Furthermore, research mainly focused on in-service teachers, while less attention was given to pre-service teachers and their experiences regarding emotion regulation and burnout. With inclusion of pre-service teachers, the study aims to gain additional insight with regard to the period of transition to in-service stage. Since teacher education can contribute significantly to the mentioned challenges, investigating these factors before even starting with the teaching profession can provide valuable insights into potential risk factors and protective mechanisms, with the potential of providing support to pre-service teachers and reducing teacher attrition rates in the future.

In order to disentangle this interplay, we will analyse the predictive role of career stages for individual burnout dimensions (cognitive weariness, emotional exhaustion, and physical fatigue) adding emotion regulation difficulties as continuous predictor in interaction effects. Based on the literature review we hypothesise: (a) emotion regulation difficulties to be a significant predictor of all dimensions of burnout, (b) career stages to be a significant predictor of all dimensions of burnout; (b) the interaction between career stages and emotion regulation difficulties to be a significant predictor of all dimensions of burnout.

METHOD

Participants

The sample included 1468 participants (86.7% females), aged from 18 to 65 years ($M = 38.51$; $SD = 11.89$). The sample consisted of two groups: pre-service teachers ($n = 277$; 87.3% females; $M = 21.39$; $SD = 2.44$) and in-service teachers ($n = 1191$; 86.6% females; $M = 42.49$; $SD = 9.42$) with 0 to 39 years of teach-

ing experience (M = 15.25; SD = 9.98). Pre-service teachers were included in primary education studies (n = 218) and subject specialisation education studies (n = 59). In-service teachers were teaching either basic education (n = 864; 92.5% females; M = 41.66; SD = 8.81) or upper-secondary education (n = 306; 69.9% females; M = 44.84; SD = 10.34), with 20 teachers not providing that answer. Based on years of teaching experience, pre- and in-service teachers were divided into career-stage groups (see Table 1) according to Huberman's definition (1995).

TABLE 1
Career stages according to Huberman (1995)

Career stages	*N*	%	Gender (% females)	Age *M (SD)*	School type (% of basic education teachers)
Pre-service teachers	277	19.0	87.3	21.39 (2.44)	/
In-service teachers					
Survival and discovery (0–3 years)	143	9.8	83.9	31.41 (6.88)	71.3
Stabilisation (4–6 years)	180	12.4	83.9	33.93 (6.35)	74.4
Experimentation/diversification or stock-taking/interrogations (7–18 years)	404	27.8	85.9	40.42 (4.95)	76.2
Conservatism or clarity (19–30 years)	353	24.3	89.2	49.33 (3.95)	74.2
Disengagement (more than 30 years)	98	6.7	88.8	57.94 (2.54)	59.2

Procedure

The data is a part of a research project, named Positive teacher development model – An interplay of the individual (motivational, emotional, and cognitive) and contextual (school and system level) assets during the school year, which aimed to examine individual and contextual factors that may contribute to job satisfaction and teacher retention and may reduce burnout. The research project included both pre- and in-service teachers from Slovenia. For the data to reflect the population as closely as possible, all basic and upper-secondary schools in Slovenia were invited to participate. In the present study, 49 basic[1] schools (out of 450 public basic schools in Slovenia) and 21 upper-secondary schools[2] (out of 143 public upper-secondary schools in Slovenia) agreed to participate. Before the data collection procedure, questionnaires were translated into Slovene language using a committee approach (two independent expert translations and decision on the best translation by the third independent expert) and the whole research project was approved by a Committee for Ethics at the Educational Research Institute (nr. 3-2024). After that, informed consents were obtained. Additionally, all participants were told what the survey was about, how the data would be collected, protected, and analysed and that they could withdraw their participation at any time. Participants received the link to the online questionnaire battery by the school coordinators. The data col-

lection is longitudinal, and this study uses T1 data collection from the beginning of the school or study year – that is September 2024 for in-service teachers and at the end of October for pre-service teachers. T2 and T3 followed at the middle and at the end of the school or study year, respectively. It took them about 30 minutes to complete the questionnaire.

Instruments

Burnout. The *Shirom-Melamed Burnout Questionnaire* (SMBQ) (Melamed et al., 1992) is composed of 14 items and measures three dimensions of burnout: physical fatigue (6 items, "I had no energy for going to work in the morning"), cognitive weariness (5 items, "My thinking process was slow"), and emotional exhaustion (3 items, "I am not capable of investing emotionally in the students."). Respondents rated the extent to which each item applies to them on a 5-point Likert-type scale from 1 (almost never) to 5 (almost always). The internal consistency on the current sample was excellent for all three dimensions (physical fatigue: 0.93; cognitive weariness: 0.95; emotional exhaustion: 0.93). The three-dimensional burnout model was tested on a current sample using Confirmatory Factor Analysis. The model demonstrated adequate structural validity $\chi^2(74) = 947.615$, $p < 0.001$, CFI = 0.956, TLI = 0.946, RMSEA = 0.090, 90% CI [0.085, 0.096], SRMR = 0.043.

Emotion regulation. The brief version of the *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004) is a 16-item self-report measure that assesses the following dimensions of emotion regulation difficulties: non-acceptance of negative emotions (three items, "When I feel upset, I judge myself for having those feelings."), inability to engage in goal-directed behaviours when distressed (three items, "When I'm emotionally overwhelmed, I struggle to concentrate on tasks."), difficulties controlling impulsive behaviours when distressed (three items, "When I'm very upset, I act in ways I later regret."), limited access to emotion regulation, strategies perceived as effective (five items, "When I feel bad, I don't know what could help me feel better."), and lack of emotional clarity (two items, "I have trouble putting my emotions into words."). Respondents rated the extent to which each item applies to them on a 5-point Likert-type scale from 1 (almost never) to 5 (almost always). The internal consistency was excellent ($\alpha = 0.93$). The hierarchical model of emotion regulation difficulties was tested on a current sample using CFA. The model, with modifications, demonstrated adequate structural validity: $\chi^2(47) = 423.019$, $p < 0.001$, CFI = 0.955, TLI = 0.937, RMSEA = 0.075, 90% CI [0.069, 0.082], SRMR = 0.039.

Data analyses

Statistical analyses were conducted using RStudio, a statistical computing environment based on R. Firstly, the data was examined for the number and patterns of missing values. There were less than 1.6% missing values on the item level. Little's MCAR test showed that missing values were missing completely at random: χ^2 (16)=15.05, p = 0.521. In the current analyses only cases with full data were kept (N = 1412). After checking outliers and scatter plots, we decided that additional procedures for removing outliers or normalising distributions were not necessary. After that, since the data were nested (1191 in-service teachers in 70 schools and 217 pre-service teachers in 3 faculties), intraclass correlation coefficients (ICCs) were examined. Most of the ICCs for study variables were low (emotion regulation: ICCteachers = 0.012, ICCstudents = 0.000; physical fatigue: ICCteachers = 0.032, ICCstudents = 0.000; cognitive weariness: ICCteachers = 0.022, ICCstudents = 0.016; emotional exhaustion: ICCteachers = 0.018, ICCstudents = 0.000). Since most of the ICCs were below the suggested cutoff of 0.05 (LeBreton & Senter, 2008), the analyses were conducted at the individual level to focus on self-reported characteristics. Then we calculated the descriptive statistics and correlations among study variables. Prior to the main analyses, confirmatory factor analyses were performed for each study variable. Model fit was assessed using chi-square (χ^2), comparative fit indices (CFI), root mean square error of approximation (RMSEA), and the standardised root mean square residual (SRMR), following the recommendations by Hu and Bentler (1999) for a good fit: CFI > 0.95, RMSEA < 0.06 and SRMR < 0.08. For adequate fit, the following cut-off values were applied: CFI > 0.90, RMSEA < 0.08, and SRMR < 0.08 (Hair et al., 2019). Separate CFA models were conducted for each construct. If indicated by modification indices and justified by the content of the items, a correlation between these items was added. A series of one--way ANCOVAs were conducted to examine the effects of career stages on three dimensions of burnout while adding emotion regulation difficulties as continuous predictor in interaction effects. To examine group differences across career stages in more detail, post hoc comparisons were conducted using estimated marginal means (*EMM*).

RESULTS

Descriptive statistics and correlations

Descriptive statistics and correlations among the study variables are presented in Table 2. Physical fatigue showed the highest mean score, followed by cognitive weariness and emotional exhaustion. All variables exhibited normal distribution based on their skewness and kurtosis.

Strong positive correlations were observed between all burnout dimensions, with the strongest relationship between cognitive weariness and emotional exhaustion. Physical fatigue and cognitive weariness also showed a strong correlation, while physical fatigue and emotional exhaustion demonstrated a moderate correlation. Emotion regulation difficulties showed moderate positive correlations with all burnout dimensions.

TABLE 2
Descriptive statistics and correlations among study variables

Variable	*M*	*SD*	Skewness	Kurtosis	1	2	3
1 Physical fatigue	2.79	1.02	0.18	0.07	–		
2 Cognitive weariness	2.27	0.95	0.49	0.07	0.70***	–	
3 Emotional exhaustion	1.96	0.87	0.37	0.07	0.57***	0.74***	–
4 Emotion regulation difficulties	2.01	0.66	1.02	0.06	0.37***	0.48***	0.43***

Note. ***$p < 0.001$.

Analysis of covariance

A series of one-way ANCOVAs were conducted to examine the role of career stages on three dimensions of burnout while adding emotion regulation difficulties as continuous predictor in interaction effects. The results are presented in Table 3.

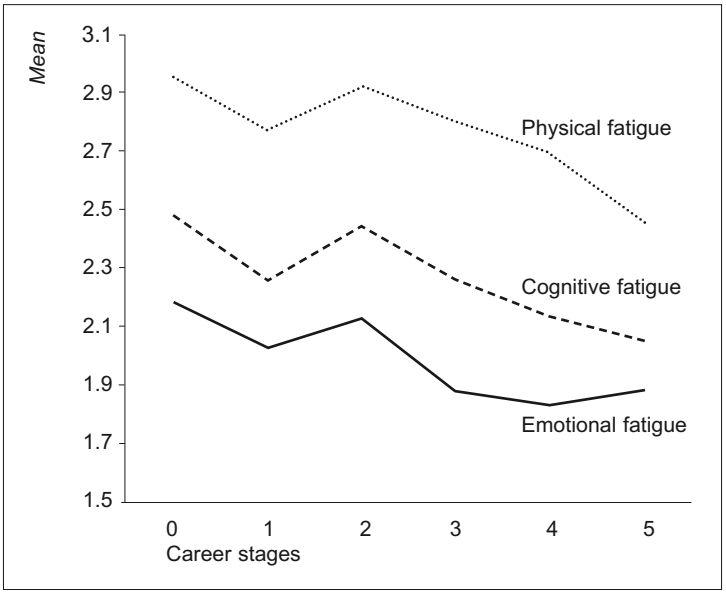
Measure	Sum of squares	*df*	Mean square	*F*	*p*	η^2
Cognitive weariness						
Emotion regulation	181.70	1	182.19	293.358	< 0.001	0.218
Career stages	12.31	5	2.16	3.975	0.001	0.007
Career stages × Emotion regulation difficulties	4.38	5	0.89	1.415	0.216	0.003
Residuals	867.13	1400	0.89			
Physical fatigue						
Emotion regulation	182.19	1	182.19	205.011	< 0.001	0.126
Career stages	10.80	5	2.16	2.430	0.033	0.007
Career stages × Emotion regulation difficulties	4.43	5	0.89	0.996	0.419	0.003
Residuals	1244.13	1400	0.89			
Emotional exhaustion						
Emotion regulation	276.15	1	276.15	394.917	< 0.001	0.171
Career stages	8.93	5	1.79	2.554	0.026	0.012
Career stages × Emotion regulation difficulties	3.43	5	0.69	0.980	0.429	0.004
Residuals	978.98	1400	0.70			

TABLE 3
Analysis of covariance results for the effects of career stages and emotion regulation on burnout dimensions

The results indicated that levels of burnout differed significantly as a function of emotion regulation difficulties and career stage across all three dimensions, however, emotion regulation difficulties explained a larger amount of differences in all three burnout dimensions (the largest in emotional exhaustion, 17%) compared to career stages. Career-stage differences were most pronounced for emotional exhaustion, with

differences in career stages explaining 1% of differences in emotional exhaustion. The interaction between career stage and emotion regulation difficulties was not significant for any burnout dimension, indicating comparable patterns of burnout dimensions across levels of emotion regulation difficulties. For better illustration, the patterns of physical fatigue, cognitive weariness, and emotional exhaustion across career stages are presented in Figure 1.

➲ FIGURE 1
Patterns of physical, cognitive, and emotional dimensions of burnout across career stages



Note. Career stages: 0 = pre-service teachers; 1 = survival and discovery (years 1–3); 2 = stabilisation (years 4–6); 3 = experimentation/diversification or stock-taking/interrogations (years 7–18); 4 = conservatism or clarity (years 19–30); 5 = disengagement (30+ years).

Physical fatigue consistently showed the highest levels across all career stages, with the highest at the pre-service level and during the stabilisation stage (4–6 years of teaching experiences), followed by a steady decline through later career stages. Cognitive weariness followed a similar pattern but at a lower intensity, showing its highest levels during pre-service and early-career years, more specifically in the period of stabilisation before declining in the serenity and disengagement phases. Emotional exhaustion demonstrated the lowest levels overall, with the pattern following the other two dimensions of burnout.

To further examine group differences across career stages, post hoc comparisons were conducted using estimated marginal means (*EMM*). Based on that, the differences between groups were calculated (*EMMD*). These results sometimes dif-

fered from *raw mean difference* (RMD), since *EMM* included emotion regulation difficulties as a continuous predictor in interaction effects.

Significant differences in cognitive weariness were observed between the stabilisation stage (years 4–6, stage 2) and the conservatism or clarity stage (years 19–30, stage 4). Specifically, teachers in the stabilisation stage reported significantly higher levels of cognitive weariness compared to those in the conservatism or clarity stage ($EMMD = 0.22$, $SE = 0.077$, $t(1400) = 2.857$, $p = 0.05$). These two groups also noticeably differed in raw mean comparison (*raw mean difference* = 0.31). No other pairwise comparisons reached statistical significance.

No significant differences were found between groups in physical fatigue. However, teachers in the disengagement stage (30+ years, stage 5) showed marginally lower scores in physical fatigue compared to those in the stabilisation stage (years 4–6, stage 2) ($EMMD = 0.333$, $SE = 0.121$, $t(1400) = 2.760$, $p = 0.065$). Additionally, teachers in the disengagement stage reported a somewhat lower mean score for physical fatigue compared to pre-service teachers (30+ years, stage 0) ($EMMD = 0.306$, $SE = 0.117$, $t(1400) = 2.620$, $p = 0.093$). This was also the highest *raw mean difference* between the two groups (*raw mean difference* = 0.51), but it ended up being marginally significant when the differences in emotional regulation were accounted for. No other pairwise comparisons reached statistical significance, indicating that the remaining career stages did not differ significantly in their mean scores for physical fatigue.

Significant differences in emotional exhaustion were observed between certain groups. A statistically significant difference was found between the stabilisation stage (years 4–6, stage 2) and conservatism or clarity stage (years 19–30, stage 4) ($p = 0.024$). These two groups exhibited a moderate *raw mean difference* of 0.29, with the clarity stage (stage 4) having lower scores than the stabilisation stage (stage 2). These two stages are the only ones that are significantly different in two areas of burnout. Additionally, pre-service teachers (stage 0) reported significantly higher levels of emotional exhaustion compared to teachers in the conservatism or clarity stage ($EMMD = 0.204$, $SE = 0.068$, $t(1400) = 3.003$, $p = 0.032$, stage 4). This was also the highest intergroup difference (*raw mean difference* = 0.35). A difference nearing significance was observed between stabilisation stage (years 4–6, stage 2) and experimentation/diversification or stock-taking/interrogations stage (years 7–18, stage 3) ($p = 0.053$). No other pairwise comparisons reached statistical significance, indicating that the remaining career stages did not differ significantly in their mean scores for all three burnout subscales.

DISCUSSION

In light of detected difficulties associated with teachers' profession, such as increased stress levels and burnout, which have a potential to jeopardise teacher retention, the current study analyses the relationship between career stages and burnout. Since burnout is multidimensional (i.e., physical fatigue, cognitive weariness, and emotional exhaustion), it is important to analyse the relationships on a dimensional level. The study focuses on teachers' professional development, pre-service and in-service. This is especially important as teacher training can contribute significantly to the future challenges of the teaching profession. Additionally, the role of emotion regulation difficulties is explored.

First of all, our findings show strong positive associations between all burnout dimensions. The strong interconnectedness adds proof to the constructional validity indicating the multidimensional nature of burnout. The strongest relationship was found between emotional exhaustion and cognitive weariness, indicating a strong interconnectedness of emotional and cognitive processes in burnout. As the emotional dimension is a central feature of burnout (Maslach et al., 2016), the research (as well as prevention and intervention efforts) should start there, since the changes in emotional dimensions would be reflected also in the cognitive dimension as well as in the physical dimension due to their interconnectedness. However, our results demonstrate that physical fatigue is the most prevalent dimension of burnout among Slovenian teachers, followed by cognitive weariness and emotional exhaustion. We expected emotional exhaustion to be the most prevalent, as it was confirmed before by a study from Hellebau et al. (2023). Emotional exhaustion is described as feeling emotionally drained by intense interactions, and the classroom is a room full of intense relationships. The difference in findings is worth further exploration as it could indicate the possible contextual level influences. For instance, contextual effects have been established in Greece, where they identified increased levels of teacher burnout in times of the Greek financial crisis (Kamtsios, 2018). The same study also established the opposite pattern to ours, with more experienced teachers reporting higher levels of burnout, indicating the need to explore systemic influences and characteristics of teachers' professional development from a cross-country perspective. In addition to the contextual hypothesis, it is also possible that physical fatigue is easier to detect in comparison to emotional exhaustion and cognitive weariness. It might be that the Slovene teachers tend to report burnout on a physical level. Along these lines, Scheuch et al. (2015) reported German teachers reporting more physical fatigue complaints, such as

exhaustion, fatigue, headache, and tension compared to non-teachers. These hypotheses are worth exploring in future research.

Further on, our findings confirm the significant role of emotion regulation difficulties in burnout. Statistically significant differences across levels of emotion regulation difficulties were found for all three burnout dimensions. Teachers with different levels of emotion regulation difficulties differ in the levels of burnout. The more (or less) difficulties they report, the more (or less) emotional exhaustion, cognitive weariness, and physical fatigue they report. Therefore, effort in supporting teachers' emotion regulation is needed. The support for teachers' emotion regulation is important not only for their own well-being and their burnout levels but also for their students' well-being (Štremfel et al., 2024). Teachers who function better on a social and emotional level have been shown to engage in more emotionally supportive interactions with students, which further leads to students being more socially, emotionally (and academically) competent. Furthermore, teachers with more adaptive emotion regulation have better teaching styles (i.e., more autonomy support) and better classroom management skills (Farhi & Rubinsken, 2024).

In addition to emotion regulation difficulties playing a role in burnout dimensions, our findings also show the important role of career stages. Teachers in different career stages reported different levels of all three dimensions of burnout. Pre-service teachers and early-career teachers, more specifically the ones having between four and six years of teaching experience, reported the highest levels of all three dimensions of burnout. Post-hoc analyses revealed more specific patterns. In cognitive weariness, significant differences were found between teachers with four to six years of teaching experience (stabilisation stage) compared to teachers with 19–30 years of teaching experience (conservatism or clarity stage). As the teachers in the latter group showed lower levels, we can assume that the teachers in our sample went into the direction of gaining clarity in their career-path as opposed to conservatism. However, future qualitative studies would be needed to further explore this hypothesis. Differences between other career stages were not significant. A similar pattern was found in emotional exhaustion, that is, teachers with between four and six years of teaching experience reported significantly higher levels of emotional exhaustion compared to teachers with 19–30 years of teaching experience. Additionally, pre-service teachers reported significantly higher levels of emotional exhaustion compared to teachers with 8–19 years of experience. The differences in physical fatigue between career stages were not significant. The lack of career-stage differences in physical fatigue may

reflect a stronger association between emotion regulation difficulties and physical fatigue relative to emotional exhaustion and cognitive weariness. The raw differences in burnout dimensions between career stages are similar (see Figure 1), but the differences are non-significant only in physical fatigue.

As teachers between four and six years of teaching experience are also the ones most prone to leaving their teaching career (De Witte et al., 2024; Van den Borre, 2021), these findings are alarming. It is interesting that in-service teachers that just started with their career reported somewhat lower levels of burnout as in-service teachers in the stabilisation phase. During the period of stabilisation, early career teachers can encounter an identity crisis and without adequate support, they may decide to leave their job. Burnout can be understood also as a significant discrepancy between professional expectations and less satisfying reality (Friedman, 2000). After a couple of years, early-career teachers can evaluate the profession as not meeting their expectations. At the same time, the rise after the first years can also be a result of accumulated fatigue during the initial adaptation phase and an increase in workload. The lower levels of burnout in the first years of employment might be a result of resolving one of the developmental tasks in the developmental period of emerging adulthood, that is, to secure employment. Additional qualitative analysis could provide more insight into the subtle differences inside the early-career stage.

It is especially concerning that pre-service teachers are equally stressed as teachers with four to six years of teaching experience. The pre-service period is marked with transition, first to university life and second to professional life and employment. The pre-service period brings significant changes and challenges, such as adapting to life away from home, cohabiting with individuals of different cultural values, managing romantic relationships, and navigating job searches (Arnett, 2000; Pedrelli et al., 2016). Having a large amount of teaching experiences in their pre-service stage, they can also anticipate the challenges before them. In addition to these challenges, students face academic pressures, financial responsebilities, and adult obligations (Sussman & Arnett, 2014). The successful transition may have served to reduce their stress. However, this period does not last long and leads to another peak in burnout in the phase of stabilisation. Research shows that quality induction or introduction programmes (activities that are planned and implemented to support transitions to the workplace) are important for early-career teachers (Darling-Hammond, 1997), and that teacher acculturation into the profession with a structured and well-supervised induction period is crucial (Howe, 2006). The induction process has many

focuses, but research shows that what early-career teachers value most, out of several support systems (workload reduction, school enculturation, working with individual professional development plans, observation in the classroom, and mentoring on the job) are the conversations and feedback from a mentor (Aarts et al., 2020). In this regard, organisational culture in general and an open communication atmosphere, in particular, determine how teachers, especially early-career teachers, can learn in their work (Tynjälä & Heikkinen, 2011). A supportive community of practice and mentoring are vital to improving the transition from pre-service teacher education to the teaching profession (Gordon, 2020). In addition, based on our findings, emotion regulation support is important as well. This form of support is already needed at the pre-service level, where this type of support leads also to a sense of belonging (and consequently to teacher identity development). Both, teacher identity as well as sense of belonging, are found to be protective factors against elevated levels of stress during the pre-service stage (Meehan & Howels, 2018). These findings highlight the importance of social and emotional processes at the university level.

Interestingly, there was no evidence of a significant interaction between career stage and emotion regulation difficulties for any burnout dimension. As there are studies reporting an increase in adaptive emotion regulation with age and teaching experience (Scheibe & Moghimi, 2021; Urry & Gross, 2010), we expected the interaction would have played a role. However, there are newer studies that did not confirm the increase in adaptive emotion regulation with age (e.g., Fahri & Rubinsen, 2024; Mendes & Miguel, 2024). According to these findings and our results as well, it seems that the choice of adaptive vs maladaptive emotion regulation strategies might depend on other factors than age, such as social context, interpersonal and intrapersonal dynamics, and work-related events. It might also be that the relationship differs across different school contexts, teaching subjects being one of them. This is a path worth exploring in future studies. Furthermore, there might have been an interaction effect between career-stages and different types of emotion regulation difficulties together with emotion regulation strategies, which is also worth exploring in future research.

Limitations and future directions

There are several strengths to the present study. First, this is the first study comparing the burnout levels (on a dimensional level) in a combination with emotion regulation across the career stages of teachers in Slovenia. Second, we had a large

sample of 1468 pre-service and in-service teachers. The inclusion of pre-service samples in the analysis is novel in the literature, since studies so far have analysed either pre-service or in-service teacher samples. Our study therefore brings important insight in the period of transition to the in-service stage.

Yet, there are also some limitations to the present study that demand further research. First of all, the current results are based on cross-sectional data that does not fully respond to the processed nature of burnout. Future longitudinal studies are needed to shed light on how burnout develops throughout the career stages (possibly disentangling between person and within-person effects). These are planned as a continuation of this study. Huberman's (1996) model as a contextual support at this point strongly relies on previous studies conducted in the Slovene context (Čotar Konrad et al., 2022; Gradišek et al., 2020). In future studies we suggest a mixed method approach with inclusion of qualitative data exploring the characteristics of teachers in each of the career stages (with the focus on burnout and emotion regulation difficulties). This could also diminish response bias as we have only relied on self-report data. An additional limitation in data collection was that the sample was not representative of the entire population of teachers. Last but not least, teacher characteristics that might have contributed to the level of burnout were not included in the analysis. Aligned with detected research (Caroll et al., 2022; Doyle et al., 2024; Sohail et al., 2023), additional directions worth exploring are teachers' self-efficacy, teachers' emotions, emotion regulation strategies, social support, and parental challenges. Future studies should look into different school levels, contextual characteristics, as possible contributors to teachers' burnout as well as class size, since this could also play a role. Also, considering characteristics such as motivation for the profession and teaching identity would be worthwhile. For instance, teachers report less burnout when they are autonomously motivated in comparison to when they are controlled motivated, and at the same time the quality of motivation changes throughout the career, with more experienced teachers being more autonomously motivated.

Nevertheless, this study provides valuable insights into the relationship between burnout and emotion regulation difficulties across different career stages of teachers in Slovenia, offering an important contribution by including both pre-service and in-service teachers and starting to disentangle the dynamics of teacher well-being throughout their careers. Due to contextual influences that shape the teacher profession, the findings from our study are relevant for Slovenia, with future studies exploring its cross-cultural relevance needed.

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NOTES

[1] Basic education in Slovenia is organised as integrated primary and lower secondary education, i.e., as a single structure nine-year basic school. It is compulsory and attended by children aged six to fifteen.

[2] Upon completion of compulsory basic education, students – typically aged 15 – may choose to continue their education at the upper secondary level at a school and a programme of their own choice. Programmes are divided into general upper secondary education, technical upper secondary education and vocational upper secondary education.

REFERENCES

Aarts, R., Kools, Q., & Schildwacht, R. (2020). Providing a good start. Concerns of beginning secondary school teachers and support provided. *European Journal of Teacher Education, 43*(2), 277–295. https://doi.org/10.1080/02619768.2019.1693992

Antoniou, A. S., Polychroni, F., & Vlachakis, A. N. (2006). Gender and age differences in occupational stress and professional burnout between primary and high-school teachers in Greece. *Journal of Managerial Psychology, 21*(7), 682–690. https://doi.org/10.1108/02683940610690213

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Berliner, C. (1994). The wonders of exemplary performance. In J. Mangiery & C. Block (Eds.), *Creating powerful thinking in teachers and students* (pp. 161–186). Holt, Rinehart & Winston.

Carroll, A., Forrest, K., Sanders-O'Connor, E., Flynn, L., Bower, J. M., Flynes-Clinton, S., York, A., & Ziaei, M. (2022). Teacher stress and burnout in Australia: Examining the role of intrapersonal and environmental factors. *Social Psychology of Education, 25,* 441–469. https://doi.org/10.1007/s11218-022-09686-7

Chang, M. L. (2013). Toward a theoretical model to understand teacher emotions and teacher burnout in the context of student misbehavior: Appraisal, regulation and coping. *Motivation and Emotion, 37*(4), 799–817. https://doi.org/10.1007/s11031-012-9335-0

Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*(4), 1189–1204. https://doi.org/10.1037/a0029356

Čotar Konrad, S., Borota, B., Rutar, S., Drljič, K., & Jelovčan, G. (Eds.). (2022). *Vzgoja in izobraževanje predšolskih otrok prvega starostnega obdob-*

ja [*Preschool education in first age period*]. Založba Univerze na Primorskem. https://doi.org/10.26493/978-961-293-134-6.91-111

Darling-Hammond, L. (1997). *Doing what matters most: Investing in quality teaching*. National Commission on Teaching and America's Future.

Day, C., Sammons, S., Stobart, G., Kington, A., & Gu, Q. (2007). *Teachers matter*. Open University Press.

De Witte, K., De Cort, W., & Gambi, L. (2023). *Evidence-based solutions to teacher shortages*. NESET report. Publications Office of the European Union. https://doi.org/10.2766/475647.

Dolenc, P. (2023). The role of mindfulness and resilience in predicting job burnout among Slovenian primary school teachers. In A. Istenič, M. Gačnik, B. Horvat, M. Kukanja Gabrijelčič, V. Kiswarday, M. Lebeničnik, M. Mezgec, & M. Volk (Eds.), *Vzgoja in Izobraževanje med Preteklostjo in Prihodnostjo* (*Upbringing and education between the past and the future*) (pp. 13–30). Založba Univerza na Primorskem.

Donahue-Keegan, D., Villegas-Reimers, E., & Cressey, J. M. (2019). Integrating social-emotional learning and culturally responsive teaching in teacher education preparation programs: The Massachusetts experience so far. *Teacher Education Quarterly, 46*(4), 150–168. https://www.jstor.org/stable/26841580

Doyle, N. B., Downer, J. T., & Rimm-Kaufman, S. E. (2024). Understanding teachers' emotion regulation strategies and related teacher and classroom factors. *School Mental Health, 16,* 123–136. https://doi.org/10.1007/s12310-023-09624-8

Enns, A., Eldridge, G. D., Montgomery, C., & Gonzalez, V. M. (2018). Perceived stress, coping strategies, and emotional intelligence: A cross-sectional study of university students in helping disciplines. *Nurse Education Today, 68*, 226–231. https://doi.org/10.1016/j.nedt.2018.06.012

Farhi, M., & Rubinsten, O. (2024). Emotion regulation skills as a mediator of STEM teachers' stress, well-being, and burnout. *Scientific Reports, 14*, 15615. https://doi.org/10.1038/s41598-024-63228-z

Fessler, R. (1992). The teacher career cycle. In R. Fessler & J. C. Christensen (Eds)., *The teacher career cycle* (pp. 21–44). Allyn & Bacon.

Friedman, I. A. (2000). Burnout in teachers: Shattered dreams of impeccable professional performance. *Journal of Clinical Psychology, 56*(5), 595–606. https://doi.org/10.1002/(SICI)1097-4679(200005)56:5<595::AID-JCLP2>3.0.CO;2-Q

García-Martínez, I., Pérez-Navío, E., Pérez-Ferra, M., & Quijano-López, R. (2021). Relationship between emotional intelligence, educational achievement and academic stress of pre-service teachers. *Behavioral Sciences, 11*(7), 95. https://doi.org/10.3390/bs11070095

Garrick, A., Mak, A. S., Cathcart, S., Winwood, P. C., Bakker, A. B., & Lushington, K. (2014). Psychosocial safety climate moderating the effects of daily job demands and recovery on fatigue and work engagement. *Journal of Occupational and Organizational Psychology, 87*(4), 694–714. https://doi.org/10.1111/joop.12069

Gavish, B., & Friedman, I. A. (2010). Novice teacher's experience of teaching: A dynamic aspect of burnout. *Social Psychology of Education, 13,* 141–167. https://doi.org/10.1007/s11218-009-9108-0

Golubtchik, L. (2024). Increasing teacher retention by improving self--efficacy and classroom management skills in pre-service teachers. *Journal of Education and Learning, 13*(4), 1–17. https://doi.org/10.5539/jel.v13n4p1

Gonzales, G., Gonzales, R., Costan, F., & Himang, C. (2020). *Dimensions of motivation in teaching: Relations with social support climate, teacher efficacy, emotional exhaustion, and job satisfaction*. Educational Research and Resource Center, Cebu Technological University, Cebu, Philippines; College of Education at Danao Campus, Cebu Technological University, Cebu, Philippines; Graduate School, Cebu Technological University, Cebu, Philippines. https://doi.org/10.1155/2020/8820259

Gordon, A. L. (2020). Educate–mentor–nurture: Improving the transition from initial teacher education to qualified teacher status and beyond. *Journal of Education for Teaching, 46*(5), 664–675. https://doi.org/10.1080/02607476.2020.1807296

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41–54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th edition). Pearson Prentice.

Hellebaut, S., Haerens, L., Vanderlinde, R., & De Cocker, K. (2023). Burnout, motivation, and (de-) motivating teaching style in different phases of a teaching career. *Teaching and Teacher Education, 129,* 104168. https://doi.org/10.1016/j.tate.2023.104168

Howe, E. R. (2006). Exemplary teacher induction: An international review. *Educational Philosophy and Theory, 38*(3), 287–297. https://doi.org/10.1111/j.1469-5812.2006.00195.x

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huberman, M. (1995). Networks that alter teaching: Conceptualizations, exchanges and experiments. *Teachers and Teaching, 1*(2), 193–211. https://doi.org/10.1080/1354060950010204

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research, 79*(1), 491–525. https://doi.org/10.3102/0034654308325693

Kamtsios, S. (2018). Burnout syndrome and stressors in different stages of teachers' professional development: The mediating role of coping strategies. *Hellenic Journal of Psychology, 15*(3), 229–253.

Katz, L. G. (1972). Developmental stages of preschool teachers. *The Elementary School Journal, 73*(1), 50–54. https://doi.org/10.1086/460731

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*(4), 815–852. https://doi.org/10.1177/1094428106296642

Levine, S. L., Milyavskaya, M., & Zuroff, D. C. (2020). Perfectionism in the transition to university: Comparing diathesis-stress and downward spiral models of depressive symptoms. *Clinical Psychological Science, 8*(1), 52–64. https://doi.org/10.1177/2167702619865966

Maslach, C., & Leiter, M. P. (2016). Burnout. In G. Fink (Ed.), *Stress: Concepts, cognition, emotion, and behavior* (pp. 351–357). Academic Press. https://doi.org/10.1016/B978-0-12-800951-2.00044-3

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1) 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

McCarthy, C. J., Lambert, R. G., Lineback, S., Fitchett, P., & Baddouh, P. G. (2016). Assessing teacher appraisals and stress in the classroom: Review of the classroom appraisal of resources and demands. *Educational Psychology Review, 28*(3), 577–603. https://doi.org/10.1007/s10648-015-9322-6

Meehan, C., & Howells, K. (2018). What really matters to freshers? Evaluation of first year student experience of transition into university. *Journal of Further and Higher Education, 42*(7), 893–907. https://doi.org/10.1080/0309877X.2017.1323194

Melamed, S., Kushnir, T., & Shirom, A. (1992). Burnout and risk factors for cardiovascular diseases. *Behavioral Medicine, 18*(2), 53–60. https://doi.org/10.1080/08964289.1992.9935172

Mendes, B., & Miguel, I. (2024). Age and burnout: The mediating role of emotion-regulation strategies. *Social Sciences, 13*(5), 274. https://doi.org/10.3390/socsci13050274

OECD. (2020). *TALIS 2018 results (Volume II): Teachers and school leaders as valued professionals*. OECD Publishing. https://doi.org/10.1787/19cf08df-en

Oliveira, S., Roberto, M. S., Veiga-Simão, A. M., & Marques-Pinto, A. (2021). A meta-analysis of the impact of social and emotional learning interventions on teachers' burnout symptoms. *Educational Psychology Review, 33*, 1779–1808. https://doi.org/10.1007/s10648-021-09612-x

Orgeta, V. (2009). Specificity of age differences in emotion regulation. *Aging & Mental Health, 13*(6), 818–826. https://doi.org/10.1080/13607860902989661

Pedrelli, P., Shapero, B., Archibald, A., & Dale, C. (2016). Alcohol use and depression during adolescence and young adulthood: A summary and interpretation of mixed findings. *Current Addiction Reports, 3*, 91–97. https://doi.org/10.1007/s40596-014-0205-9

Pendergast, D., Garvis, S., & Keogh, J. (2011). Pre-service student-teacher self-efficacy beliefs: An insight into the making of teachers. *Australian Journal of Teacher Education (Online), 36*(12), 46–58. https://doi.org/10.14221/ajte.2011v36n12.6

Reeve, J. (2015). *Understanding motivation and emotion*. John Wiley & Sons.

