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Original Article

Identifying factors influencing the continuous professional development of educational psychologists in adaptive sports

Rakhila Aubakirova[1], Alina Dossanova[2], Rsaldy Orazaliyeva[3], Gulsara Berikkhanova[4], Aigul Iskakova[5], Askar Kuvatov[6]*, Nurgul Sultanova[7], Assel Makhadiyeva[8], Bakyt Kuanysheva[9], Assel Temirgalinova[10]

[1]Humanitarian School, Narxoz University, Almaty, Kazakhstan. [2]Educational program "Pedagogy and psychology", Alikhan Bokeikhan University, Semey, Kazakhstan. [3]Department of Art, Higher School of Education, Shakarim University, Semey, Kazakhstan. [4]Department of Higher Mathematics, Saken Seifullin Kazakh Agrotechnical University, Astana, Kazakhstan. [5]Faculty of Pedagogy and Psychology, Abai Kazakh National Pedagogical University, Almaty, Kazakhstan. [6]Department of Physical Culture and Sports, Faculty of Humanities and Social Sciences, Toraighyrov University, Pavlodar, Kazakhstan. [7]Department of Preschool and Primary Education, Faculty of Humanities, Alikhan Bokeikhan University, Semey, Kazakhstan. [8]Department of Social Pedagogy and Self-Knowledge, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan. [9]Department of Trilingualism, Toraighyrov University, Pavlodar, Kazakhstan. [10]Faculty of Humanities and Social Sciences, Toraighyrov University, Pavlodar, Kazakhstan

Correspondence: Askar Kuvatov, Department of Physical Culture and Sports, Faculty of Humanities and Social Sciences, Toraighyrov University, Pavlodar, Kazakhstan. askarkuvatov@mail.ru

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ABSTRACT

The continuous professional development of psychologists in adaptive sports is a necessary condition for high-quality psychological support of Paralympic athletes. However, the factors that determine its effectiveness remain insufficiently studied. The study aims to identify individual, organizational, and structural factors that influence the professional development of psychologists working in adaptive sports. The study used a mixed longitudinal design with three measurement points (2022-2025). The sample included 115 psychologists selected through purposive sampling and representatives of 32 employer organizations. A specialized 54-item questionnaire was used to assess competences. Statistical analysis employed the Mann-Whitney U test, the Kruskal-Wallis test, and the Spearman's correlation analysis. The results have showed that the strongest predictors of specialized competence levels are international internships (r_s=0.61, $p<0.01$) and supervision (r_s=0.49, $p<0.01$), while years of professional experience show a much weaker correlation with competence (r_s=0.28, $p<0.01$). The type of employer organization acts as a significant moderator of professional development: specialists from Paralympic centers outperform colleagues from other types of organizations in both competence levels and access to institutional support (H=18.4, $p<0.01$). The gap between specialists' self-assessment and employers' expectations is selective and concentrated in spheres specific to adaptive sports. These findings support the need to institutionalize supervision and mentoring, expand access to international professional exchange, and develop specialized educational content for psychologists in this field.

Keywords: Adaptive sports, Continuing professional development, Professional competences, Paralympic sports, Supervision, Organizational factors

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Introduction

The current state of adaptive sports psychology shows rapid development of its theoretical foundations and an expanding use of psychological methods in working with athletes with disabilities. The evolution of the Paralympic movement from rehabilitation programs to professional sports drives increasing demands on the quality of psychological support and,

accordingly, on the level of professional training of specialists in this field.

Statistical data from the International Paralympic Committee show steady growth: from 400 participants in 1960 to a record 4,400 athletes from 169 countries at the Paris 2024 Paralympic Games [1, 2]. This trend reflects not only quantitative expansion but also growing complexity in psychological support. It creates new requirements for psychologists' competences, including understanding the specific needs of different diagnostic groups, using adapted psychological methods, and working effectively in interdisciplinary teams [3-5].

The objective of the study is to develop a conceptual model of a system for continuous professional development of psychologists in adaptive sports, ensuring the step-by-step formation of specialized competences from the basic to the expert level.

