

Compensatory Potential of Socio-Pedagogical Practices in the System of Resource Provision for the Professional Longevity of Older Teachers

Nataliya N. Davydova, Alevtina A. Simonova, Darya A. Novosadova, Sergei N. Bezdetko

Cand.Sci. (Eng.), Associate Professor, Leading Researcher of the Department of Scientific Research and Project Activities, Ural State Pedagogical University (26 Prospekt Kosmonavtov, Yekaterinburg 620091, Russian Federation), ORCID: <https://orcid.org/432-443-432-443>, Scopus ID: 56442179000, Researcher ID: M-432-443, SPIN-code: 432-443, edscience@mail.ru

Dr.Sci. (Ped.), Professor, Chief Analyst of the Department of Scientific Research and Project Activities, Ural State Pedagogical University (26 Prospekt Kosmonavtov, Yekaterinburg 620091, Russian Federation), ORCID: <https://orcid.org/432-443-432-443>, Scopus ID: 56973967900, Researcher ID: M-432-443, SPIN-code: 432-443, simonova@uspu.ru

Analyst of the 2nd Category of the Department of Training and Certification of Highly Qualified Personnel, Ural State Pedagogical University (26 Prospekt Kosmonavtov, Yekaterinburg 620091, Russian Federation), ORCID: <https://orcid.org/432-443-432-443>, SPIN-code: 432-443, pogadaeva_darya@mail.ru

Cand.Sci. (Ped.), Acting Head of the Chair of Theory and Methods of Teaching Persons with Disabilities, Associate Professor of the Chair of Logopedics and Clinic of Dysontogenesis, Ural State Pedagogical University (26 Prospekt Kosmonavtov, Yekaterinburg 620091, Russian Federation), ORCID: <https://orcid.org/432-443-432-443>, SPIN-code: 432-443, sergei.bezdetko@mail.ru

HOW TO CITE: | ABSTRACT:

Nataliya N. Davydova, Alevtina A. Simonova, Darya A. Novosadova, Sergei N. Bezdetko (2026). Compensatory Potential of Socio-Pedagogical Practices in the System of Resource Provision for the Professional Longevity of Older Teachers. International Journal of Special Education, 41(24s), 432-443

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Amid an aging teacher workforce and early-career shortages, senior teachers are vital for educational stability. This study examines their professional deficits and support mechanisms for longevity. Using surveys (N=320) and interviews (n=14), findings show a non-linear self-assessment trajectory: "excellent" ratings peaked at 30.5% in the 60+ group, but hit a low of 13.6% in the 50–59 bracket. Digital proficiency lagged in the 60+ group (55.9%) versus the 40–49 cohort (22.1%). However, emotional burnout (36.8%) and low motivation (25.7%) peaked in the 40–49 group. Notably, age-related lower stress tolerance in the 60+ group was offset by high role responsibility (89.7%). A U-shaped adaptive resource trajectory emerged. These results refute the stereotype of uniform late-career decline and support a compensatory-adaptive aging model. Practically, the findings can guide targeted professional development for teachers aged 60 and over.

Keywords: professional longevity, age-related differences, compensatory mechanisms, socio-pedagogical practices

Introduction. Contemporary general education is experiencing a staffing crisis, exacerbated by the aging of the teaching workforce and a shortage of early-career specialists (Anchikov et al., 2025; Ilyukhin, 2025). Teachers in the older age cohorts (50–59 and 60+) have become a cornerstone of stability, particularly in core academic disciplines. According to the conceptual framework of developmental psychology, the trajectory of professional longevity among senior educators is non-linear and relies on compensatory mechanisms (Zeer et al., 2020).

Aim. The present study aims to empirically identify and substantively describe age-specific patterns of resource strategies and compensatory mechanisms that contribute to the preservation of professional activity and longevity among teachers in older age groups.

Main Hypothesis. Professional longevity in teachers is a function of an age-specific configuration of resources—cognitive, motivational, and institutional.

H1: In the cohort under 49 years of age, cognitive resources (high learning capacity, ICT competencies) serve as the leading predictor of professional longevity; however, their contribution diminishes under conditions of high burnout.

