

Original Research

Occupational burnout and self-reported nonverbal immediacy: A quantitative study of primary education teachers in Greece

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Abstract: This quantitative, cross-sectional study examined associations between the three dimensions of occupational burnout and primary education teachers' self-reported nonverbal immediacy in the Greek educational context. Data were collected from 76 teachers using the Maslach Burnout Inventory–Educators Survey (MBI-ES) and the Nonverbal Immediacy Scale–Self Report (NIS-S). In accordance with the multidimensional structure of the MBI-ES, emotional exhaustion, depersonalization, and personal accomplishment were analysed separately rather than combined into a total burnout score. Depersonalization was negatively associated with self-reported nonverbal immediacy ($\rho = -.397, p < .001$), whereas personal accomplishment showed the strongest positive association ($\rho = .499, p < .001$). Emotional exhaustion was not significantly associated with self-reported nonverbal immediacy ($\rho = -.170, p = .142$). The simultaneous multiple regression model was statistically significant, $F(3, 72) = 6.97, p < .001, R^2 = .225$, adjusted $R^2 = .193$; personal accomplishment was the only dimension with a statistically significant unique association ($\beta = .394, p = .003$). Because the study is cross-sectional and all focal variables were self-reported, the findings are interpreted as associations rather than causal effects and do not represent direct observation of classroom behaviour. The study extends existing research by demonstrating that different dimensions of burnout are differentially associated with teachers' perceived nonverbal communicative behaviour, with personal accomplishment and depersonalization emerging as particularly relevant to perceived communicative presence. The differentiated pattern across burnout dimensions suggests that emotional depletion, relational distancing, and positive professional self-evaluation should not be treated as interchangeable when examining teachers' perceived communicative presence.

Keywords: Occupational burnout, Self-reported nonverbal immediacy, Primary education, Teacher well-being, Maslach Burnout Inventory–Educators Survey (MBI-ES), Nonverbal Immediacy Scale–Self Report (NIS-S)

1. Introduction

Teaching is not only a process of transmitting knowledge but also a relational and communicative practice. In primary education, sustained daily contact gives the teacher–student relationship particular importance for classroom climate, perceived safety, engagement, and the emotional tone of learning. Teachers communicate

not only through words but also through eye contact, facial expression, posture, movement, physical proximity, and paralinguistic features of voice. Within instructional communication research, these behaviours are commonly discussed through the construct of nonverbal immediacy, which concerns communicative behaviours that reduce perceived psychological or physical distance between interactants (Richmond et al., 2003; Witt et al., 2004; Liu, 2021).

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Teacher occupational burnout is likewise a relationally important phenomenon. It is conventionally conceptualised as multidimensional, comprising emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981; Maslach et al., 1996; Nápoles, 2022). Teacher burnout has been associated with less favourable professional functioning and student-reported outcomes, although the available evidence is primarily associational and does not justify simple causal conclusions (Madigan & Kim, 2021; Dreer, 2023).

In Greece, research has documented occupational stress, burnout levels, coping processes, and organisational or demographic correlates among teachers (Antoniou et al., 2013; Kosta & Anastasiou, 2021; Ntavlamanou, 2024). These studies establish burnout as a meaningful issue in Greek primary education, but they do not directly resolve how the separate Maslach Burnout Inventory–Educators Survey (MBI-ES) dimensions are associated with teachers’ self-perceived nonverbal immediacy. Accordingly, the research gap addressed here is deliberately narrow: direct empirical evidence on the association between burnout dimensions and teachers’ self-reported nonverbal immediacy in Greek primary education appears limited.

This distinction matters because nonverbal immediacy and burnout should not be assumed to form a simple one-directional process. A teacher may experience internal emotional depletion while continuing to perceive herself or himself as relationally available, whereas depersonalization is conceptually closer to interpersonal distancing. Similarly, higher personal accomplishment reflects a positive professional self-evaluation rather than greater burnout. Examining the dimensions separately may therefore reveal patterns that are obscured when burnout is treated as a single composite score.

1.1 Significance of the study

The significance of the present study lies in bringing together two areas that have often been examined separately: teacher occupational well-being and nonverbal immediacy. Research on teacher immediacy has linked verbal and nonverbal immediacy with students’ motivation, affective responses, and perceived learning (Witt et al., 2004; Liu, 2021). At the same time, research on teacher burnout has emphasised emotional exhaustion, interpersonal distancing, professional efficacy, and their associations with teacher and student outcomes (Kariou et al., 2021; Madigan & Kim, 2021; Dreer, 2023).