The research question is formulated as follows: what are the theoretical and methodological foundations and the structural and content components of an effective system of continuous professional development for psychologists in adaptive sports? The structure of this study includes a comprehensive review of the literature on specialist training, an empirical analysis of the current state of psychology education, and the development of a conceptual model of continuous professional development.

Literature review

The professional development of psychologists in adaptive sports is determined by the interaction of several groups of factors: individual characteristics of the specialist, organizational context, the specifics of the field, and the structure of the professional education system [6, 7].

Among individual determinants, professional experience and reflective practice play a key role. The professional development model includes four sequential stages: introduction, exploration, consolidation, and implementation. Each involving increasing independence in professional decision-making and supported by supervision and mentoring processes [8, 9]. Simply accumulating work experience without structured reflection does not guarantee competence growth. Significant predictors of professional effectiveness include participation in continuous education, internships, and professional exchange [10-12]. Motivation for improvement, mastery orientation, and a stable professional identity form an internal resource that enables the specialist to adopt new approaches in a dynamically evolving field [13].

The type of employer organization moderates the content and direction of professional growth. Specialists in Paralympic centers face a different range of professional challenges compared to their colleagues in rehabilitation or educational institutions, creating differentiated competence development needs [14, 15]. The presence of institutional support, such as funding for professional development courses, organized internal supervision, and opportunities for experience exchange, serves as a key organizational predictor of professional growth. In its absence, specialists must design their own educational trajectories, leading to considerable variability in competence levels across the professional community [16, 17]. Research on physical activity among children and adolescents in Kazakhstan has shown that professional development is shaped not only by individual factors but also by environmental characteristics (regional, infrastructural, and social) [18, 19].

Adaptive sports psychology is marked by a high diversity in the scope of professional activities, which imposes specific demands on the level of specialized knowledge [20, 21]. The critical shortage of empirical research in this area (only seven publications specifically focus on the mental health of Paralympic athletes) greatly limits the evidence base for professional development and the creation of specialized diagnostic tools [22, 23]. The taxonomy of psychological results in adaptive sports, including emotional well-being, social integration, personal growth, cognitive outcomes, and adaptive coping mechanisms, defines a broad range of competences that specialists are expected to possess [14, 24, 25].

An important guideline for the professional development of psychologists is evidence on the psychological effects of adaptive sports. A meta-analysis showed that participation in sports provides substantial benefits for both the physical and mental quality of life of individuals with disabilities [26, 27]. At the same time, another study challenged assumptions of heightened psychological vulnerability among Paralympic athletes, showing similar levels of psychological symptoms compared to neurotypical athletes [28, 29]. These findings encourage psychologists to adopt a strength-based rather than deficit-focused approach in their work. Physical activity programs led by specially trained specialists produce meaningful improvements in attention, academic performance, and social relationships for children with intellectual disabilities, provided that the specialists possess the appropriate highly specialized knowledge [30].

Another significant factor is readiness for interprofessional collaboration. Psychologists in adaptive sports work within multidisciplinary teams, and competence in indirect interventions (through coaches and parents) is a critical component of professional effectiveness [31, 32]. The insufficient integration of athletes with disabilities into the broader sports psychology support system remains a systemic issue, exacerbating professional isolation for specialists and limiting opportunities for experience exchange [33-35].

The quality of basic training and the availability of specialized programs largely determine starting competence levels and readiness for professional development. The competence-based model for training sports psychologists emphasizes the importance not only of technical skills but also of ethical competences, professional self-awareness, and the ability to critically reflect on practice [13, 36]. The athlete's family also creates specific requirements for the psychologist: families in Kazakhstan raising children with disabilities in home-learning settings highlight the key role of psychological support and the need for specialists to be prepared to work with the athlete's immediate environment [37-40]. Participation in adaptive sports programs contributes to improved self-esteem, reduced depression symptoms, and enhanced social integration, which

stipulates the need for specialists capable of supporting this process [41, 42].

