

**ДЕНЕ ШЫНЫҚТЫРУ ЖӘНЕ СПОРТ САЛАСЫНДА МАМАНДАРДЫ ДАЯРЛАУ
ПОДГОТОВКА СПЕЦИАЛИСТОВ В ОБЛАСТИ
ФИЗИЧЕСКОЙ КУЛЬТУРЫ И СПОРТА
TRAINING OF SPECIALISTS IN PHYSICAL CULTURE AND SPORTS**

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**INTEGRATIVE DEVELOPMENT OF FUTURE PHYSICAL EDUCATION TEACHERS'
POTENTIAL THROUGH COOPERATIVE PEDAGOGY**

Abstract

Contemporary training of physical education teachers remains largely reproductive and authoritarian, so that the personal and professional dimensions of a student's development tend to form separately rather than as a unified whole, despite the humanistic aims proclaimed by current educational policy. This gap between declared values and actual practice constitutes the problem addressed by the article. The aim is to conceptually substantiate a set of mechanisms that ensure an integrative – rather than merely additive – coupling of the personal and professional potential of future physical education teachers within the paradigm of the pedagogy of cooperation. The study is theoretical and draws on analysis and synthesis of the scholarly literature, comparative and structural-functional methods, and modelling. Five basic mechanisms are identified and described: value-semantic resonance, subject-subject cooperation, reflexive-dialogical interaction, co-creative design of motor activity, and individualisation of the educational trajectory. A structural-functional model integrating the goal, content, procedural-mechanism and result components is proposed. The pedagogy of cooperation is shown to function not as a separate technology but as the environment that activates these mechanisms. The findings are of theoretical and methodological significance and can inform the design of teacher-training programmes and subsequent empirical research.

Keywords: pedagogy of cooperation; personal and professional potential; integrative development; future physical education teacher; subject-subject interaction; professional training; structural-functional model.

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**ЫНТЫМАҚТАСТЫҚ ПЕДАГОГИКАСЫ АРҚЫЛЫ БОЛАШАҚ ДЕНЕ
ШЫНЫҚТЫРУ МҰҒАЛІМДЕРІНІҢ ӘЛЕУЕТІН ИНТЕГРАТИВТІ ДАМУ**

Аңдатпа

Дене шынықтыру мұғалімдерін даярлаудың қазіргі үрдісі негізінен репродуктивті және авторитарлық сипатта қалып отыр, сондықтан қазіргі білім беру саясаты жариялаған гуманистік мақсаттарға қарамастан, студент дамуының жеке және кәсіби аспектілері біртұтас емес, бөлек қалыптасуға бейім. Жарияланған құндылықтар мен нақты тәжірибе арасындағы бұл алшақтық мақалада қарастырылатын мәселені құрайды. Мақсат – ынтымақтастық педагогикасы парадигмасы аясында болашақ дене шынықтыру мұғалімдерінің жеке және кәсіби әлеуетінің жай ғана қосынды емес, интегративті бірігуін қамтамасыз ететін тетіктер жиынтығын тұжырымдамалық тұрғыдан негіздеу. Зерттеу теориялық сипатқа ие және ғылыми әдебиеттерді

талдау мен жинақтау, салыстырмалы және құрылымдық-функционалдық әдістерге, сондай-ақ модельдеуге негізделген. Бес негізгі тетік анықталып, сипатталды: құндылықтық-мағыналық резонанс, субъект-субъектілік ынтымақтастық (кооперация), рефлексиялық-диалогтік өзара әрекеттесу, қозғалыс әрекетін бірлесіп жобалау және білім беру траекториясын дараландыру. Мақсатты, мазмұнды, процессуалдық-тетіктік және нәтижелік компоненттерді біріктіретін құрылымдық-функционалдық модель ұсынылды. Ынтымақтастық педагогикасы жекелеген технология ретінде емес, осы тетіктерді іске қосатын орта ретінде қызмет ететіні көрсетілген. Нәтижелер теориялық және әдіснамалық маңызға ие, сонымен қатар мұғалімдерді даярлау бағдарламаларын жасауға және кейінгі эмпирикалық зерттеулерге негіз бола алады.