The present study contributes by asking whether the three burnout dimensions show different associations with teachers’ self-reported nonverbal immediacy. This framing is theoretically relevant because emotional exhaustion and depersonalization are not equivalent experiences: the former primarily concerns depletion of emotional resources, whereas the latter is inherently relational and involves detachment from those encountered in one’s work. Personal accomplishment also requires distinct

interpretation because, when retained in the original MBI scoring direction, higher scores represent stronger perceived competence and effectiveness.

At a practical level, the findings may inform the design of professional-support and development initiatives, but the cross-sectional design does not permit claims that changing one variable will cause change in another. The practical value of the study therefore lies in identifying patterns that may warrant closer examination through longitudinal, observational, or intervention research.

2. Theoretical framework

2.1 Conceptual definition: Occupational burnout and nonverbal immediacy

Occupational burnout is most commonly conceptualised through the Maslach framework as a multidimensional syndrome involving emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981; Maslach et al., 1996). Emotional exhaustion refers to feelings of emotional overextension and depletion. Depersonalization refers to cynical, impersonal, or emotionally detached responses toward those with whom one works. Reduced personal accomplishment refers to diminished perceptions of competence, effectiveness, and achievement.

The personal accomplishment dimension requires particular care in interpretation. In the original scoring direction of the MBI-ES, higher personal accomplishment reflects a more positive professional self-evaluation, whereas lower personal accomplishment is the burnout-relevant pole. In the present analyses, personal accomplishment is retained in this original positive direction and is not reverse-coded into a ‘reduced personal accomplishment’ score. Consequently, a positive association between personal accomplishment and another variable must not be interpreted as evidence that greater burnout is associated with higher values on that variable.

Nonverbal immediacy refers to the nonverbal behaviours through which interpersonal distance is reduced and relational warmth, accessibility, or closeness may be conveyed. The Nonverbal Immediacy Scale–Self Report (NIS-S) developed by Richmond et al. (2003) assesses self-perceived tendencies involving such behaviours as gesture, eye contact, posture, body orientation, and paralinguistic features. Importantly, the present study uses the self-report version of the scale. The outcome therefore represents teachers’ self-reported nonverbal immediacy and not direct observation of specific behaviours in actual classrooms.

2.2 Focused literature review: Burnout, teacher–student interaction, and immediacy

The literature on teacher immediacy consistently

portrays communicative closeness as relevant to instructional experience. Richmond et al. (2003) established the NIS as a reliable measure of self- and other-perceived nonverbal immediacy. Witt et al. (2004), in a meta-analysis of instructional communication studies, reported meaningful associations between teacher immediacy and students' perceived and affective learning, while Liu (2021) found that the broader literature generally links verbal and nonverbal immediacy with student motivation. These findings do not imply that immediacy alone determines learning, but they establish it as an important relational construct in education.

Burnout research, in parallel, shows that teachers' psychological and professional well-being is associated with their work engagement, relational experiences, and student outcomes (Madigan & Kim, 2021; Dreer, 2023). Emotional labour is particularly relevant because teaching often requires the regulation and display of emotion as part of professional practice. Kariou et al. (2021) found consistent links between surface acting and burnout across school-teacher studies, while Wang and Song (2022) describe dilemmas of emotional expression and professional identity in teachers' emotional labour.

The conceptual intersection between burnout and nonverbal immediacy is therefore plausible but should not be oversimplified. Depersonalization is relational by definition and may be especially compatible with perceptions of communicative distance. Emotional exhaustion, by contrast, describes internal depletion and may not necessarily coincide with immediate interpersonal withdrawal. Research linking teacher immediacy with emotional or burnout-related outcomes also suggests that communication and well-being may be intertwined, while still leaving open questions about directionality and mechanism (Gholamrezaee & Ghanizadeh, 2018; Derakhshan et al., 2022).

The Job Demands–Resources (JD-R) model offers a useful interpretive framework because it distinguishes a health-impairment process associated with sustained demands from a motivational process supported by resources (Bakker & Demerouti, 2007). In the present study, however, JD-R resources are not directly measured. The framework is therefore used interpretively rather than as a tested mediation or moderation model. Likewise, emotional labour and professional identity are invoked as plausible explanatory mechanisms in the Discussion, not as variables empirically assessed in the present dataset.

Within the Greek context, studies have documented occupational stress and burnout among teachers and have examined perceived causes, coping, and organisational conditions (Antoniou et al., 2013; Kosta & Anastasiou, 2021; Ntavlamanou, 2024). What remains comparatively less directly examined is the specific association between the separate burnout dimensions and teachers' self-reported nonverbal immediacy. The present study addresses this focused question.