Materials and Methods

The sample was formed using purposive sampling through professional networks and organizational structures. Inclusion criteria were as follows: a master's degree or higher in psychology, at least 12 months of documented experience in adaptive sports, and active professional practice at the start of the study. Out of the 212 identified specialists, 115 met these criteria. Among them, 68 agreed to participate in a longitudinal study with three measurements of professional competences (main sample), while 47 specialists took part in a one-time assessment (additional group for psychometric analyses).

An additional sample of employer organizations was formed: 32 institutions of four types, including Paralympic centers (n=12), specialized sports organizations (n=10), rehabilitation centers with adaptive sports programs (n=6), and educational institutions with adaptive sports programs (n=4).

To assess professional development, a specialized questionnaire was used, comprising four sections: socio-demographic characteristics; information on professional training (basic education, specialization, completed courses, certifications); self-assessment of competences across 54 indicators using 7-point Likert scales; and activities in professional development (forms of continuous education, self-directed learning, and development barriers).

Competences were assessed using an adapted version of the Professional Competencies in Sport Psychology Scale [29], covering three domains: basic psychological competences (18 items), specialized adaptive sports competences (24 items), and professional-ethical competences (12 items); internal consistency was α=0.89. Employer expectations were evaluated using a structured questionnaire, which included ratings of competences and priority areas for professional development.

Longitudinal data were collected at three time points with 12-month intervals through online administration via a secure platform. Employer data were gathered through personal interviews with HR staff and focus groups with sports program managers (6-8 participants).

Statistical analysis was conducted in SPSS 29.0. Intergroup differences were analyzed using the Mann-Whitney U test and the Kruskal-Wallis H test. Competence dynamics were evaluated using the Friedman test. Relationships between variables were examined with the Spearman's correlation analysis. Qualitative data were analyzed through content analysis with the categorization of thematic units. The significance level was set at $p<0.05$.

The study protocol was approved by the institutional ethics committee, and all participants provided informed consent.

Results and Discussion

The data analysis has identified three groups of factors influencing the continuous professional development of psychologists in adaptive sports: individual, organizational, and structural. The results are presented below in an order that follows the logic of the research tasks.

The distribution of specialists across different forms of professional development shows considerable variability in both coverage and intensity of participation **(Table 1)**.

Table 1. Participation of specialists in forms of continuous professional development (n=115)

Forms of professional development	Participants, n (%)	Median annual frequency	IQR
Professional development courses	89 (77.4%)	1.0	0-2
Professional conferences	61 (53.0%)	1.0	0-1
Supervision	43 (37.4%)	6.0	2-12
International internships	18 (15.7%)	0	0-1
Mentoring	34 (29.6%)	4.0	1-8
Self-directed learning (literature, webinars)	103 (89.6%)	24.0	12-36

Correlation analysis revealed significant relationships between forms of professional development and levels of specialized competences **(Table 2)**.

Table 2. Correlations between professional development activities and competence levels (rs, n=115)

Forms of professional development	Basic competences	Specialized competences	Ethical competences
Work experience	0.31**	0.28**	0.24*
Professional development courses	0.38**	0.52**	0.41**
International internships	0.29*	0.61**	0.33**
Supervision	0.44**	0.49**	0.57**
Mentoring	0.40**	0.46**	0.51**
Self-directed learning	0.22*	0.35**	0.29**

*p<0.05; **p<0.01

The strongest correlations with levels of specialized competences were observed for international internships and supervision, whereas professional experience alone showed the weakest association with competence.

The analysis of intergroup differences by type of employer organization revealed significant disparities both in specialists' competence levels and in access to forms of professional development **(Table 3)**.