Schaufeli, W. B., & Greenglass, E. R. (2001). Introduction to special issue on burnout and health. *Psychology & Health,16*(5), 501–510. https://doi.org/10.1080/08870440108405523

Scheibe, S., & Moghimi, D. (2021). Age and context effects in daily emotion regulation and well-being at work. *Work, Aging and Retirement, 7*(1), 31–45. https://doi.org/10.1093/workar/waz014

Scheuch, K., Haufe, E., & Seibt, R. (2015). Teachers' health. *Deutsches Ärzteblatt International, 112*(20), 347–356. https://doi.org/10.3238/arztebl.2015.0347

Shirom, A. (2003). Job-related burnout: A review. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245–265). American Psychological Association. https://doi.org/10.1037/10474-012

Skaalvik, E. M., & Skaalvik, S. (2020). Teacher burnout: Relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study. *Teachers and Teaching, 26*(7–8), 602–616. https://doi.org/10.1080/13540602.2021.1913404

Sohail, M. M., Baghdady, A., Choi, J., Huynh, H. V., Whetten, K., & Proeschold-Bell, R. J. (2023). Factors influencing teacher wellbeing and burnout in schools: A scoping review. *WORK, 76*(4), 1317–1331. https://doi.org/10.3233/WOR-220234

Sussman, S., & Arnett, J. J. (2014). Emerging adulthood: Developmental period facilitative of the addictions. *Evaluation & the Health Professions, 37*(2), 147–155. https://doi.org/10.1177/0163278714521812

Štemberger, T. (2020). The teacher career cycle and initial motivation: The case of Slovenian secondary school teachers. *Teacher Development, 24*(5), 709–726. https://doi.org/10.1080/13664530.2020.1829023

Štremfel, U., Šterman Ivančič, K., & Peras, I. (2024). Addressing the sense of school belonging among all students? A systematic literature review. *European Journal of Investigation in Health, Psychology and Education, 14*(11), 2901–2917. https://doi.org/10.3390/ejihpe14110190

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development, 59*(2-3), 25–52. https://doi.org/10.1111/j.1540-5834.1994.tb01276.x

Tynjälä, P., & Heikkinen, H. L. (2011). Beginning teachers' transition from pre–service education to working life. *Zeitschrift für Erziehungswissenschaft, 14*(1), 11–33. https://doi.org/10.1007/s11618-011-0175-6

Urry, H. L., & Gross, J. J. (2010). Emotion regulation in older age. *Current Directions in Psychological Science, 19*(6), 352–357. https://doi.org/10.1177/0963721410388395

Van den Borre, L., Spruyt, B., & Van Droogenbroeck, F. (2021). Early career teacher retention intention: Individual, school and country characteristics. *Teaching and Teacher Education, 105*, 103427. https://doi.org/10.1016/j.tate.2021.103427

Yaghaubi, A., & Habibineja, P. (2015). Teacher burnout and critical thinking among EFL teachers. *Journal of Education and Management Studies, 5*(1), 85–91.

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KOZINA, A. ET AL.:
TEACHERS' CAREER...

Razvojne faze karijere nastavnika u Sloveniji kao prediktori njihova sagorijevanja: uloga poteškoća u regulaciji emocija

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Budući da su stresori s kojima se nastavnici suočavaju često socijalne i emocionalne prirode, a količina i kvaliteta tih stresora mijenjaju se tijekom karijere učitelja, povezanost između faza karijere, regulacije emocija i sagorijevanja u fokusu je ove studije. Zanima nas predviđaju li faze karijere razinu sagorijevanja, njegovu kognitivnu, emocionalnu i fizičku dimenziju, te utječe li interakcija između faza karijere i regulacije emocija na sve tri dimenzije sagorijevanja. Uzorak je obuhvatio 1468 slovenskih studenata nastavničkih studija i zaposlenih nastavnika. Nalazi pokazuju značajne razlike u regulaciji emocija između faza karijere u svim trima dimenzijama sagorijevanja. Nastavnici koji su prijavili manje poteškoća u regulaciji emocija prijavili su i niže razine svih triju dimenzija sagorijevanja. Studenti i nastavnici na početku karijere prijavili su više razine svih triju dimenzija sagorijevanja, što upućuje na potrebu usmjeravanja posebne pozornosti prilagodbi nastavnika na radnom mjestu.

Ključne riječi: nastavnici, faze karijere, poteškoće u regulaciji emocija, sagorijevanje, Slovenija



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RELATIONSHIPS OF GENERATIONAL COHORTS, TEACHER TECHNOLOGY INTEGRATION EFFICACY AND TEACHER BURNOUT

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The purpose of this study was to investigate the intricate relationships between generational cohorts, teacher efficacy of technology integration, and teacher burnout in the post-COVID-19 pandemic context. Surveys which included Likert-type scale measurements and open-ended questions were collected from 172 teachers in a rural district of a southeastern state in the United States. Employing descriptive and correlational analyses, the study identified significant correlations between teacher burnout and technology integration efficacy. Although generational differences on teacher burnout and teacher technology integration efficacy were not confirmed with the findings, the themed analysis of the open-ended survey responses provided evidence to support the need to differentiate strategies for curbing teacher burnout by various generational cohorts. This research contributed to the understanding of the evolving landscape of education technology and its psychological impacts, offering insights that may inform professional development and support systems for educators navigating a post-pandemic educational environment.

Keywords: teacher burnout, generational cohorts, teacher efficacy

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BACKGROUND

Teacher stress, burnout, and attrition increased dramatically due to the impact of the COVID-19 pandemic (Chang et al., 2022; Jakubowski & Sitko-Dominik, 2021; Pressley, 2021). One of the stressors was due to the heightened needs to transform teaching delivery methods in the online or digital platforms. The pandemic accelerated the use of technology in the classroom due to the sudden needs of pivoting and adapting the online or hybrid modes of delivery due to the needs of social distancing which required teachers to develop new skills in technology integration and digital communication (Tawfik et al., 2021). Many teachers struggled to keep pace with the demands of a dual approach to teaching (Li et al., 2021) and experienced burnout at higher levels (Tawfik et al., 2021).

Moreover, the variability in students' access to technology and the internet exacerbated the stress for teachers (Fernández-Batanero et al., 2021). Designing lessons that cater to diverse technological resources and ensuring equitable learning experiences for all students could be a daunting task (Marshall et al., 2020). The digital divide, where some students may lack consistent access to devices or a reliable Internet connection, forces educators to navigate a landscape of unequal educational opportunities. Marshall et al. (2020) explained that balancing the needs of students with varying levels of technological access requires additional effort and creativity, contributing to the overall stress experienced by teachers. These different changes and extra demands required to meet student needs have led to more teachers experiencing burnout (Chang et al., 2022). Even though teacher burnout has been extensively studied in the past decades, the COVID-19 pandemic and the post--pandemic era have added a new layer of complexity of this issue which warrants further investigation.

PURPOSE OF THE STUDY

The purpose of the study was to investigate the relationships between generational groups, teacher efficacy in technology integration, and teacher burnout during the post-pandemic context. The present study was conducted right after the COVID-19 pandemic context in which most teachers have experienced a transition from virtual online instruction during the pandemic back to either blended or traditional face-to-face learning. The study aimed to understand teachers' professional attributes such as their sense of efficacy in the adoption of various technological strategies in this context. Furthermore, it sought to understand how different generational cohorts of teachers may have experienced burnout in the aftermath of the global pandemic, as highlighted in previous research.

The present study aimed to answer the following research questions: Is there any significant difference in teachers' feelings of burnout or their sense of efficacy in technology integration among various generational groups? What are the correlations between different components of technology integration efficacy and teacher burnout? What are the instructional supports teachers recommended to mitigate against teacher burnout post COVID-19 pandemic?

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Overview of Generational cohort theory

Zemeke et al. (1999) and Kupperschmidt (2000) suggested that a generational cohort of individuals have unique characteristics that are distinctly different from other generations. Most cohort theories assume members of the same generations have similar group personality coming from a shared historical and social frame of reference because of the time period of their formal development (Alwin & McCammon, 2007).

Generations are defined by the time period that people are born in. Within the teacher workforce, Köstepen (2023) defined that individuals born from 1945 to 1961 are known as the Baby boomers. Born after World War II, this group was the largest group of individuals born in the United States since the inception of the country. They currently represent the smallest group of individuals in the workforce but are the largest group among retirees. Next, the group born from 1961 to 1980 is known as Generation X. This group of individuals was the last group to be educated before the integration of technology. Generation Y (or *Millennials*) includes individuals who were born from 1980 to 1995. This generation represents the largest group in the business sector. Generation Y represents the transitional group where technology integration became a part of their educational process. Finally, the youngest group that is currently entering the business sector is Generation Z. These individuals were born from 1995 to 2012.

Generational teaching habits and preferences

Diverse generational perspectives may shape how individuals view the ideal classroom setting. Teachers who represent different generations such as Baby boomers, Generation X, Generation Y, Generation Z, and Millennials may formulate different teaching methods due to their own educational backgrounds.

Baby boomers, who grew up during a time of substantial societal and educational change, often carry a nostalgic sentiment towards the traditional classroom, as Köstepen (2023) ex-

plained. Baby boomer teachers were educated via a traditional teacher-led pencil-paper method in which the Socratic method was more prevalent, where the teacher led the conversation and students were passive recipients. They may value the structure and formality of traditional teaching methods, appreciating the authority of the teacher at the front of the classroom and the established routines. Baby boomer teachers, who entered the profession during an era marked by traditionalism and authority, often employed a didactic approach to teaching (Okros, 2020). Their intention was rooted in the transmission of knowledge, and their teaching styles leaned towards direct instruction and structured classrooms. This generation emphasised discipline, rote learning, and a clear hierarchy between the teacher and students (Roberts, 2019).

Generation X teachers, influenced by societal shifts towards individualism and technological advancements, brought a more pragmatic and adaptable approach to pedagogy. Intent on fostering critical thinking skills, Generation X educators embraced a variety of teaching styles (Roberts, 2019). Generation X teachers may appreciate aspects of traditional education, such as direct instruction, but also seek flexibility and a departure from rigid structures (Bugnos et al., 2022). They were early adopters of technology, incorporating multimedia resources and interactive activities into their classrooms. Their teaching intention often revolved around preparing students for a rapidly changing world by promoting independent thinking and problem-solving (Okros, 2020).

Generation Y (Millennial) teachers exhibit a more pronounced shift in their views of the traditional classroom. Tawfik et al. (2021) explained that Millennials, often characterised by their tech fluency and collaborative mindset, may perceive the traditional classroom as less engaging and more hierarchical. They may value interactive and hands-on learning experiences, seeking a departure from rote memorisation. Millennial teachers, who began entering the profession in the 21st century, introduced a student-centric pedagogy with a strong emphasis on collaboration and inclusivity. Their intention is often centred on creating interactive and engaging learning environments that cater to diverse learning styles (Roberts, 2019). Millennial teachers commonly employ a mix of technology-based tools, group activities, and project-based learning to enhance student participation and foster a sense of ownership in the learning process. This generation is also characterised by a more flexible and personalised approach, accommodating the individual needs and interests of students (Okros, 2020).

Generation Z, having grown up in a digital age, often views the traditional classroom as less relevant to their dynamic and

interconnected world. Antoni (2020) found that they may prioritise technology integration, collaboration, and experiential learning over the traditional lecture-based model. Intent on leveraging technology to its fullest potential, Generation Z teachers often prioritise digital literacy and emphasise project-based learning that connects classroom content with real-world applications (Roberts, 2019). Their teaching styles incorporate social media platforms, online collaboration tools, and a strong emphasis on global perspectives to prepare students for an interconnected world.

Many Baby boomers and Generation Xers believe in a teamwork approach where they are working for the betterment of organisation. Generation X tends to prefer a more autonomous work environment, categorised by independence, freedom, and flexibility (Lester, 2012). This group of teachers is interested in learning and self-improvement, so their goal is to develop opportunities where they can help students and the teaching profession as a whole. They are intrinsically motivated to see the teaching profession grow (Bugnos et al., 2022). However, Generation Xers are not necessarily equipped to use technology and preferred face-to-face interactions and a traditional classroom setting (Zemeke et al., 1999).

Generation Y and Millennials tend to believe in a collaborative approach but require more coaching and redirections in the work environment (Gerhardt et al., 2021). This generation of teachers feels their work should be meaningful (Zopiatis et al., 2012). This group, unlike previous generations, have a strong technology background and have been educated mostly with technology and have strong relationships with technology in their teaching style (Zopiatis et al., 2012). This group requires a great deal of feedback when it comes to their job performance (Bugnos et al., 2022). This could be linked to their use of technology growing up, when some electronic assessments provided instant feedback (Alkire et al., 2020).

Each generation tends to react differently to different programmes or policies that are implemented by an organisation, which determines the likelihood of retention. For example, Chan and Tsi (2023) stated that the younger generations of educators (i.e. Gen Z) have their own unique characteristics of communication, social/cultural understandings, and use of technology that make them very distinct in their interactions with colleagues and students. Due to changing technological advancements, this generation of educators approaches the traditional classroom in a very different way as they have found methods of leveraging technology to increase engagement with their students in the digital space.

Hernandez-de-Menéndez et al. (2020) concluded that generational differences can be attributed to the distinct char-

acteristics of teachers based on their upbringing and development associated with their experiences of historical events. For example, Generation Y or Millennial teachers have developed during a time of great technological expansion and feel that this is an integral part of teaching and learning. Isaacs et al. (2020) explained that this group of educators is characterised by a collaborative mindset where technology is the leading aspect of the educational process. This mindset may have led to a higher burnout rate among Millennial teachers when they returned to the traditional model of instruction after COVID-19 (Szymkowiak et al., 2021).

Definition and theoretical foundation of teacher burnout

Burnout is a psychological term used to describe a condition of emotional, mental, and physical exhaustion caused by prolonged or intense stress. Maslach et al. (1996) defined teacher burnout as encompassing three dimensions: emotional exhaustion, depersonalisation/cynicism, and a sense of personal accomplishment.

Emotional exhaustion is at the core of the burnout experience, reflecting a depletion of emotional resources and a sense of being emotionally drained. This component highlights the strain teachers often feel due to the intense emotional demands of their work, including managing student needs, dealing with challenging behaviours, and navigating complex interpersonal relationships within the educational environment.

Depersonalisation, the second component, involves developing a negative and detached attitude towards one's students and colleagues. Teachers experiencing depersonalisation may adopt a cynical or impersonal approach to their interactions, which can further erode the quality of relationships within the school community. This distancing is often a coping mechanism, albeit maladaptive, in response to the emotional exhaustion experienced in the first stage of burnout (Chang, 2009).

Reduced personal accomplishment, the third component, reflects a decline in the teacher's perceived competence and successful achievement in their work. Teachers experiencing this component of burnout may feel a diminished sense of efficacy, struggling to make a positive impact or feeling unfulfilled in their professional roles. This can further contribute to a negative cycle of burnout, as the diminished sense of accomplishment can feed back into emotional exhaustion and depersonalisation.

Burnout has been found to affect teachers, students, and schools in a variety of ways by producing lower achievement scores, hostile school environments, and a negative school culture (Chang, 2009). Teacher burnout has exacerbated since

the COVID-19 pandemic, and it has affected teachers' job satisfaction (Flack et al., 2020).

Teacher burnout in the context of the COVID-19 pandemic

As the pandemic caused by COVID-19 added additional stress for teachers, Marshall et al. (2020) found that most of the stress and anxiety teachers experienced came from the shift to online teaching. While this shift to technology-based teaching has been beneficial for many students, it has also had a detrimental effect on teachers, leading to burnout and anxiety. This anxiety is driven by the lack of familiarity and expertise with technology, the additional workload of transitioning to online teaching, and the uncertainty of the future due to the pandemic. Skaalvik and Skaalvik (2020) also suggested that factors such as changing health policies, personal health concerns, and lack of consistent support from administrators led to decreased morale and exhaustion.

As the pandemic continued, stress among teachers increased due to returning to face-to-face instruction. Pressley (2021) reported that the stress levels of teachers have increased because of the escalated relationship between teachers and students' parents. As instruction returns to the traditional face-to-face learning model, parents are more in contact with teachers following from the increased communication fostered by the online model during the COVID-19 pandemic. Li et al. (2020) explained that the online learning process has increased the communication between teachers and parents and changed parent involvement in the learning process, thus making parents more involved in both online and face-to-face settings. Students' parents have increased their communication with their children's teachers because of the increased concerns for student learning gaps in the transitions.

Zamarro et al. (2021) noted that teachers experienced increased levels of anxiety during the pandemic because of the change in the instructional environment where online learning became the major instructional model. The sudden shift to technology-based teaching required educators to adapt to new technologies and learn new skills quickly. This change in instructional delivery resulted in increased workloads, as educators had to design and deliver digital content, engage with students remotely, and provide feedback on assignments. The additional workload led to high levels of stress and burnout among educators (Weißenfels et al., 2022). Online teaching requires reliable technology, including devices, software, and stable Internet connections. Technical difficulties caused frustration and anxiety for educators, who were under pressure to deliver quality content and engage students despite the challenges. These issues also caused disruptions to class schedules, leading to further stress (Asbury et al., 2020).

Teacher efficacy in technology integration in the post-pandemic context

During the transition to fully remote learning when schools were closed due to the COVID-19 pandemic, teacher efficacy in online teaching became a critical factor in determining student success. Dolighan and Owen (2021) noted that teacher efficacy in this context refers to a teacher's belief in their ability to effectively facilitate learning and achieve desired educational outcomes in an online environment. Teachers faced unprecedented challenges, needing to adapt instructional methods, utilise new technologies, and maintain student engagement while navigating the limitations of remote instruction. Those with high levels of efficacy demonstrated resilience and innovation by effectively leveraging digital tools, fostering virtual classroom communities, and providing meaningful feedback to students. Conversely, teachers experiencing lower efficacy may have struggled with feelings of uncertainty, stress, and difficulty in maintaining student motivation and participation. Overall, teacher efficacy played a pivotal role in shaping the quality of online learning experiences during this period of remote schooling (Dolighan & Owen, 2021).

METHODS

The present study was conducted with a descriptive correlational design by using surveys to examine the relationship between teachers of different generational grouping, their technology integration efficacy regarding instructional delivery models, and teacher burnout levels.

Participants and settings

After obtaining the university's Institutional Review Board approvals, online surveys were sent to all teachers in one rural school district in the southeast region of the United States. The school district has 27,000 students enrolled (50% African American, 25% Hispanic, and 20% Caucasian; 51% students are considered economically disadvantaged) and 2,024 certified teachers. We sent out the study information to school principals through the district office communications department. The school principals were asked to disseminate the survey to all teachers. The email announcement detailed the purpose of the study and informed potential participants that the entire process was voluntary and anonymous, including a link for participants to complete the online survey on Qualtrics (a university licensed online survey platform). In the present study, only completed surveys were included in the analyses. The complete sample contains 172 teachers with a

majority of teaching specialty courses such as music and physical education (n = 114, 66%), and others teaching core content subjects, including math, science, reading, literature, and social studies (n = 58, 34%). The majority of teachers are Generation X (n = 90, 52%), covering birth years from 1965 to 1980, followed by Millennials (n = 52, 30%). The least groups were Baby boomers (n=16, 9%) and Generation Z (n =12, 7%).

Instrumentation

This study adopted the MBI-ES (Maslach et al., 1996) and Browne's Technology Integration Confidence Scale to determine teacher burnout, and efficacy related to technology integration (Browne, 2011). Additionally, the survey contained open-ended questions that asked participants to provide their input regarding desired instructional support in order to curb their feelings of burnout.

Teacher burnout measure: MBI-ES. The complete version of the Maslach Burnout Inventory – Educator Survey (MBI-ES, Maslach et al., 1996) contains 22 items that measured three dimensions: emotional exhaustion, depersonalisation, and personal accomplishment. These items are measured in frequency on a 5-point Likert scale, with 1 being never and 5 being always. Cronbach's alpha in this study was $\alpha = 0.75$ and for each subscale as follows: emotional exhaustion $\alpha = 0.83$ (e.g., *I feel emotionally drained by my work*), depersonalisation $\alpha = 0.77$ (e.g., *I have become more callous towards people since I took this job*), and personal accomplishment $\alpha = 0.76$ (e.g., *I have accomplished many worthwhile things in this job*).

Measures of teachers' sense of efficacy in technology integration. To measure teacher efficacy in technology integration, the study adopted Browne's (2011) Technology Integration Confidence Scale. This scale delves into the intricate realm of teachers' beliefs in their capacity to affect student outcomes with regard to technology integration. The present study adopted the third version of Technology Integration Confidence Scale which has six subcomponents: technological proficiency, $\alpha = 0.83$ (e.g., *Your district is rolling out a new technology to support blended-learning models with professional development? How confident are you that you can effectively learn the new technology and adapt to blended-learning during the in-service demonstration or professional development?*); pedagogical integration, $\alpha = 0.72$ (e.g., *Your district is focusing on the integration of diversity into the curriculum. The Internet has been suggested as a way to expose students to a wide range of cultures and viewpoints. How confident are you that you can use technology to affirm diversity in your classrooms?*), adaptability and problem solving, $\alpha = 0.89$ (e.g.,

Your district is rolling out a new technology to support blended-learning models with professional development? How confident are you that you can effectively learn the new technology and adapt to blended-learning during the in-service demonstration or professional development?), impact on student engagement and learning, α = 0.82 (e.g., *To what extent does your confidence in technology's effectiveness as an educational tool contribute to student engagement*?), professional development regarding technology literacy and digital citizenship, and ethical and safe usage, α = 0.88 (e.g., *Technology can help students accomplish tasks, well or badly. For example, students can use Artificial Intelligence (AI) programs to help complete assignments. How confident are you that you can model and teach ethical and legal use of technology*?). Overall Cronbach's alpha reliability for the Technology Integration Confidence Scale is 0.92.

Open-ended questions. To solicit teachers' perceptions regarding strategies to mitigate burnout or stress, the following questions were included at the end of the survey: "What suggestions do you have regarding instructional supports that a school district can use to help combat teacher burnout since the COVID-19 pandemic? What suggestions do you have to help improve the instructional practices in your classroom with technology integration in the new era of teaching after the COVID-19 pandemic? What suggestion do you have regarding how the school district can support teachers at different stages in their career with teacher burnout?"

Data analysis approaches

Kruskal-Wallis H tests were conducted to examine the significant difference between teacher burnout as well as the levels of efficacy in teachers by their generational cohort. Pearson's correlation was used to determine whether there are significant correlations between burnout dimensions, emotional exhaustion, depersonalisation, and personal accomplishment related to technology efficacy.

To answer the last research question, "What are the instructional supports that teachers perceive would mitigate against teacher burnout post COVID-19 pandemic?", themed analyses were used to categorise the suggestions that teachers provided on the open-ended question regarding instructional support. We examined each response and assigned a relevant code to the segments of text to identify key themes and concepts. We examined systematic coded data to look for connections, variations, and recurring themes. This approach ensured a comprehensive understanding of the participants' perspectives on professional development which can combat teacher burnout.

RESULTS

Teacher burnout by generational groups

The descriptive statistics of teacher burnout by the generational groups are presented in Table 1. Although the Baby boomers tend to report lower levels of emotional exhaustion and depersonalisation with higher levels of personal accomplishments, the results of the Kruskal-Wallis H test showed there are no statistically significant differences between the burnout levels among teachers from different generational groups.

TABLE 1
Descriptive statistics and Kruskal-Wallis H test results of teacher burnout by generational groups

Category	Generation	*M*	*SD*	*N*	Kruskal-Wallis H test χ^2	*p*
Emotional exhaustion	Baby boomers (1946-1964)	3.02	0.782	16	3.561	0.313
	Generation X (1965-1980)	3.51	0.878	90		
	Millennials (1981-1994)	3.46	0.884	52		
	Generation Z (1995-2012)	3.50	0.711	21		
Depersonalisation	Baby boomers (1946-1964)	1.87	0.492	16	2.243	0.524
	Generation X (1965-1980)	2.09	0.650	90		
	Millennials (1981-1994)	2.09	0.613	52		
	Generation Z (1995-2012)	2.20	0.560	21		
Personal accomplishment	Baby boomers (1946-1964)	3.95	0.596	16	1.414	0.702
	Generation X (1965-1980)	3.75	0.496	90		
	Millennials (1981-1994)	3.75	0.431	52		
	Generation Z (1995-2012)	3.64	0.685	21		

Technology integration teacher efficacy by generational groups

Table 2 outlines the descriptive statistics by generation cohort and the categories of technology integration efficacy measured by Browne's Technology Integrations Confidence Scale. The Baby boomers tend to report higher levels of technology integration teacher efficacy, however, the Kruskal-Wallis H test indicated that there was not a significant difference between the generational cohorts for all constructs or variances for teachers' technology integration efficacy.

Correlations among technology integration teacher efficacy and burnout

Table 3 listed the results of Pearson correlation analysis among the six domains of technology integration teacher efficacy and the three dimensions of teacher burnout. Within technology-integration teacher efficacy domains, all six domains were significantly and positively correlated with one another ($p < 0.05$). The strongest associations were observed between technological proficiency and adaptability and problem solving ($r = 0.79, p < 0.001$) and between technological proficiency and pedagogical integration ($r = 0.73, p < 0.001$). Moderate to strong

correlations also emerged between professional development and pedagogical integration ($r = 0.68$, $p < 0.001$), and professional development and adaptability & problem solving ($r = 0.65$, $p < 0.001$). These results indicated that when teachers report higher efficacy in one of the domains in technology integration, they also tend to report higher efficacy across other domains.

TABLE 2
Descriptive statistics and Kruskal-Wallis H test results of technology integration efficacy

Category	Generation	*M*	*SD*	*N*	Kruskal-Wallis H test χ^2	*p*
Technological proficiency	Baby boomers	7.28	1.07	16	2.84	0.51
	Generation X	6.53	1.76	90		
	Millennials	6.84	1.06	52		
	Generation Z	6.70	1.23	12		
Pedagogical integration	Baby boomers	6.58	1.51	16	4.70	0.31
	Generation X	6.02	1.61	90		
	Millennials	6.25	1.38	52		
	Generation Z	5.63	1.52	12		
Adaptability & problem solving	Baby boomers	7.31	1.23	16	3.51	0.47
	Generation X	6.67	1.62	90		
	Millennials	7.18	1.05	52		
	Generation Z	6.58	1.41	12		
Impact on student engagement & learning	Baby boomers	6.62	2.12	16	2.10	0.71
	Generation X	6.20	2.18	90		
	Millennials	6.26	1.52	52		
	Generation Z	6.25	2.13	12		
Professional development	Baby boomers	6.59	1.71	16	3.52	0.47
	Generation X	5.99	1.77	90		
	Millennials	6.25	1.65	52		
	Generation Z	5.50	1.96	12		
Ethical and safe use	Baby boomers	6.75	1.57	16	2.43	0.65
	Generation X	6.75	2.12	90		
	Millennials	6.59	1.25	52		
	Generation Z	6.54	1.32	12		

	1	2	3	4	5	6	7	8
1 Technological proficiency	1							
2 Pedagogical integration	0.73**							
3 Adaptability & problem solving	0.79**	0.68**						
4 Impact on student engagement & learning	0.52**	0.58**	0.50**					
5 Professional development	0.61**	0.68**	0.65**	0.62**				
6 Ethical and safe use	0.54**	0.42**	0.57**	0.66**	0.49**			
7 Emotional exhaustion	-0.07	-0.11	-0.01	-0.26**	-0.20**	-0.17*		
8 Depersonalisation	-0.09	-0.12	-0.14	-0.29**	-0.24**	-0.32**	0.58**	
9 Personal accomplishment	0.26**	0.27**	0.28**	0.40**	0.34**	0.30**	-0.35**	-0.50**

TABLE 3
Correlations matrix between domains in technology integration efficacy and burnout

** Correlation is significant at the 0.01 level (2-tailed),
* Correlation is significant at the 0.05 level (2-tailed).

Technology integration teacher efficacy and emotional exhaustion. Correlations between technology efficacy and emotional ex-

haustion were generally weak and negative. Significant negative relationships were found between emotional exhaustion and impact on student engagement and learning ($r = –0.26$, $p < 0.01$); professional development ($r = –0.20$, $p < 0.01$); and ethical and safe use ($r = –0.17$, $p < 0.05$). Other efficacy domains were not significantly associated with emotional exhaustion ($p > 0.05$).

Technology integration teacher efficacy and depersonalisation. Depersonalisation demonstrated weak to moderate negative correlations with several technology efficacy domains. Significant associations emerged with impact on student engagement & learning ($r = –0.29$, $p < 0.001$); professional development ($r = –0.24$, $p < 0.01$); and ethical and safe use ($r = –0.32$, $p < 0.01$). Other correlations were negative but non-significant. These findings indicate that teachers who feel more confident using technology to support learning and to ensure safe and ethical practices are less likely to experience depersonalisation.

Technology integration teacher efficacy and personal accomplishments. All six efficacy domains were significantly and positively associated with personal accomplishment ($p < 0.01$). The strongest correlations were found with impact on student engagement and learning ($r = 0.40$, $p < 0.001$); professional development ($r = 0.34$, $p < 0.001$); and ethical and safe use ($r = 0.30$, $p < 0.001$). These results suggest that higher levels of teacher technology integration efficacy are consistently related to a stronger sense of accomplishment in one's work.

Emerged themes from open-ended questions

From the qualitative analysis of the open-ended questions in the survey, the participants identified suggestions that could combat the challenges of heightened levels of stress and burnout in the post-pandemic era. Notably, 97% of participants engaged with all questions, offering a range of suggestions aimed at mitigating teacher burnout. The responses varied significantly in length, with some participants providing detailed explanations and others opting for succinct bullet points.

As shown in Table 4, roughly 40% of the survey participants noted that one of the major ways of combating teacher burnout is increasing compensation. Among these 40% of participants, Generation X and Y stated this 60% more frequently than Baby boomers and Generation Z. Increasing teacher pay is a powerful career incentive to retain and attract qualified educators, and those in the middle of their careers found this to have more of an impact in fighting burnout. Although teacher compensation is not what the researcher perceives as an

instructional support, teachers in the survey did perceive it as an instructional support. One participant stated, "increase salary and for my profession specifically, have evaluation support and/or therapy support to decrease SLP administrative duties (paperwork) and/or to decrease the amount of brain energy we burn from constantly switching tasks." Many teachers work tirelessly, often going above and beyond their job descriptions, yet their salaries may not reflect the value of their contributions. Another participant also shared the same sentiment by explaining, "pay commensurate with appreciation, incentive pay, higher salaries, more release of financial stipends when grants and endowments are provided by the government" could decrease burnout. By offering competitive compensation packages, schools can demonstrate their appreciation for teachers' dedication and professionalism as suggested by the participants. Higher pay not only acknowledges the importance of educators but also alleviates financial stress, allowing teachers to focus more on their students' needs and less on their own economic burdens.

Roughly 30% of participants concluded that professional development can help combat teacher burnout. Additionally, 18% of the participants believed reducing workload could mitigate teachers' feelings of burnout. Interestingly, 80% of Generation Z respondents accounted for these 18% of teachers who believed the work-life balance is crucial in reducing burnout compared to other generational groups. One participant stated,

> *one factor that can assist school districts in addressing teacher burnout is to reduce the time constraints for teachers to cover the curriculum. Numerous students require extra time for specific topics, yet teachers often feel pressured to rush through these topics in order to stay on schedule. As a result, some students fall behind while teachers worry about maintaining a pace that does not align with the students' capabilities*.

This statement addresses the increased workload that many educators feel contribute to teacher burnout. The pandemic forced educators to adapt rapidly to new teaching modalities, often resulting in longer hours and heightened levels of stress. Schools can implement measures such as streamlined administrative tasks, better utilisation of technology, and realistic expectations for lesson planning and grading. By prioritising efficiency and work-life balance, teachers in the study stated that they can reclaim precious time for self-care, rejuvenation, and personal pursuits outside of the classroom, especially among Generation X, which represented 51% of the total survey participant population.

Out of the participants, 13% stated that one crucial element is providing robust social-emotional support systems for teachers. Several participants suggested that schools should establish peer support groups, counselling services, and mental health resources tailored to educators' needs. This can be done by fostering a culture of empathy and understanding. As one participant stated, "teacher burnout needs to be combated in ways such as self-care, mental health days, lightening the load on teachers, time, etc." where teachers can feel more supported and better equipped to navigate the emotional toll of their work. This was one of the items suggested by teachers which was found in the data.

TABLE 4
Open-ended question data coding analysis with direct quotes supporting the findings

Suggestion topic	N (%)	Respondent quotes
Compensation	70 (40)	"Higher pay to keep well experienced teachers from leaving the district. Continue to employ/keep highly valued and experienced teachers from leaving the district as well as hiring more educators."
		"Increase salary and for my profession specifically, have evaluation support and/or therapy support to decrease SLP administrative duties (paperwork) and/or to decrease the amount of brain energy we burn from constantly switching tasks."
Professional development	51 (30)	"Relevant PD opportunities that are interesting; provide time & space for students to step away when feeling frustrated in the classroom."
		"Provide relevant PD that applies to the teacher's ability instead of courses that basic level teachers are required to participate in."
Decreased workload	32 (18)	"Teachers have a lot on their plates. There isn't anything that I can think of that is an "instructional support" that is going to combat teacher burnout. Education is ever-changing and there's always something new to learn. We have the support needed when it comes to new programmes and things that are implemented. What is needed is time, less on our plates, etc. Maybe adding in one paraprofessional per grade level would help? Someone to make copies, file papers, do the simple things that take time away from us."
Teacher social emotional supports	22 (13)	"Provide adequate planning time and team building activities. I feel some of this has been lost since 2020. I do not feel as connected to my colleagues as I did before 2020."
		"Ongoing professional development about SEL for administrators, teachers and students, and how to infuse it into instruction AND practices for teachers as well. Professional development about and implementation of restorative practices in the classroom and in schools in general."

Note. These were the four major recurring subjects for this question.

DISCUSSION AND CONCLUSIONS

Generational cohorts and teacher burnout

The first question investigated if there is any difference in teachers' feelings of burnout among various generational groups. The hypothesis was developed based on the work of Tawfik et al. (2021), who supported the idea that generational grouping affected the job performance of individuals. Our results did not indicate there were any significant differences across generational groupings in the sample. Burnout levels appear to be similar across all the generation groups based on the data. Although contradictory to the hypothesis, the results mirror recent findings from previous studies from Mikušková (2023) and Gill (2022). Mikušková argued that motivational factors related to teacher competencies did not exhibit significant generational differences in teacher burnout. The findings echo Mikušková's results, revealing that teachers across various generational cohorts hold similar beliefs concerning professional performance and perceptions of burnout. Mikušková further explored how professional competence influences motivation across different generations, establishing intrinsic connections between professional competence and motivational levels. This insight reinforces the notion that variations in generational experiences may not significantly impact teachers' feelings of motivation or burnout.

Similarly, Gill (2022) found no significant differences in job satisfaction among various generational groups of teachers. This finding is pertinent to the discussion of teacher burnout, as job satisfaction is closely related to how teachers experience burnout. Additionally, Gill explained that generational differences did not significantly affect perceptions of support, which is an important factor in mitigating teacher burnout. Overall, these studies collectively suggest that generational differences have limited impact on key aspects of teaching such as motivation, job satisfaction, and burnout.

Generational cohorts and teacher technology integration efficacy

The results indicate that there were no significant differences on teachers' technology integration efficacy based on generational cohorts. Our results echo a few previous findings (Culp-Roche et al., 2020; Woods et al., 2021) that there were no significant generational differences in attitudes towards technology integration among faculty members. Furthermore, despite generational variations in overall attitudes, Culp-Roche et al. (2020) found that faculty across age groups exhibited similar levels of comfort with technology when it was perceived as beneficial for enhancing student skills and easing teaching res-

ponsibilities. Faculty members were more likely to embrace technology if they believed it could improve educational outcomes and reduce their teaching workload. This indicates that the perceived utility of technology, rather than generational factors, may be a more influential determinant of technology adoption in educational settings. This underscores the complexity of technology adoption, suggesting that factors beyond generational differences, such as gender, may also play a critical role in shaping technology efficacy.

Correlations between teacher burnout and technology integration efficacy

The Pearson correlations demonstrated several significant correlations between various components of teachers' technology efficacy and burnout dimensions. One of the most salient findings is the negative correlations between emotional exhaustion and several subcomponents of technology integration efficacy, including teachers' use of technology for student engagement and professional development. Teachers who felt less efficacious in integrating technology for student engagement were more likely to report emotional exhaustion. Martin et al. (2012) explained how teachers' instructional practices, whether good or bad, have an effect on student engagement. In addition, negative correlations were found between emotional exhaustion and technology integration efficacy related to professional development and ethical use. Duncan (2022) explained that teachers need a sense of competence and security when understanding technology integration in their instructional practices. Teachers who perceive they are able to use technology appropriately feel more personally accomplished and experience less emotional exhaustion (Ertmer & Ottenbriet-Leftwich, 2010).