2.3 Purpose of the study

The purpose of this quantitative, cross-sectional study is to examine the associations between emotional exhaustion, depersonalization, personal accomplishment, and self-reported nonverbal immediacy among primary education teachers in Greece. The study does not directly observe classroom behaviour and does not test causal effects. Instead, it examines whether the three MBI-ES dimensions show distinct bivariate and multivariable statistical relationships with teachers' self-reported nonverbal immediacy.

2.4 Research questions and hypotheses

Research Question 1: How are emotional exhaustion, depersonalization, and personal accomplishment individually associated with teachers' self-reported nonverbal immediacy?

Research Question 2: What unique statistical associations do the three MBI-ES dimensions show with self-reported nonverbal immediacy when entered simultaneously in a multiple linear regression model?

Hypothesis 1: Emotional exhaustion and depersonalization are expected to show negative bivariate associations with self-reported nonverbal immediacy, whereas personal accomplishment, retained in its original positive scoring direction, is expected to show a positive association.

Hypothesis 2: Considered jointly, the three MBI-ES dimensions are expected to account for a statistically significant proportion of variance in self-reported nonverbal immediacy. Regression coefficients are interpreted as adjusted statistical associations rather than causal effects.

3. Methodology

The study employed a quantitative, cross-sectional correlational design. All focal variables were measured by self-report at a single time point. This design permits estimation of associations among variables but does not establish temporal ordering or causal direction.

3.1 Sample and recruitment

The sample comprised 76 primary education teachers in Greece; these 76 individuals were the respondents who completed the survey. Participants were recruited through convenience sampling, including colleagues from the broader educational community, via professional and academic networks. The exact number of teachers who received the invitation was not recorded in the available study documentation; therefore, a response rate cannot be calculated and is not reported. Participants came from different areas of Greece, with substantial participation from the Peloponnese, although exact regional counts

were not retained. Women were strongly represented in the sample, and the largest age and teaching-experience categories were 51–60 years and 21–30 years of experience, respectively. Because recruitment was non-probability based and detailed regional and school-sector distributions were not systematically recorded, the sample should not be treated as representative of all Greek primary education teachers.

3.2 Data collection instruments

The first instrument was the Maslach Burnout Inventory–Educators Survey (MBI-ES), which contains 22 items distributed across emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items) (Maslach et al., 1996). In accordance with the instrument’s multidimensional structure, the three subscales are interpreted separately in the revised manuscript and are not combined into a single total burnout score. Personal accomplishment is retained in its original positive scoring direction: higher scores represent stronger perceived professional competence and accomplishment, while lower scores represent the burnout-relevant pole.

The original MBI-ES uses a seven-category frequency response format from 0 (never) to 6 (every day). In the present study, however, responses were collected on a five-point format. This modification is discussed explicitly in Section 3.3 because it may affect direct comparability with studies using the original instrument and precludes uncritical use of original normative cut-offs.

Kokkinos (2006) examined the factor structure of a Greek adaptation of the MBI-ES in 771 Greek-Cypriot teachers. The reported Confirmatory Factor Analysis (CFA) indices included Comparative Fit Index (CFI) = .83 and Root Mean Square Error of Approximation (RMSEA) = .08. Although the study supported a three-factor solution overall, the CFI is below the commonly used .90 benchmark and should not be described as unequivocally good fit. Accordingly, the present manuscript treats this external validation evidence as supportive but mixed and interprets findings with appropriate caution.

The second instrument was the Nonverbal Immediacy Scale–Self Report (NIS-S), developed by Richmond et al. (2003). The scale comprises 26 items and assesses self-perceived nonverbal immediacy tendencies, including gesture, eye contact, posture, body orientation, and paralinguistic features. Participants responded on a five-point scale. The instrument is therefore interpreted throughout the revised manuscript as a self-report measure and not as an observational measure of actual classroom behaviour.

The MBI-ES and NIS-S are established published instruments and were not developed by the present research team. The study did not conduct a new formal forward-translation/back-translation validation programme or pilot study for these instruments, and the revised manuscript therefore makes no such claim. The course records

available for the present revision do not fully document the provenance of the exact Greek-language forms administered; consequently, no unsupported claim of a newly validated Greek adaptation is made.

3.3 Modification of the MBI-ES response format

In the administered questionnaire, the MBI-ES was presented using a five-point response format rather than its original seven-category frequency scale, thereby aligning the response structure of the two questionnaires. In the course report, this was treated as a harmonisation of response formats intended to avoid switching between different scale structures and was supported by the general methodological discussion of five- versus seven-point rating scales in Dawes (2008). Dawes (2008), however, provides general evidence about rating-scale formats and does not establish psychometric equivalence for the MBI-ES specifically.

