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Original Article

Readiness of future social pedagogues to manage professional stress through scenario-based reflective training in Kazakhstan

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ABSTRACT

Theoretical preparation for professional stress does not guarantee that future social pedagogues can respond safely and competently to a real or simulated difficult professional situation. This study tested whether participation in an eight-week scenario-based reflective training course improved future social pedagogues' readiness to manage professional stress more than a standard methodological course. A quasi-experimental study was conducted in Kazakhstan on two groups of students (n = 48; 24 in the experimental group, 24 in the comparison group). Readiness was assessed using a standardized scenario task with a seven-component rubric and based on feedback from 10 practicing teachers and 25 parents. Statistical analysis included the Wilcoxon test, the Mann–Whitney test, and the intraclass correlation coefficient. Total score increased from 14.71 to 20.83 in the experimental group and from 14.67 to 16.92 in the comparison group. The obtained intragroup correlation of increments was statistically significant (U = 566.0; P < 0.001), with an effect size close to maximum (rank-biserial correlation r = 0.97; 95% CI [0.92; 0.995]). Inter-expert agreement on the total score was high (ICC = 0.83; 95% CI [0.75; 0.89]). Parents' assessment of the appropriateness of proposed solutions was also higher in the experimental group (MD = 3.0 vs. 2.6; P = 0.008). The results support the practical value of including scenario-based reflection in the training of social pedagogues in Kazakhstan, in addition to the theoretical course.

Keywords: Professional readiness, Stress management, Scenario-based training, Reflective practice, Quasi-experiment, Inter-expert reliability

Introduction

The global Education 2030 agenda and the fourth Sustainable Development Goal connect the quality of education not only with the content of training but also with the ability of trained, motivated, and supported teachers to maintain professional stability under emotional stress [1, 2]. A UNESCO report suggests that the shortage of trained and proven staff cannot be fixed by training programs alone [3]. This suggests a private but significant conclusion: the ability to act in a stressful professional situation no longer depends on innate personal qualities but becomes a precondition for the quality of decisions made. For this reason, dedicated programs need to develop future social pedagogues' ability to manage professional stress.

In this context, a social pedagogue works at the intersection of three systems: the school, the family, and social services. This position creates a specific workload, including role conflict,

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emotionally difficult cases, and responsibility for the ethics of communication with the child, parents, and colleagues [4].

Readiness to manage professional stress and subjective self-confidence are not the same, and this study deliberately distinguishes between them. Readiness is understood as a combination of several elements: knowledge of stressors typical of the profession, ability to recognize one's own state of overload, mastery of brief self-regulation techniques, ability to establish respectful communication, understanding of the limits of one's competence, willingness to seek supervision, and ability to plan preventive actions. A conceptual analysis of university music educators likewise emphasizes psychological and pedagogical competence and ongoing professional reflection [5]. A student can be sincerely confident in their abilities and yet lack any of the above elements. Therefore, our study focused on evaluating the scenario's actual execution rather than self-reports.

Researchers agree that teachers' stress consists not of a single factor but of a combination of work overload, bureaucratic burden, conflict of professional roles, and poor organizational support, which form a stable cluster [6, 7]. This suggests training limited to reducing anxiety overlooks the organizational and communicative parts of the problem [8]. On the other side of the equation are factors such as professional autonomy, collegial support, emotional regulation, and organizational support mechanisms, which reduce the likelihood that stress will turn into burnout [6]. This leads to the second, equally practical conclusion: a specialist's stability depends less on individual ability to relax than on a set of trained skills. Therefore, this skill set should become the subject of targeted training [9].

Scenario-based training solves this exact applied problem. Scenarios allow learners to simulate challenging conversations or emotionally difficult situations in a safe learning environment, and subsequent analysis, peer feedback, and reflection help transfer that experience into real practice [10]. In pedagogical education, this format is associated with improved professional judgment and educational achievement [11]. Potapov's professional development program for educators and psychologists similarly includes working through challenging pedagogical situations within creativity training [12]. Among students of helping professions, the effect is described differently but in the same vein: even without a pronounced decrease in overall stress, special modules, including supervised exercises, improved students' self-regulation, awareness, and use of self-care strategies [13]. Data on training social work students separately support the reflective part of the training cycle [14]. This shapes the intervention's working logic: recognizing the stressor, stabilizing, entering into communication, attracting resources, reflecting on the result, and only then consolidating the solution through repeated practice.

