SCIENCE CONNECTS PEOPLE

INTERNATIONAL SCIENTIFIC JOURNAL OF

2026 / No. 1(2)

Contemporary Pedagogical and Philological Research

DIDACTIC FOUNDATIONS OF INTEGRATIVE TEACHING OF PEDAGOGICAL DISCIPLINES

Akhmedova Kamuna Mukhammadkhodjaevna

Doctoral candidate at Kokand State University

ORCID: 0009-0009-9292-2494

Abstract. The article conceptually analyses the didactic foundations of integrative teaching of pedagogical disciplines. A shared topic is distinguished from substantive integration. Six principles connect problems, disciplinary contributions, activities and assessment. A model for developing a shared pedagogical decision is proposed, with criteria for examining it and limits to its practical application.

Keywords: integrative teaching, pedagogical disciplines, interdisciplinarity, didactic principle, curriculum content, pedagogical decision

INTRODUCTION

The issue of integrative teaching of pedagogical sciences poses a broader didactic task than simply placing several subject topics into a single lesson. A future teacher must link knowledge related to defining educational goals, organizing learning activities, understanding the educational situation, and evaluating results in a professional decision. If concepts learned from individual subjects do not influence each other in decision-making, they can stand side by side around a common topic. This article considers integration as a problem of designing this influence. The issue to be studied is not to increase the number of subjects, but to determine how their contribution becomes a verifiable pedagogical solution.

In local literature, the integrative approach is discussed within the framework of various pedagogical directions. N. Maqsudova considers linking pedagogical and psychological knowledge with professional situations, problematic tasks, and project activities in teaching specialized pedagogical subjects [1]. N. Oblakulova discusses the pedagogical and psychological foundations of interdisciplinary integration, the

SCIENCE CONNECTS PEOPLE

continuity of educational content, and the necessity of planning [2]. From these works, the idea of posing a general problem and linking the content to this research is derived. The judgments about effectiveness presented in them are not automatically transferred to future history teachers; special justification and verification are necessary for the new context.

Conceptual clarity is needed in defining integration. J. T. Klein identifies the juxtaposition of sciences, their merging in content, and transdisciplinary synthesis as different relationships; he argues that classification depends on purpose and context [7]. This distinction is translated into an operational question in the paper: does removing the contribution of one discipline change the basis of the final pedagogical decision? If it does not, science may be merely serving as an example or ornament. This question does not measure the degree of integration with a finished score, but provides a benchmark for checking the internal connection of a project.

It is not enough to assume that the pedagogical sciences serve the same professional activity, that integration between them occurs naturally. Didactics can illuminate the content and methods of teaching, the theory of education can illuminate tasks oriented towards relations and values, and the history of pedagogy can illuminate the historical conditions of ideas and practice. This functional separation is the working map of this article. The repetition of one topic in the curriculum does not yet indicate the generality of the decision. Even the same term can answer a different question in different disciplines; therefore, integrative training must also reveal the conditions for the application of concepts.

The key question of the research is how the connection between the disciplines of pedagogy can be used by didactic principles to ensure both the clarity of knowledge and the integrity of the professional decision at the same time. The aim is to develop a model that connects the common problem, the contribution of science, the sequence of activity and the evidence of evaluation. The theoretical novelty is proposed in that

integration is interpreted not as a separate method or lesson form but as the design of the knowledge relation necessary to justify a decision. The model does not seek to replace the curriculum completely; its unit is an integrative learning module focused on a specific professional task.

In this approach, the application of pedagogical knowledge for the student of the history direction is centered. The student's knowledge of the historical topic, the fluency of his educational intention, and the technical planning of the lesson may not be compatible. For example, the lesson in which the purpose of drawing independent conclusions is written may require only the return of a finished interpretation. This conditional contradiction indicates the need to examine the didactic rather than the organizational quality of the interdisciplinary connection. It is recommended that the integrative module serve to find such a discrepancy between content, objective, and assignment and to make a justified correction.

METHODS

The research was carried out on the basis of theoretical-didactic analysis and conceptual modeling. The unit of analysis was taken as a pedagogical decision based on their knowledge rather than the external structure of a lesson in which several disciplines participate. The decision included the objective, description of the situation, the concept to be applied, the action to be performed by the student, the final product, and the criterion for revision. It was examined how each component relates to the other. On this basis, the six didactic principles of integration and the observational arguments for them were developed. The principles are theoretical propositions and are not presented as laws established in practice.