The results revealed a positive correlation between pedagogical integration and technology proficiency. This demonstrates that educators who possess higher levels of technological skills tend to be able to apply technology to their teaching practice, which may reduce the amount of emotional exhaustion that is experienced (Baker et al., 2021). These teachers can see positive results in their instructional practices related to their technology skills. Baker et al. (2021) explained how using technology effectively can reduce work stress, which may lead to decreased feelings of burnout. Further analysis revealed a significantly high positive correlation between adaptability and problem solving and pedagogical integration, which suggests that educators who are more adaptable are also better equipped to solve problems. This enhances their ability to integrate diverse pedagogical approaches. This integration not

only improves the learning experience for students but also fosters a more dynamic and responsive educational environment. By recognising the importance of adaptability in pedagogical practices, teachers can prioritise instructional strategies. This is done through effective professional development. Duncan (2020) explained that teachers who receive timely and effective support with technology experience lower levels of frustration, which can lead to a decreased likelihood of burnout.

Teacher recommended strategies to mitigate burnout

Teachers believed that increasing compensation, providing relevant professional development, reducing workload, and providing emotional support would be helpful strategies to mitigate teacher burnout. Increasing teacher pay is a powerful career incentive to retain and attract qualified educators. In the U.S., teacher compensation is considerably lower than in many other professions. By offering competitive compensation packages, respondents suggested that schools can demonstrate their appreciation for teachers' dedication and professionalism. Higher pay not only acknowledges the importance of educators but also alleviates financial stress, allowing teachers to focus more on their students' needs and less on their own economic burdens (Will & Sawchuk, 2018).

The pandemic forced educators to adapt rapidly to new teaching modalities, often resulting in longer hours and heightened levels of stress. Teachers in the study suggested a more robust professional learning model. Professional learning training provides teachers with opportunities to collaborate and connect with their peers, fostering a sense of community and shared purpose. These collaborative environments allow teachers to share experiences, strategies, and solutions to common challenges, thereby reducing feelings of isolation and burnout and maintaining morale and resilience in the face of the daily pressures of teaching. This empowerment can lead to increased motivation and a greater sense of control over their professional lives. When teachers feel that they have a say in their development and can pursue areas that genuinely interest them, they are more likely to stay engaged and committed to their work, thereby reducing the risk of burnout (Chang et al., 2022).

Some respondents reported that reducing teacher workloads and addressing the administrative and bureaucratic burdens that contribute significantly to teacher burnout is essential. Teachers often face overwhelming workloads, including excessive paperwork, standardised testing requirements, and administrative tasks that detract from their primary role of educating students (Pressley, 2021). Pressley (2021) explained how organisational changes that streamline administrative proces-

ses and reduce unnecessary paperwork can free up valuable time for teachers to focus on instructional planning and student engagement. Implementing supportive policies such as flexible scheduling, adequate planning time, and reducing class sizes can also alleviate stress and promote a healthier work environment. Schools can implement measures such as streamlined administrative tasks, better utilisation of technology, and realistic expectations for lesson planning and grading. By prioritising efficiency and work-life balance, teachers in this study stated that they can reclaim precious time for self-care, rejuvenation, and personal pursuits outside of the classroom.

Finally, many participants suggested the need for providing robust social-emotional support systems for teachers. One major suggestion is that schools should establish peer support groups, counselling services, and mental health resources tailored to educators' needs. This can be done by fostering a culture of empathy and understanding, where teachers can feel more supported and better equipped to navigate the emotional toll of their work. Ultimately, addressing teacher burnout requires a holistic approach that acknowledges the interconnectedness of social, emotional, and professional factors.

Limitations

There are several limitations that may hinder the generalisability of the study results. First of all, sample bias might exist due to the nature of the voluntary survey method. It is likely that teachers with high levels of burnout would have been less likely to participate in the study than those with low levels of burnout. Secondly, the sample is from one single rural district in one state in the U.S.A. which does not represent many other populations in other contexts. Third, due to the unbalanced generation groups in the district, the sample also demonstrated an unbalanced group size for different generational groups. Finally, due to the unbalanced sample size, nonparametric tests were used in the study which may somewhat limit the statistical power.

CONCLUSION

In conclusion, as schools emerge from the challenges of the pandemic, investing in the well-being of teachers is not only essential for their sake but also for the resilience and success of our education system as a whole. However, we did not find significant cohort differences on teacher burnout and technology integration efficacy due to a limited sample from one single school district. Our findings contributed to the existing body of literature by identifying some significant correlations between teacher burnout and technology integration efficacy, specifically in the post-pandemic context. Our qualitative find-

ings provided valuable insights into teachers' voices regarding strategies to mitigate burnout and enhance instructional effectiveness in a post-pandemic educational landscape. By providing robust social-emotional support networks, increasing teacher pay, and lessening workloads, schools can create environments where educators feel valued, empowered, and motivated to continue making a positive impact on students' lives as explained in the suggestions provided by research participants (Corbett et al., 2022).

REFERENCES

Alkire, L., O' Conner, G. E., Myrden, S., & Kocher, S. (2020). Patient experience in the digital age: An investigation into the effect of generational cohort. *Journal of Retailing and Consumer Services, 57*, 102221. https://doi.org/10.1016/j.jretconser.2020.102221

Alwin, D. F., & McCammon, R. J. (2007). Rethinking generations. *Research in Human Development, 4*(3-4), 219–237. https://doi.org/10.1080/15427600701663072

Antoni, J. (2020). *Disengaged and nearing departure: Students at risk for dropping out in the age of COVID-19.* Temple University Scholar Share. http://dx.doi.org/10.34944/dspace/396

Asbury, K., Fox, L., Deniz, E., Code, A., & Toseeb, U. (2020). How is COVID-19 affecting the mental health of children with special educational needs and disabilities and their families? *Journal of Autism and Developmental Disorders, 51*(5), 1772–1780. https://doi.org/10.1007/s10803-020-04577-2

Baker, C. N., Peele, H., Daniels, M., Saybe, M., Whalen, K., Overstreet, S., & The New Orleans, T. I. S. L. C. (2021). The experience of COVID-19 and its impact on teachers' mental health, coping, and teaching. *School Psychology Review, 50*(4), 491–504. https://doi.org/10.1080/2372966X.2020.1855473

Browne, J. (2011). An IRT analysis of preservice teacher self-efficacy in technology integration. *Journal of Technology and Teacher Education, 19*(2), 123–140.

Bugnos, J. D. & Protacio, A. V., Billanes, E. P., Caman, K. E., Diego, S. S., Formacion, C. P., Galamay, N. B., & Molato, M. A. (2022). Traditionalist to progressivist: Lived experiences of generation X teachers in the new normal. *Globus Journal of Progressive Education, 12,* 90–94. https://doi.org/10.46360/globus.edu.220221012

Chan, C. K. Y., & Tsi, L. H. (2023). *The AI revolution in education: Will AI replace or assist teachers in higher education*. arXiv:2305.00280v1. https://doi.org/10.48550/arXiv.2305.01185

Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193–218. https://doi.org/10.1007/s10648-009-9106-y.

Chang, M.-L., Gaines, R. E., & Mosley, K. C. (2022). Effects of autonomy support and emotion regulation on teacher burnout in the era of the COVID-19 pandemic. *Frontiers in Psychology, 13,* 846290. https://doi.org/10.3389/fpsyg.2022.846290

Corbett, L., Bauman, A., Peralta, L., Okely, A., & Phongsavan, P. (2022). Characteristics and effectiveness of physical activity, nutrition and/or sleep interventions to improve the mental well-being of teachers: A scoping review. *Health Education Journal, 81*(2), 196–210. https://doi.org/10.1177/00178969211062701

Culp-Roche, A., Hampton, D., Hensley, A., Wilson, J., Thaxton-Wiggins, A., Otts, J., Fruh, S., & Moser, D. (2020). Generational differences in faculty and student comfort with technology use. *SAGE Open Nursing, 6*. https://doi.org/10.1177/2377960820941394

Dolighan, T., & Owen, M. (2021). Teacher efficacy for online teaching during the COVID-19 pandemic. *Brock Education Journal, 30*(1), 95–95. https://doi.org/10.26522/brocked.v30i1.851

Duncan, E. (2022). *Addressing teacher shortages in the short and long term: What states and districts can do*. Education Trust. Retrieved from https://files.eric.ed.gov/fulltext/ED622837.pdf

Ertmer, P. A., & Ottenbreit-Leftwich, A. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255–284 https://doi.org/10.1080/15391523.2010.10782551

Fernández-Batanero, J.-M., Román-Graván, P., Reyes-Rebollo, M.-M., & Montenegro-Rueda, M. (2021). Impact of educational technology on teacher stress and anxiety: A literature review. *International Journal of Environmental Research Public Health, 18*(2), Article 548. https://doi.org/10.3390/ijerph18020548

Flack, C. B., Walker, L., Bickerstaff, A., Earle, H., & Margetts, C. (2020). *Educator perspectives on the impact of COVID-19 on teaching and learning in Australia and New Zealand*. Pivot Professional Learning.

Gerhardt, C., Semmer, N. K., & Sauter, S. (2021). How are social stressors at work related to well-being and health? A systematic review and meta-analysis. *BMC Public Health, 21,* 890. https://doi.org/10.1186/s12889-021-10894-7

Gill, E. (2022). *The impact of generational difference on teacher job satisfaction and perceptions of principal leadership* [Doctoral dissertation, Baker University]. ProQuest Dissertations and Thesis Global.

Hernandez-de-Menéndez, M., Escobar-Díaz, C. A., & Morales-Menendez, R. (2020). Educational experiences with Generation Z. *International Journal on Interactive Design and Manufacturing, 14*, 847–859. https://doi.org/10.1007/s12008-020-00674-9

Isaacs, A. N., Scott, S. A., & Nisly, S. A. (2020). Move out of Z way Millennials. *Currents in Pharmacy Teaching and Learning, 12*(12), 1387–1389. https://doi.org/10.1016/j.cptl.2020.07.002

Jakubowski, T. D., & Sitko-Dominik, M. M. (2021). Teachers' mental health during the first two waves of COVID-19 pandemic in Poland. *PLoS One, 16*(9), Article e0257252. https://doi.org/10.1371/journal.pone.0257252

Köstepen, A. (2023). A decision support system based on the perspective of generation Z to the concept of shift with the effect of COVID-19. *Electronic Journal of Social Sciences, 22*(86), 743–757. https://doi.org/10.17755/esosder.1231549

Kupperschmidt, B. R. (2000). Multigeneration employees: Strategies for effective management. *The Health Care Manager, 19*(1), 65–76. https://doi.org/10.1097/00126450-200019010-00011

Lester, D. (2012). A Multiple Self Theory of the Mind. *Comprehensive Psychology, 1,* Article 5. https://doi.org/10.2466/02.09.28.CP.1.5

Li, Q., Li, Z., & Han, J. (2021). A hybrid learning pedagogy for surmounting the challenges of the COVID-19 pandemic in the performing arts education. *Education and Information Technologies, 26*, 7635–7655. https://doi.org/10.1007/s10639-021-10612-1

Marshall, D. T., Shannon, D. M., & Love, S. M. (2020). How teachers experienced the COVID-19 transition to remote instruction. *Phi Delta Kappan, 102*(3), 46–50. https://doi.org/10.1177/0031721720970702

Martin, N. K., Sass, D., & Schmitt, T. (2012). Teacher efficacy in student engagement, instructional management, student stressors, and burnout: A theoretical model using in-class variables to predict teachers' intent-to-leave. *Teaching and Teacher Education, 28*(4), 546–559. https://doi.org/10.1016/j.tate.2011.12.003

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory manual* (3rd ed.). Consulting Psychologists Press.

Mikušková, E. B. (2023). Generational differences in teachers' professional competencies. *European Journal of Educational Research, 12*(4), 1657–1665. https://doi.org/10.12973/eu-jer.12.4.1657

Pressley, T. (2021). Factors contributing to teacher burnout during COVID-19. *Educational Researcher, 50*(5), 325–327. https://doi.org/10.3102/0013189X211004138

Okros, A. (2020). Generational theory and cohort analysis. In *Harnessing the potential of digital post-millennials in the future workplace: Management for professionals* (pp. 33–51). Springer. https://doi.org/10.1007/978-3-030-25726-2_2

Roberts, V. D. (2019). *HR practice, job embeddedness and intention to stay: Do generational differences matter?* (Publication No. 22585305) [Doctoral dissertation, Northcentral University]. ProQuest Dissertations & Theses.

Skaalvik, E. M., & Skaalvik, S. (2020). Teacher burnout: Relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study. *Teachers and Teaching, 26*(7–8), 602–616. https://doi.org/10.1080/13540602.2021.1913404

Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society, 65,* 101565. https://doi.org/10.1016/j.techsoc.2021.101565

Tawfik, A. A., Shepherd, C. E., Gatewood, J., & Gish-Lieberman, J. J. (2021). First and second order barriers to teaching in K-12 online learning. *Tech Trends, 65,* 925–938. https://doi.org/10.1007/s11528-021-00648-y

Weißenfels, M., Klopp, E., & Perels, F. (2022). Changes in teacher burnout and self-efficacy during the COVID-19 pandemic: Interrelations

and e-learning variables related to change. *Frontiers in Education, 6,* Article 736992. https://doi.org/10.3389/feduc.2021.736992

Will, M., & Sawchuk, S. (2018, March 30). Teacher pay: How salaries, pensions, and benefits work in schools. *Education Week*. https://www.edweek.org/teaching-learning/teacher-pay-how-salaries-pensions-and-benefits-work-in-schools/2018/03

Woods, K., Wendt, J. L., Barrios, A., & Lunde, R. (2021). An examination of the relationship between generation, gender, subject area, and technology efficacy among secondary teachers in the United States. *International Journal of Technology in Education, 4*(4), 589–604. https://doi.org/10.46328/ijte.126

Zamarro, G., Camp, A., Fuchsman, D., & McGee, J. B. (2021). *Understanding how COVID-19 has changed teachers' chances of remaining in the classroom* (Working Paper No. 22-01). Sinquefield Center for Applied Economic Research. https://doi.org/10.2139/ssrn.4047354

Zemeke, R., Raines, C., & Filipaczak, B. (1999). *Generations at work: Managing the clash of veteran, boomers, xers, and nexters in your workplace*. American Management Association.

Zopiatis, A., Kramia-Kapardis, M., & Varnavas, A. (2012). Yers, Xers and Boomers: Investigating the multigenerational (mis)perceptions in the hospitality workplace. *Tourism Hospitality and Research, 12*(2), 101–121. https://doi.org/10.1177/1467358412466668

Odnosi između generacijskih kohorti, učinkovitosti nastavnika u integriranju tehnologije i sagorijevanja nastavnika

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Svrha ove studije bila je istražiti složene odnose između generacijskih kohorti, učinkovitosti nastavnika u integriranju tehnologije i njihova sagorijevanja u kontekstu nakon COVID-19 pandemije. Ankete koje su uključivale mjerenja Likertovom skalom i otvorena pitanja prikupljene su od 172 nastavnika u 'Title-I' ruralnom okrugu (koji prima financijsku pomoć zbog većeg broja učenika nižega imovinskog stanja) jedne od jugoistočnih država SAD-a. Primjenom deskriptivne i korelacijske analize, studija je utvrdila značajne povezanosti između sagorijevanja nastavnika i njihove učinkovitosti u integriranju tehnologije. Iako generacijske razlike u sagorijevanju nastavnika i njihovu učinkovitom integriranju tehnologije nisu potvrđene nalazima, tematska analiza odgovora na otvorena pitanja upućuje na potrebu za

razlikovanjem strategija kojima razne generacijske kohorte mogu spriječiti sagorijevanje nastavnika. Ovo istraživanje pridonijelo je razumijevanju promjenjivog okruženja obrazovne tehnologije i njezinih psiholoških utjecaja, nudeći uvide s ciljem unaprjeđenja sustava profesionalnog razvoja i podrške edukatorima u postpandemijskom obrazovnom vremenu.

Ključne riječi: sagorijevanje nastavnika, generacijske kohorte, učinkovitost nastavnika



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TEACHERS' WELL-BEING: THE ROLE OF CALLING AND ORGANISATIONAL SUPPORT

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The study focuses on understanding teachers' life satisfaction within the framework of Work as a Calling Theory. It investigated: a) the mediating role of living a calling and job satisfaction in the relationship between perceiving a calling and life satisfaction; b) the moderating role of organisational support in the relationship between perceiving and living a calling. Three hundred eighty classroom teachers (96% female, with an average of 20 years of work experience) participated in the study. A moderated serial mediation model was tested. The results showed that both living a calling and job satisfaction mediate between perceiving a calling and life satisfaction. Perceiving a calling is positively related to living a calling, which in turn leads to higher job satisfaction and consequently higher life satisfaction. Also, perceiving a calling is positively related to living a calling to a greater extent when organisational support is provided. The results support the proposed model and have implications for both theory and practice in the field of school management and teachers' well-being.

Keywords: calling, job satisfaction, life satisfaction, organisational support, teachers

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INTRODUCTION

Teaching is a demanding and challenging profession, which has led much research to focus on negative indicators of teacher functioning, such as stress and burnout (Agyapong et al., 2022). However, over the last decade, the rise of positive psycholo-

gy has shifted attention towards teachers' well-being. A growing body of evidence shows that teachers' well-being has significant benefits: it is associated with greater job satisfaction and lower turnover intentions (Skaalvik & Skaalvik, 2018), higher student well-being (Bilz et al., 2022), and better academic performance (Duckworth et al., 2009). Given the importance of these positive outcomes, it is essential to improve our understanding of the factors that support teachers' well-being. This study addresses this need by examining teachers' life satisfaction from the perspective of Work as a Calling Theory (WCT; Duffy et al., 2018).

Calling is conceptualised as an approach to work that reflects seeking a sense of overall purpose and meaning and contributing to the common good. Perceiving work as a calling (PC) has been linked to greater meaning in both work and life (Duffy et al., 2011a, 2013), with these variables being strongly related to well-being in various professions (Hagmaier & Abele, 2015), including teaching (Gradišek et al., 2020; Jurčec, 2019; Jurčec & Rijavec, 2015). However, to date, mechanisms connecting PC to well-being remain insufficiently explored, partly because theoretical foundations have only recently been developed (Duffy et al., 2018). WCT proposes that living a calling (LC) is the central pathway through which PC leads to positive work outcomes, and that employee-environment fit moderates the PC-LC relationship. However, empirical research within this approach is lacking.

To address this gap, the present study examines the relationship between PC, LC, organisational support and teachers' well-being. Specifically, it investigates: a) the mediating role of LC and job satisfaction in the relationship between PC and life satisfaction, and b) the moderating role of perceived organisational support in the PC-LC relationship. Thus, this study contributes to the literature in two ways. First, the study extends WCT by incorporating life satisfaction as a distal outcome within a serial mediation model in which job satisfaction precedes life satisfaction, thus highlighting the broader implications of calling beyond work-specific outcomes. Second, it empirically tests organisational support as a key element of employee-environment fit (Duffy et al., 2018) by examining its moderating role in the PC-LC relationship.

Work as a calling and well-being

The idea that work can be a calling has gained considerable attention from both professionals and the general public over the past two decades, as individuals nowadays increasingly seek work that provides meaning and purpose beyond financial rewards. One large study, including employees from more than 70 countries, found that about 37% of employees per-

ceive their work as a calling (Peterson et al., 2009). Among teachers, this percentage seems to be even higher, consistent with the widespread belief that teachers tend to experience their work as a calling more often than employees in other professions (e.g., Hagmaier & Abele, 2012), with estimates ranging from 45% in the United Kingdom (Bullough & Hall-Kenyon, 2012), to 68% in Slovenia and as high as 83% in Croatia (Rijavec et al., 2016).

Perceiving work as a calling has been associated with numerous positive professional and personal outcomes, including higher levels of well-being and life satisfaction (Peterson et al., 2009), better coping with stress, lower depression (e.g., Treadgold, 1999), and greater congruence between the actual self and ideal self (Hagmaier & Abele, 2015). Calling has also been linked to higher levels of job performance (Lee et al., 2016), work engagement (Hagmaier & Abele, 2015), job satisfaction, organisational commitment, and fewer intentions to withdraw (Duffy et al., 2011b). Similar findings have been reported among teachers. Teachers who perceived their work as a calling reported higher levels of life and job satisfaction (Jurčec, 2019; Jurčec & Rijavec, 2015; Miljković et al., 2016; Song et al., 2016), and more positive work attitudes (Willemse & Deacon, 2015). Teachers' calling orientation has also been associated with greater flourishing through several mechanisms, such as flow, job crafting (increased structural job resources), and work meaningfulness (Jurčec, 2019; Rijavec et al., 2021).

Living a calling and job satisfaction as mediators

Perceiving a calling does not necessarily mean that a person is living it. Some individuals feel they have fulfilled their calling, while others feel that their calling remains unrealised (Berg et al., 2010) due to various contextual factors such as limited education and occupational opportunities (Duffy et al., 2018). Research has shown that the correlation between perceiving and living a calling is around 0.50 (Duffy & Autin, 2013; Duffy et al., 2012, 2019). Consistent with these findings and WCT, we hypothesised that perceiving a calling would be positively related to living a calling (Hypothesis 1).

Although both PC and LC have positive work and life outcomes, LC shows stronger links to these outcomes. According to the model proposed by Duffy et al. (2013), PC is linked to higher life satisfaction primarily through the ability to live out one's calling, which leads to greater life meaning and job satisfaction. Thus, it is proposed that PC is an important antecedent to LC, but living a calling is a key variable for well-being.

Job satisfaction is one of the most frequently examined outcomes of LC. It refers to the subjective evaluation that workers make of their jobs, and it is one of the most used indica-

tors of job well-being (Zhang et al., 2014). Across diverse samples of working adults, LC has been strongly positively linked to job satisfaction (e.g., Duffy et al., 2012, 2014). Based on these findings and WCT, we hypothesised that living a calling would positively predict job satisfaction (Hypothesis 2).

In education, job satisfaction has a central role because it promotes teacher engagement and protects against burnout (Madigan & Kim, 2021). According to the spillover hypothesis (Bowling et al., 2010), positive or negative experiences at work can extend into other areas of life, and vice versa. Thus, job satisfaction resulting from living one's work as a calling can influence an individual's life satisfaction. Among teachers, both general (Lee & Shin, 2017) and intrinsic job satisfaction (Olčar et al., 2019; Luque-Reca et al., 2022) predict their life satisfaction. Two studies have also found that job satisfaction mediates the relationship between LC and life satisfaction (Duffy et al., 2012, 2013). As one meta-analysis confirmed, job satisfaction predicts life satisfaction even after controlling for personality traits (Heller et al., 2004). Based on WCT and in line with these empirical findings (i.e., Lee & Shin, 2017; Olčar et al., 2019; Luque-Reca et al., 2022), we hypothesised that job satisfaction would positively predict life satisfaction (Hypothesis 3).

Overall, research on mediators linking PC and life satisfaction remains limited. Previous findings showing that LC mediates the relationship between PC and job satisfaction (Maser, 2021), and that job satisfaction mediates the relationship between LC and life satisfaction (Douglass et al., 2016; Duffy et al., 2012, 2013) suggest that both LC and job satisfaction may act as sequential mediators in the link between PC and life satisfaction. Yet, no research has examined this. Therefore, in this study, we hypothesised that both LC and job satisfaction would mediate the relationship between PC and life satisfaction. Specifically, we hypothesised that LC would lead to higher job satisfaction, which, in turn, would lead to higher life satisfaction (Hypothesis 4).

Previous research has shown that work meaning and career commitment help explain the relationship between perceiving a calling and job satisfaction (with living a calling acting as an important moderator of those effects), and that job satisfaction helps explain the relationship between living a calling and life satisfaction. However, no research has tested whether living a calling and job satisfaction act as sequential mediators linking perceiving a calling to life satisfaction. Therefore, we hypothesised that both living a calling and job satisfaction would mediate the relationship between perceiving a calling and life satisfaction.

The moderating role of perceived organisational support

Not all employees are able to live their calling at work, but the question is rarely posed about the conditions that enable individuals to do so. In this regard, the workplace characteristics may have a crucial role. One such characteristic that might be important in the relationship between PC and LC is perceived organisational support, defined as employees' perception of their organisation's care and commitment (Eisenberger et al., 1986). Based on the WCT (Duffy et al., 2018), organisational support is a key contextual factor that enhances employee-environment fit, which in turn facilitates the translation of PC into LC. Higher fit increases the likelihood that PC leads to LC, highlighting the important role of organisational support in this process (Duffy et al., 2019). Organisational support has been found to increase teachers' commitment and performance (Yolanda & Said, 2022) and to moderate the relationship between job satisfaction and teaching effectiveness (Kanta & Srivalli, 2018). Although organisational support might play an important role in living a calling, studies on this topic are scarce. Some studies have found a positive relationship between LC and perceived organisational support (Duffy & Autin, 2013) and a supportive workplace climate (Allan et al., 2015). Lee et al. (2016) demonstrated that organisationally supported knowledge-sharing mediates the relationship between PC and job satisfaction among hotel employees. One study on a sample of teachers showed that the PC-LC relationship is stronger for those with a mentor (Ehrhardt & Ensher, 2021), thus suggesting a moderating role of organisational support in the PC-LC relationship.

Beyond WCT, the Conservation of Resources Theory (COR; Hobfoll, 1989) offers a useful framework for understanding how organisational support may facilitate LC. According to COR, while PC serves as an internal resource, living a calling often can drain one's reserves, since it requires sustained effort, emotional and personal investment. Organisational support provides external resources, both instrumental (e.g., flexible work hours, meaningful tasks) and emotional (e.g., encouragement, appreciation). This support reduces strain and helps employees to translate calling into lived experience. Thus, based on both WCT (Duffy et al., 2018) and COR (Hobfoll, 1989), the organisational support is likely to moderate the relationship between PC and LC. However, no empirical study has been found in the literature examining this possibility. Therefore, based on the WCT (Duffy et al., 2018) and COR (Hobfoll, 1989), we hypothesised that organisational support would strengthen the PC-LC relationship, producing a conditional serial mediation effect on life satisfaction (Hypothesis 5).

METHOD

Participants and procedure

Primary education in Croatia lasts eight years for children aged 6 to 14. Grades 1–4 are taught by a single classroom teacher, while subject teachers take over in grades 5–8. Our sample included 380 class teachers (96% female) from various regions across Croatia. Their teaching experience ranged from 0 to 43 years, with an average of 20.07 years (SD = 11.07). Approval for the research was granted by the Ministry of Science and Education of the Republic of Croatia and the school principals. The questionnaires were administered via Google Forms and distributed through the official email addresses of class teachers as part of a broader online study addressing the teaching profession. This section of the survey took approximately ten minutes to complete. At the outset, participants were informed about the study's purpose and their rights as participants. By proceeding with the survey, they provided informed consent. Participation was voluntary and anonymous, and participants had the option to withdraw at any time.

Instruments

The Presence of a Calling is a 2-item subscale of the Brief Calling Scale (BCS; Dik et al., 2012) used to assess the extent to which individuals perceive their career as a calling, referring to the fact that they are called upon to do a particular kind of work (e.g., *I have a calling to a particular kind of work*). Items were rated on a 5-point scale, ranging from 1 (*not at all true of me*) to 5 (*totally true of me*). The overall score is computed by averaging the items on the scale. Higher scores indicate a stronger perception of calling. In the current study, the two items were highly correlated (r = 0.82).

The Living a Calling Scale (LCS; Duffy et al., 2012) consists of 6 items measuring to what extent participants perceive that they presently live their calling (e.g., *I am working in the job to which I feel called.*). Items are rated on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The overall score is computed by averaging the items on the scale. Higher scores indicate a stronger living of one's true calling. The principal component analysis of the items resulted in a one-factor solution (factor loadings ranged from 0.80 to 0.92), which explained 73.6% of the variance.

The Perceived Organisational Support (SPOS; Eisenberger et al., 1986) is an 8-item measure used to assess employees' perceptions of organisational support. Participants rated the degree of perceived care, the evaluation of their contributions, and the encouragement that they have experienced within their work environment (e.g., *The school values my contribution*

to its well-being) by using a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The overall score is calculated by averaging the items on the scale. Higher scores indicate stronger organisational support. In this study, a one-factor solution explained 60.87% of the variance (factor loadings ranged from 0.72 to 0.84).

The Job Diagnostic Survey (JDS, Hackman & Oldman, 1975) consists of 14 items assessing overall job satisfaction. This scale includes assessments of satisfaction with specific job domains such as pay, security, colleagues, supervision, and growth/development (e.g., *How satisfied are you with the amount of personal growth and development you get in doing your job*). Combining facets to form a composite measure was used in a previous study (Duffy et al., 1998). The items are rated on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The overall score is calculated by averaging the items on the scale. A higher score points to higher job satisfaction. In this study, a one-factor solution of facet-specific measurements explained 58.11% of the variance (factor loadings ranged from 0.64 to 0.88).

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) assesses the degree of participants' satisfaction with their life (e.g., *In most ways my life is close to my ideal*). It has 5 items which are rated on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The overall score is calculated by averaging the items on the scale. A higher score points to higher life satisfaction. The principal component analysis of the items resulted in a one-factor solution (factor loadings ranged from 0.71 to 0.89), which explained 66.29% of the variance.

Work experience, measured in years of teaching, was used as a control variable due to its significant correlations with perceiving ($r = 0.15$, $p < 0.01$) and living a calling ($r = 0.13$, $p < 0.05$). This aligns with meta-analytic findings showing that older individuals tend to report a stronger presence of calling, though correlations are small (Dobrow et al., 2023).

All scales used in the study demonstrated high internal consistency, with Cronbach's alpha (α) coefficients exceeding 0.80 (Table 1).

Overview of data analyses

Data were initially screened for missing values, outliers, and violations of assumptions underlying the planned analyses. No outliers were detected, and skewness and kurtosis values fell within acceptable ranges, indicating no substantial deviation from normality. Correlational analyses were conducted to examine the bivariate relations among the five examined constructs. Hypotheses were tested using regression analyses implemented with the PROCESS macro (version 4.1) for SPSS 26 (Hayes,

2022). Bootstrapping procedures with 5,000 resamples and 95% confidence intervals (CIs) were employed (Models 4, 6, 7, and 83). All variables were standardised prior to inclusion in the regression models.

RESULTS

Descriptive analyses indicated that all study variables were rated above the scale midpoint. Among them, perceiving a calling and living a calling received the highest mean scores. As expected, all variables were positively correlated. As presented in Table 1, perceiving a calling was strongly correlated with living a calling, moderately correlated with job and life satisfaction, and weakly correlated with organisational support. Organisational support and living a calling were moderately correlated with job and life satisfaction.

TABLE 1
Descriptive statistics and correlations of perceiving a calling, organisational support, living a calling, job satisfaction, and life satisfaction

		α	Range	*M*	*SD*	1	2	3	4	5
1	Perceiving a calling	0.90	2.50 – 5.00	4.61	0.58	-				
2	Organisational support	0.91	1.38 – 7.00	5.14	1.23	0.18**	-			
3	Living a calling	0.93	2.17 – 5.00	4.38	0.66	0.70**	0.29**	-		
4	Job satisfaction	0.87	2.14 – 5.00	3.80	0.56	0.33**	0.58**	0.51**	-	
5	Life satisfaction	0.86	1.80 – 7.00	5.38	1.00	0.31**	0.28**	0.39**	0.44**	-

Note. Cronbach alpha (α); **Correlation is significant at the 0.01 level (2-tailed).

TABLE 2
Summary of standardised regression coefficients estimating living a calling, job satisfaction, and life satisfaction

	Outcome	Predictor	*β*	*SE*	*t*	*p*
Mediation	Model 1:	Perceiving a calling	0.70	0.04	18.87	0.000
	Living a calling	Work experience	0.03	0.04	0.72	0.473
	Model 2:	Perceiving a calling	-0.05	0.06	-0.74	0.458
	Job satisfaction	Living a calling	0.55	0.06	8.81	0.000
		Work experience	-0.05	0.05	-1.07	0.288
Moderated mediation	Model 1:	Perceiving a calling	0.69	0.04	18.50	0.000
	Living a calling	Organisational support	0.16	0.04	4.45	0.000
		Interaction term	0.11	0.04	2.89	0.004
		Work experience	0.05	0.04	1.34	0.183
	Model 2:	Perceiving a calling	-0.05	0.06	-0.74	0.458
	Job satisfaction	Living a calling	0.55	0.06	8.81	0.000
		Work experience	-0.05	0.05	-1.07	0.288
Moderated serial mediation	Full model:	Perceiving a calling	0.09	0.06	1.44	0.151
	Life satisfaction	Living a calling	0.18	0.07	2.60	0.010
		Job satisfaction	0.34	0.05	6.11	0.000
		Work experience	-0.11	0.05	-2.35	0.019

Note. Standardised coefficients are reported. Work experience was included in the analysis as a covariate. Interaction term = perceiving a calling x perceived organisational support.

Before testing the full model, a mediation analysis was conducted to examine whether living a calling served as a significant mediator between perceiving a calling and job satisfaction. Additionally, a moderation analysis was performed to assess whether organisational support moderated the relationship between perceiving a calling and living a calling. The results of these analyses are presented in Table 2.

Mediation model

The path coefficients (a, b, c, c') estimating the strength of the hypothesised causal associations are presented in Table 2. Results indicated that perceiving a calling positively predicted living a calling (95% CI [0.626, 0.771]; $R^2 = 0.50$, $F_{(2,377)} = 184.26$), supporting Hypothesis 1. Perceiving a calling also positively predicted job satisfaction (95% CI [0.240, 0.430]; $R^2 = 0.11$, $F_{(2,377)} = 23.60$). In line with Hypothesis 2, living a calling was a significant predictor of job satisfaction (95% CI [0.426, 0.671]). Furthermore, job satisfaction was positively related to life satisfaction (95% CI [0.234, 0.448]), supporting Hypothesis 3. The indirect effect of perceiving a calling on life satisfaction, via living a calling and job satisfaction, was significant ($\beta = 0.12$ $SE = 0.03$, 95% CI [0.078, 0.177], $R^2 = 0.25$, $F_{(4,375)} = 30.61$, $p < 0.001$), supporting Hypothesis 4. The mediation was complete, as the direct effect became nonsignificant (95% CI [-0.033, 0.216]).

Moderated mediation model

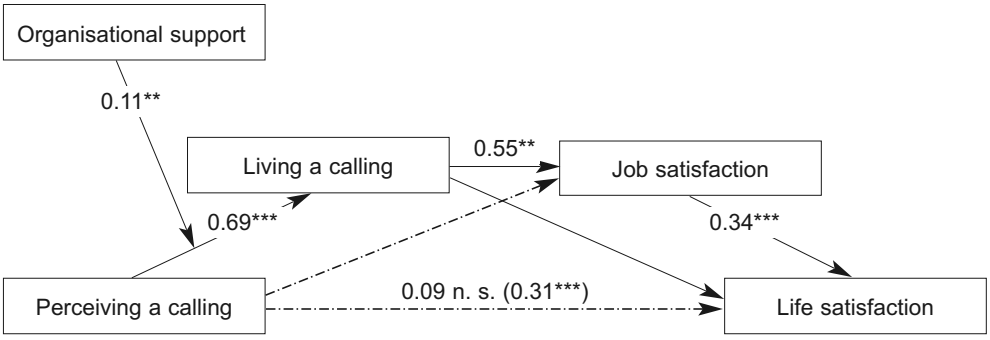
The moderation analyses (Table 2) revealed that organisational support (95% CI [0.090, 0.231]) significantly moderates the relationship between perceiving a calling and living a calling ($R^2 = 0.53$, $F_{(4,375)} = 107.07$, $p < 0.001$). The interaction index for living a calling was significant (95% CI [0.034, 0.181]; R^2ch = 0.01, $F_{(1,375)} = 8.33$, $p < 0.01$). The moderated mediation model was supported, as the confidence interval did not include zero ($\beta = 0.06$, $SE = 0.02$, 95% CI [0.019, 0.103])

The moderated serial mediation model (Figure 1) was also supported. Specifically, the relationship between perceiving a calling and life satisfaction was mediated by living a calling and job satisfaction, and organisational support significantly moderated the association between perceiving a calling and living a calling. The total effect of perceiving a calling on life satisfaction was positive (95% CI [0.212, 0.405], $R^2 = 0.10$, $F_{(1,378)} = 39.59$, $p < 0.001$). After accounting for the mediators, the direct effect became nonsignificant (95% CI [-0.033, 0.215]), indicating full mediation. The indirect effect of perceiving a calling on life satisfaction through job satisfaction alone was nonsignificant ($\beta = -0.02$, $SE = 0.02$, 95% CI [-0.055, 0.029]), highlighting the central role of living a calling in the proposed causal sequence ($\beta = 0.04$, $SE = 0.02$, 95% CI [0.013, 0.072]). Among

the control variables, work experience had a significant negative effect on life satisfaction (95% CI [-0.196, -0.017]).