Түйін сөздер: ынтымақтастық педагогикасы; жеке және кәсіби әлеует; интегративті даму; болашақ дене шынықтыру мұғалімі; субъект-субъектілік өзара әрекеттесу; кәсіби даярлық; құрылымдық-функционалдық модель.

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ИНТЕГРАТИВНОЕ РАЗВИТИЕ ПОТЕНЦИАЛА БУДУЩИХ УЧИТЕЛЕЙ ФИЗИЧЕСКОЙ КУЛЬТУРЫ ПОСРЕДСТВОМ ПЕДАГОГИКИ СОТРУДНИЧЕСТВА

Аннотация

Современная подготовка учителей физической культуры остается в значительной степени репродуктивной и авторитарной, из-за чего личностные и профессиональные аспекты развития студента, как правило, формируются раздельно, а не как единое целое, несмотря на гуманистические цели, провозглашаемые современной образовательной политикой. Этот разрыв между декларируемыми ценностями и реальной практикой составляет проблему, рассматриваемую в статье. Цель исследования — концептуально обосновать совокупность механизмов, обеспечивающих интегративное, а не просто суммативное (аддитивное) сопряжение личностного и профессионального потенциала будущих учителей физической культуры в рамках парадигмы педагогики сотрудничества. Исследование носит теоретический характер и опирается на анализ и синтез научной литературы, сравнительно-сопоставительные и структурно-функциональные методы, а также моделирование. Выделены и описаны пять базовых механизмов: ценностно-смысловой резонанс, субъект-субъектная кооперация, рефлексивно-диалогическое взаимодействие, со-творческое проектирование двигательной деятельности и индивидуализация образовательной траектории. Предложена структурно-функциональная модель, объединяющая целевой, содержательный, процессуально-механизменный и результативный компоненты. Показано, что педагогика сотрудничества функционирует не как отдельная технология, а как среда, активизирующая эти механизмы. Полученные результаты имеют теоретическое и методологическое значение и могут послужить основой для разработки программ подготовки учителей и последующих эмпирических исследований.

Ключевые слова: педагогика сотрудничества; личностный и профессиональный потенциал; интегративное развитие; будущий учитель физической культуры; субъект-субъектное взаимодействие; профессиональная подготовка; структурно-функциональная модель.

Introduction. The contemporary system of teacher education is undergoing a shift in its value orientations: from transmitting a sum of knowledge and motor skills toward the formation of a holistic professional personality capable of self-development, dialogue, and the creative transformation of educational practice. In the training of physical education teachers this shift is especially pronounced. For a long time, physical-education pedagogical training was built predominantly on a command-and-

reproductive model, in which demonstration, drilling, and outcome control prevailed, while the personal dimension of the future specialist's development remained on the periphery of attention.

The urgency of the problem is reinforced by worldwide trends toward the humanization and personalization of education, as well as by the priority given to preserving the health of the younger generation, which is enshrined in the educational policy of many states. Under these conditions the physical education teacher ceases to be merely a "coach-instructor" and becomes a conduit of health culture, an organizer of joint activity, and a mentor supporting the individual development of each pupil. Training such a specialist cannot rely on the former, predominantly reproductive foundations and requires a rethinking of the very mechanisms of professional-personal formation.

At the same time, the requirements placed on physical education teachers have changed substantially [1]. They are expected not only to master sport techniques and teaching methods but also to be able to build subject-subject relationships with learners, design individualized health-improvement trajectories, and work in a logic of cooperation and pedagogical support. This gives rise to a contradiction between the new functions of the profession and the still-prevailing authoritarian-reproductive character of professional training.

The key concept around which our study unfolds is the personal-professional potential of the future teacher [2] – an integral characteristic of the personality that unites its value-semantic, motivational, cognitive, activity-creative, and reflexive resources, which can be actualized in professional activity. The problem is that, in the real practice of university training, the personal and professional dimensions of this potential often develop in parallel and separately, whereas effective pedagogical activity requires their coupling and mutual interpenetration – in other words, their integration.

A productive theoretical and methodological foundation for solving this problem, in our view, is the pedagogy of cooperation – a movement that took shape in the second half of the twentieth century and is based on the principles of humanism, the creative interaction of teacher and pupil, learning without coercion, and joint goal-setting. Unlike individual methods, the pedagogy of cooperation sets a particular type of educational environment and relations, within which the formation of the person and of the professional prove to be inseparably linked.