Table 3. Competence levels and access to professional development activities by organization type (Me, IQR)

Indicator	Paralympic centers (n=28)	Sports organizations (n=35)	Rehabilitation centers (n=32)	Educational institutions (n=20)	H (Kruskal-Wallis)
Specialized competences	5.8 (5.2-6.3)	4.9 (4.1-5.6)	4.6 (3.9-5.2)	4.3 (3.7-5.0)	18.4**
Access to supervision	4.2 (3.5-5.0)	2.8 (2.0-3.5)	2.4 (1.8-3.2)	2.1 (1.5-2.9)	22.7**
Funding for courses	3.9 (3.0-4.8)	2.5 (1.8-3.3)	2.2 (1.5-3.0)	1.9 (1.2-2.6)	25.1**
Access to mentoring	3.8 (3.0-4.5)	2.7 (2.0-3.4)	2.3 (1.7-3.1)	2.0 (1.4-2.7)	19.8**

**p<0.01

Specialists from Paralympic centers demonstrate significantly higher competence levels and greater access to all forms of institutional support for professional development compared to their colleagues from other types of organizations.

The content analysis of open-ended responses and data from the employer survey allowed to systematize the barriers hindering continuous professional development **(Table 4)**.

Table 4. Barriers to the continuous professional development of psychologists (n=115)

Barrier	Frequency of mentions, n (%)	Prevalence by work experience group
Lack of funding	87 (75.7%)	Evenly distributed across all groups
Shortage of specialized programs	79 (68.7%)	Higher among specialists with ≤5 years of experience
High workload	74 (64.3%)	Higher among specialists with 6-15 years of experience
Geographic distance from educational centers	58 (50.4%)	Higher among specialists from regional areas
Lack of a supervisor in the organization	52 (45.2%)	Higher among specialists in rehabilitation centers
Insufficient management support	47 (40.9%)	Higher among specialists in educational institutions

The most frequently reported barriers are structural (financial and infrastructural) and are least related to individual motivation.

A comparison of psychologists' self-assessments with employers' evaluations revealed a systematic pattern of discrepancies across a number of professional domains **(Table 5)**.

Table 5. Discrepancy between specialists' self-assessed competences and employer expectations (Me, IQR; the Mann-Whitney U test)

Competence domain	Specialists' self-assessment	Employer assessment	U	p
Knowledge of clinical conditions	4.2 (3.5-5.0)	5.8 (5.2-6.3)	312	<0.001
Adaptation of intervention methods	4.5 (3.8-5.2)	5.9 (5.4-6.4)	287	<0.001
Interdisciplinary collaboration	4.8 (4.0-5.5)	5.6 (5.0-6.1)	398	0.003
Basic psychological competences	5.4 (4.8-6.0)	5.5 (4.9-6.0)	891	0.412
Ethical competences	5.6 (5.0-6.2)	5.7 (5.1-6.2)	934	0.538

Significant discrepancies were found in domains directly related to the specifics of adaptive sports, while differences between self-assessment and employer expectations in basic and ethical competences were not statistically significant.

The results obtained allow a meaningful interpretation of the factors that determine the continuous professional development of psychologists in adaptive sports and align them with findings from international research.

The most significant individual predictor of specialized competence levels was not work experience, but specific forms of professional activity, namely, international internships and supervision [43, 44]. This finding aligns with the view that professional development is determined not by the duration of practice but by the quality of reflective engagement with experience, implemented through structured processes of supervision and mentoring [13, 45]. The mechanism behind this pattern is that supervision and internships provide systematic external feedback, which is unavailable through self-directed learning. This feedback helps identify blind spots in professional practice and correct them intentionally rather than randomly. The relatively weak correlation between work experience and competence suggests that without targeted learning and external feedback, accumulated experience does not automatically translate into professional growth. Practitioners may continue repeating familiar patterns without recognizing their limitations.

High engagement of specialists in self-directed learning (89.6%) combined with low access to structured forms, i.e. supervision (37.4%) and mentoring (29.6%), indicates that a significant portion of professional development occurs in an unorganized and largely ad hoc manner. Adaptive sports psychologists acquire critical skills mainly through informal practical experience rather than structured educational modules [31, 46], which leads to uneven quality of professional training and a high risk of burnout. This finding differs from the European experience: in leading specialist training programs for adaptive sports, supervised practice is a mandatory structural component, not an option [13]. The gap between the stated importance of continuous education and the actual availability of its structured forms represents a key systemic issue that must be addressed at the institutional rather than individual level.