H2: In the 50–59 age group, a deficit across all three resource types is observed, which accounts for the minimal adaptive potential of this cohort.

H3: In the 60+ group, professional longevity is sustained primarily by motivational and institutional resources (peer support, organisational culture), which compensate for cognitive decline and drive an increase in self-assessment.

Research Questions

What are the objective and subjective professional deficits experienced by teachers across different age groups?

How do self-assessment, motivation to remain in the profession, work performance, and personal qualities change with age among teachers?

What forms of professional interaction serve a compensatory function for different age cohorts?

Study Limitations

The findings are constrained by several methodological factors. First, the study was conducted within a specific educational system, which limits the generalisability of results to the broader Russian teacher population. Second, the sample may be biased towards more motivated and self-reflective respondents, and it does not include teachers who left the profession before age 60, thus introducing a selection effect. Third, the cross-sectional design precludes the identification of causal relationships between resource dynamics and professional longevity. Fourth, the use of subjective self-report instruments carries the risk of response biases stemming from social desirability and current emotional states.

These limitations do not undermine the validity of the established age-related patterns, but they highlight the need for longitudinal studies employing objective indicators and expanded geographical sampling.

Literature Review

The relevance of this study is underscored by the global trend of an ageing teaching workforce, further exacerbated by external challenges. International organisations have documented the growing dependency of education on macroeconomic and technological shifts: according to UNESCO (2023), the global teacher shortage is projected to reach 44 million by 2030. In OECD countries, the proportion of teachers aged 50 and over is steadily increasing—in Estonia, Hungary, and Portugal, for instance, it exceeds 40%, while in the United States, approximately 270,000 teachers are expected to retire from the profession in the coming years. Researchers (Schleicher, 2019; Ravitch, 2015) concur that the quality and stability of the teaching corps are decisive factors in the success

of educational reforms, and that staffing miscalculations can precipitate systemic crises. The Russian context mirrors these global trends: in recent years, the number of teachers over 60 has increased 1.6-fold, whereas the share of teachers aged 35–55 has declined by 20% (Ilyukhin, 2025), while workloads have risen to 1.61 of a full-time position (Tishchenko, 2025), amplifying the risk of burnout and premature attrition among experienced specialists.

Within the conceptual framework of the present study, teachers' professional longevity is defined as the capacity to sustain professional productivity, motivational orientation, and subjective well-being throughout an extended teaching career, whereas early exit from the profession is interpreted as a consequence of insufficient administrative and methodological support. In the work of Zotova et al. (2020) and Mazurchuk et al. (2025), professional longevity is construed as an integrative personal construct that mediates the effectiveness of professional activity in the later stages of a career.

Historically, research interest in older teachers has predominantly focused on a deficit paradigm, with scholarly attention directed towards professional deformations—burnout, emotional exhaustion, and rigidity (Carvalho & Andrade, 2020; Dzhurinsky, 2018; Brouhier et al., 2023). The accumulated evidence indicates that the hyper-responsibility exhibited by teachers aged 55 and over, under conditions of prolonged stress, potentiates burnout (Kudryashova & Vereshchagina, 2017; Rousmaniere & Whitehead, 2025), which in turn correlates with declines in student academic performance. In recent years, however, a paradigmatic shift has emerged in the literature: older teachers are increasingly recognised as bearers of institutional memory and as a stabilising resource for the educational system (Ambarova et al., 2019; Brouhier et al., 2023; Simonova et al., 2024). Empirical studies have documented their successful adaptation to innovations, provided that a supportive environment is established—one that encompasses mentoring, professional autonomy, and symbolic recognition (Shuklina et al., 2020).

It has been established that a significant resource for sustaining professional longevity is teachers' engagement in non-formal and informal practices—such as creative groups, collegial observation, and scientific-educational networks—which reduces the intention to retire, provided that the activities remain substantively rich and psychologically safe (Ilakavichus, 2018; Davydova et al., 2025). In this connection, an important line of inquiry concerns the impact of socio-pedagogical practices (institutional, non-formal, and informal) on the preservation of professional longevity among older age cohorts.