Aim of the article. The aim is to theoretically substantiate and conceptually describe the mechanisms of the integrative development of the personal-professional potential of future physical education teachers on the basis of the pedagogy of cooperation, and to propose a generalizing structural-functional model of this process.

Research objectives:

- to clarify the content of the concepts "personal-professional potential" and "integrative development" as applied to the training of a physical education teacher;
- to reveal the heuristic potential of the pedagogy of cooperation as a methodological basis for integration;
- to identify and characterize the basic mechanisms of integrative development;
- to present a structural-functional model that unites the identified mechanisms.

Scientific novelty. The novelty of the study lies in the fact that the integrative development of the personal-professional potential of the future physical education teacher is considered for the first time not as the outcome of external influence exerted by separate technologies, but as a process launched by a specific set of mechanisms rooted in the environment of the pedagogy of cooperation. Here the pedagogy of cooperation is treated not as a method but as an environment-forming condition of integration.

Degree of elaboration of the problem. An analysis of the scholarly literature shows that each of the components of the phenomenon under study has been examined fairly thoroughly, yet their coupling remains insufficiently developed. The ideas of the pedagogy of cooperation, going back to the work of Sh. A. Amonashvili, V. F. Shatalov, S. N. Lysenkova, and their colleagues, reveal the humanistic foundations of subject-subject relations, learning without coercion, and the creative interaction of teacher and pupil [3, 4, 5]. The theory of a teacher's professional-personal formation (V. A. Slastenin, N.

V. Kuzmina, and others) substantiates the systemic character of professionalization and the role of professionally important qualities [6, 7]. The integrative approach in teacher education (E. O. Galitskikh and others) substantiates the wholeness of a specialist's professional and personal development [8, 9].

At the same time, in research on the training of physical education teachers, competency-based and methodological issues predominate [10], while the value-semantic, dialogical, and co-creative dimensions of formation are represented only fragmentarily. In most studies the pedagogy of cooperation is treated as a school technology rather than as a methodological foundation for university training [11]. There is thus an insufficient understanding specifically of the mechanisms through which cooperation ensures the integration of the personal and professional potential of the future physical education teacher. This defines the problem field of the present article.

Materials and Methods. This study is theoretical and analytical in character and does not involve empirical testing within the scope of this publication; its subject is the conceptual substantiation of the mechanisms of integration. Accordingly, the leading methods were theoretical methods of scientific inquiry.

The material of the study was a corpus of scholarly sources in three problem areas: (1) the theory and practice of the pedagogy of cooperation (the works of Sh. A. Amonashvili, V. F. Shatalov, S. N. Lysenkova, I. P. Volkov, S. L. Soloveichik, and others) [3, 4, 5, 12]; (2) the professional-personal formation and development of the teacher, and integrative approaches in teacher education (V. A. Slastenin, N. V. Kuzmina, E. O. Galitskikh, and others) [6, 7, 8]; (3) the professional training and formation of competence of future physical education teachers.

The following methods were applied in the work:

- theoretical analysis and generalization of the psychological-pedagogical and specialized literature, which made it possible to identify the state of elaboration of the problem and the categorical apparatus;
- comparative analysis of approaches to professional training (the reproductive and the cooperative), which revealed the limitations of the traditional model;
- the structural-functional method, used to identify the components of potential and the functions of each mechanism;
- the method of ascent from the abstract to the concrete, which provided the transition from the general concept of integration to specific mechanisms;
- modelling, by means of which the identified mechanisms are united into a holistic structural-functional model.

The logic of the study is built as a sequential movement – from an analysis of the contradictions and a clarification of the concepts, through a disclosure of the methodological potential of the pedagogy of cooperation, to the identification of the mechanisms and their synthesis into a model. The criterion for selecting the mechanisms was their capacity to ensure precisely an integrative (rather than a merely additive) coupling of the personal and professional dimensions of formation.

The reliability of the theoretical results obtained is ensured by reliance on the fundamental tenets of humanistic pedagogy, the theory of professional-personal development, and the integrative approach, as well as by the internal consistency of the concept that has been constructed and the coherence of the identified mechanisms with the essential characteristics of physical-education pedagogical activity.