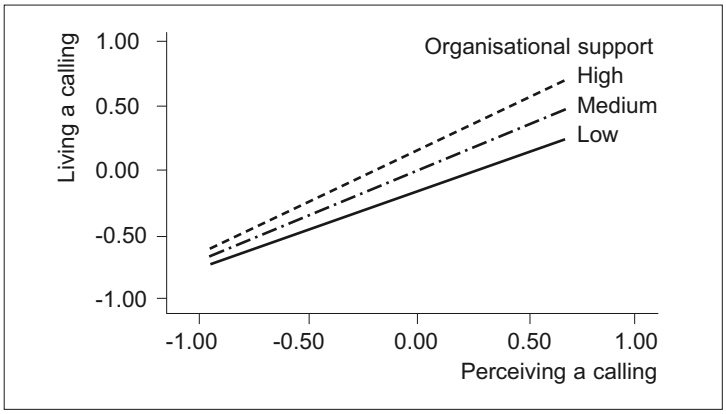
The index of moderated mediation was significant ($\beta = 0.02$, $SE = 0.01$, 95% CI [0.006, 0.035]). Conditional indirect effects were significant at -1 *SD* ($\beta = 0.10$, $SE = 0.02$, 95% CI [0.063, 0.147]), the mean ($\beta = 0.12$, $SE = 0.02$, 95% CI [0.077, 0.172]), and $+1$ *SD* ($\beta = 0.14$, $SE = 0.03$, 95% CI [0.088, 0.201]) of perceived organisational support. Inspection of the interaction slopes indicated that the indirect effect strengthened as perceived organisational support increased (Figure 2). These findings support Hypothesis 5, demonstrating that the indirect effect of perceiving a calling on life satisfaction, through living a calling and job satisfaction, is contingent upon the level of perceived organisational support. Specifically, when organisational support is high, teachers are more likely to feel enabled to act on their calling, thereby increasing the likelihood of living a calling and experiencing higher job satisfaction and consequently greater life satisfaction. Overall, the proposed model accounted for 25% of the variance in life satisfaction ($R^2 = 0.25$, $F_{(4,375)} = 30.61$, $p < 0.001$.

FIGURE 1
Moderated serial mediation of perceiving a calling on life satisfaction



Note. Numbers in parentheses reflect the original paths before controlling for mediators. The interaction term = perceiving a calling x perceived organisational support. Work experience is used as a covariate. $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

FIGURE 2
Interaction effect of organisational support and perceiving a calling on living a calling



DISCUSSION

The present study aimed to deepen the understanding of the mechanisms through which perceiving a calling relates to life satisfaction. Drawing on Work as Calling Theory (Duffy et al., 2018), we tested a well-being model in which perceiving a calling predicts living a calling among individuals who experience organisational (i.e., school) support. Living a calling then leads to higher job satisfaction and, consequently, greater life satisfaction. Overall, the results support the proposed model.

Living a calling and job satisfaction as mediators between perceiving a calling and life satisfaction

Regarding the first aim of the study, the findings confirmed that living a calling and job satisfaction sequentially mediate the relationship between perceiving a calling and life satisfaction. This supports the view that for individuals with a sense of calling, work represents a central and meaningful life domain, with satisfaction at work contributing substantially to overall well-being (Wright et al., 1999). These results align with Duffy et al.'s (2018) model and prior research showing that perceiving a calling fosters living a calling, which enhances job satisfaction and, in turn, life satisfaction (Duffy et al., 2013). Similarly, Dobrow et al. (2023) emphasise that callings serve as an important pathway to a fulfilling life.

The study also showed that perceiving a calling had no direct relationship with life satisfaction, indicating total mediation. This suggests that although perceiving a calling is a prerequisite for living a calling, it is the living of that calling that plays a central role in job satisfaction and, consequently, life satisfaction. This finding is consistent with earlier studies. For example, Duffy et al. (2013) found that living a calling fully mediated the link between perceiving a calling and life satisfaction, while Duffy et al. (2016) reported that perceiving a calling may even relate to lower life satisfaction when both living a calling and life meaning are included as mediators. In other words, individuals who perceive a calling but do not enact it or experience meaning tend to report lower life satisfaction. Conversely, as shown in this and other studies (Duffy et al., 2016), those who live their calling experience higher job satisfaction. Moreover, the relationship between living a calling and job satisfaction was stronger among employees experiencing higher burnout or exploitation, suggesting that living a calling may serve as a protective factor for maintaining job satisfaction even in demanding work environments.

Our model accounted for a substantial proportion of the variance in life satisfaction (25%). However, several predictors identified as relevant in previous studies, such as life mean-

ing (Duffy et al., 2013), were not included. Earlier studies have shown that living a calling is positively associated with both job satisfaction and a sense of life meaning, which in turn may promote life satisfaction (Duffy et al., 2013). Future research could therefore test the model that includes life meaning as a mediator, but also other potential mediators in the link between living a calling and life satisfaction, such as work engagement and self-efficacy. Variables such as work-life and work-family balance represent promising moderators that warrant further investigation.

It should be noted that the model proposed by Duffy et al. (2018) includes two mediators between perceiving a calling and living a calling: the person-environment fit and work meaning. Perceiving a calling is thought to enhance person-environment fit, since individuals with a calling are more likely to choose work environments that fit their calling. This fit, in turn, is expected to foster work meaning and career commitment, ultimately leading to living a calling. Future studies should address these two hypothesised mediators in the link between perceiving and living a calling.

The model tested in the presented study assumes that perceiving a calling is a predictor variable and life satisfaction is the outcome. However, reverse causality is also possible. The theoretical framework proposed by Duffy et al. (2018) suggests that personal factors, including overall life satisfaction, may create conditions that enable individuals to recognise and live out their calling at work. Studies using cross-lagged panel designs indicate that calling and life satisfaction may influence each other bidirectionally. Individuals with a more positive personal outlook (including higher life satisfaction) tend to overcome work-related challenges more effectively and are therefore more likely to experience their work as a calling (Unanue et al., 2017). Research models usually conceptualise life satisfaction as an outcome of having and living a calling; however, more longitudinal and experimental studies are needed to substantiate this assumption.

Organisational support as a moderator between perceiving a calling and living a calling

The second aim of the study was to examine the moderating role of organisational support. In line with Work as a Calling Theory (WCT; Duffy et al., 2018), the results confirmed that organisational support moderates the relationship between perceiving and living a calling in the predicted direction. Specifically, the relationship between perceiving a calling (PC) and living a calling (LC) was stronger among teachers who reported higher levels of support from their school, suggesting that strong organisational support fosters positive work outcomes that

enable individuals to more fully live out their calling. Although schools usually provide the organisational structure and support that is needed for teachers to feel that their work fits their calling, our findings showed that those who perceive greater organisational support are better at translating their calling into action. High organisational support reinforces teachers' beliefs that their contribution to the school's well-being is valued, that their extra efforts are recognised, and that the organisation cares about their job satisfaction and well-being.

The moderating role of organisational support may be especially salient in the current Croatian educational context. Recent research indicates that Croatian teachers are widely dissatisfied with their salaries, social status, and their limited influence on educational reforms. While many report intrinsic satisfaction with teaching, a substantial proportion perceive their profession as socially undervalued and materially under-rewarded (Jokić et al., 2022). In such a context, organisational support may play a crucial role in enabling teachers to transform perceiving a calling into living a calling by buffering the effects of negative structural and societal conditions.

Practical implications

The findings of this study have practical implications for both school management practice and national education policies. First, it is essential to recognise perceiving a calling as an important factor in selection procedures for the teaching profession. Second, it is important to acknowledge the central role of living a calling in promoting teachers' job satisfaction and overall well-being, as both are linked to higher teaching quality and greater student satisfaction.

At the level of the school management, principals should cultivate an environment that supports teachers' autonomy (e.g., in designing curriculum, teaching methods, and classroom management), introduce reflective sessions to help teachers explore what makes their role profoundly meaningful and provide opportunities for continuous professional development. Organisational support may include taking account of teachers' opinions and well-being, acknowledging and rewarding teachers' extra efforts, and offering additional training opportunities. Maintaining a healthy work-life balance is also essential, as living one's work as a calling may increase the risk of workaholism, burnout and organisational exploitation (Duffy et al., 2018).

At the level of school system, educational authorities should be aware that excessive administrative tasks, large class sizes and stress associated with low salaries often limit teachers' opportunity for creativity or meaningful engagement, thus hindering teachers' ability to *live* their calling at work.

Limitations and future studies

The first limitation of this study is the use of a one-time self--report measure, which contributes to the strength of all the correlations, due to the inherent method effect. Second, the study is of a cross-sectional type; therefore, longitudinal research is needed to test the proposed model. The sample is comprised of primary school teachers, and it would be interesting to investigate whether the model is also valid in diverse samples, such as secondary school teachers or employees in other organisational settings, such as business environments. In addition, this study addresses only a subset of variables from the Duffy et al. (2018) model. Future research should explore other components of the model, including additional proposed moderators, and consider potential negative outcomes such as burnout.

CONCLUSION

Having a calling does not necessarily guarantee higher job or life satisfaction. What seems to be more important is the ability to live one's calling, which requires support from school principals and colleagues. Teachers who can live their calling tend to experience greater job satisfaction, which may, in turn, spill over into higher life satisfaction.

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REFERENCES

Agyapong, B., Obuobi-Donkor, G., Burback, L., & Wei, Y. (2022). Stress, burnout, anxiety and depression among teachers: A scoping review. *International Journal of Environmental Research and Public Health, 19*(17), 10706. https://doi.org/10.3390/ijerph191710706

Allan, B. A., Tebbe, E. A., Duffy, R. D., & Autin, K. L. (2015). Living a calling, life satisfaction, and workplace climate among a lesbian, gay, and bisexual population. *The Career Development Quarterly, 63*(4), 306–319. https://doi.org/10.1002/cdq.12030

Berg, J. M., Grant, A. M., & Johnson, V. (2010). When callings are calling: Crafting work and leisure in pursuit of unanswered occupational callings. *Organization Science, 21*(5), 973–994. https://doi.org/10.1287/orsc.1090.0497

Bilz, L., Fischer, S. M., Hoppe-Herfurth, A.-C., & John, N. (2022). A consequential partnership: The association between teachers' well-being and students' well-being and the role of teacher support as a mediator. *Zeitschrift für Psychologie, 230*(3), 264–275. https://doi.org/10.1027/2151-2604/a000497

Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology, 83*(4), 915–934. https://doi.org/10.1348/096317909X478557

Bullough, R.V., & Hall-Kenyon, K.M. (2012). On teacher hope, sense of calling and commitment to teaching. *Teacher Education Quarterly, 39*(2), 7–27.

Diener, E., Emmons, R. A., Larsen, R. J., Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Dik, B. J., Eldridge, B. M., Steger, M. F., & Duffy, R. D. (2012). Development and validation of the Calling and Vocation Questionnaire (CVQ) and Brief Calling Scale (BCS). *Journal of Career Assessment, 20*(3), 242–263. https://doi.org/10.1177/1069072711434410

Dobrow, S. R., Weisman, H., Heller, D., & Tosti-Kharas, J. (2023). Calling and the good life: A meta-analysis and theoretical extension. *Administrative Science Quarterly, 68*(2), 508–550. https://doi.org/10.1177/00018392231159641

Douglass, R. P., Duffy, R. D., & Autin, K. L. (2016). Living a calling, nationality, and life satisfaction: A moderated, multiple mediator model. *Journal of Career Assessment, 24*(2), 253–269. https://doi.org/10.1177/1069072715580324

Duckworth, A. L., Quinn, P. D., & Seligman, M. E. P. (2009). Positive predictors of teacher effectiveness. *The Journal of Positive Psychology, 4*(6), 540–547. https://doi.org/10.1080/17439760903157232

Duffy, R. D., & Autin, K. L. (2013). Disentangling the link between perceiving a calling and living a calling. *Journal of Counseling Psychology, 60*(2), 219–227. https://doi.org/10.1037/a0031934

Duffy, R. D., Allan, B. A., & Dik, B. J. (2011a). The presence of a calling and academic satisfaction: Examining potential mediators. *Journal of Vocational Behavior, 79*(1), 74–80. https://doi.org/10.1016/j.jvb.2010.11.001

Duffy, R. D., Dik, B. J., & Steger, M. S. (2011b). Calling and work-related outcomes: Career commitment as a mediator. *Journal of Vocational Behavior, 78*(2), 210–218. https://doi.org/10.1016/j.jvb.2010.09.013

Duffy, M. K., Ganster, D. C., & Shaw, J. D. (1998). Positive affectivity and negative outcomes: The role of tenure and job satisfaction. *Journal of Applied Psychology, 83*(6), 950–959. https://doi.org/10.1037/0021-9010.83.6.950

Duffy, R. D., Allan, B. A., Autin, K. L., & Bott, E. M. (2013). Calling and life satisfaction: It's not about having it, it's about living it. *Journal of Counseling Psychology, 60*(1), 42–52. https://doi.org/10.1037/a0030635

Duffy, R. D., Allan, B. A., Autin, K. L., & Douglass, R. P. (2014). Living a calling and work well-being: A longitudinal study. *Journal of Counseling Psychology, 61*(4), 605–615. https://doi.org/10.1037/cou0000042

Duffy, R. D., Bott, E. M., Allan, B. A., Torrey, C. L., & Dik, B. J. (2012). Perceiving a calling, living a calling, and job satisfaction: Testing a moderated, multiple mediator model. *Journal of Counseling Psychology, 59*(1), 50–59. https://doi.org/10.1037/a0026129

Duffy, R. D., Dik, B. J., Douglass, R. P., England, J. W., & Velez, B. L. (2018). Work as a calling: A theoretical model. *Journal of Counseling Psychology, 65*(4), 423–439. https://doi.org/10.1037/cou0000276

Duffy, R. D., Douglass, R. P., Autin, K. L., England, J., & Dik, B. J. (2016). Does the dark side of a calling exist? Examining potential negative effects. *The Journal of Positive Psychology, 11*(6), 634–646. https://doi.org/10.1080/17439760.2015.1137626

Duffy, R. D., Douglass, R. P., Gensmer, N. P., England, J. W., & Kim, H. J. (2019). An initial examination of the work as calling theory. *Journal of Counseling Psychology, 66*(3), 328–340. http://doi.org/10.1037/cou0000318

Ehrhardt, K., & Ensher, E. (2021). Perceiving a calling, living a calling, and calling outcomes: How mentoring matters. *Journal of Counseling Psychology, 68*(2), 168–181. https://doi.org/10.1037/cou0000513

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507. https://doi.org/10.1037/0021-9010.71.3.500

Gradišek, P., Pečjak, S., Rijavec, M., & Jurčec, L. (2020). Teaching as a calling and well-being of Slovenian and Croatian teachers. *Psihologijske teme, 29*(2), 249–267. https://doi.org/10.31820/pt.29.2.3

Hackman, J. R., & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology, 60*(2), 159–170. https://doi.org/10.1037/h0076546

Hagmaier, T. & Abele, A. E. (2012). The multidimensionality of calling: Conceptualization, measurement and a bicultural perspective. *Journal of Vocational Behavior, 81*(1), 39–51. https://doi.org/10.1016/j.jvb.2012.04.001

Hagmaier, T., & Abele, A. E. (2015). When reality meets ideal: Investigating the relation between calling and life satisfaction. *Journal of Career Assessment, 23*(3), 367–382. https://doi.org/10.1177/1069072714547164

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.

Heller, D., Watson, D., & Hies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin, 130*(4), 574–600. https://doi.org/10.1037/0033-2909.130.4.574

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Jokić, B., Ristić Dedić, Z., Šimon, J., & Peharda, A. (2022). *Nemamo tri mjeseca godišnjeg: perspektive učitelja i nastavnika osnovnih i srednjih škola o radu u školi i društvenom statusu u Republici Hrvatskoj* [*We do not have three months of annual leave: Perspectives of primary and secondary school teachers on schoolwork and social status in the Republic of Croatia*] (Preliminary results). Institute for Social Research in Zagreb. https://www.admin.idi.hr/uploads/nemamo_tri_mjeseca_godisnjeg_5d5cfd537d.pdf

Jurčec, L. (2019). Teachers' work orientations and flourishing: Mediated by flow in different domains. In P. Besedová, N. Heinrichová, & J. Ondráková (Eds.), *10th International Conference on Education and Educational Psychology (ICEEPSY 2019): The European Proceedings of Social & Behavioural Sciences EpSBS, Vol. 72* (pp. 40–56). Future Academy. https://doi.org/10.15405/epsbs.2019.11.4

Jurčec, L., & Rijavec, M. (2015). Work orientations and well/ill-being of elementary school teachers. In M. Matijević & S. Opić (Eds.), Nastava i škola za net generacije: unutarnja reforma nastave u osnovnoj i srednjoj školi [*School for Net-generation: Internal reform of primary and secondary school education*]. (pp. 100–110). Faculty of Teacher Education, University of Zagreb.

Kanta, K., & Srivalli, P. (2018). Teaching effectiveness: A study on moderation effect of organisational support and job satisfaction. *Journal of Strategic Human Resource Management, 7*(1), 9–16.

Lee, A. Y. P., Chen, I. H., & Chang, P. C. (2016). Sense of calling in the workplace: The moderating effect of supportive organizational climate in Taiwanese organizations. *Journal of Management & Organization, 24*(1). Advance online publication. https://doi.org/10.1017/jmo.2016.16

Lee, E. S., & Shin, Y.-J. (2017). Social cognitive predictors of Korean secondary school teachers' job and life satisfaction. *Journal of Vocational Behavior, 102,* 139–150. https://doi.org/10.1016/j.jvb.2017.07.008

Luque-Reca, O., García-Martínez, I., Pulido-Martos, M., Burguera, J. L., & Augusto-Landa, J. M. (2022). Teachers' life satisfaction: A structural equation model analyzing the role of trait emotion regulation, intrinsic job satisfaction and affect. *Teaching and Teacher Education, 113*, 103668. https://doi.org/10.1016/j.tate.2022.103668

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, 103425. https://doi.org/10.1016/j.tate.2021.103425

Maser, L. (2021). Job crafting as means to live out one's calling: An examination of NPO employees. *Junior Management Science, 6*(2), 347–369.

Miljković, D., Jurčec, L., & Rijavec, M. (2016). The relationship between teachers' work orientations and well-being: Mediating effects of work meaningfulness and occupational identification. In Z. Marković, M. Đurišić Bojanović, & G. Đigić (Eds.), *Individual and environment: International thematic proceedia* (pp. 303–312). Faculty of Philosophy in Niš.

Olčar, D., Rijavec, M., & Ljubin Golub, T. (2019). Primary school teachers' life satisfaction: The role of life goals, basic psychological needs and flow at work. *Current Psychology, 38*(2), 320–329. https://doi.org/10.1007/s12144-017-9611-y

Peterson, C., Park, N., Hall, N., & Seligman, M. E. P. (2009). Zest and work. *Journal of Organizational Behavior, 30*(2), 161–172. https://doi.org/10.1002/job.584

Rijavec, M., Jurčec, L., & Ljubin Golub, T. (2021). Calling and well-being of teachers: The mediating role of job crafting and work meaningfulness. In C. Pracana & M. Wang (Eds.), *Psychology applications & developments VII, Advances in psychology and psychological trends series* (pp. 143–153). In Science Press.

Rijavec, M., Pečjak, S., Jurčec, L., & Gradišek, P. (2016). Money and career or calling? Intrinsic vs. extrinsic work orientations and job satisfaction of Croatian and Slovenian teachers. *Croatian Journal of Education, 18*(1), 201–223. https://doi.org/10.15516/cje.v18i1.1163

Skaalvik, E. M., & Skaalvik, S. (2018). Job demands and job resources as predictors of teacher motivation and well-being. *Social Psychology of Education: An International Journal, 21*(5), 1251–1275. https://doi.org/10.1007/s11218-018-9464-8

Song, M., Yang, N., & Lea, E. (2016). The relationship of perceiving calling, self-esteem and occupational identity with life satisfaction of teachers. *Korean Journal of Teacher Education, 32*(4), 197–218. https://doi.org/10.14333/KJTE.2016.32.4.197

Treadgold, R. (1999). Transcendent vocations: Their relationship to stress, depression, and clarity of self-concept. *Journal of Humanistic Psychology, 39*(1), 81–105. https://doi.org/10.1177/0022167899391010

Unanue, W., Gómez, M. E., Cortez, D., Oyanedel, J. C., & Mendiburo-Seguel, A. (2017). Revisiting the link between job satisfaction and life satisfaction: The role of basic psychological needs. *Frontiers in Psychology, 8,* 680. https://doi.org/10.3389/fpsyg.2017.00680

Willemse, M., & Deacon, E. (2015). Experiencing a sense of calling: The influence of meaningful work on teachers' work attitudes. *SA Journal of Industrial Psychology, 41*(1), 1–9. https://doi.org/10.4102/sajip.v41i1.1274

Wright, T. A., Bennett, K. K., & Dun, T. (1999). Life and job satisfaction. *Psychological Reports, 84*(3), 1025–1028. https://doi.org/10.2466/pr0.1999.84.3.1025

Yolanda, E., & Said, L. R. (2022). Perceived organizational support to increase teachers' commitment and performance through work engagement: A case study of an Indonesian vocational school. *International Journal of Management in Education, 16*(5), 485–506. https://doi.org/10.1504/IJMIE.2022.125482

Zhang, J., Wu, Q., Miao, D., Yan, X., & Peng, J. (2014). The impact of core self-evaluations on job satisfaction: The mediator role of career commitment. *Social Indicators Research, 116*(3), 809–822. https://doi.org/10.1007/s11205-013-0328-5

Dobrobit učitelja: uloga poziva i organizacijske podrške

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Rad se bavi istraživanjem zadovoljstva životom učitelja iz perspektive Teorije posla kao poziva. U istraživanju se ispitivala: a) medijacijska uloga življenja poziva i zadovoljstva poslom u odnosu između percipiranja poziva i životnoga zadovoljstva, b) moderirajuća uloga organizacijske podrške u odnosu između percipiranoga poziva i življenja poziva. Tri stotine osamdeset učitelja razredne nastave (96 % žene, 20 godina radnog staža u prosjeku) sudjelovalo je u istraživanju. Testiran je model moderirane serijalne medijacije. Rezultati su pokazali da su i življenje poziva i zadovoljstvo poslom medijatori između percipiranoga poziva i zadovoljstva životom. Percepcija poziva je pozitivno

povezana sa življenjem poziva, što dovodi do većeg zadovoljstva poslom i, posljedično, do većega životnog zadovoljstva. Također, percipirani poziv u većoj je mjeri pozitivno povezan sa življenjem poziva onda kada postoji organizacijska podrška. Rezultati podržavaju predloženi model te imaju teorijske i praktične implikacije na području školskoga menadžmenta i dobrobiti učitelja.

Ključne riječi: poziv, zadovoljstvo poslom, zadovoljstvo životom, organizacijska podrška, učitelji



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TEACHER PERCEPTIONS OF SCHOOL CLIMATE AND TWO DIMENSIONS OF MENTAL HEALTH: A CROSS-LAGGED PANEL ANALYSIS

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This study aims to examine the dynamic relationships between school climate, psychological distress, and teacher well-being across two time points. Using a two-wave panel design, the research was conducted among 189 Croatian high school teachers with an approximately 10-month lag. Structural equation modeling was applied to analyse the cross-lagged relationships between the study variables over time. The analyses indicated that, among the structural specifications, the causal model was the most parsimonious. Teachers with better perceptions of the school climate at Time 1 had fewer psychological distress symptoms at Time 2, but the reciprocal effect of well-being and distress was not confirmed. These findings underscore the importance of the school environment as a key factor in shaping teacher experiences rather than focusing solely on individual attributes and support systemic investments in positive school climate.

Keywords: teacher well-being, teacher mental health, psychological distress, school climate, high-school

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INTRODUCTION

The mental health of teachers, encompassing both psychological distress and personal well-being, has become a critical area of concern in educational research and policy. Alongside increasing rates of stress, anxiety, and emotional exhaustion (Madigan & Kim, 2021; Agyapong et al., 2022), researchers have turned their attention to the positive dimensions of teacher functioning, including life satisfaction, motivation, and psychological growth (Hascher & Waber, 2021; Ryan & Deci, 2001; Seligman, 2011). These personal factors do not operate in isolation; they are deeply embedded in the broader school context, particularly teachers' perceptions of school climate: the relational, emotional, and organisational quality of their work environment (Thapa et al., 2013; Wang & Degol, 2016, Gonzálvez et al., 2023). Hascher & Waber's (2021) review showed that teacher well-being research often falls into deficit-based versus flourishing-based traditions, while Ozturk et al. (2024) propose an integrative framework explicitly distinguishing negative symptoms (e.g., stress, anxiety) from positive states (e.g., satisfaction, growth). In this paper, we therefore conceptualise well-being and distress as two related but separable aspects of teacher mental health, which is in line with increasing consensus that well-being and distress are not simply opposing ends of a single continuum. Distress captures negative symptoms such as stress, anxiety, and depression, while well-being captures positive indicators such as vitality, engagement, and professional growth (Hascher & Waber, 2021; Ozturk et al., 2024). Keyes' (2005) dual-continua model explains how distress does not equal low well-being, and that individuals can be flourishing (high well-being, low distress), struggling (high well-being, high distress), languishing (low well-being, low distress), or mentally ill (low well-being, high distress). We adopt this approach, viewing psychological distress and personal well-being as complementary dimensions of mental health that may be differentially associated with the school context, allowing for a more nuanced understanding of how teachers' mental health relates to their professional experiences and roles (Collie & Martin, 2023; Hascher & Waber, 2021).

Psychological distress

Psychological distress is commonly conceptualised as a multidimensional construct encompassing symptoms of depression, anxiety, and stress (Lovibond & Lovibond, 1995), which together represent the most prevalent and overlapping forms of emotional strain in occupational contexts (Agyapong et al., 2022). Research indicates that high levels of stress and burnout among educators affect their mental health and contri-

bute significantly to their intentions to leave the profession (Madigan & Kim, 2021). Agyapong et al. (2022) report wide-ranging prevalence rates of clinically significant symptoms of work-related stress (8.3%–87.1%), anxiety (38%–41.2%), and depression (4%–77%) among teachers. Stress not only affects teachers' health but also undermines their relationships with students and colleagues (Kidger et al., 2016) and is a major factor in teacher attrition (Reinke et al., 2025). These issues have intensified in recent years due to modern societal demands, economic pressures, and the lingering effects of the COVID-19 pandemic (Baker et al., 2021; Santiago et al., 2023). Agyapong et al. (2022) also reported that correlates of stress, burnout, anxiety, and depression include sex, age, marital status, and school-related factors such as years of teaching, class size, job satisfaction, and subject taught.

Well-being

Well-being is on a general level conceptualised through both hedonic (positive emotions, life satisfaction) and eudaimonic (meaning, growth, purpose) frameworks (Ryan & Deci, 2001), as well as a low level of negative affect (Diener et al., 1999). When we turn to teachers, Hascher and Waber (2021) conducted a systematic review of studies on teacher well-being published between 2000 and 2019, revealing that the field is marked by pervasive ambiguity and heterogeneity of how teacher well-being is defined and theoretically modelled. Authors highlight the importance of both personal resources (e.g., self-efficacy, emotional regulation) and contextual factors (e.g., school climate, workload). Collie and Martin (2023) proposed a tripartite model of teacher well-being comprising subjective vitality (feeling energised at work), behavioural engagement (active involvement in teaching tasks), and professional growth (reflection and investment in development). Drawing on the definition by Huppert and So (2013), well-being as feeling good and functioning effectively, these three components capture both affective and functional dimensions of occupational well-being. In our study, we operationalise well-being as positive mental health, strength, good sense of personal emotional state and functionality.

Well-being of teachers shapes instructional practices, emotional expression, and motivation (Buonomo et al., 2019; Burić & Frenzel, 2021), and is linked with job performance, classroom behaviour, and school-wide effectiveness (Gray et al., 2017; Bajorek et al., 2014). Zhou et al. (2024), in a meta-analysis of factors associated with teacher well-being, identified hope, self-driven motivation, psychological capital, and job competencies as strong positive predictors, while neuroticism and lack of engagement were the most common negative predictors.

A recent integrative framework proposed by Ozturk et al. (2024) argues that much of the existing literature conceptualises teacher well-being through fragmented and one-sided discourses, limiting the development of a more holistic and balanced understanding. Ozturk et al. (2024) synthesise professionalism, deficit-based and positive psychology perspectives, suggesting a unified model of teacher well-being comprising three interrelated dimensions: (a) deficit/negativity (stress, anxiety, depression), (b) flourishing/positivity (job satisfaction, hope, optimism), and (c) professionalism (recognition, peer support, workload).

School climate

Crucially, school climate has emerged as a key environmental determinant of both psychological distress and well-being. School climate refers to teachers' perceptions of relational and organisational support, leadership quality, collegial trust, and emotional safety (Thapa et al., 2013; Wang & Degol, 2016; Velki et al., 2014). The Gonzálvez et al. (2023) review offers a comprehensive theoretical grounding for the study of school climate, highlighting that school climate is a multidimensional construct encompassing relational, instructional, and organisational dimensions. The authors emphasise that it is closely tied to students' and teachers' emotional and psychological functioning, supporting models such as the ecological systems theory (Bronfenbrenner, 1979) and the Job Demands–Resources (JD-R) model. Numerous studies confirm that positive school climate including warm relational context and collegial support fulfils teachers' basic psychological needs – autonomy, competence, and relatedness thereby enhancing their well-being and reducing emotional strain (Collie et al., 2012; Harrison et al., 2025; Hascher & Waber, 2021). Taken together, these studies reinforce the idea that a supportive school climate is not only protective against distress but also actively cultivates teacher flourishing.

Interconnectedness of school climate, well-being and psychological distress

In a three-wave longitudinal cohort of early-career teachers conducted by McLean and colleagues (2017), multilevel growth models showed that depressive and anxiety symptoms rose over time. Teachers who perceived a lower-quality school climate experienced significantly steeper increases in depressive and anxiety symptoms across the transition from training to first teaching year. These climate effects were estimated while adjusting for perceived social support and stressful life events, indicating that school climate contributed unique explanatory power beyond outside stressors. Furthermore, Kidger et al.

(2016) found that poor teacher well-being and depression were closely related to several workplace factors, including job dissatisfaction, stress, reduced student attendance, and challenges in seeking collegial support despite wanting it. They also noted that governmental pressures on school ratings contributed to lower well-being. These results reflect how teachers' mental health is not only shaped by individual experiences but also by the broader policies and school climate. Dreer (2022) has also reported upon a time-lagged study of German teachers where school climate and job crafting were modelled as separate predictors, each uniquely forecasting teacher well--being at follow-up. Roffey (2012) in her conceptual paper emphasised that positive school climate and supportive relationships benefit the entire school community. When teachers feel comfortable and supported, especially in environments that promote autonomy and engagement, they are more likely to interact in a caring, respectful way, which improves their interactions with both colleagues and students and in the long run, enhances teachers' psychological functioning and their overall mental health. That is the reason we were interested in bidirectionality, i.e., dynamics over time. Data collection waves were separated by approximately 10 months. To minimise seasonal variation in workload and school routines, both waves were scheduled during the same period of the school year across consecutive years (i.e., the same calendar months). This design allows us to examine prospective associations while reducing potential confounding from the autumn–spring shift in instructional demands and work-related stress.

The role of professional experience

Another important factor to consider is the role of professional experience. While some studies indicate that early-career teachers are more optimistic and report higher satisfaction with their school environment (Admiraal & Røberg, 2023), other studies suggest that novice teachers face greater emotional challenges and instability (Hascher & Waber, 2021). Amitai & Van Houtte (2022) argue that newcomers in the profession face job insecurity and excessive workload, whereas experienced teachers often report dissatisfaction due to limited opportunities for advancement and professional growth. These conflicting findings highlight the need for more research to better understand how career stage may influence the interrelations among well-being, psychological distress, and perceptions of school climate. Hascher and Waber (2021) as well as Collie and Martin (2023) emphasise the need for longitudinal and integrative research to analyse and better understand how well-being changes over time and which factors are related to more adaptive trajectories.

PRESENT STUDY

The aim of this study is to investigate the reciprocal, longitudinal relationships between teachers' perceptions of school climate, psychological distress, and personal well-being. Guided by the dual-continua model of mental health (Keyes, 2005) and the integrated teacher well-being framework of Ozturk et al. (2024), we conceptualise well-being and psychological distress as distinct but related dimensions – allowing for a more comprehensive understanding of teachers' mental health. By modelling well-being and psychological distress simultaneously, we avoid conceptualising them as mere opposites. Instead, consistent with dual continua, we test how the positive and negative dimensions of mental health are uniquely and reciprocally associated with teachers' perceptions of school climate.

We integrate this perspective with the Job Demands–Resources (JD-R) model (Bakker & Demerouti, 2017), framing school climate as both a resource that promotes well-being and a protective factor against distress. At the same time, we consider how teachers' own mental states may influence their perceptions of school climate over time, highlighting possible bidirectional effects. While recent studies suggest such dynamic interactions (e.g., Collie & Martin, 2023), the examination of bidirectional relationships between school climate and both positive and negative outcomes remains an under-researched area. Alamos et al. (2022) and colleagues explored the bidirectional association between school climate, personal accomplishment, and emotional exhaustion. Their findings showed that a positive school climate at the beginning of the school year was significantly associated with higher levels of personal accomplishment and lower levels of emotional exhaustion at the end of the year. Nevertheless, given the lack of research in this area and findings from other studies (e.g., Whitaker et al., 2015), which showed that higher levels of work-related stress were associated with poorer teacher–student relationships, there is a clear need for further research into the mutual associations between the school environment and teachers' psychological outcomes.

Moreover, Hascher & Waber (2021) as well as Ozturk et al. (2024) documented that most studies were cross-sectional, with few longitudinal or intervention designs, underscoring the need for more time-sensitive and dynamic research approaches such as ours. This study adopts a two-wave cross-lagged panel design to examine how contextual (school climate) and individual (well-being, distress, and teacher professional experience) factors interact over time and whether teacher experience impacts changes in school climate, well-being, or distress in the second year. More specifically, we hypothesise:

H1: Stability and Concurrent Relations Over Time

H1a: Teachers' well-being, psychological distress, and perceptions of school climate will show significant stability from Year 1 to Year 2.

H1b: Within each wave, school climate will be positively associated with well-being and negatively associated with psychological distress; well-being will be negatively associated with latent psychological distress.

H2: School Climate Predicts Mental Health

H2a: More positive perceptions of school climate in Year 1 will predict higher well-being in Year 2, over and above Year-1 well-being and length of service.

H2b: More positive perceptions of school climate in Year 1 will predict lower psychological distress in Year 2, over and above Year-1 distress and length of service.

H3: Mental Health Predicts Perceptions of School Climate

H3a: Higher well-being in Year 1 will predict more positive perceptions of school climate in Year 2, controling for Year-1 climate and length of service.

H3b: Higher psychological distress in Year 1 will predict more negative perceptions of school climate in Year 2, controlling for Year-1 climate and length of service.

H4: Professional Experience as a Predictor

H4: Length of service will negatively predict perceived school climate in Year 2, after controlling for Year-1 climate (i.e., residual change).

MATERIALS AND METHODS

Procedure and participants

The research was conducted as part of the project: 'Testing the 5C framework of positive youth development: Traditional and digital mobile assessment – P.R.O.T.E.C.T.' funded by the Croatian Science Foundation (UIP-2020-02-2852). The survey was conducted online from February to May 2022 (first wave) and from February to April 2023 (second wave) via the SurveyMonkey platform. School counsellors (usually school psychologist, school pedagogue or social pedagogue in Croatia) were asked to distribute the questionnaire to the teacher council, and interested school personnel completed surveys online during their free time. There were 1,029 participants at Time 1 and 889 participants at Time 2, including teachers, school counsellors and headmasters from 65 high-school settings in five Croatian

cities, Rijeka, Zagreb, Osijek, Split and Varaždin. Cities from different regions of the Republic of Croatia were selected in order to make the sample as representative of Croatia as possible. Unfortunately, participation was not mandatory, so we had a lot of participants taking part in the survey only in Time1 or Time2. Since we were interested in the teacher perspective, we have managed to connect the two-panel data for a total of $N = 189$ teachers from the total number of participants. The average age of the teachers was $M_{age} = 44.52$ ($SD = 10.24$). The average number of years working as teachers was $M_{work} = 14.79$ ($SD = 10.38$) years, with a minimum of less than a year or a year (for 9% of the participants), whereas 4.2% were in the profession for 35 years or more. A total of 23.8% of the teachers in our sample were male, and 76.2% were female (according to the Croatian Bureau of Statistics, 2021, 67.9% of the teachers in Croatian secondary schools are female, and 32.1% are male). A total of 22.2% were teachers in gymnasium programmes, 60.3% were working in four-year vocational schools, and 17.5% were working in three-year vocational schools. With respect to the subject the participants were teaching, 19% were teaching languages, 23% were teaching art, 19.6% were teaching humanities, and 29.1% were teaching specific expert subjects.