To summarise the theoretical review, it must be acknowledged that the influence of older teachers on the functioning of the general education system is dualistic and context-dependent. At the macro-level, they constitute a stabilisation resource that compensates for staffing shortages. At the meso-level, the direction of their impact is contingent upon the interplay between inertial professional thinking and their mentoring potential. At the micro-level, constructive outcomes are achieved only under conditions of institutional support, complemented by non-formal and informal backing. In this regard, it is legitimate to conclude that a transition is underway from the previously dominant deficit paradigm towards an interpretation of older educators as a specific form of professional capital—one that is intrinsic to the educational system and requires systematic activation through dedicated managerial and methodological instruments.

Data and Research Methodology

The methodological strategy of the present study entailed the integrated use of theoretical and empirical methods across sequential stages of the research.

Theoretical stage. A systematic search and selection of relevant scientific publications was conducted using comparative analysis across the eLIBRARY.RU, Scopus, Google Scholar, and ResearchGate databases. The search timeframe covered the last ten years; keywords included: active longevity, professional deficits,

professional deformation, professional potential of older teachers, and social and pedagogical practices of older school teachers. The outcome of the theoretical analysis was the identification of conceptual approaches to the recognition of resource mechanisms that sustain teachers' professional longevity. Empirical stage. The operationalisation of the core constructs was carried out along three dimensions: (1) adaptive resource (diagnosed via an original questionnaire and semi-structured interviews); (2) the combined influence of internal (personal) and external (organisational) factors; and (3) the level of technological competence and receptivity to organisational support. The choice of survey methods as the primary data-collection tool was grounded in the methodological assumption that the respondent constitutes the primary and most reliable source of information regarding their own subjective experiences, motivational orientations, and self-assessments of professional resources. The study was conducted in

compliance with the principles of informed consent; all participants were briefed on the research objectives in advance and provided their voluntary consent to participate. The final sample comprised respondents from three age groups: 40–49 years ($n = 116$), 50–59 years ($n = 141$), and 60 years and older ($n = 63$). To compensate for systematic biases arising from the uneven age distribution of the sample relative to the general population, a procedure for calculating individual weighting coefficients was applied.

The corrective weights w_i were determined using the formula: $w_i = (N_i/N)/(n_i/n)$, where N_i and n_i denote the size of the i -th age stratum in the general population and in the sample, respectively, and N and n represent the total population and total sample sizes. This weighting procedure allows for the restoration of representativeness of the estimates with respect to the specified age structure. The data on the respondents' work experience by age groups are presented in Figure 1.

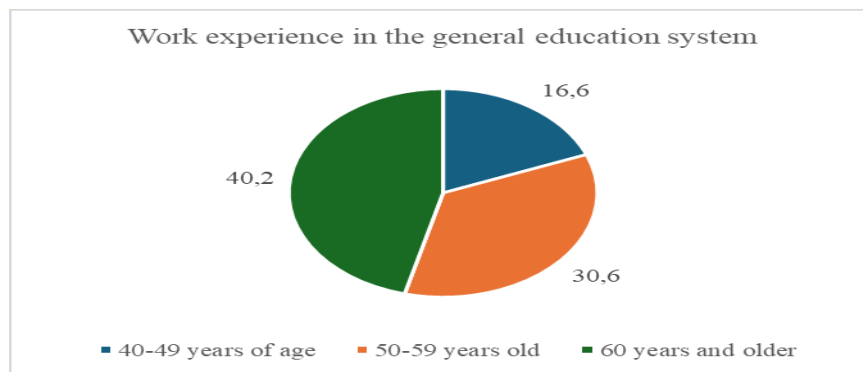


Figure 1. Respondents' teaching experience in the education system.

The study was conducted according to a mixed-method design comprising sequential stages:

Pilot study ($N = 80$) – carried out to test the original questionnaire. Based on the pilot results, 7 items were revised (wording clarified), 2 items with insufficient discriminatory power were removed, and 3 items aimed at assessing the role of informal professional practices were added.

Expert validation – the instrument was evaluated by 30 experts (specialists in pedagogy and occupational psychology) on a five-point

scale; the mean score was 4.6, indicating a high level of content validity.

Reliability assessment – internal consistency of the scales was examined using Cronbach's α coefficient: the four substantive blocks yielded values of 0.82, 0.79, 0.85, and 0.76, all exceeding the acceptable threshold (≥ 0.70) and thus confirming the reliability of the instrument.