Results. We understand the personal-professional potential of the future physical education teacher as a dynamic system of internal resources that ensures productive professional self-realization. It is useful to distinguish five interrelated components in its structure: the value-semantic component (pedagogical values, the meanings of physical-education activity, a humanistic orientation), the motivational component (a stable interest in the profession, a striving for growth), the cognitive component (subject-matter, psychological-pedagogical, and methodological knowledge), the activity-creative component (motor, didactic, and projective skills, readiness for innovation), and the reflexive component (the capacity for self-assessment, self-analysis, and self-regulation).

It is essential to distinguish between the additive (summative) and the integrative development of these components. Under an additive approach, each component is formed autonomously: physical

training separately, methodology separately, "educational work" separately. Integrative development presupposes the emergence of a systemic quality that cannot be reduced to the sum of the parts: values permeate activity, reflection restructures motivation, knowledge becomes personally appropriated. It is precisely this quality that we denote as the integration of the personal and professional dimensions of potential.

Integration, then, is not a mechanical joining but a mutual interpenetration and mutual reinforcement of components, in which the development of the person and the development of the professional turn out to be two sides of a single process. The task of professional training is to create conditions under which such integration is triggered regularly rather than by chance.

The specific nature of physical-education pedagogical activity makes the requirement for integration especially evident. The physical education teacher acts "bodily," in full view of learners, in a situation of direct interaction where a mismatch between declared values and actual behaviour cannot be concealed. Formally assimilated knowledge about humanism is of no use if, in the tense situation of a lesson, the teacher reverts to an authoritarian style. It is therefore particularly important in this profession that values, knowledge, and modes of activity be not merely juxtaposed but fused into a stable personal-professional stance. This confirms that an additive logic of training is fundamentally insufficient here, and that integration is not a desirable addition but a necessary condition of professional competence.

The Pedagogy of Cooperation as a Methodological Environment of Integration

The pedagogy of cooperation is a system of methods and techniques of upbringing and instruction based on the principles of humanism and a creative approach to the development of the person [13]. Its main tenets include treating learning as the creative interaction of teacher and pupil, instruction without coercion, the idea of the "difficult goal," the use of supports, freedom of choice, and the subject-subject character of relations. Cooperation is understood as the joint activity of interacting subjects, characterized by co-presence, unity of purpose, and the distribution of functions.

For physical-education pedagogical training these tenets are especially productive. Motor activity is by its nature dialogical and cooperative: learning a movement, a sports game, spotting, and joint training all inherently require partnership. In traditional training, however, this cooperative potential is suppressed by the command-and-control model. The pedagogy of cooperation makes it possible to restore to motor activity its humanizing meaning, while allowing the future teacher to master precisely those relations that he or she will later reproduce with his or her own pupils.

The key thesis of our study is that the pedagogy of cooperation functions not as one technology among others but as the environment within which the launching of the mechanisms of integration becomes possible. Relations of cooperation simultaneously develop the student's personality (as a subject of dialogue) and his or her professionalism (as a bearer of a mode of activity), thereby ensuring the coupling of both dimensions of potential.

An environmental understanding differs fundamentally from an instrumental one [14]. A technology can be applied locally, "switched on" in one class and "switched off" in the next; an environment, by contrast, characterizes a stable pattern of relations that permeates the entire educational process. It is precisely the stability and all-pervasive character of the environment of cooperation that ensures a cumulative, rather than a one-off, effect of integration: time and again the student finds himself or herself in the position of a subject, of dialogue, of co-creation, and these recurring situations gradually crystallize into stable personal-professional new formations. In this sense the pedagogy of cooperation performs the function of a kind of "generator" of the mechanisms of integration, setting them in motion each time joint activity is organized.

Comparative Analysis of the Reproductive and Cooperative Models of Training

To reveal the transformative effect of the pedagogy of cooperation, it is useful to compare two types of organization of the professional training of the future physical education teacher – the command-reproductive and the cooperative – across a number of essential parameters (Table 1). The comparison reveals that the difference lies not in individual techniques but in a fundamentally different type of relations, which sets different vectors for the development of potential.