The five-point administration was discussed with the well-trained academic in the context of the university and the research team was advised to proceed with the study in that form. No formal pilot test of the modified five-point format was conducted, and no separate formal permission to alter the original MBI-ES response format was obtained. Accordingly, the revised manuscript treats the change as a methodological modification rather than as a formally validated psychometric adaptation. Results are interpreted within the present sample, comparisons with studies using the original seven-point MBI-ES are made cautiously, psychometric equivalence is not claimed, and original MBI-ES normative classification thresholds are not applied to the five-point scores.

3.4 Research procedure and common method bias

The two questionnaires were integrated into a single online survey administered through Google Forms and distributed electronically through professional and academic networks. Before participation, respondents were informed about the study purpose, the voluntary nature of participation, and the anonymity and confidentiality of responses. Completion of the questionnaire was treated as informed consent. The submitted manuscript reports an average completion time of approximately 10 minutes.

Because the focal variables were collected from the same respondents, through self-report, at the same time, the study is potentially vulnerable to common method bias. Anonymity and the absence of identifying information may reduce evaluation apprehension, but they do not eliminate same-source method variance. The original research report and the available statistical output do not document a statistical common-method diagnostic. Accordingly, the revised manuscript does not introduce a post-hoc Harman single-factor result and instead acknowledges common

method bias as a limitation (Kaltsonoudi et al., 2022; Podsakoff et al., 2024).

No additional common-method-bias procedures or post-hoc statistical diagnostics are claimed beyond the safeguards documented in the original study. Accordingly, anonymity and the absence of identifying information are reported as procedural protections, while the single-source, single-time-point self-report design is retained explicitly as a limitation.

3.5 Data analysis

Descriptive statistics and Cronbach's α coefficients were calculated for the NIS-S and each MBI-ES subscale. Because depersonalization showed a statistically significant departure from normality, Spearman's rank correlation coefficient (ρ) was used for bivariate associations. The use of Spearman correlations does not preclude linear regression: normality of each predictor is not itself an assumption of Ordinary Least Squares regression; rather, the distribution of residuals and the adequacy of linearity, homoscedasticity, independence, and multicollinearity diagnostics are central to inference from the fitted model.

A simultaneous multiple linear regression model was estimated with self-reported nonverbal immediacy as the dependent variable and emotional exhaustion, depersonalization, and personal accomplishment as explanatory variables. The submitted analysis reported VIF values from 1.35 to 1.51, a residual Shapiro–Wilk test of $W = .991$, $p = .887$, a Durbin–Watson statistic of 2.39 ($p = .082$), and no systematic pattern in the residuals-versus-fitted plot. Conventional 95% confidence intervals for the unstandardized coefficients are reported in Table 5.

Demographic variables were not included in the primary regression model. This decision was reconsidered. Complete demographic information was available for 74 participants, with a highly uneven distribution across categories (65 women and 9 men; age-group counts ranging from 4 to 27; teaching-experience counts ranging from 8 to 34). Treating gender, age, and teaching experience as the categorical variables in which they were collected would require several additional parameters relative to the modest complete-case sample. To avoid unstable and imprecise estimates from an over-parameterised sensitivity model, the original parsimonious model with the three theoretically specified MBI-ES dimensions was retained. The possibility of residual demographic confounding is therefore acknowledged explicitly as a limitation.

The available regression output was re-examined. It contains conventional 95% confidence intervals for all unstandardized coefficients, not bootstrap estimates. Because the relevant Ordinary Least Squares (OLS) diagnostics supported the fitted model, the revised manuscript retains the original regression and reports these conventional intervals explicitly. No post-hoc bootstrap results are presented or inferred from the existing output; the modest sample size remains a limitation.

4. Results

The sample consisted of $N = 76$ primary education teachers. Demographic information was available for 74 participants; two participants did not complete the demographic items. Among valid responses, 65 participants were women (87.8%) and 9 were men (12.2%). The largest age category was 51–60 years (36.5%), and the largest teaching-experience category was 21–30 years (45.9%) (see Table 1).

Internal consistency was high for the NIS-S ($\alpha = .862$), emotional exhaustion ($\alpha = .893$), and personal accomplishment ($\alpha = .857$). Depersonalization showed lower internal consistency ($\alpha = .619$). Findings involving depersonalization should therefore be interpreted cautiously because measurement unreliability may attenuate or destabilise observed associations (see Table 2).

Descriptive statistics are shown in Table 3. Because the MBI-ES response format was modified, the revised manuscript reports the observed means and dispersions without labelling the subscales as 'low', 'moderate', or 'high' according to original MBI-ES norms. The previously reported composite total-burnout score has been removed.