Main data collection – a large-scale survey ($N = 320$) was conducted using the final version of the questionnaire; data processing was performed using descriptive statistics (means, standard deviations, frequency distributions) in the Excel

software environment. Frequency analysis allowed for the ranking of responses by degree of prominence.

Qualitative stage – to verify the quantitative findings and gain an in-depth understanding of subjective contexts, semi-structured interviews were conducted with 14 respondents from the three age groups: 40–49, 50–59, and 60+ years. Thematic coding of the transcripts enabled the

identification of four main categories of statements (with mention frequencies): state of the motivational-personal profile – 96; presence of professional deficits – 63; provision of professional interaction – 59; presence of non-professional interests – 44. These categories reflect the key semantic dominants that structure teachers' subjective perceptions of their own professional longevity and the resource strategies for sustaining it.

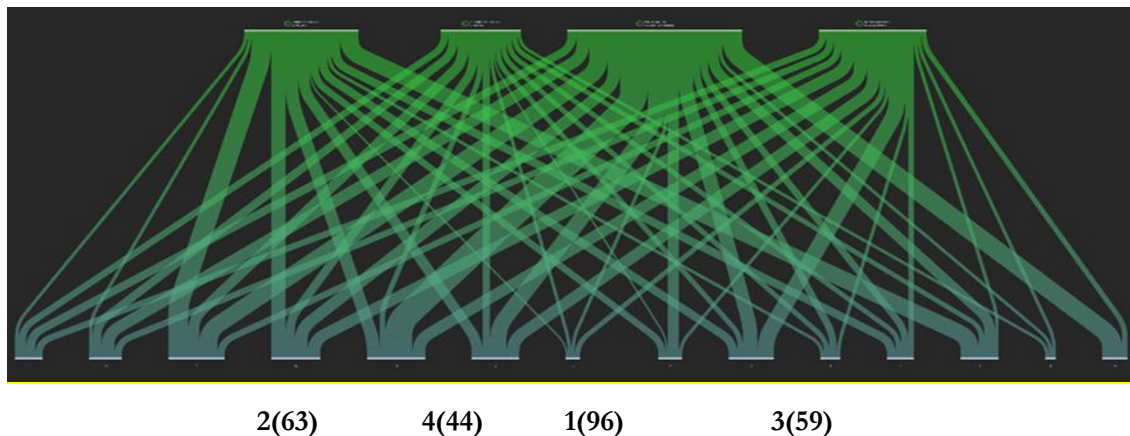


Figure. 2. Key semantic dominants that structure teachers' subjective perception of their own professional longevity.

Reliability of the findings is ensured by the theoretical saturation of the sample and expert validation of the conclusions with the participation of two specialists in the field of educational sociology. Audio recordings were made with the informed consent of the informants.

Results

The analysis of empirical data revealed statistically significant age-related differences in terms of self-assessment, motivation, loyalty, learning ability, and personal qualities. Given the dependence of these variables on the content of teaching activities, an analysis of the age distribution of the subjects taught was conducted (Figure 3), percentage of the respective age group).

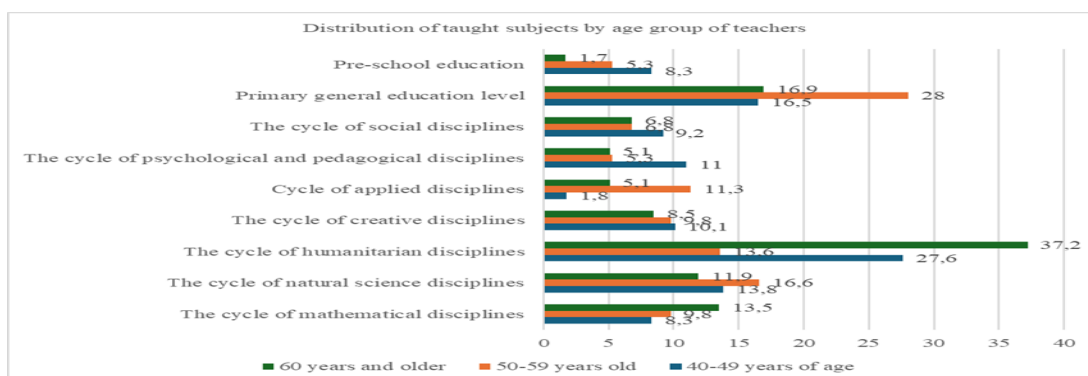


Figure. 3. Distribution of Subjects Taught by Age Group (as a Percentage of the Size of the Corresponding Age Group)