Table 1. Comparison of the Reproductive and Cooperative Models of Training

Parameter	Command-Reproductive Model	Cooperative Model
Student's position	Object of influence, executor of assignments	Subject of joint activity, co-author
Type of relations	Subject-object, hierarchical	Subject-subject, dialogical
Motivation	External (grade, norm, requirement)	Internal (interest, personal meaning)
Character of knowledge	Formally assimilated, alienated	Personally appropriated, meaningful
Development of potential	Additive: components form separately	Integrative: components interpenetrate
Outcome	Mastery of technique and methodology	Readiness for cooperative, humanistic activity

The comparison shows that the transition to the cooperative model changes not so much the content as the manner in which it is mastered, and, with it, the character of the development of potential. It is precisely this transition that creates the conditions for the action of the mechanisms of integration, to whose analysis we now turn.

Mechanisms of Integrative Development

By a mechanism of integrative development we mean a regular connection of conditions, actions, and internal processes through which the environment of cooperation is transformed into new formations of personal-professional potential. On the basis of the analysis conducted, five basic mechanisms have been identified.

The mechanism of value-semantic resonance. Joint activity within the environment of cooperation creates situations in which professional values (health, fair play, the development of each individual) are personally experienced by the student rather than formally assimilated. Resonance between personal meanings and professional values transforms an external requirement into an internal stance, coupling the value-semantic (personal) and motivational (professional) components of potential. In training practice this mechanism is actualized, for example, when a student, helping a less prepared peer to master a movement, experiences the value of pedagogical support for the first time – not as a theoretical thesis but as his or her own success and the other's joy; such an experience fixes a humanistic orientation more firmly than any normative requirement.

The mechanism of subject-subject cooperation. Replacing the "instructor-executor" relation with the partnership of "co-actors" moves the student into the position of a subject of his or her own training. By mastering cooperative formats (peer teaching, work in pairs and small groups, joint spotting and refereeing), the future teacher simultaneously develops the communicative-organizational qualities of the person and the professional skills of organizing the joint motor activity of pupils.

The mechanism of reflexive-dialogical interaction. Systematic dialogue, feedback, and joint analysis (what worked, why, how else it could be done) trigger reflection as a means of restructuring experience. The reflexive component, being personal in nature, here directly serves professional growth, ensuring the transformation of spontaneous experience into conscious methodological competence.

The mechanism of co-creative design of motor activity. The joint creation of sets of exercises, games, lesson scenarios, and health-improvement programmes unites the activity-creative component with the value and cognitive components [15]. Co-creation excludes reproduction: the student does not reproduce a model but generates something new in dialogue, which constitutes the core of the integration of knowledge, skill, and personal initiative.

The mechanism of individualization of the educational trajectory. Freedom of choice and pedagogical support make it possible to build an individual route of development based on the student's

strengths. Individualization couples motivation and activity, ensuring equifinality – the attainment of a high level of professional mastery by different personal paths.

It is essential that the identified mechanisms are not isolated but form a mutually reinforcing loop: value resonance feeds cooperation, cooperation supplies material for reflection, reflection directs co-creation, co-creation and support individualize the trajectory, and individualization in turn strengthens personal meanings. It is precisely this cyclicity and interconnection of the mechanisms that ensures the stability of the integrative effect.

Each of the mechanisms can be associated with the components of potential it predominantly affects; however, none of them operates in isolation within the bounds of "its own" component – and it is precisely in this that their integrative nature consists. Value-semantic resonance, while addressed primarily to the value sphere, simultaneously restructures motivation; reflexive-dialogical interaction, while serving reflection, deepens the cognitive and activity dimensions. Each mechanism thus functions as a "bridge" between several components, and their totality forms a dense network of connections that turns disparate elements into an integral system. This is precisely why an attempt to introduce a single mechanism in isolation from the others yields only a partial and unstable result.

Pedagogical Conditions for the Implementation of the Mechanisms

The action of the identified mechanisms is not automatic: it requires the creation of special pedagogical conditions under which the environment of cooperation becomes developmental. On the basis of the analysis, the following conditions have been identified.

- A humanistic stance on the part of the instructor, who accepts the student as an equal subject and abandons an authoritarian style in favour of pedagogical support.
- The saturation of the content of training with situations of joint motor activity (peer teaching, work in pairs and groups, joint refereeing and spotting), in which cooperation becomes the norm.
- The systematic organization of reflection and dialogical feedback after each significant stage of activity.
- Granting the student freedom of choice (of topics, roles, task options) and the right to make mistakes, as a condition for subjectivity and for the individualization of the trajectory.
- Orienting assessment toward individual progress and the quality of interaction, rather than toward the normative result alone.