Despite its widespread use, self-directed learning shows the weakest correlation with levels of specialized competences among all forms of professional development. This may be explained both by the lack of systematic topic selection in self-study and by the limited availability of materials on adaptive sports psychology. The shortage of empirical research in this area [22, 47] inevitably affects the quality of content that professionals can learn independently. Specialists relying on self-directed learning are forced to use materials designed for working with neurotypical athletes and adapt them on their own, without any guarantee that these adaptations are accurate.

The identified intergroup differences by type of employer organization show that access to institutional support is a powerful predictor of specialized competence levels. Specialists in Paralympic centers operate under fundamentally different conditions of professional development compared to their colleagues in rehabilitation and educational institutions. The competence-based model for training sports psychologists states that the organizational environment not only creates conditions for growth but actively shapes its content and direction [29, 48]. At the same time, the results of this study refine this thesis: organizational support does not act directly but through expanding access to specific forms of professional development (primarily supervision and mentoring) which are the immediate predictors of competence. In other words, the organization creates or limits opportunities, while the specialist either makes use of them or does not.

Geographic barriers to professional development deserve particular attention. Distance from educational centers and isolation from the professional community, typical of specialists in regional areas, cause structural inequality, where the workplace determines the trajectory of professional growth as much as, if not more than, individual effort and motivation. Professional development trajectories vary significantly depending on environmental characteristics [30, 49, 50], and this conclusion fully applies to the training system for psychologists. Overcoming this barrier requires more than isolated measures; it calls for the systematic development of remote supervision formats and the creation of regional professional networks, ensuring that specialists in regional areas have comparable access to professional development resources.

Statistically significant discrepancies between specialists' self-assessments and employer expectations were observed in domains unique to adaptive sports: the knowledge of clinical conditions and the adaptation of psychological methods. No significant differences were found in basic or ethical competences, indicating that general psychological training is adequate, but specialized knowledge is lacking. It is worth mentioning that this discrepancy may have a dual nature: on the one hand, it reflects a real deficit in competences not addressed by standard training programs; on the other hand, it may reflect inflated employer expectations that do not account for the objective limitations of the existing education system. The systematic shortage of empirical research on the mental health of Paralympic athletes [22, 51] partially explains why standard training programs do not provide sufficient levels of specialized competences: the evidence base for their targeted development is still underdeveloped. The positive effects of adaptive sports on psychological well-being [14, 52, 53] create additional expectations regarding the competence of psychologists working in this field, which amplifies the perceived gap between specialist training and practical requirements.

The use of purposive sampling limits the statistical generalizability of the results. The self-assessment of competences as the primary measurement method may be subject to systematic bias depending on the specialist's level of professional reflection: highly reflective specialists tend to underestimate their competences, while less reflective ones tend to overestimate them, which can distort observed correlations. The three-year period of longitudinal observation is insufficient to assess the long-term effects of different professional development trajectories. Future studies should include objective competence measurements, cover a broader geographic range, and examine long-term professional development outcomes in relation to performance indicators in work with athletes.

Conclusion

This study has identified a system of factors that determine the continuous professional development of psychologists in adaptive sports and established their relative importance. Contrary to the common belief that work experience is the key indicator of professional maturity, the strongest predictors of specialized competence levels were specific forms of educational activity: international internships, supervision, and mentoring. The organizational context is a significant determinant of professional growth: specialists in Paralympic centers demonstrate higher competence levels and have more access to institutional support for continuous education. Geographic distance and isolation from the professional community cause structural inequalities in professional development opportunities for specialists from regional areas.

The gap between self-assessed competences and employer expectations is selective. It mainly affects domains specific to adaptive sports (the knowledge of clinical conditions and the

adaptation of psychological methods), while no significant differences were found in basic and ethical competences. This indicates that the current system of psychological education provides a sufficient general professional foundation but does not ensure the specialized training required for effective work in adaptive sports.

The practical significance of the results lies in identifying directions for improving the system of continuous professional development: institutionalizing supervision and mentoring, expanding access to international professional exchange, developing remote formats for specialists in regional areas, and purposefully integrating specialized content on adaptive sports psychology into professional development programs.

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