The Shapiro–Wilk test indicated no statistically significant departure from normality for self-reported nonverbal immediacy ($W = .986$, $p = .573$), emotional exhaustion ($W = .969$, $p = .061$), or personal accomplishment ($W = .976$, $p = .152$). Depersonalization deviated significantly from normality ($W = .921$, $p < .001$). No univariate outliers were detected using the criterion $|z| > 3.29$. Spearman correlations were therefore used for the bivariate analyses.

4.1 Bivariate associations

Depersonalization was negatively associated with self-reported nonverbal immediacy ($\rho = -.397$, $p < .001$), whereas personal accomplishment was positively associated with self-reported nonverbal immediacy ($\rho = .499$, $p < .001$). Emotional exhaustion was not significantly associated with self-reported nonverbal immediacy ($\rho = -.170$, $p = .142$). The strongest bivariate association with self-reported nonverbal immediacy was observed for personal accomplishment (see Table 4).

Hypothesis 1 was partially supported. Depersonalization showed the expected negative association and personal accomplishment the expected positive association with self-reported nonverbal immediacy. Emotional exhaustion was negative in direction but not statistically significant.

4.2 Multiple linear regression

The simultaneous regression model was statistically significant, $F(3, 72) = 6.97$, $p < .001$, $R^2 = .225$, adjusted $R^2 = .193$. Thus, the three MBI-ES dimensions jointly accounted for 22.5% of the observed variance in self-reported nonverbal immediacy. Personal accomplishment

showed a statistically significant unique positive association with the outcome ($B = 8.23$, $SE = 2.66$, 95% CI [2.92, 13.54], $\beta = .394$, $t = 3.09$, $p = .003$). Emotional exhaustion ($B = 1.21$, $SE = 1.65$, 95% CI [-2.09, 4.51], $\beta = .088$, $p = .468$) and depersonalization ($B = -3.37$, SE

$= 2.35$, 95% CI [-8.06, 1.31], $\beta = -.181$, $p = .155$) did not show statistically significant unique associations after simultaneous adjustment. The confidence intervals reported here are the conventional 95% intervals contained in the original regression output; they are not bootstrapped

Table 1. Demographic characteristics of the sample

Variable	n	% of valid responses
Gender – Female	65	87.8
Gender – Male	9	12.2
Age 22–30	6	8.1
Age 31–40	15	20.3
Age 41–50	22	29.7
Age 51–60	27	36.5
Age 60+	4	5.4
Teaching experience 0–5 years	11	14.9
Teaching experience 6–10 years	9	12.2
Teaching experience 11–20 years	12	16.2
Teaching experience 21–30 years	34	45.9
Teaching experience 31+ years	8	10.8

Note. Total sample $N = 76$; valid demographic $n = 74$ because two participants did not provide demographic information

Table 2. Internal consistency of the study scales

Scale	Items	Cronbach's α
NIS-S: Self-reported nonverbal immediacy	26	.862
MBI-ES: Emotional exhaustion	9	.893
MBI-ES: Depersonalization	5	.619
MBI-ES: Personal accomplishment	8	.857

Note. The depersonalization coefficient is below the conventional .70 benchmark and warrants cautious interpretation

Table 3. Descriptive statistics for the study variables ($N = 76$)

Variable	M	SD	Min	Max	Skewness	Kurtosis
Self-reported NVI	101.00	11.00	73	123	-0.30	-0.02
EE	2.94	0.80	1.44	4.67	0.28	-0.79
DP	1.71	0.59	1.00	3.20	0.57	-0.52
PA	4.04	0.53	2.63	5.00	-0.23	-0.14

Note. NVI = self-reported Nonverbal Immediacy; EE = Emotional Exhaustion; DP = Depersonalization; PA = Personal Accomplishment. NVI is reported as the NIS-S total score. MBI-ES dimensions are reported as item means on the five-point response format used in this study

intervals (see Table 5).

Hypothesis 2 was supported at the level of the overall model: the three dimensions jointly accounted for statistically significant variance in self-reported nonverbal immediacy. At the level of individual regression terms, however, only personal accomplishment had a statistically significant unique association. Table 6 summarizes the revised hypothesis testing results.

5. Discussion

The present study examined the relationship between the three dimensions of occupational burnout and primary education teachers' self-reported nonverbal immediacy,

approaching psychological strain and communicative presence as interconnected aspects of pedagogical experience. Teaching is a deeply emotional and embodied process in which eye contact, expressiveness, posture, vocal qualities, and physical proximity may carry relational meaning (Kariou et al., 2021; Derakhshan et al., 2022). Because the NIS-S is a self-report instrument, however, the present findings concern teachers' perceptions of their own nonverbal immediacy rather than objectively observed classroom behaviour.