Ethical approval for the study was obtained from the Ministry of Science and Education, the National Agency for Education, and the institutional ethics committee (Approval No. 251-74/22-01/2). Participation was confidential and voluntary.

Measures

All instruments utilised were either developed within Croatia or translated into Croatian. Each underwent validation and internal consistency assessments across multiple preliminary studies.

The *demographic questionnaire* asked participants to report upon the length of service in the teaching profession, their gender, the type of high-school programme they were working in and the subjects they were teaching.

The Croatian school climate questionnaire (Velki et al., 2014) for teachers contains 18 items (e.g. *I enjoy working at this school, Teachers in this school try to support the students*). The questionnaire contains items that include the sense of belonging and safety at school, the relationship between teachers and students, the atmosphere for learning and parental connection with school and involvement in children's education. The participants assess the items on a Likert-type scale where 1 = strongly disagree and 5 = strongly agree, and the total scores are summed to yield a single composite score. Cronbach's alpha

was α = 0.84 for both time points. The results of the confirmatory factor analysis for the Croatian school climate questionnaire (Velki et al., 2014) with 18 items have shown very poor fit (RMSEA = 0.129; RMSEA confidence interval 0.116–0.143; CFI = 0.68; TLI = 0.65; SRMR = 0.090), and after additional analyses, including exploratory factor analysis, which has indicated three-factor solutions, we have decided to form a facet for school climate that includes 6 items from the Croatian school climate scale (Velki et al., 2014), including items 1 (*This school is a safe place for work*), 3 (*Students of this school trust their teachers*), 6 (*Personnel of my school trusts my professional judgements*), 15 (*I feel that I belong to the school I work in*), 16 (*If needed, I have someone to turn to for advice or help*) and 17 (*Relationships between personnel of my school are respectful and collegial*), which mostly describe that teachers feel secure within the school, perceive student and colleague trust, feel supported and connected to their school. This facet has been included in the confirmatory factor analysis and has shown an excellent fit (Time 1 RMSEA = 0.060; RMSEA confidence interval 0.000-0.125; CFI = 0.98; TLI = 0.97, SRMR = 0.031; Time 2 RMSEA = 0.035; RMSEA confidence interval 0.000-0.063; CFI = 0.99; TLI = 0.98, SRMR = 0.040).

The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS, Tennant et al., 2007) was developed to assess mental well-being in the general population. The 14-item scale features positively phrased statements that encompass both emotional and functional aspects of mental well-being (e.g. *I've been feeling good about myself, I've been interested in new things*). The respondents rated each item via a 5-point Likert scale, and the total scores were summed to yield a single composite score. Cronbach's alpha was α = 0.92 for both time points. With respect to the confirmatory factor analysis for the Warwick-Edinburgh Mental Wellbeing Scale, some modifications were necessary to achieve an appropriate model fit for the one-structure model of well-being. We have allowed correlations of items 6 and 12 as well as correlations of items 4 and 9 and included those in the code. Finally, the indices showed a good fit (Time 1 RMSEA = 0.09; RMSEA confidence interval 0.061-0.111; CFI = 0.93; TLI = 0.91, SRMR = 0.051, Time 2 RMSEA = 0.37; RMSEA confidence interval 0.000-0.061; CFI = 0.93; TLI = 0.90, SRMR = 0.047).

The Depression Anxiety and Stress Scale (DASS-21), developed by Lovibond and Lovibond (1995), is a 21-item self-report instrument designed to measure negative emotional states. The scale is divided into three subscales each containing seven items, that assess depression (e.g. *I couldn't seem to experience any positive feeling at all*), anxiety (e.g. *I was worried about*

situations in which I might panic and make a fool of myself), and stress (e.g. *I found it difficult to relax*). The participants rated how they felt over the past week via a four-point Likert scale ranging from 0 ("did not apply to me at all") to 3 ("applied to me very much, or most of the time"). In this study, we used a total score that represents emotional distress. Cronbach's alpha coefficient in the first timepoint was $\alpha = 0.80$ for anxiety subscale, $\alpha = 0.90$ for depression subscale and $\alpha = 0.91$ for stress subscale. In the second timepoint, anxiety subscale had alpha coefficient $\alpha = 0.82$, depression subscale had $\alpha = 0.87$ and stress subscale $\alpha = 0.90$. The results of the confirmatory factor analysis for the depression, anxiety and stress scale (Lovibond & Lovibond, 1995) did not show a good fit for three factors (RMSEA = 0.093; RMSEA confidence interval 0.083-0.104; CFI = 0.87; TLI = 0.85; SRMR = 0.059), but since we do not expect depression, anxiety and stress symptoms to be orthogonal, we conducted exploratory structural equation modelling (ESEM), with oblique rotation. This analysis confirmed a three-factor solution with adequate model fit (Time 1 RMSEA = 0.08; RMSEA confidence interval 0.075-0.099; CFI = 0.90; TLI = 0.89, SRMR = 0.042; Time 2 RMSEA = 0.08; RMSEA confidence interval 0.070-0.094; CFI = 0.92; TLI = 0.88, SRMR = 0.043), given the number of participants.

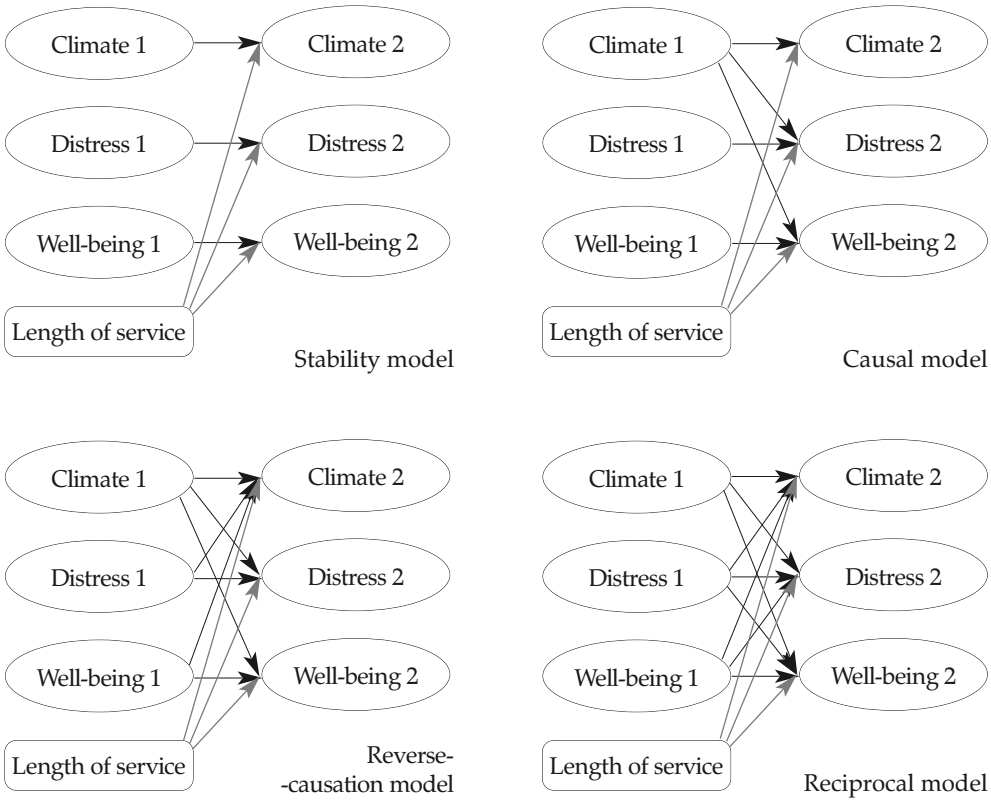
Statistical analysis

To answer our research questions, the analysis proceeded in multiple stages in the Mplus 8.11 program (Muthén & Muthén, 2019). First, we inspected descriptive statistics and bivariate correlations among school climate, psychological distress, well-being (at both waves), and years of service. Next, measurement invariance testing was conducted, to ensure that the measurement of each construct has not changed across timepoints (Putnick & Bornstein, 2016), which is a prerequisite to structural equation modelling. Although we found school climate facets invariant on both the configural, metric and scalar level, we have encountered invariance difficulties on the distress scale when treated as continuous and have found extremely high SRMR (above 0.253) for the well-being scale. In the next step of invariance testing, we decided to fit item-level ordinal CFAs in Mplus 8.11 (Muthén & Muthén, 2017), using Weighted Least Squares with Mean and Variance adjustment (WLSMV) and the THETA parameterisation. This estimator is appropriate for Likert-type indicators: it models thresholds and polychoric correlations, yields robust mean/variance-adjusted tests (Li, 2016), and enables threshold (scalar) invariance testing for ordinal data while permitting same-item residual correlations across waves (Muthén & Muthén, 2017; Wu & Estabrook, 2016). Model fit was evaluated with comparative fit index (CFI), Tucker-Lewis index (TLI), root-mean-

square error of approximation (RMSEA) with 90% confidence intervals (Hu & Bentler, 1999; Chen, 2007) and standardised root-mean residual (SRMR). Comparison of changes in fit were judged using common criteria (e.g., ΔCFI $\leq$ 0.010; ΔRMSEA $\leq$ 0.015, Chen, 2007).

Finally, the structural equation modelling was employed, and a measurement model was constructed that specified three latent variables – namely school climate, psychological distress and well-being at each time point. The items of each scale served as indicators of their respective latent variables. Length of service was added as a covariate. To address the hypotheses, we estimated four latent cross-lagged models that retained the established measurement constraints: (1) a stability model with only autoregressive paths; (2) a causal (climate-driven) model adding school climate → well-being/distress; (3) a reverse-causation model adding well-being/distress → school climate; and (4) a reciprocal model including both directions. All four tested models are shown in Figure 1. Given the use of WLSMV for ordinal indicators, nested model comparisons relied on the DIFFTEST option (Muthén & Muthén, 2017), and we additionally evaluated ΔCFI and ΔRMSEA to gauge practical fit changes.

FIGURE 1
Four tested cross-lagged models



RESULTS

Descriptive analysis – stability and concurrent associations

The descriptive statistics and mean differences calculated for all the study variables across the two time points are shown in Table 1. The mean values for school climate, well-being, and emotional distress remained relatively stable over time, with minor fluctuations.

	First wave				Second wave				
	N	*M*	*SD*	Skewness	*N*	*M*	*SD*	Skewness	*t* test
School climate	188	20.64	2.75	-0.75	188	20.21	2.96	-0.73	2.78**
Psychological distress	185	7.16	8.41	1.54	186	6.25	7.72	1.85	1.57
Well-being	185	54.26	7.43	-0.45	185	54.05	7.58	-0.79	0.43
Length of service	189	14.79	10.38	0.46					

$^{**}p < 0.01$

TABLE 1
Descriptive statistics of teacher perceptions of school climate, psychological distress and well-being at Time 1 and Time 2

The school climate showed a slight but significant decrease in the second wave, which was probably due to the return to school during the pandemic and more teaching and classroom management demands, since the first data collection was in 2022 and the second during 2023. Well-being remained nearly unchanged during both timepoints. Psychological distress showed a small decline over time. Standard deviations indicated some variability among participants for most variables. However, substantial variability was found in psychological distress, ranging from no distress to clinically significant levels of experienced distress. The skewness values were within acceptable ranges, indicating approximately normal distributions, except for distress, which showed positive skewness, suggesting a concentration of lower distress scores, which is also expected since we assume that the teachers were overall healthy functioning individuals. Overall, as proposed in our hypothesis H1a, these results suggest stability and consistency in teachers' perceptions of school climate and well--being over time, with a slight reduction in psychological distress in the second wave.

The correlations between all the variables and from both waves are shown in Table 2 and as can be seen, the correlations are in line with hypothesised relations.

The correlation analysis revealed mostly consistent relationships between school climate, psychological distress, well--being, and length of service across the two time points. The school climate was positively associated with well-being and negatively related to distress. A strong inverse relationship was found between psychological distress and well-being, indicating that higher distress levels correspond to lower well-

-being among teachers. Length of service showed weak correlations with other variables, but a small significant negative correlation with the school climate in the first wave suggested that more experienced teachers may perceive the school climate less favourably.

➲ TABLE 2
Correlations of school climate, psychological distress, well-being and length of service of included teacher sample in Time 1 and Time 2

		1	2	3	4
1	School climate	0.74**	-0.20**	0.47**	-0.07
2	Psychological distress	-0.30**	0.47**	-0.60**	-0.04
3	Well-being	0.50**	-0.49**	0.65**	-0.12
4	Length of service	-0.18*	-0.07	-0.10	1

Note. Correlations above the diagonal line represent correlations from the first wave, and correlations below the diagonal line represent correlations from the second wave. On diagonal = T1–T2 (stability) correlations for the same variable. $^{**}p < 0.01$, $p^{*} < 0.05$

The association between school climate and psychological distress was stronger at Time 2 (r = -0.30, $p < 0.01$) than at Time 1 (r = -0.20, $p < 0.01$). Similarly, the positive relation between school climate and well-being increased slightly from Time 1 (r = 0.47, $p < 0.01$) to Time 2 (r = 0.50, $p < 0.01$). Psychological distress and well-being were strongly negatively correlated at Time 1 waves (T1: r = -0.60, $p < 0.01$; T2: r = -0.49, $p < 0.01$). Stability correlations across the two waves indicated moderate to high consistency for each construct (ranging from r = 0.47 to r = 0.74), where stability coefficient for psychological distress was moderate (r = 0.47, $p < 0.01$), indicating notable variability over time compared to the higher stability of school climate (r = 0.74) and well-being (r = 0.65). Stability coefficients further showed that school climate and well-being were relatively consistent across waves, whereas psychological distress was more variable, highlighting its sensitivity to situational influences; this pattern suggests that distress may be more amenable to change, and therefore a key target for interventions aimed at improving teacher well-being. The changing correlations across waves suggest that the relationships among school climate, well-being, and psychological distress are not fixed but evolve over time. This could be due to contextual factors related to workplace conditions (e.g., new policies, leadership, or stressors), different sensitivity of constructs (e.g., constructs like distress could be more responsive to environmental changes than others – like perceptions of climate, or due to problems with measurement invariance). This is why we tested measurement invariance in the next paragraph.

Measurement invariance across time

The results for configural, metric and scalar model invariance are presented in Table 3. We first fit a configural longitudinal CFA in Mplus 8.11 with WLSMV and the THETA parameterisation, treating all indicators as ordinal. The model specified three latent factors (school climate, well-being, distress) at each wave, with items loading on their intended factor and same-item residuals correlated across waves. Model fit was acceptable, $\chi^2(df) = 3680.889$ (3183), $p < 0.001$, CFI = 0.966, TLI = 0.965, RMSEA = 0.029, 90% CI [0.024, 0.033], SRMR = 0.080, supporting the same factor structure at Time 1 and Time 2. Next, we tested metric invariance by constraining factor loadings to equality across waves (marker loadings fixed to 1). Relative to the configural model, overall fit remained adequate, $\chi^2(df) = 3699.381$ (3221), $p < 0.001$, CFI = 0.968, TLI = 0.967, RMSEA = 0.028, 90% CI [0.023, 0.032], SRMR = 0.082. A DIFFTEST comparison which is appropriate for WLSMV indicated that imposing equal loadings did not significantly worsen fit, $\Delta\chi^2$(WLSMV) = 50.771, $\Delta df = 38$, $p = 0.081$; while changes in approximate fit were small (ΔCFI = 0.002 and ΔRMSEA = 0.0001). Thus, metric invariance was supported, placing the latent factors on a common scale across waves.

TABLE 3
Fit indices of tested invariance models

	χ^2	*df*	CFI	TLI	RMSEA (90% CI)	DIFFtest $\Delta\chi^2$(WLSMV); Δdf
Configural invariance	3680.889*	3183	0.966	0.965	0.029 (0.024-0.033)	
Metric invariance	3699.381*	3221	0.968	0.967	0.028 (0.023-0.032)	50.771; 38
Scalar invariance	4157.834*	3325	0.944	0.944	0.036 (0.033-0.040)	135.807*; 104
Partial scalar invariance	3855.729*	3303	0.963	0.962	0.030 (0.025-0.034)	96.577; 82

*$p < 0.001$

Finally, we evaluated scalar/threshold invariance for ordinal indicators by constraining item thresholds to equality across waves while retaining equal loadings. Overall fit for the scalar model was $\chi^2(df) = 4157.834$, $p < 0.001$, CFI = 0.944, TLI = 0.944, RMSEA = 0.036, 90% CI [0.033, 0.040], SRMR = 0.090. DIFFTEST against the metric model was significant and full scalar (threshold) invariance was not supported, $\Delta\chi^2(104) = 135.807$, $p < 0.001$, although ΔRMSEA = 0.012 seemed good, indicator ΔCFI = 0.022 exceeded recommended cutoffs. Inspection of modification indices and threshold availability showed that several items lacked higher-order thresholds on one wave; freeing those specific thresholds yielded a partial threshold-invariant model

with good fit. When compared to the metric model, DIFFTEST showed nonsignificant $\Delta\chi^2(104) = 98.235$, $p = 0.078$, while changes in fit indices were small (ΔRMSEA = 0.002, indicator ΔCFI = 0.002). We therefore proceeded with partial scalar invariance, which is widely accepted for longitudinal comparisons of relations (Byrne et al., 1989; Putnick & Bornstein, 2016).

Cross-lagged model: From school climate and psychological distress to well-being and vice versa

The fit indices of the four cross-lagged models as well as the test of differences of competing models is shown in Table 4. Model comparisons were made under the established longitudinal measurement constraints and controlling for autoregressive effects and length of service. Relative to the stability model, adding school-climate → mental-health cross-lags in the causal model improved fit, $\Delta\chi^2(2) = 7.061$, $p = 0.029$. In contrast, adding mental-health → school-climate cross-lags in the reverse causation model did not improve fit over stability, $\Delta\chi^2(2) = 1.649$, $p = 0.438$. Furthermore, augmenting the climate--driven model with the reverse cross-lags (reciprocal model) did not yield additional improvement, $\Delta\chi^2(4) = 3.558$, $p = 0.469$. As an encompassing check, the reciprocal model fits better than the reverse model, $\Delta\chi^2(4) = 9.912$, $p = 0.042$.

TABLE 4
Results of structural modelling and comparison based on DIFFTEST

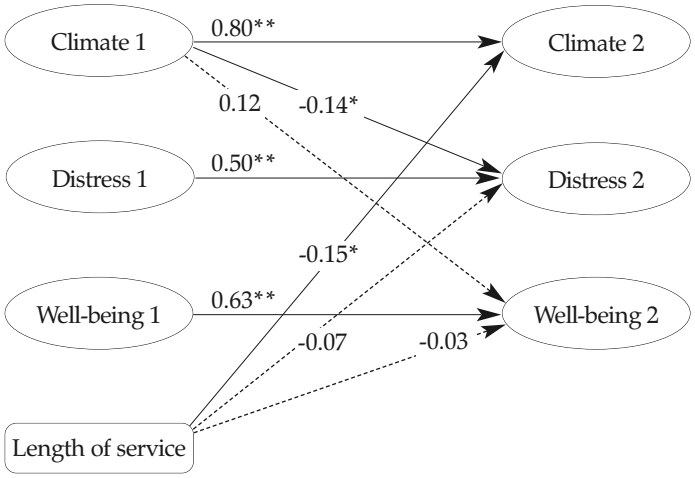
Model	χ^2 (*df*)	CFI TLI	RMSEA (90% CI)	Model difference	DIFFtest $\Delta\chi^2$ / *df (4)* (WLSMV); *p*
1 Stability	3816.938 (3303)	0.966 0.965	0.029 (0.024-0.033)		
2 Causal	3804.276 (3301)	0.967 0.966	0.028 (0.024-0.033)	M2 vs M1 sig	7.061; 0.029
3 Reverse--causation	3817.685 (3301)	0.966 0.965	0.029 (0.024-0.033)	M3 vs M1 ns	1.649; 0.438
4 Reciprocal	3807.70 (3297)	0.967 0.966	0.029 (0.024-0.033)	M4 vs M2 ns M4 vs M3 sig	3.558; 0.469 9.912; 0.041

Taken together, the most parsimonious and best-supported specification is the causal, climate-driven model: cross- lagged effects from school climate to subsequent well-being/distress are warranted, whereas the reverse direction is not. The supported model with estimates is shown in Figure 2.

In the climate-driven crossed lagged model (estimated with WLSMV under longitudinal metric and partial threshold invariance), autoregressive stability was high for school climate ($\beta = 0.80$, SE = 0.04, $p < 0.001$), well-being ($\beta = 0.63$, SE = 0.07, $p < 0.001$), and distress ($\beta = 0.50$, SE = 0.07, $p < 0.001$). Controlling for prior length of service, higher school climate at

Time 1 predicted lower psychological distress at Time 2 (β = -0.14, SE = 0.07, p = 0.034). The path from school climate at Time 1 to well-being at Time 2 was positive but nonsignificant (β = 0.12, SE = 0.07, p = 0.083). Length of service predicted less favourable school climate perceptions at Time 2 (β = -0.15, SE = 0.05, p = 0.005), but was not a significant predictor of Time 2 well-being (β = -0.03, SE = 0.05, p = 0.523) or distress (β = -0.07, SE = 0.07, p = 0.312). Regarding the relationship between school climate and psychological distress and well-being within the same time point, relationships were as expected; climate was positively associated with well-being (r = 0.549, p < 0.01 at Time 1; r = 0.434, p < 0.01 at Time 2) and negatively associated with distress (r = -0.229, p < 0.001 at Time 1; r = -0.333, p < 0.001; at Time 2), which again confirms our first hypothesis of concurrent associations.

➲ FIGURE 2
Cross-lagged model confirming the path from school climate to psychological distress of teachers



Caption: Standardised paths (STDYX) from the climate-driven CLPM. Paths are estimated controlling for prior levels and length of service; same-item residuals correlated across waves.
Solid = p < 0.05; dashed = ns.

DISCUSSION

The aim of this paper was to examine the cross-lagged relationships among school climate, teacher well-being, and psychological distress over time, i.e., a two-wave cross-lagged analysis was applied to test the bidirectional effects of school climate and two related but separable aspects of teachers' mental health. It was hypothesised that a good school climate will predict the mental health of teachers, including lower psychological distress and higher well-being, operationalising mental health as both positive and negative aspects, in line

with the dual model continua (Keyes, 2005). Our results confirmed the hypothesised assumption that lower psychological distress in Time 2 is predicted with a more positive school climate the previous year. This finding is in line with the work of McLean et al. (2017), showing that teachers who perceived a poorer school climate reported a sharper increase in depressive and anxiety symptoms over time, even after accounting for social support and life stressors. However, our assumptions regarding higher well-being at Time 2 were not supported.

In our introduction, we have already mentioned studies that report clinically significant symptoms of internalised disorders and stress in the teacher population (Agyapong et al., 2022; Madigan & Kim, 2021), especially during the Covid-19 pandemic when this study was conducted as well as regarding occupation-related demands. Several Croatian cross-sectional studies such as Brust Nemet and Velki (2020) and Velki and Kuterovac Jagodić (2023) have documented associations between perceived school climate and teacher stress. Brust Nemet and Velki (2020) further noted that elevated stress may bias teachers' perceptions of climate, complicating directional inference. In our two-wave (≈10-month lag) cross-lagged pa-nel, however, more positive school-climate perceptions at Time 1 prospectively predicted lower symptoms of depression, anxiety, and stress at Time 2. By contrast, paths from baseline mental health (well-being and psychological distress) to subsequent school climate were not retained in the best-fitting model; model comparison favoured a causal (climate → symptoms) structure and did not support reciprocal effects. Accordingly, the reverse-direction hypotheses remain open and should be examined in future studies with additional waves and alternative causal designs. Nevertheless, our findings support the idea that investments in better school practices that contribute to management of distress could be beneficial. For example, teacher self-care practices can be integrated into the school climate by promoting regular group activities focused on staff well-being, such as organising healthy lunch gatherings as well as morning or afternoon yoga sessions for teachers and staff (Gray et al., 2017).

Since our findings suggest a positive but nonsignificant association of school climate at Time 1 and well-being at Time 2, this dynamic should be explored in future longitudinal studies with three or more waves. Newer meta-analysis by Zhou et al. (2024) revealed that work climate is a strong positive predictor of teacher well-being. Harrison et al. (2025) examined the relationship between school climate and teacher well-being and reported that school climate impacts teacher well-being both directly and indirectly by fulfilling basic psychological needs, including autonomy, competence develop-

ment, and relatedness. It is plausible to argue that the well--being of teachers could be affected by more extensive life domains and circumstances outside school (e.g., family, parenting, financial burden, leisure, health), but it may be the case that student-teacher relationships which we have not taken into account in this paper are a big factor in the school climate – teacher well-being dynamics. Using a time-lagged model, Dreer (2022) also confirms that teachers reporting a positive school climate experience the greatest well-being. Similarly, Collie and Martin (2023) suggest that relatedness with students functions as a predictor of well-being, which is consistent with the JDR model (Bakker & Demerouti, 2017). However, they suggest that there may also be reciprocal effects, as some well-being dimensions showed associations with changes in relatedness over time. This points to a potentially dynamic, mutually reinforcing relationship between teachers' well-being and their sense of connection with students. Some studies indicate that teachers who report a stronger connection with their students also report greater personal accomplishment and lower emotional exhaustion (Alamos et al., 2022; Corbin et al., 2019). These findings underscore the interconnected nature of the school climate with both teacher and student experiences that has to be further investigated in future studies, emphasising the importance of fostering a supportive and motivating school environment.

Regarding teacher length of service, as hypothesised, our findings revealed that more experienced teachers reported a slightly lower perception of the school climate at Time 2, which could be related to the more positive outlook of teachers at the beginning of their career or more workload on more experienced teachers (Admiraal & Røberg, 2023; Amitai & Van Houtte, 2022). The length of service did not directly predict well-being or distress. This might be due to adaptive coping strategies but also to other factors that may contribute to teachers' overall sense of well-being over time. In their meta-analysis Zhou et al. (2024) note that experienced teachers tend to report just slightly higher levels of various well-being types – hedonic, eudaimonic, occupational, and overall well-being, but with small effect sizes (ρ ranging approximately from 0.04 to 0.14).

In general, our results indicate that school climate can contribute to diminishing the symptoms of psychological distress, so this finding underscores the importance of the school environment as a systemic factor in shaping teacher experiences rather than focusing solely on individual attributes. Schools should implement interventions that promote collaboration and ongoing professional learning, such as developing a shared school vision on teaching and learning, coaching, peer review,

workshops, and collaborative educational action research (Admiraal & Røberg, 2023). Prior research (Brady & Wilson, 2021) has shown that reactive interventions in school environments, such as mandatory activities for teachers, are often ineffective or even counterproductive, particularly when they impose additional demands on teachers or limit their autonomy. Instead, teachers favour initiatives that address the underlying causes of the problems and policies that promote sustainable workloads over short-term or one-off initiatives.

Limitations and future research

The self-report method was used in the study. One of the main limitations of the present study is related to the relatively small sample size: although we had more participants in each wave, since the data collection was online and code formation was not controlled, many participants could not be paired and connected at Times 1 and 2. The sample size also affected the strength of our conclusions. The findings obtained should be supported by additional methods, possibly those that could provide information on the intraindividual variability of the variables studied, e.g., the experience sampling method. For better clarity of the effects over time, especially the role of well-being and relationships of school climate and well-being, it would be beneficial to include more time points. This would allow for a more comprehensive assessment of longitudinal trends, providing deeper insights into whether school climate, distress, and well-being influence each other beyond the observed two-year period. Expanding the model also to the student perspective could also help capture potential delayed effects and better distinguish between short-term fluctuations and long-term patterns in terms of teacher well-being and school climate. Future studies should therefore analyse unique contributions of different aspects of school climate to both general and teaching-specific well-being. Since newer reviews highlight burnout and work engagement as the strongest correlates of overall well-being, future designs should also include them when describing teacher well-being.

Finally, a reader must consider different conceptualisations of school climate as well as the conceptualisation of well-being in these studies. In their review, Thapa et al. (2013) highlight five dimensions of school climate: safety, relationships, teaching and learning, the institutional environment, and school improvement. In our study, items related to school climate focused mostly on school relationships. The scale covered feelings of safety, trust, connectedness, and supportive relationships, which is in line with Hascher & Waber (2021), stating that social relationships in school played a key role in teacher well-being, both operationalised as an asset or a risk.

Other studies used different operationalisations of school climate. For example, Dreer (2022) used a five-factor School Level Environment Questionnaire including affiliation, innovation, resource adequacy, participatory decision making, and student support; and Collie and Martin (2023) used only the degree to which teachers feel connected to their students to assess teacher-student relationships. Also, we used a general well-being scale where others used teacher-specific well-being (e.g., Collie and Martin (2023) assess vitality, engagement and professional growth).

CONCLUSION AND PRACTICAL IMPLICATIONS

In summary, the results of this two-wave study, with a lag of 10 months, support the relationship between school climate and psychological distress symptoms. Teachers who perceived a better school climate at year one reported lower distress at the second assessment. We have not confirmed the reciprocal effect of well-being or psychological distress. Given that teacher well-being is influenced by national and school policies, a systemic approach ensuring fair workloads, sufficient resources, and supportive leadership is essential (Viac & Fraser, 2020). Additionally, promoting collaboration among colleagues, students, and parents can strengthen professional networks, reduce stress, and improve job satisfaction. Given that an individual's ability to act as an agent of the school climate is limited by organisational, material, and often deeply embedded value and normative systems, school-level policies and early interventions for teachers are crucial for preventing long-term negative effects regarding the symptoms of psychological distress.

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Data availability statement

The data are available upon reasonable request.

REFERENCES

Admiraal, W., & Røberg, K. I. K. (2023). Teachers' job demands, resources and their job satisfaction: Satisfaction with school, career choice and teaching profession of teachers in different career stages. *Teaching and Teacher Education, 125*, 104063. https://doi.org/10.1016/j.tate.2023.104063

Agyapong, B., Obuobi-Donkor, G., Burback, L., & Wei, Y. (2022). Stress, burnout, anxiety and depression among teachers: A scoping review. *International Journal of Environmental Research and Public Health, 19*(17), 10706. https://doi.org/10.3390/ijerph191710706

Alamos, P., Corbin, C. M., Klotz, M., Lowenstein, A. E., Downer, J. T., & Brown, J. L. (2022). Bidirectional associations among teachers' burnout and classroom relational climate across an academic year. *Journal of School Psychology, 95*, 43–57. https://doi.org/10.1016/j.jsp.2022.09.001

Amitai, A., & Van Houtte, M. (2022). Being pushed out of the career: Former teachers' reasons for leaving the profession. *Teaching and Teacher Education, 110,* 103540. https://doi.org/10.1016/j.tate.2021.103540

Bajorek, Z., Gulliford, J., & Taskila, T. (2014). *Healthy teachers, higher marks? Establishing a link between teacher health and well-being, and student outcomes.* Lancaster University. https://f.hubspotusercontent10.net/hubfs/7792519/healthy_teachers_higher_marks_report.pdf

Baker, C. N., Peele, H., Daniels, M., Saybe, M., Whalen, K., Overstreet, S., & The New Orleans, T. I. S. L. C. (2021). The experience of COVID-19 and its impact on teachers' mental health, coping, and teaching. *School Psychology Review, 50*(4), 491–504. https://doi.org/10.1080/2372966X.2020.1855473

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22*(3), 273–285, https://doi.org/10.1037/ocp0000056

Brady, J., & Wilson, E. (2021). Teacher wellbeing in England: Teacher responses to school-level initiatives. *Cambridge Journal of Education, 51*(1), 45–63. https://doi.org/10.1080/0305764X.2020.1775789

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press. https://doi.org/10.4159/9780674028845

Brust Nemet, M., & Velki, T. (2020). Odnos nekih demografskih i razrednih karakteristika te školske klime i socijalne podrške prema stresu učitelja [Relationship of some demographic and class characteristics and school climate and social support to teacher stress]. *Nova prisutnost: časopis za intelektualna i duhovna pitanja, 18*(3), 501–515. https://doi.org/10.31192/np.18.3.5

Buonomo, I., Fiorilli, C., & Benevene, P. (2019). The impact of emotions and hedonic balance on teachers' self-efficacy: Testing the bouncing back effect of positive emotions. *Frontiers in Psychology, 10,* 1670. https://doi.org/10.3389/fpsyg.2019.01670

Burić, I., & Frenzel, A. C. (2021). Teacher emotional labour, instructional strategies, and students' academic engagement: A multilevel analysis. *Teachers and Teaching, 27*(5), 335–352. https://doi.org/10.1080/13540602.2020.1740194

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin, 105*(3), 456. https://doi.org/10.1037/0033-2909.105.3.456

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Collie, R. J., & Martin, A. J. (2023, September 6). The link between teacher well-being and teacher-student relationships. *Teacher Magazine*. https://www.teachermagazine.com/au_en/articles/the-link-between-teacher-well being-and-teacher-student-relationships

Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*(4), 1189–1204. https://doi.org/10.1037/a0029356

Corbin, C. M., Alamos, P., Lowenstein, A. E., Downer, J. T., & Brown, J. L. (2019). The role of teacher-student relationships in predicting teachers' personal accomplishment and emotional exhaustion. *Journal of School Psychology, 77,* 1–12. https://doi.org/10.1016/j.jsp.2019.10.001

Croatian Bureau of Statistics. (2021). *Women and men in Croatia*. Državni zavod za statistiku. https://podaci.dzs.hr/media/zoyp1kuq/men_and_women_2021.pdf

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276

Dreer, B. (2022). Teacher well-being: Investigating the contributions of school climate and job crafting. *Cogent Education, 9*(1). https://doi.org/10.1080/2331186X.2022.2044583

Gray, C., Wilcox, G., & Nordstokke, D. (2017). Teacher mental health, school climate, inclusive education and student learning: A review. *Canadian Psychology / Psychologie canadienne, 58*(3), 203–210. https://doi.org/10.1037/cap0000117

Gonzálvez, C., Bacon, V., & Kearney, C. A. (2023). Systematic and evaluative review of school climate instruments for students, teachers, and parents. *Psychology in the Schools, 60*(6), 1781–1836. https://doi.org/10.1002/pits.22838

Harrison, M. G., Wang, Y., Cheng, A. S., Tam, C. K. Y., Pan, Y.-L., & King, R. B. (2025). School climate and teacher wellbeing: The role of basic psychological need satisfaction in student- and school-related domains. *Teaching and Teacher Education, 153*, 104819. https://doi.org/10.1016/j.tate.2024.104819

Hascher, T., & Waber, J. (2021). Teacher well-being: A systematic review of the research literature from the year 2000–2019. *Educational Research Review, 34,* 100411. https://doi.org/10.1016/j.edurev.2021.100411

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research, 110*(3), 837–861. https://doi.org/10.1007/s11205-011-9966-7

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Kidger, J., Brockman, R., Tilling, K., Campbell, R., Ford, T. J., Araya, R., King, M., & Gunnell, D. (2016). Teachers' wellbeing and depressive symptoms, and associated risk factors: A large cross sectional study in English secondary schools. *Journal of Affective Disorders, 192,* 76–82. https://doi.org/10.1016/j.jad.2015.11.054

Li, C. H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods, 48*(3), 936–949. https://doi.org/10.3758/s13428-015-0619-7

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the depression anxiety stress scales (2nd ed.)*. Psychology Foundation. https://doi.org/10.1037/t01004-000

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, 103425. https://doi.org/10.1016/j.tate.2021.103425

McLean, L., Abry, T., Taylor, M., Jimenez, M., & Granger, K. (2017). Teachers' mental health and perceptions of school climate across the transition from training to teaching. *Teaching and Teacher Education, 65*, 230–240. https://doi.org/10.1016/j.tate.2017.03.018

Muthén, L. K., & Muthén, B. O. (2019). *Mplus (Version 8.4)* [Computer software]. Muthén & Muthén.

Muthén, L. K., & Muthén, B. (2017). *Mplus user's guide: Statistical analysis with latent variables*. Muthén & Muthén.