The totality of these conditions turns declared cooperation into a genuinely functioning environment that triggers the mechanisms of integration. The absence of even one of these conditions (for example, the retention of normative-controlling assessment) can block the integrative effect, returning the process to an additive logic.

Structural-Functional Model

Generalizing the identified mechanisms makes it possible to represent the process as a structural-functional model comprising four interrelated blocks (components), set out in Table 2.

Table 2. Structural-Functional Model of the Integrative Development of Personal-Professional Potential

Model Component	Content	Leading Mechanisms / Functions
Goal	Integration of the personal and professional dimensions of potential as a systemic new formation	Sets the direction of the process; the humanistic teacher-professional as the point of reference
Content	The value-semantic, motivational, cognitive, activity-creative, and reflexive components of potential	Filled through value-semantic resonance and co-creative design
Procedural-mechanism	The environment of the pedagogy of cooperation; subject-subject relations,	Five basic mechanisms: resonance, cooperation,

	dialogue, freedom of choice	reflection-dialogue, co-creation, individualization
Result	Integrated personal-professional potential; readiness for cooperative professional activity	Equifinality: a high level of mastery attained by individual paths

The model reflects the wholeness of the process: the goal block sets the vector; the content block defines the subject matter of development; the procedural-mechanism block reveals the driving forces (the mechanisms proper); and the result block fixes the expected new formation. The procedural-mechanism block is system-forming, since it is precisely this block that turns potential integration into actual integration. Feedback loops between the result and content blocks ensure a developmental spiral: the level attained becomes the basis for a new cycle.

Discussion. The results obtained are consistent with the tenets of the integrative approach in teacher education, according to which the wholeness of a specialist's professional and personal formation is achieved through the integration of the content and conditions of training rather than through their summation. At the same time, the concept proposed here introduces a refinement: the source of integration is not so much integrated curricula as a type of relations – the environment of cooperation that triggers the described mechanisms.

Compared with studies that treat the pedagogy of cooperation predominantly as a school technology, the present study reconceives it as a methodological foundation for university training and as a means of overcoming the authoritarian-reproductive model of physical-education pedagogical education. This makes it possible to combine two traditions – the humanistic pedagogy of cooperation and the integrative approach to professional-personal development – within a single explanatory framework.

Particular attention should be paid to what may be called the transitive effect: by mastering the relations of cooperation as a student, the future teacher assimilates not only a mode of his or her own development but also a model of professional activity, which he or she subsequently reproduces with his or her own pupils. Integration of the personal and professional dimensions in university training thus becomes the basis for the continuity of humanistic pedagogy at school. This effect gives the proposed model not only diagnostic but also projective significance: it indicates precisely which relations should be cultivated in training so that they are transmitted into the graduate's future practice.

Finally, it is important to emphasize the non-linearity of the process under consideration. The mechanisms of integration operate not sequentially but in parallel and cyclically, mutually reinforcing one another; pedagogical design should therefore be oriented not toward individual techniques but toward building a holistic environment in which all the mechanisms can unfold simultaneously. It is precisely this environmental, rather than technological, character of the solution that distinguishes the proposed approach from local methodological recommendations.

Limitations of the study stem from its theoretical character: the proposed model and mechanisms require empirical verification, the development of diagnostic instruments, and a criterion-level scale for the formedness of integrated potential. This outlines the prospect for further work, including experimental testing and the creation of methodological support for implementing the mechanisms in the practice of training future physical education teachers.

Recent international scholarship offers partial, indirect support for several elements of this framework, while also indicating where the picture is more mixed than the present theoretical model might suggest. A systematic review of intervention studies on cooperative learning in school physical education found consistent positive outcomes in the social and affective domains, but only partial and inconsistent evidence for the physical and cognitive domains, and stressed that outcomes depend heavily on the specific cooperative strategy applied rather than on cooperation as such [16]. A qualitative study of cooperating teachers in physical education teacher education likewise confirms that structured cooperative relationships between experienced and pre-service teachers shape the professional identity of the latter, lending some support to the idea of a “transitive effect” proposed above, though that study