Noteworthy is the substantial disproportion in the distribution of teachers across subject areas: the share of humanities teachers in the 60+ age group stands at 37.2%, whereas in the under-49 cohort it is only 27.6%. This disparity may indicate a longer retention of professional employment in the humanities after reaching retirement age. The predominance of senior teachers in core fundamental disciplines ensures depth of subject-specific training and methodological continuity. At the same time, in the near term (3–5 years), a mass departure of teachers from the older age cohorts due to retirement is projected, which poses risks not only of staffing shortages and declining educational outcomes, but also of the loss of accumulated methodological expertise.

It should be noted that the age-based differentiation of subject areas reflects only

objective employment indicators and does not capture teachers' subjective perceptions of their own readiness to teach. To bridge this gap, the study analysed the types of responses exhibited by respondents in situations of perceived professional inadequacy. Across all age groups, the dominant strategy proved to be "seeking opportunities to bridge the deficit": in the oldest cohort – 69.4%, in the 50–59 age group – 83.9%, and in the under-49 group – 78.1%. These findings indicate a high level of reflexivity and subjective agency among respondents, irrespective of age.

An analysis of current professional difficulties, differentiated by age group (Figure 4), revealed that the need for developing digital competencies increases most markedly with age: from 22.1% (40–49 age group) to 49.1% (50–59) and 55.9% (60+).

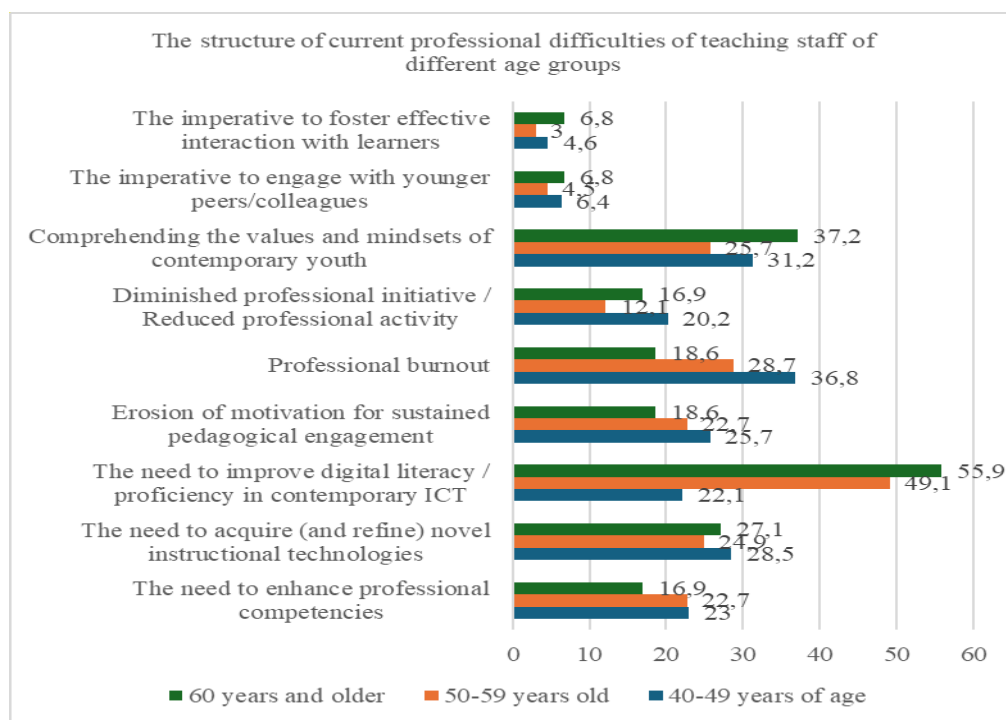


Figure 4 . Current professional difficulties by age cohort

The emotional-motivational crisis is most pronounced in the 40–49 age group (burnout – 36.8%, loss of motivation – 25.7%), whereas among teachers aged 60 and over the corresponding figures are at their lowest (18.6% for both indicators), which points to the

heightened vulnerability of middle-aged educators and the need for psychological prevention.