The differentiation of results across burnout dimensions is theoretically important. Depersonalization showed a clear negative association with self-reported nonverbal immediacy ($p = -.397$, $p < .001$). This pattern is coherent with conceptualisations of depersonalization as emotional

Table 4. Spearman correlation matrix among the MBI-ES dimensions and self-reported nonverbal immediacy

Variable	1	2	3	4
1. Self-reported NVI	—			
2. Emotional exhaustion	-.170	—		
3. Depersonalization	-.397***	.400***	—	
4. Personal accomplishment	.499***	-.404***	-.518***	—

Note. N = 76. NVI = Nonverbal Immediacy. *** $p < .001$

Table 5. Multiple linear regression for self-reported nonverbal immediacy

Term	B	SE	95% CI	β	t	p	VIF
Intercept	69.86	14.60	[40.75, 98.96]	—	4.79	< .001	—
EE	1.21	1.65	[-2.09, 4.51]	.088	0.73	.468	1.35
DP	-3.37	2.35	[-8.06, 1.31]	-.181	-1.44	.155	1.47
PA	8.23	2.66	[2.92, 13.54]	.394	3.09	.003	1.51

Note. EE = Emotional Exhaustion; DP = Depersonalization; PA = Personal Accomplishment. B = unstandardized coefficient; SE = Standard Error; CI = conventional 95% confidence interval; β = standardized coefficient; VIF = Variance Inflation Factor. $R^2 = .225$; adjusted $R^2 = .193$; $F(3, 72) = 6.97$, $p < .001$. These are not bootstrapped confidence intervals

Table 6. Summary of revised hypothesis testing

Hypothesis	Expectation	Finding	Conclusion
H1	EE and DP expected negative; PA expected positive bivariate associations	DP: $p = -.397***$; PA: $p = .499***$; EE: $p = -.170$, $p = .142$	Partially supported
H2	Three MBI-ES dimensions jointly expected to account for significant variance in self-reported NVI	$R^2 = .225$, $F(3, 72) = 6.97$, $p < .001$; only PA unique $\beta = .394$, $p = .003$	Supported at model level

Note. EE = Emotional Exhaustion; DP = Depersonalization; PA = Personal Accomplishment; NVI = Nonverbal Immediacy. *** $p < .001$

and interpersonal distancing under sustained professional strain (Nápoles, 2022; Westphal et al., 2022). Unlike emotional exhaustion, which primarily concerns depletion of emotional resources, depersonalization is inherently relational. It is therefore plausible that it is more closely aligned with perceived communicative distance. In pedagogical terms, emotional withdrawal may have a communicative counterpart in teachers' perceptions of reduced relational availability, expressiveness, or closeness. This remains an interpretation of self-reported tendencies rather than observational evidence that specific behaviours such as eye contact or proximity objectively declined.

By contrast, emotional exhaustion was not significantly associated with self-reported nonverbal immediacy ($p = -.170$, $p = .142$). Rather than treating this simply as an unexpected null finding, it may reveal an important distinction between internal depletion and relational withdrawal. A teacher may experience substantial fatigue while still perceiving herself or himself as sustaining the care, availability, and professional presence required by the role. Emotional labour offers one plausible theoretical framework for this divergence: teachers may regulate emotional expression and continue to enact an outwardly available professional role even while internal resources are strained (Kariou et al., 2021). Wang and Song (2022) likewise highlight tensions between emotional expression, professional identity, and the demands of maintaining an appropriate emotional display in teaching.

This interpretation helps explain why depersonalization, but not emotional exhaustion, may show a clearer bivariate relationship with self-reported immediacy. Exhaustion and relational withdrawal need not unfold simultaneously. Professional identity, commitment to students, established pedagogical routines, collegial support, or other resources may help sustain perceived communicative presence despite internal fatigue. In this sense, the body may continue to 'perform' the pedagogical role while the person experiences psychological strain. The metaphor captures a theoretically meaningful possibility, but the proposed mechanisms were not measured in this study and therefore cannot be treated as demonstrated explanations.

The JD-R model provides a complementary lens (Bakker & Demerouti, 2007). Emotional exhaustion may reflect a health-impairment process associated with sustained demands, whereas continued communicative availability may depend on resources that were not directly assessed here. The non-significant emotional-exhaustion finding should therefore not be interpreted as evidence that exhaustion is irrelevant to pedagogical communication. Rather, the relationship may be indirect, conditional, delayed, or shaped by resources and contextual conditions. Testing such possibilities would require longitudinal or moderation/mediation designs.