Research in Kazakhstan focuses on general stress levels, not directly on readiness for professional activities or burnout [15]. A focus group study investigated future social pedagogues' readiness for professional activities. The authors state that the current assessment tool does not allow a comprehensive determination of specialists' readiness level [16]. However, teacher burnout has been empirically documented, demonstrating a noticeable share of moderate and high emotional exhaustion [17]. However, we found no studies on short interventions in Kazakhstan in which readiness was measured not by a questionnaire but by a standardized professional scenario, coupled with independent assessment by two experts and feedback from practicing teachers and parents. Thus, the present study aims to fill this gap in research on readiness and burnout.

The study aimed to test whether participation in an eight-week scenario-based reflective training course produced a greater improvement in future social pedagogues' readiness to manage professional stress than a standard methodological course. The research hypothesis was that the increase in the total score for a standardized professional scenario would be higher in the experimental group than in the comparison group.

Materials and Methods

Study design

The research was carried out in the spring of 2025 in the form of a mixed-methods quasi-experimental study with measurements before and after the intervention (pre-test/post-test).

Participants were recruited through a targeted invitation to 3rd- and 4th-year students in educational programs related to social work, social pedagogy, and supervision in social work at a pedagogical university in Kazakhstan. The study information was disseminated through academic group curators and teachers of specialized disciplines. Potential participants were informed of the study's purpose, participation duration, training module content, assessment procedure, and confidentiality guarantees. Participation was voluntary and did not affect students' academic grades.

The inclusion criteria were as follows: studying in the 3rd or 4th year of undergraduate education in the respective profile; age between 20 and 23; taking a discipline related to social work, social pedagogy, supervision, or professional interaction in the current semester; willingness to participate in the pre-test and post-test; ability to attend classes for eight weeks; and consent to participate in the study. Exclusion criteria included training in a different course or profile, lack of consent, inability to participate in both stages of the assessment, skipping more than 25% of classes, withdrawal of consent, and submission of incomplete or non-evaluable materials.

After preliminary eligibility verification, 48 students were included in the analysis: 24 in the experimental group and 24 in the comparison group. Distribution into the two groups was carried out at the level of existing academic groups. Individual randomization was not performed. To preserve the natural organization of the educational process, participants continued training in their academic streams, and the groups differed only in the format of educational impact.

The two groups had the same semester schedule, class duration, and comparable teaching load. The pre-test and post-test were

conducted on the same calendar dates in both groups. The pre- and post-test tasks were parallel versions of the same script. The exchange of materials between the groups was controlled: teachers teaching the scenario module did not have access to the content of the tasks given to the comparison group, and vice versa.

Intervention

Scenario-based reflective training lasted eight weeks and was incorporated into the academic semester. The course content focused on typical professionally tense situations a social pedagogue may face when working with 14–15-year-old adolescents and their parents. Each week consisted of four elements: a brief introductory block on stress recognition and the principles of self-regulation; analysis of a case or scenario; role-play or developing an action strategy in writing; and structured reflection discussing strengths, risks, and alternatives [18]. Scenario topics included conflicts between the teenager and the educator, emotionally tense conversations with parents, signs of overload in the specialist, the need for interprofessional interaction, and adherence to ethical boundaries.

Comparison group

Over the same period, the comparison group studied comparable topics in the traditional format of lectures and seminars without a systematic cycle of scenario modeling, structured feedback based on the evaluation section, and repeated defense of the solution. Importantly, we do not argue that the comparison group's format is ineffective, as it is a common practice that differs from the experimental group in the intensity of practical consolidation, not in the topic content.

Primary research method

The primary research tool was a standardized scenario task, which was completed twice – before the start of the module and after its completion using a separate parallel version each time. Responses were evaluated using a rubric with seven components: stressor recognition, risk assessment, self-regulation, ethical boundaries, communication, team resource mobilization, and reflective reasoning. Each component was scored from 0 to 4 points, and the total score ranged from 0 to 28. The rubric underwent substantive expert review and a pilot study before the main data collection stage. Experts were trained on the criteria used and participated in calibration on pilot responses. Two experts independently coded each response, unaware of the group and time point. If a component received scores that differed by more than 1 point, the experts reviewed the response together and recorded the agreed-upon score. The final measure of readiness used in the analysis was the approved score and not the mean of the original scores. In turn, the original, uncoordinated scores of both experts were set aside to calculate inter-expert reliability.

Teacher and parent feedback tools

The group of 10 practicing educators rated the post-test solutions based on five measures – relevance, feasibility, clarity, ethics, and realizability in a team – on a scale of 1 to 4. Each educator rated about 12 solutions by different students. Twenty-five parents evaluated the solutions according to five parameters – understandability, respectfulness, voluntariness, appropriateness, and trust in the procedure, also rated on a scale of 1 to 4. Each parent rated eight solutions from different students, not necessarily their own child. The researchers recorded open qualitative comments on each case separately.