Ozturk, M., Wigelsworth, M., & Squires, G. (2024). A conceptual model for teacher wellbeing: Towards a holistic understanding. *Cogent Education, 11*(1), 2396156. https://doi.org/10.1080/2331186X.2024.2396156

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review, 41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

Reinke, W. M., Herman, K. C., Stormont, M., & Ghasemi, F. (2025). *Teacher stress, coping, burnout, and plans to leave the field: A Post-Pandemic survey*. School Mental Health. https://doi.org/10.1007/s12310-024-09738-7

Roffey, S. (2012). Pupil wellbeing – teacher wellbeing: Two sides of the same coin? *Educational and Child Psychology, 29*(4), 8–17. https://doi.org/10.53841/bpsecp.2012.29.4.8

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*(1), 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Santiago, I. S. D., Dos Santos, E. P., da Silva, J. A., de Sousa Cavalcante, Y., Gonçalves Júnior, J., de Souza Costa, A. R., & Cândido, E. L. (2023). The impact of the COVID-19 pandemic on the mental health of teachers and its possible risk factors: A systematic review. *International Journal of Environmental Research and Public Health, 20*(3), 1747. https://doi.org/10.3390/ijerph20031747

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes, 5*, 63, https://doi.org/10.1186/1477-7525-5-63

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 357–385. https://doi.org/10.3102/0034654313483907

Velki, T., & Kuterovac Jagodić, G. (2023). Provjera ekološke valjanosti Hrvatskog upitnika školske klime za nastavnike s različitih odgojno-obrazovnih razina. [Testing ecological validity of the Croatian school climate questionnaire for teachers from different educational levels]. *Društvena istraživanja, 32*(3), 493–516. https://doi.org/10.5559/di.32.3.06

Velki, T., Jagodić, G. K., & Antunović, A. (2014). Razvoj i validacija hrvatskog upitnika školske klime za učenike [Development and validation of Croatian school climate survey for students]. *Suvremena psihologija, 17*(2), 151–166. https://doi.org/10.1037/t54900-000

Viac, C., & Fraser, P. (2020, January 30). *Teachers' well-being: A framework for data collection and analysis (OECD Education Working Paper No. 213).* OECD Publishing. https://doi.org/10.1787/c36fc9d3-en

Wang, M.-T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review, 28*(2), 315–352. https://doi.org/10.1007/s10648-015-9319-1

Whitaker, R. C., Dearth-Wesley, T., & Gooze, R. A. (2015). Workplace stress and the quality of teacher–children relationships in Head Start. *Early Childhood Research Quarterly, 30*, 57–69. https://doi.org/10.1016/j.ecresq.2014.08.008

Wu, H., & Estabrook, R. (2016). Identification of confirmatory factor analysis models of different levels of invariance for ordered categorical outcomes. *Psychometrika, 81*(4), 1014-1045. https://doi.org/10.1007/s11336-016-9506-0

Zhou, S., Slemp, G. R., & Vella-Brodrick, D. A. (2024). Factors associated with teacher wellbeing: A meta-analysis. *Educational Psychology Review, 36*, 63. https://doi.org/10.1007/s10648-024-09886-x

Percepcija nastavnika o školskoj klimi i dvije dimenzije mentalnoga zdravlja: analiza križnih panel podataka

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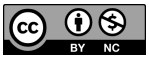
Glavni cilj ove panel-studije koja je provedena u dvije točke bio je ispitati uzajamne odnose školske klime, emocionalne uznemirenosti i dobrobiti učitelja. Istraživanje je provedeno na uzorku od 189 hrvatskih srednjoškolskih nastavnika s

razmakom od približno 10 mjeseci. Kako bi se provjerili odnosi varijabli tijekom vremena, primijenjeno je modeliranje strukturalnim jednadžbama, tj. autoregresijski križni modeli. Analize su pokazale da je od strukturalnih modela najparsimoničniji bio kauzalni model. Nastavnici koji su izvještavali o boljoj školskoj klimi u prvoj vremenskoj točki izvještavali su o manje emocionalne uznemirenosti u drugoj vremenskoj točki. Recipročan efekt psihološkoga distresa i dobrobiti na školsku klimu nije utvrđen. Rezultati naglašavaju važnu ulogu školske klime u predviđanju problema mentalnoga zdravlja nastavnika te dodatno potvrđuju ključnu ulogu školskog okruženja. Kako bi ga se poboljšalo, uz brigu o individualnim karakteristikama učitelja, treba ulagati u sustavno njegovanje pozitivne školske klime.

Ključne riječi: dobrobit nastavnika, mentalno zdravlje nastavnika, emocionalna uznemirenost, školska klima, srednja škola



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SUPPORTING PRE-SERVICE PRIMARY TEACHER WELL-BEING AND RESILIENCE: RESULTS FROM A THREE-WAVE STUDY IN INITIAL TEACHER EDUCATION

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Our aim was to explore how pre-service teachers' study-related exhaustion and resilience developed over one semester and how these developments were associated with engagement with resilience-related topics. We compared two subgroups of a full cohort of second-year pre-service primary teachers at the University of Teacher Education in Bern. While $n = 101$ completed regular coursework, $n = 154$ used an online platform integrated into regular coursework. Complete data across three timepoints (before the course; immediately after the course; 12-week follow-up) were available for $n = 36$ (coursework 12-week) and $n = 45$ (platform users). A repeated-measures one-way multivariate analysis of variance (MANOVA) showed a significant increase in pre-service teachers' levels of exhaustion during the semester (t1-t2) in both subgroups. At follow-up (t3), platform users reported significantly lower exhaustion and higher resilience than the coursework-only subgroup. Our study contributes to the body of empirical research aiming to understand the potential of digitally supported learning environments in teacher education.

Keywords: emotional exhaustion, resilience, well-being, pre-service teachers, initial teacher education

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INTRODUCTION

Although fruitful and rewarding, teaching is a challenging profession. Teachers encounter high societal demands and parental expectations, students struggling in school, competing tasks such as supporting the individual child while selecting among students, and a heavy workload (e.g., Cooper et al., 1996; Pyhältö et al., 2021). Given the high demands of the teaching profession, the Swiss initial teacher education (ITE) is expected to go beyond subject-specific training and foster generic, domain-unspecific skills such as pre-service teacher resilience (e.g., care about own resources; Steiner, 2023). Few ITE programmes explicitly address the development of resilience and well-being in pre-service teachers as evidenced in the systematic review by Mu (2024). He summarised that resilience is considered an important skill for (pre-service) teachers (e.g., Gu & Day, 2007), yet resilience education (e.g., Mansfield et al., 2012a; Mansfield et al., 2012b; Mansfield et al., 2016) to be still poorly integrated into ITE.

This shortcoming calls for empirical research aimed at developing and investigating learning settings tailored to foster pre-service teachers' well-being and resilience. The aim of our project 'Fostering Resilience in Teacher Education (FoResT)' is to design, implement, and evaluate the effects of an ITE course aiming to support the development of pre-service teachers' well-being and resilience. In this quasi-experimental study, we compare the changes in self-reported emotional exhaustion and resilience in two learning settings within the full cohort of 3rd semester pre-service teachers: regular coursework (subgroup A) and coursework that included engagement with an online learning platform (subgroup B).

PRE-SERVICE TEACHER EMOTIONAL EXHAUSTION

Emotional exhaustion can be understood as physical and psychological fatigue and a loss of energy (Kristensen et al., 2005). According to Edú-Valsania et al. (2022, p. 3), emotional exhaustion "manifests in the form of feelings and sensation of being exhausted by the psychological efforts made at work. It is also described in terms of weariness, tiredness, fatigue, weakening, and the subjects who manifest this type of feelings show difficulties in adapting to the work environment since they lack sufficient emotional energy to cope with work tasks." Empirical research consistently shows that teachers are particularly affected (e.g., Garcia-Carmona et al., 2019; Ghasemi, 2021, 2022; Squillaci, 2020). Emotional exhaustion in teachers is linked to symptoms such as headaches, sleep disturbances, and increased irritability, which likely occur more frequently than in other professions (Maslach et al., 1996; Schaufeli & Enzmann,

1998). Beyond negative consequences for mental and physical health, teacher emotional exhaustion can negatively affect student educational outcomes (Klusmann et al., 2022), classroom climate, and students' psychological well-being (e.g., Dreer, 2023). These findings highlight the importance of scientific knowledge on the prevention of emotional exhaustion early in a teacher's professional stage.

While teacher emotional exhaustion is well-researched, far less is known about its prevalence among pre-service teachers. However, this knowledge is important to inform practice and prevent future teacher health deterioration and attrition. It is increasingly recognised that studying at a university is challenging and can impede young adults' (mental) health (Rosales-Ricardo et al., 2021). For example, Lesener et al. (2020) found in a large sample of German university students that high study demands – such as time pressure, excessive mental effort, and multitasking – are linked to student burnout. ITE study programmes likely add pressure to pre-service teachers. ITE not only involves high academic demands but also requires pre-service teachers to prepare within a relatively short time for a challenging profession that entails significant responsibilities upon entering the workforce (e.g., Hanly & Heinz, 2022). Empirical studies have identified early signs of burnout symptoms, including emotional exhaustion, during ITE (Madigan & Curran, 2021; Salmela-Aro & Upadyaya, 2017; Shankland et al., 2019). These alarming findings emphasise the urgent need for research on how emotional exhaustion can be prevented and reduced during ITE. However, studies that investigate the potential of ITE courses on health, well-being, and resilience remain scarce (Kangas-Dick & O'Shaughnessy, 2020; Mu, 2024).

PRE-SERVICE TEACHER RESILIENCE

Resilience refers to an individual's ability to cope with risk factors and overcome adverse situations (e.g., Luthar et al., 2000; Masten, 2014). It involves an adaptive interaction between the individual and their environment, supported by both individual and contextual resources when facing challenges, demands, and adversity (Gu & Day, 2013; Mansfield et al., 2012a). Resilience is considered as a dynamic process that enables (pre-service) teachers to sustain their professional well-being, teaching effectiveness, and job motivation despite challenges (Beltman, 2015; Beltman et al., 2011; Lu & Chen, 2025; Mansfield et al., 2016; Ungar, 2012; Zhang & Luo, 2023). Risk and protective factors – often conceptualised as demands and resources (see e.g., the Job Demands-Resources Theory; Bakker & de Vries, 2021) – are key to understanding how (pre-ser-

vice) teachers navigate difficult situations (e.g., Duan et al., 2023; Mansfield et al., 2012a; Peixoto et al., 2018).

Recent approaches to pre-service teacher resilience emphasise its dynamic character (e.g., Hascher et al., 2021). Resilience is not understood as a fixed trait but an aspect of professional competence (e.g., Duan et al., 2023; Mansfield et al., 2012a; Pretsch et al., 2012) that can be learned during ITE. Pre-service teacher resilience is seen as a multidimensional construct involving emotional, motivational, professional, and social dimensions (Beltman, 2021; Mansfield et al., 2012a), reflecting the complexity of the individual's ability to cope with risk factors. However, still little is known about how to effectively foster resilience early in teachers' professional trajectories (Kangas-Dick & O'Shaughnessy, 2020; Mansfield et al., 2020).

In ITE, pre-service teachers face specific challenges to their resilience. During their university studies, they must meet high demands across multiple subjects while simultaneously developing a professional identity (e.g., Amponsah et al., 2020; Gardner, 2010; Mansfield et al., 2016). During field experiences, pre-service teachers must balance the discrepancy between societal expectations and job reality, manage stress in preparing instruction, and cope with issues in classroom management (Klassen et al., 2013; Ng & Bull, 2018; Squires et al., 2022). These demands can negatively affect pre-service teachers' well-being (e.g., Corcoran & O'Flaherty, 2022; O'Brien et al., 2020; Squires et al., 2022), yet research also highlights the protective role of resources such as resilience (Mu, 2024). For example, peer support was linked to fewer health issues among German teacher students (Lesener et al., 2020). Similarly, the few existing resilience interventions have shown positive effects on reducing perceived stress and enhancing self-efficacy in ITE (Beltman et al., 2025; Hepburn et al., 2021).

Accordingly, it can be expected that fostering resilience in pre-service teachers may support their transition into the teaching profession and reduce early career teacher attrition. Novice teachers in Switzerland leaving the profession within the first few years, often report a lack of readiness for the teaching profession, inflated expectations of colleagues, and the overwhelming challenges of real-world teaching (Federal Statistics Office, 2023). International research also shows that attrition is linked to maladaptive coping strategies (Marais-Opperman et al., 2021; Wang et al., 2022) and lower emotional intelligence (Mérida-López et al., 2020). Therefore, early resilience-building measures in ITE may help buffer against challenges and ease the transition into professional practice.

FOSTERING RESILIENCE IN INITIAL TEACHER EDUCATION (ITE)

Given the high demands of the teaching profession, supporting pre-service teachers' resilience early in their training might be a promising approach. Several strategies exist to foster resilience in ITE. A general strategy involves holistic health promotion at universities, such as Health Promoting Universities (Dooris, 2001; Tsouros et al., 1998) or Healthy Campus Initiatives (e.g., Okanagan Charter, 2015), which aim to enhance individual and collective physical, social, and emotional well-being for learning and work on campus.

Another strategy is the integration of resilience topics into regular ITE curricula. For example, Mansfield et al. (2012b) introduced the online programme 'Keeping Cool', and Thompson (2022) proposed dedicated courses for resilience education to support pre-service teachers' well-being and prevent burnout. Another approach involves offering targeted resilience programmes. A leading example is the Australian BRiTE (Building Resilience in Teacher Education) online platform (Mansfield et al., 2016), which features five interactive learning modules on resilience, emotions, and well-being and is open to all (pre-service) teachers. Research suggests evidence for its effectiveness (Beltman et al., 2018; Beltman et al., 2025; Mansfield et al., 2020), encouraging the implementation of BRiTE in other countries such as the USA (Sikma, 2021) and the Netherlands (Fokkens-Bruinsma et al., 2021). Despite different approaches, a key aspect of fostering pre-service teacher resilience relates to strengthening individual resources that can be activated during the study programme and in the school context (Bordás, 2023; Thompson, 2022). However, empirical research that investigates the effectiveness of those programmes seems still scarce (Kangas-Dick & O'Shaughnessy, 2020; Le Cornu, 2009; Mansfield et al., 2020; Mu, 2024).

THE GENERAL RESEARCH CONTEXT: SWISS TEACHER EDUCATION

The Swiss teacher education is legally regulated at the national level by the Swiss Conference of Cantonal Ministers of Education (EDK) but shows a high level of heterogeneity among the Swiss states (cantons). Universities of teacher education are primarily responsible for training teachers for primary school level (including kindergarten), lower secondary level, baccalaureate schools, upper secondary specialised schools, and teaching professions in the field of special needs education. Teacher education follows a concurrent model that integrates theory and practice. Programmes are practice-oriented, with a strong focus on occupational relevance. They include courses for professional and scientific qualifications, teaching-specific competencies, educational science knowledge, and

practical training skills. For example, in the Bern University of Teacher Education six mentored field placements in schools are integrated covering about 25% of the overall study time. In these field placements, pre-service teachers are mentored by university teachers and school teachers.

Primary teachers receive a Bachelor's degree after three years of studies and are trained as generalists, not subject specialists. Primary education in Switzerland includes two years of kindergarten and six grades of primary school. Grade-level differentiation occurs by grouping teachers into two cycles: Kindergarten to Grade 2 (Cyclus 1), and Grade 3 to 6 (Cyclus 2). In the 2023/2024 academic year, a total of 1084 pre-service teachers were enrolled in the primary teacher programme at the Bern University of Teacher Education.

THE ITE COURSE 'PROFESSIONAL IDENTITY DEVELOPMENT AND PERSONAL RESOURCES'

The mandatory ITE course 'Professional Identity Development and Personal Resources' for pre-service primary school teachers at the Bern University of Teacher Education awards three ECTS (90 working hours) with 10 face-to-face sessions. It focuses on the demands of the teaching profession and key individual resources, such as resilience, emotion regulation, and relationship-building with students and parents. For example, pre-service teachers are introduced to the Job Demands-Resources Theory (Bakker et al., 2021) and the BRiTE project (Mansfield et al., 2016). The main learning outcomes of the course include: (a) understanding and reflecting on stressful aspects in the teaching profession; (b) learning about communication and interaction theories to manage challenging situations (e.g., conflicts with students or parents); and (c) broadening personal resources by applying new communication skills, personal skills such as resilience, and conflict management strategies.

THE FoResT LEARNING PLATFORM

Strongly inspired by the Australian BRiTE online platform developed by Caroline Mansfield and colleagues (e.g., Mansfield et al., 2016; Mansfield et al., 2021), we designed six online modules that were closely aligned with the regular coursework of the mandatory ITE course 'Professional Identity Development and Personal Resources' at the Bern University of Teacher Education. The FoResT online learning platform addressed key areas of teacher knowledge, self-regulation, and self-care: understanding resilience, maintaining relationships, establishing well-being, showing initiative, perceiving emo-

tions, and practising mindfulness. The main topics were adapted from existing programmes – particularly BRiTE – to fit the Swiss context. This adaptation followed a design thinking process involving diverse stakeholders – pre-service teachers, teachers, researchers, lecturers, and health professionals (see Krummenacher et al., 2024a).

Pre-service teachers engaged with six online modules integrated into regular coursework by instructors. Modules included multimedia contents (videos, audios, texts), interactive elements, evidence-based strategies, practical case studies, and reflection exercises. After each module, pre-service teachers filled out a 'Wish, Outcome, Obstacle, Plan' (WOOP)-based logbook ('Your Plan') to document their goals. The research team conducted three in-person sessions to support pre-service teachers' active engagement with the platform: a kickoff, a reflection session (need-finding), and a future focus session, with self-assessments administered during the first and last sessions (for more details about the online platform see Supplements and Figure S1-S3).

RESEARCH QUESTIONS AND HYPOTHESES

Fostering pre-service teachers' resilience during ITE is seen as a promising approach to prevent future teacher stress and burnout and support their well-being (Beltman et al., 2018; Beltman et al., 2025; Mansfield et al., 2020). The central aim of our study was to examine changes in pre-service teachers' level of emotional exhaustion and resilience over the course of a semester in which they were enrolled in the mandatory ITE course 'Professional Identity Development and Personal Resources'. We aimed to understand whether engagement with the FoResT online learning platform – designed to support pre-service teachers' resilience – has a positive effect on pre-service teachers compared to regular coursework. In our work, we followed the Transparent Reporting of Evaluations with Nonrandomised Designs (TREND) statement (des Jarais et al., 2004). Based on a quasi-experimental design with an intervention and a control group, we analysed whether pre-service teachers' using the platform would report lower emotional exhaustion (RQ1) and enhanced resilience (RQ2) after course completion.

METHOD

Participants

In the autumn semester of 2023, N=255 pre-service primary teachers from the Bern University of Teacher Education (79.2% female, 20.4% male, 0.4% unspecified) were enrolled in the mandatory ITE course 'Professional Identity Development and Personal Resources'. Most participants were in their third se-

mester (78.5%; fifth semester: 12.5%; other semesters: 9.0%), with a mean age of 23.35 years ($SD = 5.01$, range = 19–51 years). At the beginning of the semester (mid-September), 83% had an additional employment to their university studies, primarily at ≤ 50% workload (71.9%), and 24.3% were engaged in intensive care work or volunteering. In terms of teaching experience along with studying, 57.4% had no teaching position, 7.8% taught fewer than six lessons per week, 25.0% taught more than six lessons per week, and 9.4% worked as substitute teachers.

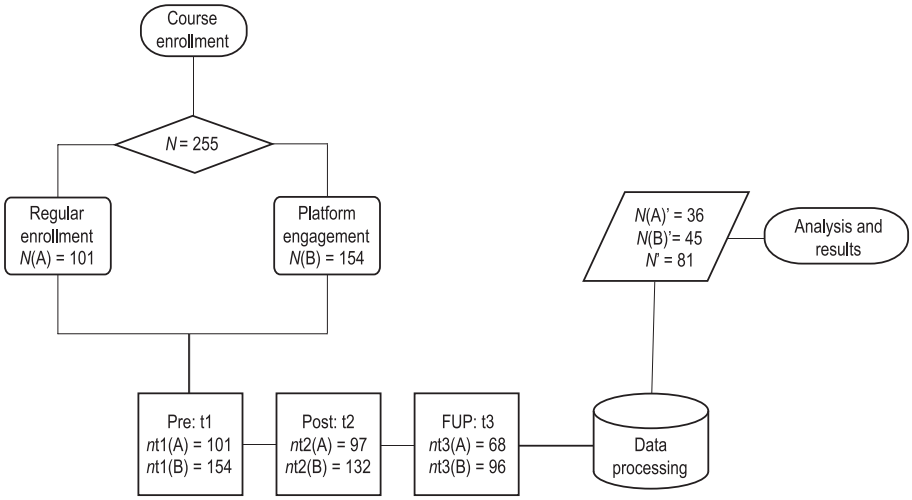
Given the high numbers of pre-service teachers, the mandatory ITE course 'Professional Identity Development and Personal Resources' was run in 10 parallel study groups. The courses were taught by different university teachers. Like previous third-semester cohorts, pre-service teachers self-enrolled in one of 10 study groups based on their individual time preferences some weeks before the semester started. Random assignment was not possible due to pre-service teachers' individual study-work programmes. However, self-selection bias based on the course version was avoided by two strategies. First, *upon* enrollment, the pre-service teachers were only informed about the title and the main learning outcomes of the course not about the version (with or without the learning platform). Second, the pre-service teachers were informed whether they would participate in the version of the course with or without engagement in the FoResT online learning platform *after* enrollment. No pre-service teacher changed the course after being informed about the specific version they were assigned to.

Regarding the study programme, all pre-service teachers faced the same workload, i.e., engagement with the platform was fully integrated into the coursework, avoiding additional workload. For example: When pre-service teachers in courses without the platform engaged with texts about resilience, pre-service teachers in courses with the platform engaged with the online module on resilience. Both formats of the course (with and without platform use) included interactive components such as discussions, sharing examples, reading texts and answering questions. For ethical reasons, platform engagement was not monitored through learning analytics, but course completion was monitored, and pre-service teachers received a reminder to complete the module if not having finished before course deadlines. As both formats of the coursework were mandatory, the study design did not allow controlling the outcomes of the course enrollment against a comparable sample without course participation.

At the three measurement timepoints, participant numbers were as shown in Figure 1. Response rates per timepoint

were 100% at t1, 90% at t2 and 64% at t3. The final sample, including participants with both pre- and post-assessments, comprised $N = 141$ ($n = 58$, subgroup A: regular coursework and $n = 83$, subgroup B: engagement with the learning platform), resulting in an average completion rate of 55%. A subset of participants completed all three waves ($n = 36$, subgroup A; $n = 45$, subgroup B), resulting in a longitudinal sample of $N = 81$ and an average completion rate of 32%.

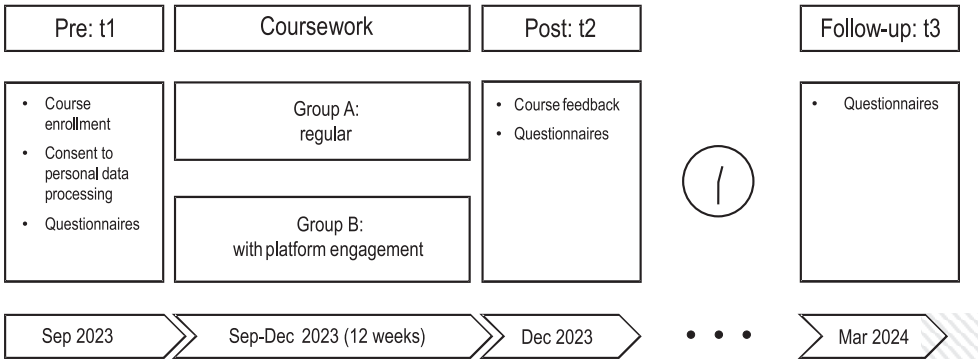
FIGURE 1
Flowchart of participant numbers from enrollment to analysis



Study design and procedure

Our study was approved by the Ethics Commission of the Faculty of Human Sciences of the University of Bern. Participation in the course 'Professional Identity Development and Personal Resources' was mandatory (full cohort of the third semester in autumn 2023). Pre-service teachers were informed about the learning goals of the course. Only pre-service teachers who provided informed consent to participate in our study were included.

FIGURE 2
Study design



Data were collected at three measurement points (Figure 2): At the start of semester 3 (pre: t1) in September 2023 (DIN 39-2023), at the end of semester 3 (post: t2) in December 2023 (DIN 49-2023), and at the start of semester 4 (follow-up: t3) in March 2024 (DIN 10-2024). Anonymous self-assessment data were collected via online questionnaires using unique participant IDs during university courses. All three data collection sessions were facilitated by trained project staff in the study groups.

Measures

Emotional exhaustion was measured using five items from the exhaustion subscale of the Maslach Burnout Inventory – Student Survey (MBI-SS) (Gusy et al., 2016; Schaufeli et al., 2002). Items were rated on a 7-point Likert scale from 0 (never) to 6 (daily), with higher scores indicating greater exhaustion. A mean score was computed per individual across items.

Resilience was assessed using the German version of the Resilience Scale (RS-25) (Schumacher, 2005), consisting of 25 items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating greater resilience. The scale comprises two subscales: personal competence (17 items), measuring self-confidence, independence, self-control, and perseverance; and acceptance of self and life (8 items), capturing adaptability, tolerance, and a flexible perspective on oneself and one's life path. Mean scores were calculated for each subscale.

Data analyses

All statistical analyses were conducted using RStudio (Version 2024.12.1+563). Both subgroups were compared in their gender-distribution (chi-square test), mean age, and baseline values of all scales (*t*-tests). Attrition analyses tested possible differences between completers and non-completers across the three measurement points regarding scores in emotional exhaustion and resilience. Prior to model calculation, (sub)scales were assessed for adequate internal consistency using Cronbach's alpha. Short-term changes were investigated using data from t1 and t2, while long-term effects were analysed comparing data from t1, t2, and t3.

To understand whether the two subgroups differed in the changes in their emotional exhaustion and resilience, we applied a repeated measures multivariate analysis of variance (rm-MANOVA), with *timepoint* as a within-subject factor and *group* as a between-subject factor. Post hoc analyses included rm-ANOVAS and paired-samples *t*-tests per outcome variable. Sensitivity analyses included the covariate gender.

RESULTS

Descriptive statistics

All scales showed adequate internal consistency in both subgroups and the total sample (Table 1, Table 2). For both the short-term changes (t1-t2 sample, Table 1) and long-term changes (t1-t2-t3 sample, Table 2), there were no significant differences in gender distribution and age between the subgroups. Completers and non-completers did not differ in gender and baseline levels of emotional exhaustion and resilience but slightly differ regarding age (non-completers on average about 1.5 years older, see Supplementary Tables S1 and S2).

TABLE 1
Scale reliability and descriptive data for participants with complete data at pre and post

A / Internal consistency

		Time	Subgroup A α	Subgroup B α	Total
Scale	Emotional exhaustion	Pre	0.82	0.86	0.85
		Post	0.89	0.85	0.87
	Resilience competence	Pre	0.82	0.88	0.86
		Post	0.86	0.89	0.88
	Resilience acceptance	Pre	0.78	0.79	0.78
		Post	0.75	0.76	0.76

B / Sample characteristics

	Time	Subgroup A	Subgroup B	Total	A vs. B	*p*
Sample size (*N*)	Pre	83	58	141		
Gender (f %)	Pre	73.5	87.9	79.4	$\chi^2 = 3.517$	0.061
Age (*M*(*SD*))	Pre	23.1 (5.5)	22.4 (3.1)	22.8 (4.7)	$t = 0.957$	0.341

C / Group comparison of scales per timepoint (independent *t*-tests)

Scale	Time	Subgroup A *M* (*SD*)	Subgroup B *M* (*SD*)	Total *M* (*SD*)	*t*	*p*	*d* 95% CI [LL, UL]
Emotional exhaustion	Pre	3.42 (0.98)	2.99 (1.05)	3.16 (1.04)	-2.496	0.014*	-0.42 [-0.76, -0.08]
	Post	3.90 (1.12)	3.31 (1.03)	3.55 (1.10)	-3.154	0.002*	-0.55 [-0.89, -0.21]
Resilience competence	Pre	5.23 (0.61)	5.31 (0.78)	5.28 (0.71)	0.622	0.535	0.10 [-0.23, 0.44]
	Post	5.19 (0.69)	5.34 (0.75)	5.28 (0.73)	1.186	0.238	0.20 [-0.14, 0.54]
Resilience acceptance	Pre	4.82 (0.90)	4.82 (0.93)	4.82 (0.92)	0.012	0.991	0.00 [-0.33, 0.34]
	Post	4.74 (0.90)	4.97 (0.85)	4.88 (0.87)	1.499	0.137	0.26 [-0.08, 0.60]

Note. Emotional exhaustion is rated on a 7-point Likert scale (0 = never, 6 = daily); Resilience competence and acceptance are rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Subgroup A = regular coursework; Subgroup B = engagement in learning platform.
*$p < 0.05$

A baseline difference in emotional exhaustion between the subgroups was found, with subgroup A (regular coursework) reporting higher exhaustion levels than the subgroup B (platform users). Hence, comparisons of emotional exhaustion between subgroups were controlled for baseline emotional exhaustion.

TABLE 2
Scale reliability and descriptive data for participants with complete data at all three timepoints

A / Internal consistency

		Time	Subgroup A α	Subgroup B α	Total
Scale	Emotional exhaustion	Pre	0.78	0.82	0.81
		Post	0.89	0.83	0.88
		Follow-up	0.91	0.92	0.93
	Resilience competence	Pre	0.80	0.84	0.83
		Post	0.83	0.89	0.87
		Follow-up	0.88	0.88	0.89
	Resilience acceptance	Pre	0.74	0.74	0.74
		Post	0.73	0.71	0.72
		Follow-up	0.85	0.87	0.87

B / Sample characteristics

	Time	Subgroup A	Subgroup B	Total	A vs. B	*p*
Sample size (N)	Pre	36	45	81		
Gender (f %)	Pre	88.9	75.6	81.5	$\chi^2 = 1.556$	0.212
Age (M(SD))	Pre	22.1 (2.5)	22.1 (2.5)	22.1 (2.5)	$t = -0.146$	0.885

C / Group comparison of scales per timepoint (independent *t*-tests)

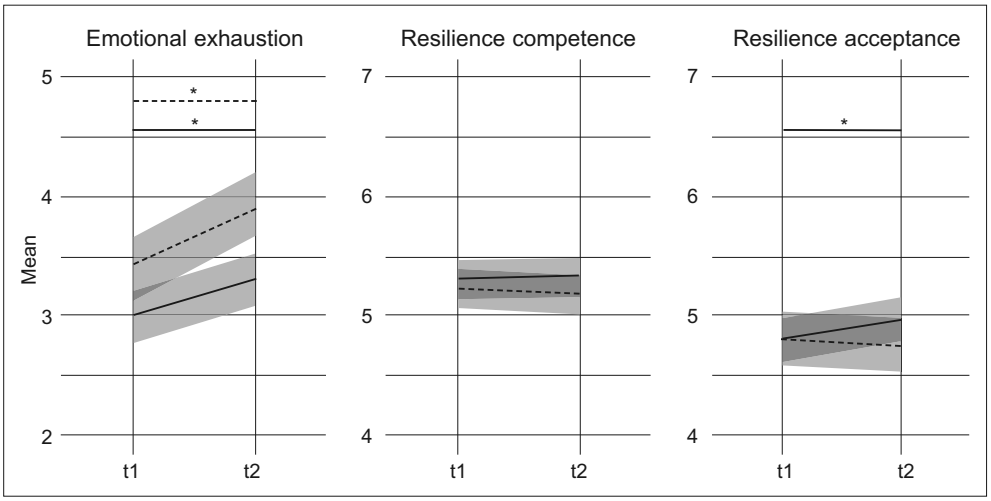
Scale	Time	Subgroup A *M* (*SD*)	Subgroup B *M* (*SD*)	Total *M* (*SD*)	*t*	*p*	*d* 95% CI [LL, UL]
Emotional exhaustion	Pre	3.44 (0.84)	2.97 (0.95)	3.18 (0.93)	-2.359	0.021*	-0.52 [-0.96, -0.07]
	Post	3.93 (1.05)	3.24 (0.94)	3.55 (1.05)	-3.102	0.003*	-0.70 [-1.15, -0.25]
	Follow-up	3.73 (1.20)	2.53 (1.24)	3.06 (1.35)	-4.401	< 0.001*	-0.98 [-1.44, -0.51]
Resilience competence	Pre	5.24 (0.54)	5.37 (0.66)	5.31 (0.61)	0.939	0.351	0.21 [-0.23, 0.64]
	Post	5.16 (0.59)	5.34 (0.76)	5.26 (0.69)	1.185	0.240	0.26 [-0.18, 0.70]
	Follow-up	5.23 (0.70)	5.60 (0.66)	5.44 (0.70)	2.408	0.019*	0.54 [0.09, 0.99]
Resilience acceptance	Pre	4.87 (0.83)	4.76 (0.82)	4.81 (0.82)	-0.579	0.564	-0.13 [-0.57, 0.31]
	Post	4.77 (0.83)	4.95 (0.78)	4.87 (0.80)	0.960	0.340	0.22 [-0.22, 0.66]
	Follow-up	4.79 (1.00)	5.24 (1.02)	5.04 (1.03)	1.970	0.053	0.44 [-0.01, 0.88]

Note. Emotional exhaustion is rated on a 7-point Likert scale (0 = never, 6 = daily); Resilience competence and acceptance are rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Subgroup A = regular coursework; Subgroup B = engagement in learning platform.
*$p < 0.05$

Inferential statistics

Regarding the short-term outcomes over a semester, we found the following results: Including group as a predictor and controlling for emotional exhaustion at t1, the rm-MANCOVA (shown in Table 3, Figure 3) revealed significant main effects of both time and group. Separate rm-ANOVAs indicate that emotional exhaustion exhibited significant main effects of both time and group. In contrast, resilience competence showed no effects and resilience acceptance displayed a small but significant interaction effect, driven by a slight increase in subgroup B, which engaged with the learning platform. Paired *t*-tests for emotional exhaustion indicated that both subgroups experienced an increase from t1 to t2, with subgroup B showing a significant increase and subgroup A experiencing an even stronger increase.

FIGURE 3
Short-term changes from pre to post in emotional exhaustion, resilience competence, and resilience acceptance in subgroup A (reg. coursework) and B (platform)



Note. Emotional exhaustion is rated on a 7-point Likert scale (0 = never, 6 = daily); Resilience competence and acceptance are rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Lines represent the subgroups: Subgroup A (regular coursework) = dashed line, Subgroup B (additional engagement in learning platform) = solid line. Timepoints: t1 = pre, t2 = post. Significance is indicated for paired *t*-tests for each subgroup. *$p < 0.05$

When considering long-term group outcomes in the t1-t2-t3 sample (Table 4, Figure 3), the rm-MANCOVA revealed significant main effects of time and group as well as a significant interaction effect. For emotional exhaustion (controlled for emotional exhaustion at t1), all three effects – time, group, and interaction – were significant. While subgroup A showed an increase from t1 to t2, subgroup B exhibited a decrease from t2 to t3, suggesting a reversal of the earlier pattern. Further analyses revealed that resilience competence showed a significant main effect of time, with subgroup B experiencing a notable increase from t2 to t3.