The intergenerational gap in understanding the values and mental characteristics of students also widens with age: from 31.2% (40–49) to 37.2%

(60+). Teachers aged 60 and over report a decline in the effectiveness of previously familiar classroom management methods and a reassessment of former value orientations, which confirms the growing sociocultural divide.

Overall, according to one respondent (female teacher, 67 years old), the key determinants of professional difficulties are: the high intensity of workload, the complexity of objectively assessing the effectiveness of one's own work, the lack of constructive dialogue with school administration, and the need for prompt resolution of numerous professional tasks not directly related to the educational process.

However, as the research findings indicate, alongside objective barriers there also exist compensatory mechanisms that enable teachers

to sustain professional activity in later age. To identify these, an analysis of socio-pedagogical interaction practices was conducted, the results of which reveal a systematic age-related increase in their significance (Figure 5). In particular, a consistent rise was observed in the proportion of teachers engaged in voluntary mentoring (from 36.8% in the under-49 group to 50.8% in the 60+ group) and in online professional communities (from 18.4% to 33.9%, respectively). This trend suggests that age-related changes in self-assessment, deficit-coping strategies, and susceptibility to burnout are mediated by various practices that implement the same resource mechanisms—motivation, reflection, support, and adaptability.

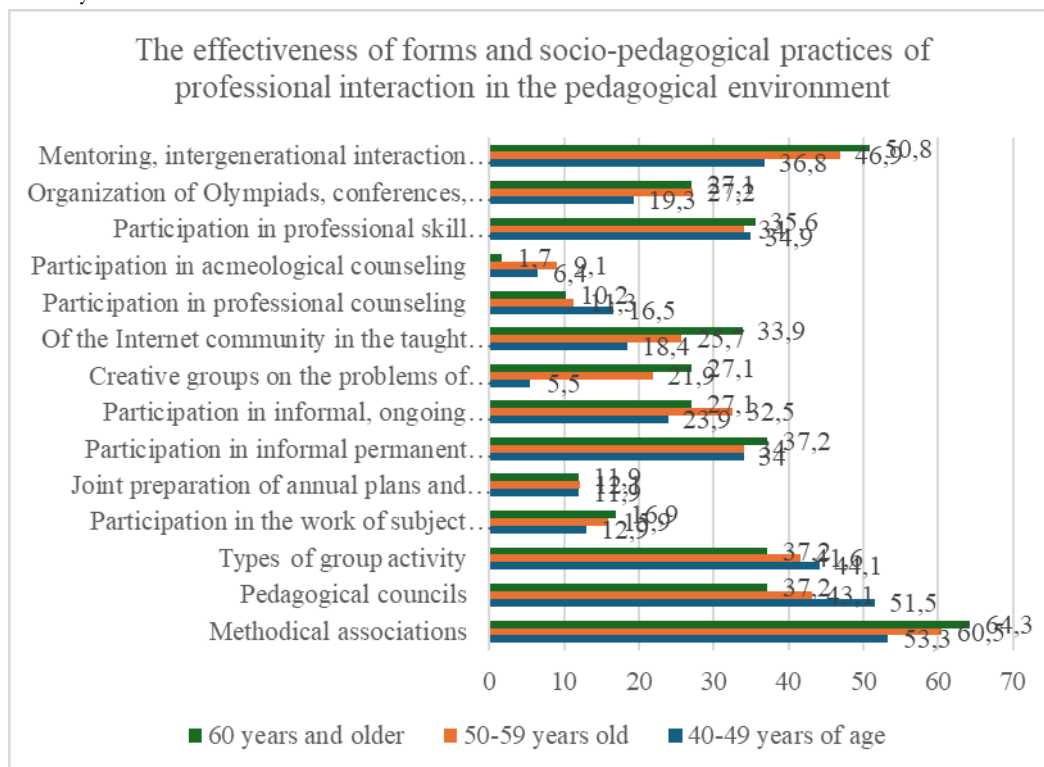


Figure 5. Types of socio-pedagogical interaction practices employed by teachers of different age groups