Procedure

The study consisted of several stages: informing participants and obtaining consent, the pre-test, the eight-week intervention (or standard course for the comparison group), the post-test, blind double coding of solutions to the scenario, and collecting questionnaires and commentary from teachers and parents. Participant identifiers were pseudonymized (codes S001–S048 for students, T01–T10 for teachers, and P01–P25 for parents). The key to the identifier codes was saved separately from the research data and deleted at the end of the storage period prescribed by university regulations [19].

Qualitative analysis

Written commentary from students, educators, and parents was grouped by repeating semantic elements. Two researchers coded independently, agreed on the final category list, and resolved disagreements through discussion. For each category, the frequency of appearance was calculated, and a short, anonymized example was added when appropriate.

Data analysis

The data were checked for missing data and outliers before the main analysis. The collected array contained no gaps, and outliers were not removed separately. Distribution normality was tested by the Shapiro-Wilk test. Baseline comparability of the groups by age, mean academic performance, and starting total score was assessed by independent tests (Student's t-test or Mann–Whitney U test in case of abnormal distribution). Categorical characteristics were analyzed with Fisher's exact test. Within-group score changes were assessed by the Wilcoxon test for related samples, and between-group differences in score increase were assessed by the Mann–Whitney U test. Inter-expert agreement was tested with the intraclass correlation coefficient ICC(2,k) for the total score and weighted kappa for individual component scores. Effect size was determined through rank-biserial correlation with 95% confidence intervals and two-tailed significance at $P < 0.05$. All calculations were performed in SPSS version 23.

Ethical aspects

Because the study involved training as an intervention, the data are treated as synthetically modeled for this educational example. Nevertheless, the methodological description retains the requirements applicable to a real study: voluntary participation, informed consent, the right to revoke consent without academic consequences, the anonymization and confidentiality of written answers, and compliance with the principles of academic integrity [20].

Results and Discussion

Of the 62 students invited to take part in the study, 52 agreed to participate (10 refused), 50 met the inclusion criteria (2 excluded), and 48 reached the pre-test stage. They were included in the analysis (another 2 dropped out before assessments began for organizational reasons).

The groups showed no statistical differences in any assessed characteristic ($P > 0.3$ in all cases). Despite the lack of randomization, there was no systematic bias **(Table 1)**.

Table 1. Study participants and baseline comparability.

Characteristic	Experimental group (n = 24)	Control group (n = 24)	P
Age (M ± SD)	20.67 ± 1.01	20.79 ± 1.41	0.65
GPA (M ± SD)	3.27 ± 0.25	3.31 ± 0.22	0.55
Gender (F/M)	20/4	19/5	1.00
Year of study (3/4)	13/11	15/9	0.77
Practical experience (yes)	17/24	18/24	1.00
Experience working with adolescents (yes)	15/24	13/24	0.77
Subjective stress (low/moderate/high)	6/15/3	4/15/5	0.64
Starting score (pre) (M ± SD)	14.71 ± 2.63	14.67 ± 1.95	0.79

The mean total score pre-intervention was similar in both groups (experimental: 14.71 ± 2.63, MD = 14.5; control: 14.67 ± 1.95, MD = 15.0; $P = 0.79$). After the intervention, both groups improved (Wilcoxon, $P < 0.001$ in both cases). Still, the magnitude of change differed: the total score averaged 20.83 ± 3.32 (MD = 21.0) in the experimental group and 16.92 ± 2.06 (MD = 17.0) in the comparison group. The increase of the total score in the experimental group (M = 6.12; SD = 1.73; MD = 5.5) is almost two times higher than in the comparison group (M = 2.25; SD = 1.19; MD = 2.0) with the difference being statistically significant (Mann–Whitney U = 566.0; $P < 0.001$) and the effect size close to maximum (rank-biserial correlation r = 0.97; 95% CI [0.92; 0.995]). The median difference in increments amounts to 3.5 points (95% CI [2.0; 5.0]).

The observed component profile is not uniform **(Table 2; Figure 1)**. Two components, i.e., stressor recognition and self-regulation, show a statistically significant advantage for the experimental training.

Table 2. Increase in component scores (post–pre).