A / rm-MANCOVA

	Pillai	Num *df*, den *df*	Approx. *F*	*p*	Partial eta²	Partial eta² 95% CI [LL, UL]
Emotional exhaustion t1	0.853	3, 136	263.170	< 0.001*	0.85	0.81, 0.88
Group	0.315	3, 136	20.894	< 0.001*	0.30	0.17, 0.41
Time	0.213	3, 137	12.351	< 0.001*	0.20	0.08, 0.30
Group x time	0.037	3, 137	1.739	0.162	0.02	0.00, 0.06

B / rm-ANCOVA und rm-ANOVAs

	Sum of squares	Mean square	*df*	*F*	*p*	Partial eta²	Partial eta² 95% CI [LL, UL]
Emotional exhaustion							
Emotional exhaustion t1	222.320	222.320	1, 138	791.050	< 0.001*	0.85	0.81, 0.88
Group	17.670	17.670	1, 138	62.880	< 0.001*	0.31	0.19, 0.42
Time	10.650	10.649	1, 139	34.086	< 0.001*	0.19	0.09, 0.30
Group x time	0.40	0.405	1, 139	1.296	0.257	0.00	0.00, 0.04
Resilience competence							
Group	0.810	0.810	1, 139	0.914	0.341	0.00	0.00, 0.00
Time	0.000	0.000	1, 139	0.000	0.986	0.00	0.00, 0.00
Group x time	0.089	0.089	1, 139	0.598	0.441	0.00	0.00, 0.00
Resilience acceptance							
Group	0.880	0.877	1, 139	0.629	0.429	0.00	0.00, 0.00
Time	0.220	0.220	1, 139	1.080	0.300	0.00	0.00, 0.03
Group x time	0.849	0.849	1, 139	4.171	0.043*	0.02	0.00, 0.09

C / paired *t*-tests

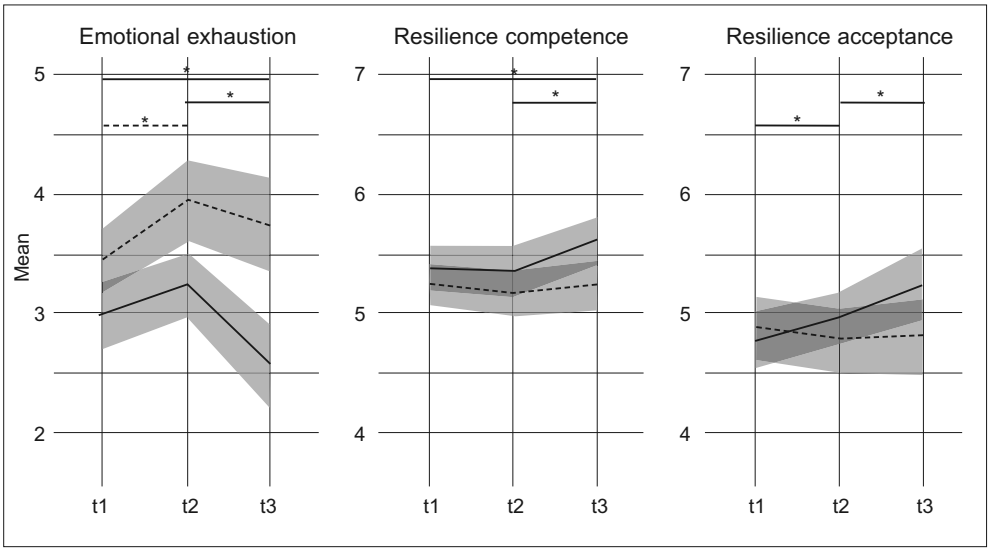
	Subgroup	Pre *M* (*SD*)	Post *M* (*SD*)	*t*	*p*	d_z	d_z 95% CI [LL, UL]
Emotional exhaustion	A	3.42 (0.98)	3.90 (1.12)	4.744	< 0.001*	0.61	0.34, 0.89
	B	2.99 (1.05)	3.31 (1.03)	3.683	< 0.001*	0.40	0.18, 0.62
Resilience competence	A	5.23 (0.61)	5.19 (0.69)	-0.711	0.480	-0.09	-0.35, 0.16
	B	5.31 (0.78)	5.34 (0.75)	0.460	0.647	0.05	-0.16, 0.26
Resilience acceptance	A	4.82 (0.90)	4.74 (0.90)	-0.929	0.357	-0.12	-0.38, 0.13
	B	4.82 (0.93)	4.97 (0.85)	2.064	0.042*	0.22	0.01, 0.44

TABLE 3 Rm-MANCOVA and rm-AN(C)OVAs with main and interaction effects of group (between-subject factor) and two timepoints (within-subject factor), with post hoc paired *t*-tests

Note. (A) For the rm-MANCOVA, effects of emotional exhaustion at pre-measurement (t1), group, timepoint, and group x time interaction on emotional exhaustion, resilience competence, and resilience acceptance were assessed. (B) For rm-ANCOVA and rm-ANOVAs, individual effects of group, timepoint, and their interactions on emotional exhaustion, resilience competence, and resilience acceptance were analysed. (C) Results of paired *t*-tests, comparing differences between timepoints (pre, post). *$p < 0.05$ indicates significance

Resilience acceptance showed both a significant main effect of time and an interaction effect, with subgroup B increasing from t1 to t2 and further from t2 to t3. When focusing on changes across the entire measurement period (t1-t3), subgroup B showed significant reduction in emotional exhaustion as well as increases in resilience competence and resilience acceptance with effects sizes ranging from small to moderate, whereas subgroup A showed no significant change. Sensitivity analyses showed no effect of gender on the results (see Supplementary Tables S3 and S4).

FIGURE 4
Long-term changes from pre to post and follow-up in emotional exhaustion, resilience competence, and resilience acceptance in subgroup A (reg. coursework) and B (platform)



Note. Emotional exhaustion is rated on a 7-point Likert scale (0 = never, 6 = daily); Resilience competence and acceptance are rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Lines represent the subgroups: Subgroup A (regular coursework) = dashed line, Subgroup B (additional engagement in learning platform) = solid line. Timepoints: t1 = pre, t2 = post, t3 = follow-up. Significance is indicated for paired *t*-tests for each subgroup.
*$p < 0.05$

TABLE 4
Rm-MANCOVA and rm-AN(C)OVAs with main and interaction effects of group (between-subject factor) and three timepoints (within-subject factor) with post hoc paired *t*-tests

A / rm-MANCOVA
Partial eta^2

	Pillai	Num *df*, den *df*	Approx. *F*	*p*	Partial eta^2	95% CI [LL, UL]
Emotional exhaustion t1	0.684	3, 76	54.949	< 0.001*	0.67	0.55, 0.75
Group	0.417	3, 76	18.127	< 0.001*	0.39	0.22, 0.52
Time	0.189	6, 314	5.471	< 0.001*	0.08	0.02, 0.13
Group x time	0.121	6, 314	3.368	0.003*	0.04	0.00, 0.08

Continues

Continued B / rm-ANCOVA and rm-ANOVAs

	Sum of squares	Mean square	*df*	*F*	*p*	Partial eta²	Partial eta² 95% CI [LL, UL]
Emotional exhaustion							
Emotional exhaustion t1	119.93	119.93	1, 78	164.32	< 0.001*	0.67	0.56, 0.75
Group	37.20	37.20	1, 78	50.970	< 0.001*	0.39	0.23, 0.52
Time	10.26	5.131	2, 158	9.796	< 0.001*	0.10	0.02, 0.19
Group x time	5.49	2.745	2, 158	5.240	0.006*	0.05	0.00, 0.12
Resilience competence							
Group	3.010	3.007	1, 79	2.908	0.092	0.02	0.00, 0.12
Time	1.325	0.663	2, 158	4.771	0.010*	0.05	0.00, 0.12
Group x time	0.651	0.325	2, 158	2.343	0.099	0.02	0.00, 0.07
Resilience acceptance							
Group	1.740	1.737	1, 79	0.882	0.350	0.00	0.00, 0.00
Time	2.294	1.147	2, 158	6.132	0.003*	0.06	0.00, 0.14
Group x time	3.041	1.520	2, 158	8.126	< 0.001*	0.08	0.01, 0.17

C / paired *t*-tests

Scale	Subgroup	*M* (*SD*)	*M* (*SD*)	*t*	*p*	d_Z	d_Z 95% CI [LL, UL]
		Pre	Post				
Emotional exhaustion	A	3.44 (0.84)	3.93 (1.05)	3.921	< 0.001*	0.49	0.23, 0.75
	B	2097 (0.95)	3.24 (0.94)	2.230	0.031*	0.28	-0.03, 0.53
Resilience competence	A	5.24 (0.54)	5.16 (0.59)	-1.584	0.122	-0.14	-0.31, 0.03
	B	5.37 (0.66)	5.34 (0.76)	-0.332	0.742	-0.04	-0.26, 0.18
Resilience acceptance	A	4.87 (0.83)	4.77 (0.83)	-0.889	0.380	-0.11	-0.35, 0.13
	B	4.76 (0.82)	4.95 (0.78)	2.222	0.031*	0.23	0.02, 0.43
		Post	FUP				
Emotional exhaustion	A	3.93 (1.05)	3.73 (1.20)	-1.331	0.192	-0.18	-0.44, 0.09
	B	3.24 (0.94)	2.53 (1.24)	-3.740	< 0.001*	-0.62	-0.98, -0.26
Resilience competence	A	5.16 (0.59)	5.23 (0.70)	0.795	0.432	0.10	-0.15, 0.36
	B	5.34 (0.76)	5.60 (0.66)	3.020	0.004*	0.35	0.12, 0.59
Resilience acceptance	A	4.77 (0.83)	4.79 (1.00)	0.178	0.860	0.02	-0.18, 0.22
	B	4.95 (0.78)	5.24 (1.02)	2.842	0.007*	0.30	0.09, 0.51
		Pre	FUP				
Emotional exhaustion	A	3.44 (0.84)	3.73 (1.20)	1.801	0.080	0.26	-0.03, 0.55
	B	2097 (0.95)	2.53 (1.24)	-2.358	0.023*	-0.38	-0.72, -0.05
Resilience competence	A	5.24 (0.54)	5.23 (0.70)	-0.102	0.920	-0.01	-0.30, 0.27
	B	5.37 (0.66)	5.60 (0.66)	2.895	0.006*	0.35	0.10, 0.59
Resilience acceptance	A	4.87 (0.83)	4.79 (1.00)	-0.871	0.391	-0.08	-0.25, 0.10
	B	4.76 (0.82)	5.24 (1.02)	4.903	< 0.001*	0.48	0.28, 0.69

Note. (A) For the rm-MANCOVA, effects of emotional exhaustion at pre-measurement (t1), group, timepoint, and group x time interaction on emotional exhaustion, resilience competence, and resilience acceptance were assessed. (B) For rm-ANCOVA and rm-ANOVAs, individual effects of group, timepoint, and their interactions on emotional exhaustion, resilience competence, and resilience acceptance were analysed. (C) Results of paired *t*-tests, comparing differences between timepoints (pre, post, FUP = follow-up). *$p < 0.05$ indicates significance

DISCUSSION

This exploratory study investigated the changes in pre-service teachers' self-reported emotional exhaustion and resilience during their enrollment in the ITE course on 'Professional Identity Development and Personal Resources', which was designed to enhance their knowledge and practical skills for building professional resilience. Given that the ITE course was offered in two different formats – with and without the FoResT online learning platform focusing on resilience – we compared the outcomes in the two study subgroups (A and B) to assess potential benefits of the platform. We investigated whether pre-service teachers who engaged with the FoResT online learning platform would report significantly reduced emotional exhaustion (RQ1) and enhanced resilience (RQ2).

Short-term changes were observed when comparing pre-post scores within and between subgroup A (regular coursework) and subgroup B (with the learning platform). We found an unfavourable, significant increase in emotional exhaustion during the semester (pre-post) in subgroup A that was enrolled in the ITE course without the learning platform. Subgroup B also showed a significant change during the semester, but the increase was significantly weaker. The subgroups also differed in resilience acceptance leading to a significant but small difference in favour of the subgroup B enrolled with the learning platform. These findings may reflect the high workload of pre-service teachers during the semester (Bakker & Mostert, 2024) when they face high expectancies of succeeding with their studies and skill development while preparing for full teaching responsibilities immediately after graduation (Dicke et al., 2015; Tynjälä & Heik-kinen, 2011). Pre-service teachers also seem to struggle with the dual demands of being both learners and emerging professionals (e.g., Núñez-Regueiro et al., 2024). However, it must be noted that the entry levels of emotional exhaustion in subgroup A (without the learning platform) were already higher at the beginning of the semester (pre-scores), which likely indicates a higher vulnerability of this subgroup to intensified exhaustion. Considering that pre-service teachers freely self-enrolled in one of the ten courses based on their individual time preferences and were not informed about the course version (with or without the learning platform) before the semester started, the higher vulnerability observed in this subgroup was unexpected. The subgroup A increase in emotional exhaustion during the semester might contribute to this body of findings that ITE is a stressful period for pre-service teachers when they do not receive additional support. Research also shows that emotional exhaustion often increases during teachers' first

year of service but that higher levels of professional knowledge and competencies are associated with lower emotional exhaustion (e.g., Dicke et al., 2015). Conversely, emotional exhaustion can hinder professional development (Skaalvik & Skaalvik, 2016), creating a vicious cycle. Online learning platforms like FoResT may help break this cycle by supporting resilience and fostering professional growth among pre-service and novice teachers.

Interestingly, long-term outcomes reveal a more pronounced picture. Comparing the start of Semester 3 (t1) with Semester 4 (t3), both subgroups show a decline in emotional exhaustion, but this decline was only significant for the platform users. One logical explanation seems the two-month semester break between the post- and follow-up assessments (post-measures took place at the end of the semester term, follow-up at the start of the following semester). However, during this break pre-service teachers were required to complete exams and participate in field placements which imposed considerable demands on pre-service teachers (e.g., Sturges et al., 2024). Thus, it seems unlikely that the observed decrease in emotional exhaustion was due to a reduction in workload (e.g., von Haaren-Mack et al., 2025). Rather, we assume that the observed improvements in both subgroups from the beginning of semester 3 (t1) to the beginning of semester 4 (t3) reflect delayed benefits of the ITE course contents on 'Professional Identity Development and Personal Resources'. Those benefits might unfold during pre-service teachers' engagement with more practical challenges during their field experiences. It is possible that pre-service teachers became more aware of the importance of their professional biography and resources when they were in the classroom. We also assume that acceptance of self and life could improve through field experiences, while personal competence seems to develop more gradually, as competence-building and the perception of increased competence require time to unfold (e.g., Baatz & Wirzberger, 2025). In general, delayed treatment effects are well-documented in intervention research and are typically observed when the target variable, like resilience, needs time to develop and manifest (e.g., Riley-Tillman et al., 2020). Future studies should control ITE course participation against non-participation and assess short-term and long-term effects more precisely.

It is of note, however, that the decline in emotional exhaustion is more pronounced in subgroup B (learning platform users) and even falls remarkably below their start level, suggesting more effective recovery of subgroup B compared to subgroup A. Also, the subgroups differed regarding long-

term resilience development. The effect sizes suggest significant small to moderate benefits of the platform use (subgroup B) on resilience building. We interpret these effects as promising evidence for further integration of the learning platform into future coursework. Given the quasi-experimental design of our study, future research might improve the accuracy of results of field studies in ITE for example in using propensity score matching.

Further research is needed to more closely identify the factors and mechanisms influencing pre-service teachers' emotional exhaustion and resilience. Prior studies have shown that resilience is a skill that can be developed during ITE (Gu & Day, 2007; Mansfield et al., 2021). Possibly, pre-service teachers' coping strategies play a key role in this development, similar to the link between teachers' coping strategies and their resilience, stress, and burnout (Beltman & Poulton, 2019; Brouwers & Tomic, 2000; Lambert et al., 2009; O'Brennan et al., 2017). Coping strategies are considered fundamental adaptive processes (Lazarus & Folkman, 1991; Zimmer-Gembeck & Skinner, 2016) and are seen as being at the core of the teacher resilience process when individuals apply these strategies to maintain or improve their well-being (Hascher et al., 2021). Indeed, it was found that coping strategies help to understand the paradox between the high demands of the teaching profession and the high levels of satisfaction and well-being reported by teachers (Krummenacher et al., 2024b). For example, activating social support and collaboration seem adaptive responses to challenges and nourish teachers' resilience. Accordingly, future research that further elucidates the role of coping strategies for pre-service teachers can inform ITE research and practice (e.g., Beltman et al., 2018).

Limitations

Our quasi-experimental study comes with some limitations. First, we observed substantial participant dropout over the course of the study. High attrition can introduce bias, especially if those who withdrew were systematically different (e.g., more exhausted or less resilient) than those who remained. In such cases of non-random missingness, analyses may overestimate improvements by focusing on a potentially more resilient subset (Wolke et al., 2009). However, attrition analyss did not show significant differences between completers and non-completers regarding emotional exhaustion and resilience at baseline level. Second, the scheduling of measurements may have confounded the results. The post-measure was conducted at the end of the semester – a period typically associated with peak stress and workload in academic contexts (Jõgi et

al., 2023). In contrast, the follow-up data was collected after a semester break, when some natural recovery likely occurred. However, the winter break is relatively short and generally perceived as stressful by pre-service teachers due to exam weeks and field placements. Third, emotional exhaustion and resilience were measured via self-report questionnaires, which are subject to biases and measurement limitations. Participants' perceptions may have been influenced by transient mood or by awareness of the study's aims (for instance, motivation to report improved resilience after the course). Moreover, resilience is a multifaceted construct (Beltman, 2021; Mansfield et al., 2012a), and a single survey instrument may not capture all its dimensions or subtle changes; for example, participants might have developed new coping behaviours that were not fully reflected in the resilience scale scores.

Regarding the internal and external validity, additional shortcomings need to be considered. Firstly, by investigating the full cohort we could not control for comparability of the two subgroups. Splitting the sample, however, would have lowered the power for data analysis even further. Secondly, we did not control for intervention fidelity as we did not measure how exactly the topics and the platform were integrated into the course and how the individual pre-service teacher engaged with the learning material. Thirdly, we refrained from collecting learning analytics due to ethical considerations and the intensively discussed challenges in assessing engagement and learning quality though learning analytics (Mian et al., 2022).

Practical implications

Teacher education is a very important societal task. Our study suggests that learning settings can make a difference for pre-service teacher skill development. We thus conclude that the integration of a digitally supported learning environment might be complex but seems also promising. We recommend implementing new learning settings using a participatory approach that incorporates the perspectives of both teacher educators and pre-service teachers, to better understand the facilitators and demands associated with innovative learning formats. The results of our study also underscore the importance of fostering resilience already during initial teacher education, allowing sufficient time for these skills to develop.

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REFERENCES

Amponsah, K. D., Adasi, G. S., Mohammed, S. M., Ampadu, E., & Okrah, A. K. (2020). Stressors and coping strategies: The case of teacher education students at University of Ghana. *Cogent Education, 7*(1), 1727666. https://doi.org/10.1080/2331186X.2020.1727666

Baatz, J., & Wirzberger, M. (2025). Resilience as a professional competence: A new way towards healthy teachers? *Social Psychology of Education, 28*(1), Article 56. https://doi.org/10.1007/s11218-024-10010-8

Bakker, A. B., & Mostert, K. (2024). Study demands–resources theory: Understanding student well-being in higher education. *Educational Psychology Review, 36*(3), Article 92. https://doi.org/10.1007/s10648-024-09940-8

Bakker, A. B., & de Vries, J. D. (2021). Job demands–resources theory and self-regulation: New explanations and remedies for job burnout. *Anxiety, Stress & Coping: An International Journal, 34*(1), 1–21. https://doi.org/10.1080/10615806.2020.1797695

Beltman, S. (2015). Teacher professional resilience: Thriving not just surviving. In N. Weatherby-Fell (Ed.), *Learning to teach in the secondary school* (pp. 20–38). Cambridge University Press.

Beltman, S. (2021). Understanding and examinng teacher resilience from multiple perspectives. In C. F. Mansfield (Ed.), *Cultivating teacher resilience* (pp. 11–26). Springer. https://doi.org/10.1007/978-981-15-5963-1_2

Beltman, S., & Poulton, E. (2019). "Take a step back": Teacher strategies for managing heightened emotions. *Australian Educational Researcher, 46,* 661–679. https://doi.org/10.1007/s13384-019-00339-x

Beltman, S., Mansfield, C., & Price, A. (2011). Thriving not just surviving: A review of research on teacher resilience. *Educational Research Review, 6*(3), 185–207. https://doi.org/10.1016/j.edurev.2011.09.001

Beltman, S., Mansfield, C. F., Collie, R., & Hascher, T. (2025). Teacher coping self-efficacy and COVID: Does an online intervention make a difference for teacher well-being? In A. Matsopoulos (Ed.), *Global perspectives on resilience, well-being, and mental health in schools, families and communities* (pp. 79–111). Nova.

Beltman, S., Mansfield, C. F., Wosnitza, M., Weatherby-Fell, N., & Broadley, T. (2018). Using online modules to build capacity for teacher resilience. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education* (pp. 237–253). Springer. https://doi.org/10.1007/978-3-319-76690-4_14

Bordás, A. (2023). Investigation of resilience among teachers and in teacher education. *Central European Journal of Educational Research, 5*(1), 24–36. https://doi.org/10.37441/cejer/2023/5/1/11119

Brouwers, A., & Tomic, W. (2000). A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teaching and Teacher Education, 16*(2), 239–253. https://doi.org/10.1016/S0742-051X(99)00057-8

Cooper, C., Cooper, C., & Travers, C. (1996). *Teachers under pressure. Stress in the teaching profession*. Routledge. https://doi.org/10.4324/9780203059975

Corcoran, R. P., & O'Flaherty, J. (2022). Social and emotional learning in teacher preparation: Pre-service teacher well-being. *Teaching and Teacher Education, 110,* 103563. https://doi.org/10.1016/j.tate.2021.103563

Des Jarlais, D. C., Lyles, C., Crepaz, N., & the TREND Group (2004). Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: The TREND Statement. *American Journal of Public Health, 94*(3), 361–366. https://doi.org/10.2105/AJPH.94.3.361

Dicke, T., Parker, P. D., Holzberger, D., Kunina-Habenicht, O., Kunter, M., & Leutner, D. (2015). Beginning teachers' efficacy and emotional exhaustion: Latent changes, reciprocity, and the influence of professional knowledge. *Contemporary Educational Psychology, 41,* 62–72. https://doi.org/10.1016/j.cedpsych.2014.11.003

Dooris, M. (2001). The "Health Promoting University": A critical exploration of theory and practice. *Health Education, 101*(2), 51–60. https://doi.org/10.1108/09654280110384108

Dreer, B. (2023). On the outcomes of teacher wellbeing: A systematic review of research. *Frontiers in Psychology, 14,* 1205179. https://doi.org/10.3389/fpsyg.2023.1205179

Duan, S., Chu, W., & Liu, H. (2023). 'Seeking resilience, sustaining development': A self-narrative study of early career English teacher resilience from an ecological perspective. *Sustainability, 15*(16), 12386. https://doi.org/10.3390/su151612386

Edú-Valsania, S., Laguía, A., & Moriano, J. A. (2022). Burnout: A review of theory and measurement. *International Journal of Environmental Research and Public Health, 19*(3), 1780. https://doi.org/10.3390/ijerph19031780

Federal Statistical Office (FSO). (2023). *Verbleib der Lehrkräfte an der obligatorischen Schule*. (*Retention of teachers in compulsory education*). https://www.swissstats.bfs.admin.ch/collection/ch.admin.bfs.swissstat.de.issue221522192200/article/issue221522192200-01

Fokkens-Bruinsma, M., Gemmink, M. M., & Van Rooij, E. C. M. (2021). Staying BRiTE in the Dutch teacher education context. In C. F. Mansfield (Ed.), *Cultivating teacher resilience* (pp. 143–158). Springer. https://doi.org/10.1007/978-981-15-5963-1_9

García-Carmona, M., Marín, M. D., & Aguayo, R. (2019). Burnout syndrome in secondary school teachers: A systematic review and meta-analysis. *Social Psychology of Education, 22*(1), 189–208. https://doi.org/10.1007/s11218-018-9471-9

Gardner, S. (2010). Stress among prospective teachers: A review of the literature. *Australian Journal of Teacher Education, 35*(8), 18–28. https://doi.org/10.14221/ajte.2010v35n8.2

Ghasemi, F. (2021). EFL teachers' burnout and individual psychology: The effect of an empowering program and cognitive restructuring techniques. *Current Psychology, 42,* 295–306. https://doi.org/10.1007/s12144-021-01368-5

Ghasemi, F. (2022). An Adlerian-based empowering intervention program with burned-out teachers. *Journal of Education, 202*(4), 355–364. https://doi.org/10.1177/0022057421998331

Gu, Q., & Day, C. (2007). Teacher's resilience: A necessary condition for effectiveness. *Teaching and Teacher Education, 23*(8), 1302–1316. https://doi.org/10.1016/j.tate.2006.06.006

Gu, Q., & Day, C. (2013). Challenges to teacher resilience: Conditions count. *British Educational Research Journal, 39*(1), 22–44. https://doi.org/10.1080/01411926.2011.623152

Gusy, B., Wörfel, F., & Lohmann, K. (2016). Erschöpfung und Engagement im Studium: Eine Anwendung des Job Demands-Resources Modells [Exhaustion and engagement during higher education: An application of the Job Demands-Resources Model]. *Zeitschrift für Gesundheitspsychologie, 24*(1), 41–53. https://doi.org/10.1026/0943-8149/a000153

Hanly, C., & Heinz, M. (2022). Extended school placement in initial teacher education: Factors impacting professional learning, agency and sense of belonging. *European Journal of Educational Research, 11*(4), 2373–2386. https://doi.org/10.12973/eu-jer.11.4.2373

Hascher, T., Beltman, S., & Mansfield, C. (2021). Teacher wellbeing and resilience: Towards an integrative model. *Educational Research, 63*(4), 416–439. https://doi.org/10.1080/00131881.2021.1980416

Hepburn, S. J., Carroll, A., & McCuaig-Holcroft, L. (2021). A complementary intervention to promote wellbeing and stress management for early career teachers. *International Journal of Environmental Research and Public Health, 18*(12), 6320. https://doi.org/10.3390/ijerph18126320

Jõgi, A. L., Malmberg, L. E., Pakarinen, E., & Lerkkanen, M. K. (2023). Teachers' situational physiological stress and affect. *Psychoneuroendocrinology, 149*, 106028. https://doi.org/10.1016/j.psyneuen.2023.106028

Kangas-Dick, K., & O'Shaughnessy, E. (2020). Interventions that promote resilience among teachers: A systematic review of the literature. *International Journal of School and Educational Psychology, 8*(2), 131–146. https://doi.org/10.1080/21683603.2020.1734125

Klassen, R., Wilson, E., Siu, A. F. Y., Hannok, W., Wong, M. W., Wongsri, N., Sonthisap, P., Pibulchol, C., Buranachaitavee, Y., & Jansem, A. (2013). Preservice teachers' work stress, self-efficacy, and occupational commitment in four countries. *European Journal of Psychology of Education, 28*(4), 1289–1309. https://doi.org/10.1007/s10212-012-0166-x

Klusmann, U., Aldrup, K., Roloff, J., Lüdtke, O., & Hamre, B. K. (2022). Does instructional quality mediate the link between teachers' emotional exhaustion and student outcomes? A large-scale study using teacher and student reports. *Journal of Educational Psychology, 114*(6), 1442–1460. https://doi.org/10.1037/edu0000703

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress, 19*(3), 192–207. https://doi.org/10.1080/02678370500297720

Krummenacher, I., Guidon, I., & Hascher, T. (2024a). Mediendidaktische Prinzipien in der Praxis: Entwicklung und Implementierung der Lernplattform FoResT zur Resilienzförderung bei Studierenden der Lehrer: innenbildung (Principles of media didactics in practice: Development and implementation of the online learning platform FoResT to foster

resilience in initial teacher education). *MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung,* 440–472. https://doi.org/10.21240/mpaed/00/2024.12.09.X

Krummenacher, I., Hascher, T., Mansfield, C., Beltman, S., Mori, J., & Guidon, I. (2024b). Navigating the paradox between professional challenges and teacher well-being: The role of strategies within the resilience process. *Frontline Learning Research, 12*(4), 85–112. https://doi.org/10.14786/flr.v12i4.1211

Lambert, R. G., McCarthy, C., O'Donnell, M., & Wang, C. (2009). Measuring elementary teacher stress and coping in the classroom: Validity evidence for the classroom appraisal of resources and demands. *Psychology in the Schools, 46*(10), 973–988. https://doi.org/10.1002/pits.20438

Lazarus, R. S., & Folkman, S. (1991). The concept of coping. In A. Monat & R. S. Lazarus (Eds.), *Stress and coping: An anthology* (3rd ed., pp. 189–206). Columbia University Press. https://doi.org/10.7312/mona92982-017

Le Cornu, R. (2009). Building resilience in pre-service teachers. *Teaching and Teacher Education, 25*(5), 717–723. https://doi.org/10.1016/j.tate.2008.11.016

Lesener, T., Pleiss, L. S., Gusy, B., & Wolter, C. (2020). The study demands-resources framework: An empirical introduction. *International Journal of Environmental Research and Public Health, 17*(14), 5183. https://doi.org/10.3390/ijerph17145183

Lu, J., & Chen, J. (2025). The dynamics between teacher resilience and well-being: A cross lagged panel analysis. *The Asia-Pacific Education Researcher, 34,* 1077–1089. https://doi.org/10.1007/s40299-024-00922-6

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543–562. https://doi.org/10.1111/1467-8624.00164

Madigan, D. J., & Curran, T. (2021). Does burnout affect academic achievement? A meta-analysis of over 100,000 students. *Educational Psychology Review, 33*(2), 387–405. https://doi.org/10.1007/s10648-020-09533-1

Mansfield, C. F., Beltman, S., & Price, A. (2012a). 'Don't sweat the small stuff': Understanding teacher resilience at the chalkface. *Teaching and Teacher Education, 28*(3), 357–367. https://doi.org/10.1016/j.tate.2011.11.001

Mansfield, C. F., Price, A. E., McConney, A., Beltman, S., Pelliccione, L., & Wosnitza, M. (2012b). *Keeping cool: Embedding resilience in the initial teacher education curriculum.* Perth, WA, USA: Office for Learning and Teaching. https://researchportal.murdoch.edu.au/esploro/outputs/report/Keeping-cool-Embedding-resilience-in-the/991005545020907891#file-0

Mansfield, C. F., Beltman, S., & Weatherby-Fell, N. (2020). 'I actually felt more confident': An online resource for enhancing pre-service teacher resilience during professional experience. *Australian Journal of Teacher Education, 45*(4), 30–48. https://doi.org/10.14221/ajte.2020v45n4.3

Mansfield, C. F., Beltman, S., & Weatherby-Fell, N. (2021). A BRiTE journey 2013–2019. In C. Mansfield (Ed.), *Cultivating teacher resilience* (pp. 27–47). Springer. https://doi.org/10.1007/978-981-15-5963-1_3

Mansfield, C. F., Beltman, S., Broadley, T., & Weatherby-Fell, N. (2016). Building resilience in teacher education: An evidenced informed framework. *Teaching and Teacher Education, 54*, 77–87. https://doi.org/10.1016/j.tate.2015.11.016

Marais-Opperman, V., van Eeden, C., & Rothmann, S. (2021). Perceived stress, coping and mental health of teachers: A latent profile analysis. *Journal of Psychology in Africa, 31*(1), 1–11. https://doi.org/10.1080/14330237.2021.1875561

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed., pp. 191–218). Consulting Psychologists Press.

Masten, A. S. (2014). *Ordinary magic: Resilience in development*. The Guilford Press.

Mérida-López, S., Sánchez-Gómez, M., & Extremera, N. (2020). Leaving the teaching profession: Examining the role of social support, engagement and emotional intelligence in teachers' intentions to quit. *Psychosocial Intervention, 29*(3), 141–151. https://doi.org/10.5093/pi2020a10

Mian, Y. S., Khalid, F., Qun, A. W. C., & Ismail, S. S. (2022). Learning analytics in education, advantages and issues: A systematic literature review. *Creative Education, 13*(9), 2913–2920. https://doi.org/10.4236/ce.2022.139183

Mu, G. M. (2024). A systematic literature review of building resilience for pre-service teachers. *International Journal of Educational Research, 128,* 102479. https://doi.org/10.1016/j.ijer.2024.102476

Ng, S. C., & Bull, R. (2018). Facilitating social emotional learning in kindergarten classrooms: Situational factors and teachers' strategies. *International Journal of Early Childhood, 50,* 335–352. https://doi.org/10.1007/s13158-018-0225-9

Núñez-Regueiro, F., Escriva-Boulley, G., Azouaghe, S., Leroy, N., & Núñez-Regueiro, S. (2024). "Motivated to teach, but stressed out by teacher education": A content analysis of self-reported sources of stress and motivation among preservice teachers. *Journal of Teacher Education, 75*(1), 76–91. https://doi.org/10.1177/00224871231181374

O'Brennan, L., Pas, E., & Bradshaw, C. (2017). Multilevel examination of burnout among high school staff: Importance of staff and school factors. *School Psychology Review, 46*(2), 165–176. https://doi.org/10.17105/SPR-2015-0019.V46-2

O'Brien, N., Lawlor, M., Chambers, F., Breslin, G., & O'Brien, W. (2020). Levels of wellbeing, resilience, and physical activity amongst Irish pre-service teachers: A baseline study. *Irish Educational Studies, 39*(3), 389–406. https://doi.org/10.1080/03323315.2019.1697948

Okanagan Charter: An International Charter for Health Promoting Universities and Colleges (2015). *International Conference on Health Promoting Universities and Colleges* / VII International Congress. https://doi.org/10.14288/1.0132754

Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., & Cefai, C. (2018). A multidimensional view on preservice teacher resilience in Germany, Ireland, Malta, and Portugal. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education* (pp. 73–89). Springer. https://doi.org/10.1007/978-3-319-76690-4_5

Pretsch, J., Flunger, B., & Schmitt, M. (2012). Resilience predicts well-being in teachers, but not in non-teaching employees. *Social Psychology of Education, 15*(3), 321–336. https://doi.org/10.1007/s11218-012-9180-8

Pyhältö, K., Pietarinen, J., Haverinen, K., Tikkanen, L., & Soini, T. (2021). Teacher burnout profiles and proactive strategies. *European Journal of Psychology of Education, 36,* 219–242. https://doi.org/10.1007/s10212-020-00465-6.

Riley-Tillman, T. C., Burns, M. K., & Kilgus, S. P. (2020). *Evaluating educational interventions: Single-case design for measuring response to intervention* (2nd ed.). The Guilford Press.

Rosales-Ricardo, Y., Rizzo-Chunga, F., Mocha-Bonilla, J., & Ferreira, J. P. (2021). Prevalence of burnout syndrome in university students: A systematic review. *Salud Mental, 44*(2), 91–102. https://doi.org/10.17711/SM.0185-3325.2021.013

Salmela-Aro, K., & Upadyaya, K. (2017). Co-development of educational aspirations and academic burnout from adolescence to adulthood in Finland. *Research in Human Development, 14*(2), 106–121. https://doi.org/10.1080/15427609.2017.1305809

Schaufeli, W., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. CRC Press. https://doi.org/10.1201/9781003062745

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3,* 71–92. https://doi.org/10.1023/A:1015630930326

Schumacher, J., Leppert, K., Gunzelmann, T., Strauß, B., & Brähler, E. (2005). Die Resilienzskala – Ein Fragebogen zur Erfassung der psychischen Widerstandsfähigkeit als Personmerkmal [The Resilience Scale – A questionnaire to assess resilience as a personality characteristic]. *Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie, 53*(1), 16–39.

Shankland, R., Kotsou, I., Vallet, F., Bouteyre, E., Dantzer, C., & Leys, C. (2019). Burnout in university students: The mediating role of sense of coherence on the relationship between daily hassles and burnout. *Higher Education, 78,* 91–113. https://doi.org/10.1007/s10734-018-0332-4

Sikma, L. (2021). Building resilience: Using BRiTE with beginning teachers in the United States. In C. F. Mansfield (Ed.), *Cultivating teacher resilience* (pp. 85–101). Springer. https://doi.org/10.1007/978-981-15-5963-1_6

Skaalvik, E. M., & Skaalvik, S. (2016). Teacher stress and teacher self-efficacy as predictors of engagement, emotional exhaustion, and motivation to leave the teaching profession. *Creative Education, 7*(13), 1785. https://doi.org/10.4236/ce.2016.713182

Squillaci, M. (2020). Are teachers more affected by burnout than physicians, nurses and other professionals? A systematic review of the literature. In N. Lightner & J. Kalra (Eds.), *Advances in human factors and ergonomics in healthcare and medical devices* (Vol. 957, pp. 147–155). Springer. https://doi.org/10.1007/978-3-030-20451-8_14

Squires, V., Walker, K., & Spurr, S. (2022). Understanding self-perceptions of wellbeing and resilience of preservice teachers. *Teaching and Teacher Education, 118*, 103828. https://doi.org/10.1016/j.tate.2022.103828

Steiner, D. (2023). *Konzeptionelle Grundlagen. Bachelorstudiengang Primarstufe.* PH Bern. (*Conceptional framework. Bachelor studies primary education*). Bern University of Teacher Education.

Sturges, M., Barnes, J., & Humphries, J. (2024). Friend or foe: Preservice teachers' experience of teaching while studying. *Australian Journal of Teacher Education, 49*(12). https://doi.org/10.14221/1835-517X.6130

Thompson, J. (2022). Enhancing resilience: An interpretative phenomenological analysis of The Awe Project. *Journal of Community Safety and Well-Being, 7*(3), 93–110. https://doi.org/10.35502/jcswb.265

Tsouros, A. D., Dowding, G., Thompson, J., & Dooris, M. (1998). *Health promoting universities. Concept, experience and framework for action*. World Health Organization.