Table 1 summarizes the results of the analysis of professional deficits and the factors influencing teachers' continued professional engagement. It illustrates the links between the determinants of professional longevity and the types of socio-pedagogical practices adopted by different age groups. The same factor, such as adaptability to

change, is operationalized differently depending on age: teachers aged 432-443 rely on formal continuing education courses; those aged 432-443 turn to informal peer-support networks; while those aged 60 and over employ informal strategies, including the deliberate rejection of change as a defensive-adaptive mechanism. This

latter approach helps reduce cognitive and emotional strain in the face of age-related declines in processing speed, stress resilience, and physical stamina. These distinctions underscore

the need for a differentiated strategy in shaping working conditions that account for the age-specific characteristics and actual needs of teachers across all age cohorts.

Table 1 Summary matrix of the correspondence between key factors of professional stability and dominant types of socio-pedagogical practices in different age groups

The key pedagogical factor of professional stability	The age group	Institutional practices (formal)	Non formal practices (organized, outside the system)	Informative practices (spontaneous, vital)
Motivation and value-semantic attitude to the profession	432-443 years	Certification	Networking courses, mentoring	Self-reflection
	432-443 years	Methodological support	Skill clubs, trainings,	Exchange of experience with colleagues
	60+	Honorary titles, benefits	Clubs of "silver" volunteers	Transmission of traditions, narratives
Coping strategies and burnout prevention	432-443 years	Stress resistance trainings	Supervision group	Independent relaxation techniques
	432-443 years	Spa treatment	Коуч-группы / coaching groups	Hobby retreats, limited communication
	60+	Pension preferences,	Psychological support groups,	Spiritual practices, communication with family
Reflection and self-regulation	432-443 years	Compulsory IT courses	Hackathons, digital clubs	Self-development of neural networks, IT blogs
	432-443 years	Digital Teacher courses	Gadget Development Group	Help for children and young colleagues
	60+	Reducing the digital requirements	Computer Literacy Club	Rejecting changes like coping
Professional support (collegial and administrative)	432-443 years	The method of Unification and mentoring	Professional. social media communities	Advice from senior colleagues
	432-443 years	School psychologist, trade union	Mutual aid Clubs "50+"	Informal family support
	60+	Exemption from classroom management	Meetings of veterans of pedagogy	Support for former students

Adaptability to changes (digit, reforms)	432-443 years	Retraining according to new standards	Nonformal digital clubs	Independent development of neural networks
	432-443 years	Official Digital Teacher courses (often forced)	Gadget development assistance groups	Help from children or young colleagues in private; the "poke" method at home
	60+	Formal exemption from many digital requirements (benefits)	Computer Literacy for retired teachers clubs in the library	Grandchildren show how to use the phone; refusal of changes as coping (information protection)
The meaning of work and professional identity	432-443 years	Awarding categories and titles	Competitions of professional skills	The reaction of students "live"
	432-443 years	Honor Board	Mentoring, Publishing	Alumni Success Stories
	60+	Title "Veteran of Labor"	Clubs "Teacher's Dynasty"	Inner sense of accomplishment

Discussion of Results

The empirical data confirm a nonlinear age-related dynamics in sustaining the professional longevity of older educators, thereby refuting the model of uniform regression. The U-shaped trajectory of adaptive resources (decline in the 50–59 age group, recovery in the 60+ group) is broadly consistent with the concept of heterochronicity (Zeer et al., 2020) and indicates that the pre-retirement period serves as a phase of reassessing deficits and reorganising regulatory mechanisms. Particularly indicative is the dynamics of self-assessment: the maximum proportion of high self-ratings in the 60+ group (30.5%) and the minimum in the 50–59 group (13.6%) reflect a shift in success criteria from external institutional markers to internal meaning-based regulators, which aligns well with the findings of A.A. Shvedovskaya and Yu.I. Mullagaliyeva on the role of subjective age perception (Shvedovskaya & Mullagaliyeva, 2026). The hypertrophied sense of responsibility identified in this study (89.7% in the 60+ group) acts as a compensatory mechanism that offsets

the decline in stress tolerance (from 54.2% to 32.2%), thus corroborating the compensatory-adaptive model of professional ageing in teachers.