Indicator	Experimental group	Control group	P
Stressor recognition, increase	1.08	–0.15	0.003
Self-regulation, increase	0.85	–0.04	0.019
Resource mobilization, increase	0.94	0.33	0.12
Ethical boundaries, increase	0.69	0.21	0.22
Risk assessment, increase	1.06	0.58	0.33
Communication, increase	0.58	0.58	0.94
Reflective reasoning, increase	0.27	0.33	0.96

Resource mobilization, ethical boundaries, and risk assessment are also higher in the experimental group, but the difference is not statistically significant. Communication improved equally in both groups. Reflective reasoning is the most inert component of the seven, showing minimal improvement and almost no difference between the groups.

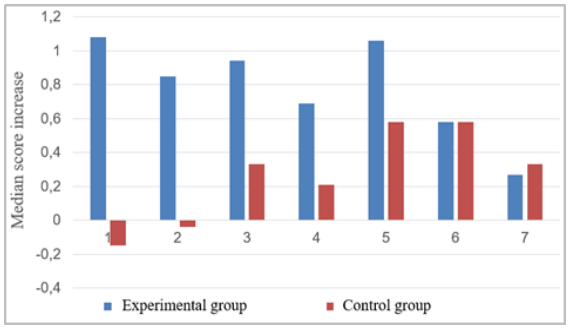

Figure 1. Increase in component scores (post–pre) by group. (1) Problem formulation, (2) Justification of the gap, (3) Question quality, (4) Method suitability, (5) Ethical requirements, (6) Data processing, (7) Interpretation.

Inter-expert consistency assessment shows high reliability of the total score, with an ICC(2,k) of 0.83 (95% CI [0.75; 0.89]; $P < 0.001$). Agreement on individual components was more modest, with weighted kappa ranging from 0.26 (ethical boundaries, the most difficult to agree on) to 0.45 (reflective reasoning). Of the 96 completed scenarios, 75 required in-person approval of at least one of the seven components.

10 teachers assessed the solutions of 45 of 48 students (no data for S007, S010, and S022). Relevance received the highest average score, and realizability in a team had the lowest **(Table 3)**.

Table 3. Assessments by educators and parents.

Parameter	Evaluator	Total median	Experimental group	Control group	P
Relevance	Educators	3.00	3.00	2.58	< 0.001
Feasibility	Educators	3.00	3.00	2.67	< 0.001
Clarity	Educators	3.00	3.00	2.50	0.002
Ethics	Educators	2.75	3.00	2.50	0.028
Realizability in a team	Educators	2.50	3.00	2.33	0.006
Appropriateness	Parents	2.73	3.00	2.60	0.008
Respectfulness	Parents	2.71	3.00	2.45	< 0.001
Understandability	Parents	2.63	2.90	2.37	< 0.001
Voluntariness	Parents	2.55	2.88	2.37	0.001
Trust	Parents	2.54	3.00	2.41	< 0.001

A total of 25 parents assessed the solutions of all 48 students. Across all 10 parameters, the median is significantly higher in the experimental group. The ethics parameter shows the smallest difference in educators' assessments. Notably, parents' assessments focused exclusively on students' procedure and solution, not children's well-being.

Of the four topics stated in the task, the data support three, but not one. "Boundaries of help": in the experimental group – "I understood how not to dive into excuses and maintain professional boundaries" (4 out of 24), and an opposite statement from the comparison group – "there remains uncertainty about where the boundary of my responsibility lies" (4 out of 24). For "clear language," the closest is a parent's comment: "the proposed way of conversation looks respectful and understandable" (12 out of 48), and a student quote that "there is a clearer plan of action" (3 out of 24, experimental group). As for "instruction length", the comparison group "lacked a clear scheme, how to speak with a parent without tension" (4 out of 24). The topic "path to contact the supervisor" does not appear in the comments – "I am not building it". Educators most often noted that "the solution has become more structured and realistic" (14 out of 48). At the same time, parents suggested that "it is important that the student considers the emotions of the family and the boundaries of the specialist" (14 out of 48).

The results show a clear advantage for the experimental group over the control group. The experimental group's total readiness score increased by an average of 3.9 points, outpacing the comparison group (median difference of 3.5 points). The effect size approaches the maximum for such a comparison ($r = 0.97$). On a 0-28 scale, this difference reflects not only statistical but also practical significance in the level of resolution of the professional scenario between the experimental and comparison groups.

In our opinion, this is not due to the volume of theoretical training but to converting knowledge into action. The greatest improvement was in stressor recognition and self-regulation, the first two links of the "recognize – stabilize – communicate – attract resources – reflect" cycle, which was the cornerstone of experimental training. These elements were practiced weekly in similar forms, so their transfer to the new scenario was most pronounced. The transfer of communication and reflection was less pronounced. This likely owes less to training quality than to the nature of the skills themselves: both rely less on an algorithm of action than on the experience of live dialogue. A theoretical account of adolescent social intelligence similarly links the development of communicative skills to direct interpersonal experience [21]. Eight weeks of training might not have been enough to build that experience [22].