examined identity formation specifically rather than the integration of personal and professional potential as such [17]. At a more systemic level, a recent international project on collective action across physical-education teacher-education programmes in seven European countries treats cooperative, dialogical formats as an environmental rather than a purely technological condition of teacher formation, a framing broadly consistent with the environmental interpretation of the pedagogy of cooperation advanced in this article [18]. On the mechanism of reflexive-dialogical interaction specifically, a year-long action-research study of pre-service physical education teachers found that structured, facilitator-supported reflection allowed students to deconstruct and re-signify their initial, often superficial, understanding of reflection over successive practicum cycles [19], while a study of in-service physical education teachers in Germany identified persistent tensions between movement-based and intellectual modes of reflective practice that any model relying on reflection as an integrative mechanism should take into account [20]. On the mechanism of individualization of the educational trajectory, a recent account of a narrative, choice-based redesign of a physical education teacher-education course offers one concrete illustration of how individual learning pathways might be built into a cooperation-based curriculum, though as a single-course case study its findings are illustrative rather than generalizable [21]. On the mechanism of subject-subject cooperation, a collaborative self-study of two teacher educators re-designing how planning is taught in physical education teacher education shows how making the teacher educators' own planning processes visible and co-examined with students can shift a traditionally one-directional aspect of training toward a more dialogical one, though the study describes a single course context and does not measure downstream effects on students' personal-professional potential [22]. On the mechanism of co-creative design, a first-person autoethnographic account of co-developing, co-teaching, and co-researching a physical education teacher-education course with students offers a detailed illustration of what sustained co-creation between teacher educator and students can look like in practice, while also, as autoethnography, being subject to the interpretive and generalizability limits inherent in that method [23]. Finally, on the mechanism of value-semantic resonance, a systematic review of thirty-three studies on values promoted in physical education teacher training found that moral, prosocial, and reflective values are most often fostered through active methodologies such as service-learning, reflective diaries, and moral dilemmas, and that most of this evidence base is qualitative and concentrated in a small number of countries, which limits how far its findings can be generalized to the mechanism described here [24]. None of these nine studies tests the five mechanisms proposed here directly, and none focuses specifically on physical education teacher training within the pedagogy-of-cooperation tradition described above; they are cited as adjacent evidence that motivates, rather than confirms, the present theoretical model.

Conclusion. The theoretical and analytical examination conducted makes it possible to formulate the following conclusions.

First, the personal-professional potential of the future physical education teacher constitutes a system of five interrelated components, whose productive development should be integrative rather than additive: what is at stake is the mutual interpenetration of the personal and professional dimensions of formation.

Second, the pedagogy of cooperation is substantiated as a methodological environment of integration: its subject-subject, dialogical, and co-creative character corresponds to the nature of motor activity and creates the conditions for coupling both dimensions of potential. It functions not as a separate technology but as an environment-forming condition.

Third, five basic mechanisms of integrative development have been identified and characterized – value-semantic resonance, subject-subject cooperation, reflexive-dialogical interaction, co-creative design of motor activity, and individualization of the educational trajectory – forming a mutually reinforcing cycle.

Fourth, a structural-functional model has been proposed that unites the goal, content, procedural-mechanism, and result components and reveals the logic by which the environment of cooperation is transformed into an integrated new formation of potential.

The theoretical significance of the results lies in the development of ideas about the mechanisms of integrating the personal and the professional in the training of a teacher; the practical relevance lies in the possibility of designing, on this basis, professional-training programmes and subsequent empirical studies aimed at testing and operationalizing the proposed model.

In applied terms, the conclusions obtained make it possible to formulate a number of guidelines for the organizers of the professional training of future physical education teachers: to build the content of subject-methodological disciplines around situations of joint motor activity; to systematically include reflexive-dialogical formats in the structure of practical classes and teaching practice; to provide students with room for choice and co-creation in developing sets of exercises, games, and health-improvement programmes; and to reorient the assessment system from recording the normative result toward supporting individual progress and the quality of interaction. Implementing these guidelines creates an environment in which the described mechanisms operate regularly, and the integration of personal and professional potential becomes a managed, rather than a spontaneous, process.

Prospects for further research are connected with the empirical verification of the proposed model, the development of criteria and levels for the formedness of integrated personal-professional potential, and the creation and testing of methodological support that implements the identified mechanisms in the real educational process of a pedagogical university.

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