The empirical results also reveal a nonlinear age trajectory for professional burnout and motivational decline: the peak values for both indicators are observed in the 40–49 age group (36.8% for burnout and 25.7% for loss of motivation), whereas in the oldest cohort (60+) they decrease to the minimum levels (18.6% for each parameter). This distribution suggests that the critical zone of professional risks shifts to the mid-career stages, which contradicts the current practice of psycho-prophylactic work that has traditionally focused on older teachers. These findings necessitate a revision of priorities in organisational support and a reorientation of emphasis towards burnout prevention in the 40–49 age interval. Additionally, a steady age-related increase in teachers' engagement with online communities was established: the proportion of respondents using these forms of interaction rises from 18.4% in the younger cohort (under 49) to

33.9% in the 60+ group. This trend refutes the entrenched stereotype of declining digital activity with age and allows informal network interaction to be interpreted as a significant compensatory mechanism that facilitates the overcoming of professional deficits and the maintenance of up-to-date competencies. The revealed pattern is consistent with the theoretical propositions of M.R. Ilakavichus (2018), who substantiated the role of informal professional associations as a factor of professional socialisation and resource provision in older age groups.

The practical significance of the results justifies a transition from universal professional development models to age-differentiated strategies: for the 40–49 age group – psychological support and project-based formats; for the 50–59 age group – reflective practices and horizontal mentoring; for the 60+ group – formalisation of the mentoring function with a reduction in bureaucratic load, along with targeted programmes for addressing digital difficulties. The revealed “senior age paradox” – a high demand for digital renewal coexisting with objective difficulties – substantiates the need for personalised tutoring support.

Conclusions

The conducted research has confirmed the initial assumption that teachers’ professional longevity is a function of the age-specific configuration of resources (cognitive, motivational, and institutional). The empirical findings allow the following conclusions to be drawn with respect to the hypotheses advanced.

H1 (the leading role of cognitive resources in the cohort aged 40–49): the hypothesis received partial confirmation. Cognitive resources (high learning capacity, ICT competencies) are in demand in this cohort; however, their contribution to professional longevity is significantly weakened under high levels of burnout (36.8%), indicating the need to consider emotional state as a moderator of resource potential.

H2 (a deficit of all three resource types in the group aged 50–59): the hypothesis was

confirmed. In this age cohort, a systemic decline in the availability of cognitive, motivational, and institutional resources is observed, which results in minimal adaptive potential and necessitates the development of compensatory measures.

Regarding H3 (the compensatory role of motivational and institutional resources in the 60+ group): the hypothesis was fully confirmed. Motivational attitudes and institutional support successfully compensate for age-related cognitive decline, ensuring an increase in self-assessment (30.5% rating “excellent”) and minimal burnout (18.6%).

Overall, the study corroborates the nonlinear (U-shaped) nature of adaptive potential, refines the model of age-specific resource configuration, and introduces the concept of compensatory switching of practices (from formal learning to informal interaction and mentoring). This extends theoretical understanding of professional longevity beyond the deficit paradigm.

Based on the identified differences, the article proposes differentiated managerial measures: for the group up to 49 years – burnout prevention through training and supervision; for the 50–59 group – establishment of horizontal communities and recognition systems; for the 60+ group – institutionalisation of mentoring and support for digital activity. At the organisational level, recommendations include a transition to modular professional development programmes and regular monitoring of professional well-being.

The obtained results set the direction for further research into the dynamics of professional longevity under the digitalisation of education and can serve as guidelines for designing personnel policies that incorporate targeted burnout prevention programmes for teachers aged 40–49, horizontal learning initiatives for those aged 50–59, and activation of individualised tutoring support for teachers aged 60+.

The study contributes to the development of an age-oriented approach in pedagogy, overcoming a narrowly deficit-based view and proposing a resource-compensatory model that explains the phenomenon of professional longevity through

an age-related shift in the leading mechanisms of adaptation. The findings provide a theoretical basis for designing individualized support

trajectories for teachers at different stages of their careers.

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