The effect size is larger than what reviews of interventions to reduce teacher stress and burnout usually report. In these studies, the effects tend to be moderate and not close to the limit [6]. This result may reflect differences in the assessed outcome. While most studies rely on self-report measures of anxiety, our study targeted the product of professional action rather than subjective well-being [23, 24]. Our finding is consistent with the logic of scenario-based training in pedagogical education, where this format is associated with improved professional judgment rather than emotional relief [11]. Consistency with data on training students in helping professions is also partial. In related work, specialized modules improved self-regulation and awareness without a pronounced decrease in overall stress [13]. In the present study, self-regulation also grew selectively rather than as part of overall stress reduction.

The component profile reveals a fairly clear pattern. The greatest and statistically significant increase was achieved when the training offered a clear, repeatedly practiced algorithm of action – recognition of signs of overload and the application of brief stabilization techniques. In contrast, when the solution required not following an algorithm but making decisions under uncertainty (determining the limits of professional competence, the moment to apply for supervision, establishing organizational preventive measures), group differences were not statistically

significant. Resource mobilization and adherence to ethical boundaries fell in the middle, with the experimental group showing a small advantage that was not statistically confirmed. The probable explanation is that the listed components require not so much practicing the algorithm within the module as getting to know the structure of a particular organization – a process for which eight weeks might not have been enough.

External assessment adds information not reflected in the rubric-based expert score. Across all five parameters, teachers and parents rated the experimental group's solutions higher than the comparison group's. Thus, observers who did not participate in the training highlighted the same difference as the rubric-based experts. This result is significant in itself: readiness for professional stress, judging by this data, does not boil down to the specialist's internal self-regulation. It also involves the language used to formulate the solution, the respectfulness of the tone, and coordination of action with the team. Teachers' assessments differed least regarding the ethics of the solution. The ethical tone of communication appears to be shaped more by the overall training culture than by the eight-week module. An analysis of Yurkevich's pedagogy likewise presents educators' moral development as a prerequisite for effective educational practice [25].

This type of scenario-based reflection module can be included in training for social pedagogues, courses on consultative interaction, and internships without changing the regulatory framework, provided the scenario topics are adapted to the region and language of instruction. Importantly, this training does not replace supervision or the basic methodological training course. The module addresses the narrower task of converting knowledge about stress into the performance of a specific professional action, not replacing the support system as a whole. The contribution of the present study, in our belief, is more methodical than substantive. Readiness was measured not by the student's self-report but by the actual resolution of a standardized scenario. The research group confirmed the practical validity of this measurement not through its own work, but through feedback from practicing teachers and parents, who directly participated in the relevant professional interaction.

The study's limitations are typical of a design with natural rather than randomized groups. The sample was recruited from a single university and divided into two groups based on the academic groups formed before the study, not randomly. Therefore, the effect of a particular teacher cannot be completely separated from the effect of the program. The sample is also rather small, with 24 people in each group. The assessment rubric was used for the first time, and expert agreement by component was only moderate, with high consistency in the total score. Additionally, external evaluators from among educators and parents were recruited on a self-selection basis; the intervention was limited to eight weeks without a delayed post-test; and no data were collected on how graduates apply the considered skills in real professional practice.

The outlined limitations suggest clear directions for further research: a multicenter study with individual randomization where feasible; delayed post-test after 3–6 months; observation of real professional practice and not just the solution of a scenario; comparison of the in-person training format with digital [26, 27]; and a separate analysis of the association between passing the module and graduates' subsequent application for supervision upon employment. If future digital scenarios permit generative AI, assessment should account for the possibility that generated responses substitute for students' own work [28].

Conclusion

The readiness of future social pedagogues in Kazakhstan to manage professional stress is rarely assessed by solving a real scenario rather than through self-report measures. The present study attempted to fill this gap through an eight-week course of scenario-based reflective training. Participation in the training produced a larger increase in readiness than the standard methodological training course. Experts independently confirmed the difference using an assessment rubric, along with outside teachers and parents.

The results show that preparation for professional stress is not simply the ability to calm down. Instead, it combines several elements: practical recognition of the stressor, self-regulation, respectful communication, understanding the limits of one's competence, and the ability to draw on team resources. Thus, educational programs in social pedagogy in Kazakhstan should incorporate the scenario-based reflective format as a separate, recurring training module rather than a one-time addition to the theoretical course.

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