Tynjälä, P., & Heikkinen, H. (2011). Beginning teachers' transition from pre-service education to working life. *Zeitschrift für Erziehungswissenschaft, 14*, 11–33. https://doi.org/10.1007/s11618-011-0175-6

Ungar, M. (2012). Social ecologies and their contribution to resilience. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice* (pp. 13–31). Springer. https://doi.org/10.1007/978-1-4614-0586-3_2

von Haaren-Mack, B., Schaefer, A., & Pels, F. (2025). The role of recovery experiences for pre- and in-service physical education teachers' well-being. *Teaching and Teacher Education, 153,* 104848. https://doi.org/10.1016/j.tate.2024.104848

Wang, H., Lee, S. Y., & Hall, N. C. (2022). Coping profiles among teachers: Implications for emotions, job satisfaction, burnout, and quitting intentions. *Contemporary Educational Psychology, 68*, 102030. https://doi.org/10.1016/j.cedpsych.2021.102030

Wolke, D., Waylen, A., Samara, M., Steer, C., Goodman, R., Ford, T., & Lamberts, K. (2009). Selective drop-out in longitudinal studies and non-biased prediction of behaviour disorders. *The British Journal of Psychiatry: The Journal of Mental Science, 195*(3), 249–256. https://doi.org/10.1192/bjp.bp.108.053751

Zhang, S., & Luo, Y. (2023). Review on the conceptual framework of teacher resilience. *Frontiers in Psychology, 14,* 1179984. https://doi.org/10.3389/fpsyg.2023.1179984

Zimmer-Gembeck, M. J., & Skinner, E. A. (2016). The development of coping: Implications for psychopathology and resilience. In D. Cicchetti (Ed.), *Developmental psychopathology: Risk, resilience, and intervention* (3rd ed., pp. 485–545). John Wiley & Sons. https://doi.org/10.1002/9781119125556.devpsy410

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HASCHER, T. ET AL.:
SUPPORTING PRE...

Podržavanje dobrobiti i otpornosti budućih učitelja osnovnih škola: rezultati studije u tri vala o inicijalnom obrazovanju učitelja

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Naš je cilj bio istražiti kako se iscrpljenost i otpornost budućih učitelja razvijala tijekom semestra i kako je taj razvoj bio povezan s angažmanom oko tema vezanih uz otpornost. Usporedili smo dvije podskupine pune kohorte budućih učitelja razredne nastave druge godine na Sveučilištu za obrazovanje učitelja u Bernu. Dok je $n = 101$ pohađao redovni kolegij, $n = 154$ služio se online-platformom integriranom u redovni kolegij. Potpuni podaci u tri vremenske točke (prije kolegija; odmah nakon kolegija; 12-tjedno praćenje) bili su dostupni za $n = 36$ (samo kolegij) i $n = 45$ (korisnici platforme). Jednosmjerna multivarijantna analiza varijance (MANOVA) s ponovljenim mjerenjima pokazala je značajan porast razine iscrpljenosti budućih učitelja tijekom semestra (t1-t2) u obje podskupine. Prilikom praćenja (t3), korisnici platforme izvijestili su o značajno nižoj iscrpljenosti i većoj otpornosti u usporedbi s podskupinom koja je pohađala samo kolegij. Naša studija pridonosi skupu empirijskih istraživanja usmjerenih na razumijevanje potencijala što ga u obrazovanju učitelja ima digitalno obrazovno okruženje.

Ključne riječi: emocionalna iscrpljenost, otpornost, dobrobit, budući učitelji, inicijalno obrazovanje učitelja



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FLOW AS A PROTECTIVE FACTOR FOR TEACHERS' INTENTIONS TO QUIT

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Increasing teacher attrition rates are a large problem in countries around the world. Therefore, researchers are trying to examine both risk and protective factors for teachers' intentions to quit. This study examined teachers' flow at work as a potential protective factor for teachers' intentions to quit. Teachers' intentions to quit were measured at the beginning and the end of the school year with two items, while flow at work was measured with WOLF scale in the middle of the school year, involving 726 teachers with an average of 16 years of teaching experience participating across three time points. Results have shown that teachers' intentions to quit were quite stable during the school year. Teachers' intentions to quit both at the beginning and at the end of the school year were negatively associated with flow experienced in the middle of the school year. The tested mediation model showed that flow while teaching was a partial mediator of the association between teachers' intentions to quit during the school year, pointing to its protective role for teachers.

Keywords: teachers, intentions to quit, flow at work, longitudinal study

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INTRODUCTION

In 2015 all United Nations Member States, including Croatia, adopted the 2030 Agenda for Sustainable Development which has as one of its goals to substantially increase the supply of qualified teachers (UNESCO, 2016). A recent study analysed teacher shortage in Croatia and concluded that there is a shortage of qualified staff for teaching positions, especially in the second phase of compulsory education (Domović & Drvodelić, 2025). The problem lies in both the lack of qualified staff for teaching positions and in teacher attrition, namely teachers leaving the teacher profession. Global teacher attrition rates have been increasing in the 2015–2022 period, with higher attrition rates observed for male and novice teachers (UNESCO, 2023). Understanding the personal, professional and organisational factors leading teachers to quit the profession have therefore been investigated extensively. In addition, researchers are trying to define both risk factors for teacher attrition and protective factors which contribute to teacher retention. Since intentions are considered the most proximal predictor of behaviour in the Theory of planned behaviour (Ajzen, 1991), teacher attrition has often been measured with teachers' intentions to quit the profession (Madigan & Kim, 2021).

Given the complex factors associated with teachers' intentions to quit, it is important to investigate it in different countries and educational systems. Croatia has a top-down educational system, with government-mandated curricula, criteria for employment, working hours and teacher tasks. So, it is not surprising that Croatian teachers often feel they have limited professional freedom in choosing teaching methods, materials, or making curriculum adjustments (Borić, 2018). Although data from the 2018 TALIS survey show that over 90% of Croatian teachers are highly qualified and hold university degrees and over 90% report being satisfied with their jobs, the majority (again over 90%) does not believe the Croatian society values the teaching profession, which is quite higher than in other countries (OECD, 2019). In addition, Croatian teachers face a large volume of non-teaching tasks such as filling out reports, attending unnecessary meetings, and adapting to frequent curriculum changes (Slišković et al., 2016). A significant number of Croatian teachers also reports on moderate to high levels of stress at work (OECD, 2019), which could lead to burnout and quitting the profession at some point in their career.

The meta-analytic examination of the relationship between burnout, job satisfaction and teachers' intentions to quit has shown that both burnout and job satisfaction are related to teachers' intentions to quit, with burnout conferring more risk than job satisfaction protection (Madigan & Kim, 2021). Besides job satisfaction, teachers' resilience has also been indicated as

a protective factor for teachers' intentions to quit. Arnup and Bowles (2016) have investigated teachers' intentions to quit, their job satisfaction and resilience among Australian primary and secondary teachers. Less resilient teachers have reported a stronger intention to leave teaching, and resilience was a predictor of teachers' intentions to quit after controlling for job satisfaction and demographic variables. Li and Yao (2022) have indicated twelve protective factors for turnover intention based on their meta-analysis: trust, professional identification, organisational commitment, job satisfaction, climate, justice, support, work engagement, and intrinsic motivation, and three risk factors: burnout, workload and stress. Recently, Pelly (2023) has shown that when comparing different workers' well-being indicators as predictors of their intention to quit in terms of their explanatory power, they can be ranked in the following order: engagement, job satisfaction, affect and basic psychological needs. Engagement was conceptualised in their study as a positive and fulfilling affective-cognitive state of mind which is characterised by high levels of dedication, vigour, and absorption (Bakker & Demerouti, 2008). In line with this, studies on teachers' intention to quit have also found that work engagement as a total score (Mérida-López et al., 2022) and all three work engagement subscales (Høigaard et al., 2012) are negatively associated with teachers' intention to quit. Teacher work engagement was also examined as a mediator of the relationship between the climate for service and teachers' job satisfaction and intention to leave work among teachers in Israel (Eldor & Shoshani, 2017). Flow at work, as an experiential state with some similarities to work engagement, could be another possible protective factor for teachers.

Although work engagement and flow are related, they are also distinct constructs. Both flow and engagement can significantly predict job satisfaction, commitment, citizenship behaviours, and burnout, with flow predicting unique variance in those outcomes even after controlling for engagement (Van Ittersum, 2015). In addition, the same study showed that a one-factor model of flow and engagement fitted data the worst. Flow at work is defined as a short-term peak experience that is characterised by absorption, work enjoyment, and intrinsic work motivation (Bakker, 2005). Flow at work is part of the broader flow construct defined by Csikszentmihalyi (1990) as the state when people are so involved in the activity and their experience is so enjoyable that nothing else matters. It is easy to imagine that experiencing such a state during work would be beneficial for remaining at work. Flow at work is positively related to various indicators of job performance (Bakker & Van Woerkom, 2017). In a recent meta-analysis, it has been shown that flow at work has significant and positive effect on

work engagement, job satisfaction, job commitment, job performance and creativity, as well as positive well-being (Liu et al., 2023). Aust et al. (2022) concluded in their systematic review that there is a negative association between flow and burnout symptoms, both cross-sectionally and longitudinally, and that flow can be interpreted as a protective factor against burnout symptoms. Yan and Donaldson (2023) did a systematic review of positive interventions designed to enhance flow and work engagement, and from it drew conclusions about the potential differences between flow at work and work engagement on seven aspects (concept, duration, embodiment, intensity, fluctuation, context, level of challenge). They concluded that flow is, compared to work engagement, a more complex, holistic and a short-term, momentary experience at work. It is an embodied experience as manifested by body sensation awareness during flow activities, that could be an intense, discrete, optimal experience of absorption and immersion in work, which fluctuates substantially within-person across time and activities and may always occur during a specific task or activity episode, with activity for flow mostly involving high challenges and skills. These specific characteristics of flow and differences compared to work engagement warrant a more thorough examination of its unique contributions to work behaviour. Specifically, flow at work is interesting as a possible protective factor against teacher attrition since studies have shown that secondary school teachers experience flow more frequently than tile workers (Llorens et al., 2013), and that school teachers experience more flow during work than during free-time (Bassi & Delle Fave, 2012). However, although there is research showing benefits of experiencing flow for teachers, researchers have not focused on its associations with intentions to quit.

As far as we are aware, no study has investigated flow at work related to teachers' intentions to quit. At the same time, given its beneficial effects for teachers' occupational well-being, experiencing flow could have a buffering effect for teachers exhibiting negative well-being in their job. In addition, not much is known about the dynamics regarding flow or teachers' intentions to quit during the academic year. Wang and Klassen (2023) have shown that teachers' intentions to quit the profession are quite stable after five months among Canadian teachers ($r = 0.87$, $p < 0.001$). Goodwin et al. (2019) have shown that starting teachers' retention intention changes over three years, dropping between entering and exiting teaching practicum in schools, and further dropping after one year of working in schools. However, longitudinal studies examining teachers' intentions to quit are scarce. With this study we want to add new knowledge in the area of teacher attrition, and provide insights into the following questions:

1) Do teachers' intentions to quit in Croatian secondary schools change during a school year and how?
2) Is flow at work associated with teachers' intentions to quit?
3) Is flow at work a mediator of the change in teachers' intentions to quit during the school year?

Our hypotheses were that teachers' intentions to quit will be quite stable during one school year, that flow will be negatively associated with teachers' intentions to quit, and that flow will mediate the change in teachers' intentions to quit during the school year.

METHOD

Participants and procedure

Over a thousand teachers (N = 1 137; 77.5% women) from 73 Croatian high schools participated in the study. On average they were expert teachers with M = 16.34 (SD = 9.438) years of teaching experience (12.6% up to 5 years, 18.1% between 5 and 10 years, 18.1% between 10 and 15 years, 16.1% between 15 and 20 years, 15.1% between 20 and 25 years, 11.5% between 25 and 30 years, and 8.5 more than 30 years). A little over a half were from grammar schools (56.5%) and the rest taught in vocational schools (43.05%). They were heterogenous regarding the school subject (e.g., languages, STEM subjects, history, geography, arts) and grades taught (1st grade = 241; 2nd grade = 295; 3rd grade = 295; 4th grade = 258; 5th grade = 5).[1]

Teachers were recruited through schools with the help of school counsellors and matched with one class of students to avoid the cross-classification of data. Teachers received a link to an online questionnaire – at the beginning (in October), the middle (in December) and at the end of the school year (in May). A total of 1108 teachers participated in T1 (October), 978 teachers participated in T2 (December), and 864 teachers participated in T3 (May), with 726 teachers having all data across three time points. Given the attrition of teachers across time points, Little's MCAR test was conducted, $\chi^2(9) = 15.59$, $p = 0.076$. Since the result was not statistically significant, we assumed that the data were missing completely at random (MCAR), implying that listwise deletion would not bias parameter estimates (Allison, 2001). Teachers filled out the intentions-to-quit measure in the first and last time point (T1 and T3) and provided information on their flow at work while teaching in the middle of the school year (T2). The study was approved by the Ethics Committee of the University of Zadar, Croatia, and all participants provided informed consent prior to completing all the surveys. A third of the teachers (selected randomly) received a small reward for their participation.

Instruments

Intentions to quit were measured with two items (*I am thinking about leaving the teaching profession; I intend to leave the teaching profession*) to which participants indicated their agreement on a scale from 1 (*completely disagree*) to 5 (*completely agree*). We averaged these two items in both time points to get teachers' intentions to quit, as they were highly correlated at both time points (rT1 = 0.87, $p < 0.001$, rT3 = 0.89, $p < 0.001$).

Flow at work was measured with the *Work-Related Flow Inventory* (WOLF; Bakker, 2008), a 13 items instrument describing teachers' experiences of flow while teaching. Participants indicated how often they experienced elements of flow from 1 (*never*) to 7 (*always*). We averaged all items to get a measure of total flow at work. This inventory had high reliability in this sample of teachers ($\alpha = 0.94$).

In addition, teachers answered general questions about themselves and their teaching experience.

RESULTS

Descriptive statistics and correlations between measures are presented in Table 1. At both time points, at the beginning and the end of the school year teachers in our sample reported low intentions to quit, while in the middle of the school year they reported moderately high levels of flow while teaching. Their intentions to quit were highly stable from the beginning to the end of the school year ($r = 0.704$, $p < 0.001$). In addition, teachers' intentions to quit showed in general no significant associations with their gender or teaching experience, since the only significant association found was between intentions to quit at the beginning of the school year and teaching experience ($r = -0.095$, $p = 0.002$). Teachers with less teaching experience had higher intentions to quit at the beginning of the school year. However, this association was non-significant at the end of the school year.

Teachers' intentions to quit both at the beginning ($r = -0.283$, $p < 0.001$) and at the end ($r = -0.285$, $p < 0.001$) of the school year were negatively moderately and significantly associated with flow experienced in the middle of the school year. In other words, teachers who experienced higher levels of flow had lower intentions to quit at the beginning and the end of the school year. Again, we did not find significant associations between flow and teaching experience and gender.

Although teachers' intentions to quit were quite stable, and those teachers with higher intentions to quit at the beginning of the school year had higher intentions to quit at the end of the school year, this association was moderately high,

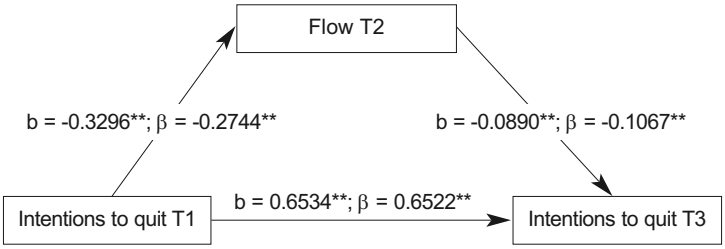
meaning that there could be underlying mechanisms which can help explain teachers' intentions to quit besides their initial levels of these intentions. So, we further conducted a mediation analysis[2] with teachers' intentions to quit at the beginning of the school year (intentions to quit T1) as a predictor, their experienced flow in the middle of the school year (flow T2) as the mediator, and their intentions to quit at the end of the school year (intention to quit T3) as the criterion. Analysis was conducted using Hayes (2018) Process MACRO. Statistical significance of the indirect effects was assessed using the Bootstrap technique for confidence intervals at 95% (Hayes, 2018). The results of the tested mediation model are depicted in Figure 1.

TABLE 1
Descriptive statistics and zero-order correlations among variables

		M	*SD*	*N*	2	3	4	5
1	Intentions to quit T1	1.67	0.999	1089	0.704**	-0.283**	-0.095*	-0.070
2	Intentions to quit T3	1.62	0.971	868		-0.285**	-0.078	-0.050
3	Flow T2	5.18	1.131	920			0.084	0.053
4	Teaching experience in years	16.34	9.438	1103				0.148**
5	Gender			1081				

Note. $^{**}p < 0.001$; $^{*}p < 0.01$; given the large sample only coefficients significant at the 0.01 level or 0.001 level are presented as significant.

FIGURE 1
The tested model (N = 726)



Experiencing flow while teaching was a significant mediator between teachers' intentions to quit at the beginning and the end of the school year (indirect effect = 0.0296, BootLLCI = 0.0124, BootULCI = 0.0497). This mediation was only partial, given the significant direct effect from T1 to T3 intentions to quit (direct effect = 0.6534, BootLLCI = 0.5983; BootULCI = 0.7086). The total variance explained was 47.5% with flow mediating 4.34% of the total variance. This effect size would be interpreted according to Cohen's (1988) definitions of the proportion of variance accounted for in one variable by another as a small effect. It seems experiencing flow while teaching during the school year can be a potential buffer, lowering teachers' intentions to quit at the end of the school year.

Given the previous findings in the literature on the associations between intentions to quit and teaching experience,

and a small bivariate correlation found in this sample, we tested the same mediation model with teaching experience as a covariate. In addition, we tested the mediation model with the type of school the teachers worked in (grammar vs. vocational) as a covariate. However, the significance of all direct and indirect effects remained the same, so we are reporting the original model for simplicity.

DISCUSSION

Increasing teacher attrition rates are a large problem in countries around the world. Therefore, researchers are trying to examine both risk and protective factors for teachers' intentions to quit. As far as we know, this is the first study examining teachers' flow at work as a potential protective factor for teachers' intentions to quit. Data on intentions to quit were collected at the beginning and the end of the school year, and flow while teaching was measured in the middle of the school year.

We first examined the stability of teachers' intentions to quit from the beginning to the end of the school year. We found that across 8 months teachers' intentions to quit were highly stable ($r = 0.704$, $p < 0.001$). This finding is in line with our hypothesis and similar to Wang and Klassen's (2023) correlation of teachers' intentions to quit across five months among Canadian teachers ($r = 0.87$, $p < 0.001$). Our results also showed that in the sample of our teachers, their teaching experience was very weakly associated with their intentions to quit, and our results on their intentions to quit did not differ based on whether they were novice or expert teachers. This is not in line with some studies showing that early career teachers experience higher levels of burnout and other factors usually associated with higher levels of intentions to quit (Dicke et al., 2018; Madigan & Kim, 2021), nor with studies reporting on higher levels of teacher attrition among novice teachers (Gallant & Riley, 2017). However, at the same time, it seems that some factors associated with higher levels of teachers' attrition, such as work-life balance and professional identity tensions, actually increase with job tenure (Schaap et al., 2021). Future studies should look into the link between teaching experience and teachers' intentions to quit in more detail and contextualise their association to specific factors.

Next, we hypothesised that flow at work will be negatively associated with teachers' intentions to quit. Intentions to quit at the beginning of the year were negatively associated with flow at work in the middle of the school year, and flow at work in the middle of the school year was negatively associated with intentions to quit at the end of the school year. Teachers with higher intentions to quit at the beginning of the school year experienced significantly less flow in the middle of

the school year. At the same time, teachers who experienced higher levels of flow while teaching in the middle of the school year, reported lower levels of intentions to quit at the end of the school year. Although flow at work has not been examined with teachers' intentions to quit, a similar construct of work engagement was indicated as an important protective factor for intentions to quit (Li & Yao, 2022; Pelly, 2023) and negatively associated with teachers' intentions to quit (Høigaard et al., 2012; Mérida-López et al., 2022).

However, these studies examined the association between work engagement and teachers' intentions to quit using a cross-sectional design while in our study the data were collected longitudinally. Therefore, we could investigate the mediation model to see if flow at work in the middle of the school year is a mediator of the teachers' intentions-to-quit stability during the school year. The tested mediation model showed that flow while teaching in the middle of the year is a partial mediator of the association between teachers' intentions to quit at the beginning and the end of the school year. Given the high stability of intentions to quit across the school year, the effect size of flow as a mediator of this relationship was small. However, this finding is significant and in line with the hypothesis that flow at work could be a protective factor for teacher attrition. The more teachers are absorbed in what they are doing, i.e. "in the zone" during the school year, the more likely it is that their intentions to quit will lower by the end of the year. In addition, our findings do not seem to depend on teachers' gender, nor work experience, nor school type. Our results are in line with other studies showing very low or null associations between gender and working experience and experiencing flow at work (Liu et al., 2023).

Since the teaching profession is a profession where flow at work can be experienced more easily than in some other professions or free-time (Bassi & Delle Fave, 2012; Llorens et al., 2013), and we have seen in this study as well that teachers are on average experiencing moderately high levels of flow at work, it seems that enabling flow at work could be a potential route for decreasing teacher attrition. A recently published meta-analysis on antecedents of flow (Liu et al., 2023) has shown that job resources, specifically job autonomy and social support, are positively related to flow, as well as proactive behaviours, and authentic and transformational leadership. These results can be helpful in guiding how teachers' flow at work could be encouraged and increased within the educational system. This might be easier for teachers with more pronounced personality traits of conscientiousness, extraversion and agreeableness, which all show moderate levels of association with experiencing flow at work (Liu et al., 2023). Future studies

should look into personality characteristics and other individual teachers' characteristics which make it easier or harder for teachers to experience flow while teaching.

This study also has some limitations. We measured flow only in the middle of the year and do not have information about flow at the beginning of the school year. The measurement of flow at the beginning of the school year and its inclusion as a covariate in the mediation model would strengthen the interpretation of effects flow might have on intentions to quit over time. Intentions to quit were measured with only two items and we do not have the information how many teachers from our sample have left the teacher profession. It would be interesting to compare experiences of flow while teaching between teachers who decide to stay and those who decide to leave the profession, or at least to those who switch schools or populations, or change work tasks (e.g., decrease the hours of teaching in relation to hours of administrative work). Furthermore, the design of our study precludes us from making causal conclusions about the direction of the relationship between flow and intentions to quit. Currently, there are some longitudinal findings in the literature which focus on work engagement, showing that work engagement is a precursor to lower intentions to quit (Bogaert et al., 2019), or that there are reciprocal effects between the two (de Lange et al., 2008). Future studies should try to test assumptions about the possible reciprocal relationship between flow and intentions to quit by employing more time points and focusing on a within-person level of analysis in order to give a firmer answer to this question. Moreover, including more time points in future studies could allow for a more detailed within-person analysis which could inform us how flow changes during the school year, and upon which factors these changes are contingent.

In addition, future studies should try to use different sources of data instead of just self-report, which always bring problems of socially desirable responding and common method variance. Observational data, mixed method designs and/or using multiple sources of data (teachers, colleagues, students, principals) could enrich the field and further contextualise these findings. For example, little is known about how experiences of flow in teachers change during the school year, or in light of different situational contexts (e.g., while using different teaching methods, or during times of heightened stress). Furthermore, given that experiences of flow have been linked to higher experiences of autonomy (Liu et al., 2023), future studies could compare educational contexts in which teachers have more or less autonomy (e.g., countries with a teacher-led vs. government-mandated curriculum).

As flow at work is something that would be desirable both from a perspective of the employer and teachers as employees, and that results show that flow can be facilitated both from the organisational perspective (e.g., inspirational leadership, support for employers such as workshops and training) and from a personal perspective (e.g., identify effective proactive behaviours, person-environment fit), both teachers themselves and the educational system as a whole should work toward facilitating flow experiences (Liu et al., 2023). The first step would be to inform them all about how valuable flow experiences can be for teachers' well-being and job performance. Norsworthy et al. (2023) show that even a short 3-hour workshop aimed to enhance flow can have a significant impact for teachers, not just enhancing the flow experience, but having additional effects on flow's outcomes, such as lowering stress and anxiety, and increasing well-being and intrinsic motivation. In addition, researchers could use the results of their research to create science-based guidebooks for teachers which include practical guidelines and workshop ideas (e.g., see Sorić & Burić, 2025). The second step could be to support transformational leadership practices from principals, while at the same time increasing job resources (e.g., higher autonomy, more social support) and lowering teachers' job demands (e.g., eliminating time pressures, lessening administration) (Skaalvik & Skaalvik, 2009; 2020; Liu et al., 2023). More broadly, state-level educational reforms should involve more support for teachers, lowering their administrative tasks, and giving them more autonomy in their work. Working towards lowering most common sources of stress should create an environment for both more frequent experiences of flow, and lower intentions to quit. In addition, teachers' personal initiative and different job crafting behaviours could include creating opportunities and contexts for experiencing greater flow while teaching (Huang et al., 2022). Furthermore, one study found that the more flow experiences the teachers reported, the higher the frequency of comparable experiences among their students (Bakker, 2005). Working with students seems to create spill-over effects for teachers' occupational well-being, as has been shown and advocated for in recent studies (Berger et al., 2022; Burić et al., 2024).

In conclusion, teachers' intention to quit seem to be quite stable throughout the school year. Regardless of this high stability, we showed, with a longitudinal design, that experiencing flow while teaching during the year is a protective factor associated with lower intentions to quit at the end of the year. We added to the available literature on flow in teachers and to the literature examining determinants of teachers' intentions to quit, trying to fill an existing gap in the literature. From a

practical standpoint, our findings call for schools to try to create climates conducive to greater flow experiences among teachers. These endeavours should involve providing more autonomy and support for teachers by governing bodies and principals, but also more personal initiatives by teachers to craft their jobs including working with students in ways which create flow experiences.

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NOTES

[1] Most Croatian high school programmes last 3 or 4 years, with only some vocational medical school programmes lasting 5 years, which explains the low number of teachers from such programmes.

[2] To examine the assumptions underlying the mediation analysis, scatterplots of the study variables were inspected and indicated approximately linear relationships. In addition, skewness and kurtosis indices were computed for all variables, with all values falling below |2|, suggesting that departures from normality were not severe (West et al., 1995). Taken together, these results indicate that the assumptions of linearity, normality, and homoscedasticity were adequately met, supporting the validity of the mediation analyses.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Allison, P. D. (2009). Missing data. In R. E. Millsap & A. Maydeu-Olivares (Eds.), *The Sage handbook of quantitative methods in psychology* (pp. 72–89). Sage Publications Ltd. https://doi.org/10.4135/9780857020994.n4

Arnup, J., & Bowles, T. (2016). Should I stay or should I go? Resilience as a protective factor for teachers' intention to leave the teaching profession. *Australian Journal of Education, 60*(3), 229–244. https://doi.org/10.1177/0004944116667620

Aust, F., Beneke, T., Peifer, C., & Wekenborg, M. (2022). The relationship between flow experience and burnout symptoms: A systematic review. *International Journal of Environmental Research and Public Health, 19*(7), 3865. https://doi.org/10.3390/ijerph19073865

Bakker, A. B. (2005). Flow among music teachers and their students: The crossover of peak experiences. *Journal of Vocational Behavior, 66*(1), 26–44. https://doi.org/10.1016/j.jvb.2003.11.001

Bakker, A. B. (2008). The work-related flow inventory: Construction and initial validation of the WOLF. *Journal of Vocational Behavior, 72*(3), 400–414. https://doi.org/10.1016/j.jvb.2007.11.007

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International, 13*(3), 209–223. https://doi.org/10.1108/13620430810870476

Bakker, A. B., & Van Woerkom, M. (2017). Flow at work: A self-determination perspective. *Occupational Health Science, 1,* 47–65. https://doi.org/10.1007/s41542-017-0003-3

Bassi, M., & Delle Fave, A. (2012). Optimal experience among teachers: New insights into the work paradox. *The Journal of Psychology, 146*(5), 533–557. https://doi.org/10.1080/00223980.2012.656156

Berger, E., Reupert, A., Campbell, T. C., Morris, Z., Hammer, M., Diamond, Z., Hine, R., Patrick, P., & Fathers, C. (2022). A systematic review of evidence-based wellbeing initiatives for schoolteachers and early childhood educators. *Educational Psychology Review, 34*(4), 2919–2969. https://doi.org/10.1007/s10648-022-09690-5

Bogaert, K., Leider, J. P., Castrucci, B. C., Sellers, K., & Whang, C. (2019). Considering leaving, but deciding to stay: A longitudinal analysis of intent to leave in public health. *Journal of Public Health Management and Practice, 25,* S78–S86. https://doi.org/10.1097/PHH.0000000000000928

Borić, E. (2017). Zadovoljstvo poslom, motivacija učitelja za rad i poticanje razvoja kompetencija učenika [Teachers' job satisfaction, work motivation, and encouragement of competences among pupils]. *Metodički ogledi, 24*(2), 23–38. https://doi.org/10.21464/mo46.124.2338

Burić, I., Huić, A., & Sorić, I. (2024). Are student engagement and disaffection important for teacher well-being? A longitudinal examination of between- and within-person effects. *Journal of School Psychology, 103*, 101289. https://doi.org/10.1016/j.jsp.2024.101289

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Academic Press.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper Perennial.

de Lange, A. H., De Witte, H., & Notelaers, G. (2008). Should I stay or should I go? Examining longitudinal relations among job resources and work engagement for stayers versus movers. *Work & Stress, 22*(3), 201–223. https://doi.org/10.1080/02678370802390132

Dicke, T., Stebner, F., Linninger, C., Kunter, M., & Leutner, D. (2018). A longitudinal study of teachers' occupational well-being: Applying the job demands-resources model. *Journal of Occupational Health Psychology, 23*(2), 262–277. https://doi.org/10.1037/ocp0000070

Domović, V., & Drvodelić, M. (2025). Teacher shortage in Croatia – A challenge for educational policy, initial teacher education and educational institutions. *European Journal of Teacher Education, 48*(1), 64–80. https://doi.org/10.1080/02619768.2024.2430251

Eldor, L., & Shoshani, A. (2017). Are you being served? The relationship between school climate for service and teachers' engagement, satisfaction, and intention to leave: A moderated mediation model. *The Journal of Psychology, 151*(4), 359–378. https://doi.org/10.1080/00223980.2017.1291488

Gallant, A., & Riley, P. (2017). Early career teacher attrition in Australia: Inconvenient truths about new public management. *Teachers and Teaching, 23*(8), 896–913. https://doi.org/10.1080/13540602.2017.1358707

Goodwin, A. L., Low, E. L., Cai, L., & Yeung, A. S. (2019). A longitudinal study on starting teachers' retention intentions: Do pre-teaching work experience and length of working years make a difference? *Teaching*

and Teacher Education, 83, 148–155. https://doi.org/10.1016/j.tate.2019.03.015

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Høigaard, R., Giske, R., & Sundsli, K. (2012). Newly qualified teachers' work engagement and teacher efficacy influences on job satisfaction, burnout, and the intention to quit. *European Journal of Teacher Education, 35*(3), 347–357. https://doi.org/10.1080/02619768.2011.633993

Huang, X., Sun, M., & Wang, D. (2022). Work harder and smarter: The critical role of teachers' job crafting in promoting teaching for creativity. *Teaching and Teacher Education, 116,* 103758. https://doi.org/10.1016/j.tate.2022.103758

Li, R., & Yao, M. (2022). What promotes teachers' turnover intention? Evidence from a meta-analysis. *Educational Research Review, 37,* 100477. https://doi.org/10.1016/j.edurev.2022.100477

Liu, W., Lu, H., Li, P., van der Linden, D., & Bakker, A. B. (2023). Antecedents and outcomes of work-related flow: A meta-analysis. *Journal of Vocational Behavior, 144,* 103891. https://doi.org/10.1016/j.jvb.2023.103891

Llorens, S., Salanova, M., & Rodríguez, A. M. (2013). How is flow experienced and by whom? Testing flow among occupations. *Stress and Health, 29*(2), 125–137. https://doi.org/10.1002/smi.2436

Madigan, D. J., & Kim, L. E. (2021). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and Teacher Education, 105*, 103425. https://doi.org/10.1016/j.tate.2021.103425

Mérida-López, S., Sánchez-Gómez, M., & Extremera-Pacheco, N. (2022). Leaving the teaching profession: Examining the role of social support, engagement and emotional intelligence in teachers' intentions to quit. *Psychosocial Intervention, 29*(3), 141–151. https://doi.org/10.5093/pi2020a10

Norsworthy, C., Dimmock, J. A., Nicholas, J., Krause, A., & Jackson, B. (2023). Psychological flow training: Feasibility and preliminary efficacy of an educational intervention on flow. *International Journal of Applied Positive Psychology, 8*(3), 531–554. https://doi.org/10.1007/s41042-023-00098-2

Organisation for Economic Co-operation and Development (OECD) (2019). *Teaching and Learning International Survey (TALIS) 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

Pelly, D. (2023). Worker well-being and quit intentions: Is measuring job satisfaction enough? *Social Indicators Research, 169*(1), 397–441. https://doi.org/10.1007/s11205-023-03166-x

Schaap, H., van der Want, A. C., Oolbekkink-Marchand, H. W., & Meijer, P. C. (2021). Changes over time in the professional identity tensions of Dutch early-career teachers. *Teaching and Teacher Education, 100*, 103283. https://doi.org/10.1016/j.tate.2021.103283

Skaalvik, E. M., & Skaalvik, S. (2009). Does school context matter? Relations with teacher burnout and job satisfaction. *Teaching and Teacher Education, 25*(3), 518–524. https://doi.org/10.1016/j.tate.2008.12.006

Skaalvik, E. M., & Skaalvik, S. (2020). Teacher burnout: Relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study. *Teachers and Teaching, 26*(7-8), 602–616. https://doi.org/10.1080/13540602.2021.1913404

Slišković, A., Burić, I., & Knežević, I. (2016). Zadovoljstvo poslom i sagorijevanje na poslu kod učitelja: važnost podrške ravnatelja i radne motivacije [Job satisfaction and burnout in teachers: The importance of perceived support from principal and work motivation]. *Društvena istraživanja, 25*(3), 371–392. https://doi.org/10.5559/di.25.3.05

Sorić, I., & Burić, I. (Eds.). (2025). *Kako biti zadovoljan i uspješan nastavnik? Priručnik za nastavnike i stručne suradnike* [*How to be a satisfied and successful teacher? Guidebook for teachers and counselors*]. Morepress Books. https://doi.org/10.15291/9789533315058

UNESCO (2016). Unpacking Sustainable Development Goal 4: Education 2030. https://unesdoc.unesco.org/ark:/48223/pf0000246300

UNESCO (2023). *Global report on teachers: Addressing teacher shortages*. United Nations Educational, Scientific and Cultural Organization.

Van Ittersum, K. W. (2015). *The distinctiveness of engagement and flow at work* [Doctoral dissertation]. Kansas State University.

Wang, H., & Klassen, R. M. (2023). Longitudinal relationships between teachers' utility values and quitting intentions: A person-organization fit perspective. *Teaching and Teacher Education, 127*, 104109. https://doi.org/10.1016/j.tate.2023.104109

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 56–75). Sage.

Yan, Q., & Donaldson, S. I. (2023). What are the differences between flow and work engagement? A systematic review of positive intervention research. *The Journal of Positive Psychology, 18*(3), 449–459. https://doi.org/10.1080/17439760.2022.2036798

Zaštitna uloga doživljaja zanesenosti nastavnika protiv namjere napuštanja profesije

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Sve veće stope nastavnika koji napuštaju profesiju postaju sve veći problem u svijetu. Stoga se istraživači usmjeravaju na ispitivanje rizičnih i zaštitnih faktora nastavničkih namjera napuštanja profesije. Ovo istraživanje usmjerilo se na potencijalnu zaštitnu ulogu koju doživljaj zanesenosti kod nastavnika može imati u smanjivanju njihove namjere napuštanja nastavničkoga posla. Namjere napuštanja

profesije ispitane su na početku i kraju školske godine dvjema česticama, dok je zanesenost tijekom poučavanja ispitana WOLF skalom sredinom školske godine. Ukupno je kroz tri vremenske točke sudjelovalo 726 nastavnika srednje škole, prosječnoga staža od 16 godina. Rezultati su pokazali visoku stabilnost namjere napuštanja profesije tijekom jedne školske godine. Nastavničke namjere napuštanja profesije i na početku i kraju godine značajno su negativno povezane s doživljajem zanesenosti na poslu tijekom godine. Testirani medijacijski model pokazao je značajnu djelomičnu medijaciju doživljaja zanesenosti na namjere napuštanja profesije kod nastavnika tijekom školske godine, potvrđujući očekivanu zaštitnu ulogu doživljaja zanesenosti kod nastavnika.

Ključne riječi: nastavnici, namjere napuštanja profesije, zanesenost na poslu, longitudinalna studija

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