The most notable finding concerns personal accomplishment. It showed the strongest positive bivariate association with self-reported nonverbal immediacy

($p = .499$, $p < .001$) and was the only dimension with a statistically significant unique association in the simultaneous regression model ($\beta = .394$, $p = .003$). This result requires precise conceptual interpretation. In the Maslach Burnout Inventory (MBI) framework, reduced personal accomplishment represents the burnout-relevant pole, whereas higher personal accomplishment in the original scoring direction reflects a more positive evaluation of professional competence and effectiveness. The present finding therefore does not mean that 'more burnout' is associated with greater immediacy; it means that stronger perceived professional accomplishment is associated with higher self-reported nonverbal immediacy.

A sense of competence, effectiveness, and meaning may be theoretically compatible with the motivational logic of the JD-R framework and with research linking meaningful work to teacher engagement and lower burnout (Lavy, 2022). It would nevertheless be conceptually inaccurate to state that the Maslach Burnout Inventory (MBI) personal-accomplishment subscale is itself a measured JD-R job resource. In the present study, it is more appropriately understood as a positive professional self-evaluation whose association with self-reported immediacy may reflect the broader relevance of positive professional experience to relational presence.

Taken together, the findings caution against treating occupational burnout as a single homogeneous score. Emotional exhaustion, depersonalization, and personal accomplishment displayed distinct patterns of association with self-reported nonverbal immediacy. This dimensional reading is psychometrically more defensible and theoretically more informative. It suggests that the relational dimension of teaching may be especially sensitive to interpersonal distancing and positive professional self-evaluation, while internal exhaustion may remain partly concealed behind the continuing performance of the professional role.

The results also invite a more human-centred understanding of teacher communication. The quality of educational experience is not constituted by verbal instruction alone; it also involves subtle forms of relational presence. Yet this conclusion must remain proportionate to the evidence. The study cannot establish that psychological strain changes teachers' actual nonverbal behaviour, nor can self-report substitute for classroom observation. What the data do show is that teachers' reported experiences of professional strain, distancing, accomplishment, and communicative immediacy are meaningfully differentiated and interconnected.

6. Conclusions

The present study indicates that the three MBI-ES dimensions are not uniformly associated with teachers' self-reported nonverbal immediacy. Depersonalization was negatively associated with perceived immediacy,

personal accomplishment was positively associated and showed the only statistically significant unique association in the regression model, and emotional exhaustion was not significantly associated.

These findings should be interpreted within the limits of a cross-sectional, single-source, self-report design. They do not establish that burnout causes changes in classroom behaviour, and the NIS-S does not provide direct observation of actual nonverbal conduct. The contribution of the study lies instead in showing that emotional depletion, relational distancing, and positive professional self-evaluation have distinguishable statistical relationships with teachers' perceived communicative presence.

6.1 Implications for research and practice

At the research level, the findings support the importance of retaining the multidimensional structure of burnout and of combining self-report with other forms of evidence. Future studies should examine whether professional identity, school climate, administrative support, self-efficacy, or other resources explain or condition the relationship between emotional exhaustion and communicative presence.

At the practical level, professional-development and teacher-support initiatives may reasonably attend to emotional well-being, professional efficacy, relational connection, and reflective awareness of communication. The present data do not demonstrate that strengthening these factors will causally increase nonverbal immediacy, but they provide a rationale for evaluating such interventions in longitudinal or experimental research.

6.2 Recommendations for educational practice

1. Professional support should recognise teacher well-being as a relational as well as an individual concern. Access to collegial support, mentoring, counselling, and organisational practices that reduce chronic strain may help create conditions in which teachers can sustain engagement with their work.

2. Professional-development programmes may include reflective work on nonverbal communication, not as a technique to mask distress, but as part of broader pedagogical awareness. Training should be integrated with attention to workload, professional meaning, and emotional demands rather than treating communication skills as a substitute for structural support.

3. School leadership may support professional accomplishment through constructive feedback, recognition, participation in decision making, and opportunities for meaningful professional growth. These recommendations are theoretically informed implications and should not be represented as causal effects demonstrated by the present study.

6.3 Limitations of the study

First, the use of convenience sampling and the modest sample size limit representativeness and generalisability. Participants were recruited through accessible professional and academic networks, and complete demographic data were available for 74 participants. The distribution was highly uneven (including 65 women and 9 men), with several small age and experience categories. Demographic-adjusted sensitivity models were therefore not added because modelling the collected categorical variables would require several additional parameters relative to the available complete-case sample and could yield unstable estimates. Residual confounding by gender, age, or teaching experience nevertheless remains possible and should be examined in larger, more balanced samples.

Second, the cross-sectional design does not permit causal conclusions or temporal ordering. The study cannot determine whether occupational strain precedes changes in perceived nonverbal immediacy, whether communicative experiences contribute to strain, or whether both are shaped by third variables.

Third, both the burnout dimensions and nonverbal immediacy were measured by self-report from the same respondents at one time point. This raises the possibility of social-desirability effects, shared-method variance, and common method bias. In particular, self-reported nonverbal immediacy should not be equated with directly observed classroom behaviour.

Fourth, the depersonalization subscale showed comparatively low internal consistency ($\alpha = .619$), which reduces confidence in the precision of associations involving this dimension and may attenuate estimated effects.

Fifth, the MBI-ES response format differed from the original seven-point format and was administered using five response categories. The harmonisation rationale was supported by general response-scale literature (Dawes, 2008), but no formal pilot of the modified format was conducted and no separate formal permission to alter the response format was obtained. Generic evidence concerning Likert response formats does not establish psychometric equivalence for the MBI-ES. Accordingly, original normative cut-offs are not applied and direct comparison of absolute scores with standard-format studies requires caution.

Sixth, the external Greek-Cypriot validation evidence cited for the MBI-ES includes CFI = .83, which is below a commonly used .90 benchmark. Although the three-factor solution has substantive support, this fit index reinforces the need for cautious claims about structural validity.

Finally, the study did not measure emotional labour, professional identity, school climate, administrative support, or other potential resources proposed in the theoretical interpretation. These mechanisms therefore remain hypotheses for future research rather than explanations demonstrated by the present data.

7. Suggestions for future research

Future research should use larger and more diverse samples, ideally with probability-based or stratified recruitment, to improve generalisability across Greek educational settings. More balanced representation across gender, age, experience, regions, and school types would also allow stronger assessment of demographic and contextual variation.

Longitudinal designs are especially important for clarifying temporal ordering between burnout dimensions and communicative experience. Multi-method designs combining self-report with classroom observation, student reports, or video-based coding could distinguish perceived from observed nonverbal immediacy.

Further studies should directly measure emotional labour, professional identity, self-efficacy, school climate, and administrative or collegial resources. Such designs could test whether these variables mediate or moderate the relationship between emotional exhaustion and communicative presence rather than inferring such mechanisms from cross-sectional associations.

Finally, intervention studies could evaluate whether programmes targeting teacher well-being, professional meaning, organisational support, and reflective communication produce measurable changes over time. Such research would provide a stronger basis for causal and practical recommendations than is possible from the present cross-sectional design.

AI use disclosure statement

During the preparation and revision of this manuscript, the authors used AI-assisted technologies solely for supportive purposes, including translation, language editing and readability improvement, literature-search support and query formulation, and the summarization and thematic organization of published scholarly articles.

All cited sources were independently verified by the authors against the original publications. The research data and their processing, the statistical analyses and statistical results, the interpretation of the findings, and the formulation of the conclusions were undertaken exclusively by the human members of the research team, drawing on the statistical knowledge and relevant expertise of members of the team. The statistical procedures and results were additionally reviewed by a specialist statistician. AI was not used at any stage of the statistical analysis, the generation or modification of research results, the interpretation of the findings, or the formulation of the conclusions.

All AI-assisted translations, language edits, literature-search suggestions, and article summaries were critically reviewed and verified by the authors. The authors retain full responsibility for the accuracy, integrity, and final content of the manuscript.

Ethics and informed consent

Participation in the study was voluntary and anonymous. Prior to completing the questionnaire, participants were informed, through an introductory statement, about the purpose of the study, the voluntary nature of their participation, and the anonymity and confidentiality of their responses. Participants were free to discontinue completion of the questionnaire at any time prior to submission, without any consequences. No separate written consent form was obtained; the voluntary submission of the completed questionnaire was considered to indicate informed consent. No directly identifying or sensitive personal data were collected, and all data were used exclusively for research purposes.

Under Article 279(2)(a)–(b) of Greek Law 4957/2022, mandatory prior review by a Research Ethics and Deontology Committee applies to funded research projects involving human participants, human-derived material or personal data, animals, or the natural or cultural environment. The present study was not conducted as part of a funded research project and therefore did not fall within the category of research projects requiring mandatory prior ethics approval under Article 279(2)(a).

Authors' contributions

Dafni Petkou (D.P.), Kyriaki Eliadou (K.E.), Paraskevi Sampazioti (P.S.), and Ioanna Chouliara (I.C.): Conceptualization, K.E.; methodology, D.P. and P.S.; validation, I.C.; formal analysis, D.P. and K.E.; investigation, I.C.; resources, K.E.; data curation, P.S.; writing—original draft preparation, I.C. and D.P.; writing—review and editing, I.C.; visualization, K.E.; supervision, D.P.; project administration, D.P. All authors reviewed and discussed the manuscript and approved the final version.

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Data availability

The dataset generated and analysed for the survey research is available from the corresponding author on reasonable request.

Conflicts of interest

The authors declare no conflicts of interest.

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