Local pedagogical research, work related to the competency and integrative approach in Russia, British analyses of educational content and international interdisciplinary theories were compared. The competition was based on the publication's relevance to the topic, the examination of bibliographic requisites, and the

SCIENCE CONNECTS PEOPLE

presence of a text or annotation. This corpus is not considered a complete systematic review of the literature. When ideas about geography, technical higher education, and doctoral studies were transferred to pedagogical sciences, their contextual boundaries were kept separate; different levels of education were not considered the same environment.

In the analysis, three relationships were compared: parallel teaching on a common topic, coordinating the content of subjects in terms of time, and co-creating the foundations of a common solution. The first relationship may indicate topic proximity, the second may indicate organizational consistency, and the third may indicate content integration. These relationships were not set as a strict bottom-up step for all situations. For example, the initial assimilation of a new concept within an independent subject may be necessary for subsequent integrative work. The purpose of comparison is not to give a title to the lesson, but to determine which link fulfills what learning function.

The internal consistency of the model was checked by temporarily removing the component. If there is no common problem, the material of the subjects can be assembled without interrelation; unless the contribution of science is identified, the source of knowledge in the final product is not visible; unless the evidence for evaluation is specified, the existence of integration is confirmed only by the intent of the teacher. These mental actions do not substitute for actual student outcomes. They reveal which relationship is being claimed to be necessary in the model. A necessary condition and a sufficient condition are distinguished: the fact that all elements are planned does not yet prove that the lesson will actually be successful.

Conditional didactic situations were designed to accurately represent the model. They do not provide empirical information about the existing curriculum, a specific university group, or an observed student. The validity of the situations should be verified with relevant subject teachers and students when implementing them in

SCIENCE CONNECTS PEOPLE

practice. The study did not include a survey, experiment, statistical comparison of groups or a coefficient of effectiveness. The result consists of a matrix of principles, a sequence of module construction, and suggestions for evaluation. Which aspects of the model can be modified for further empirical verification will be indicated in the discussion.

In interpreting the evidence, the authors' opinions differed from the recommendations of this paper. Where the source presented a theoretical argument in favor of integration, it was not used as an empirical proof of universal effectiveness. Similarly, arguments defending the boundaries of science were not interpreted as rejecting any form of integration. Opposing emphases were compared to determine the conditions of pedagogical design. This method was used as an analytical approach that allowed us to specify the scope of the proposition, rather than simply selecting sentences from sources that support it.

RESULTS

Integrative teaching has been defined as a method of organizing education in which the differentiated knowledge of pedagogical disciplines is selected, interoperable, and evidenced in a single decision, to solve a common professional problem. Unity in the definition is not formed by the homogenization of knowledge, but by the connection of the tasks they perform. For example, in the task of responding to a pupil’s incorrect answer, the substantive cause of the error, the method of feedback, and the requirement for respect for the individual are considered together. Each aspect limits and enriches a decision; none of them can fully replace the other.

The principle of a common problem and a clear outcome implies building the module from the required professional decision. Instead of a broad topic such as "Education and Education", a question could be chosen as "How to help a student see their mistake without directing them to a ready-made answer?" This conditional question combines didactic analysis, a standard of communication, and a method of

support. The final product, however, will not be a general abstract, but a text of feedback based on the student's answer, along with an explanation of it. This representation of the outcome provides a basis for deciding which knowledge is necessary.

The principle of subject-specific precision requires that the concepts and methods of justification of sciences be maintained. U. Danilova discusses the relationship between the interdisciplinary and the integration of knowledge in an integrative approach with professional culture [3]. In our model, the common question should not lead to the dominance of one language of science over another. For example, student engagement is not equated with the number of speeches and the educational outcome is not equated with the completion of an assignment. Each concept is clearly written about which phenomenon it represents and how it can be demonstrated.

The principle of content consistency implies the sequential acquisition of the necessary knowledge and practice. If the student is not yet able to distinguish a concept, it may not be justified to expect them to analyze a complex pedagogical situation using that concept. Therefore, the module first identifies the subject knowledge necessary to understand the situation, and then works on their connection. This sequence does not require teaching all subjects at the same time. If a certain concept was studied in the previous course, a brief reactivation task may suffice; for the missing knowledge, a specific supporting material is provided.

The principle of openness of knowledge transfer indicates which concept was obtained from where and how it was changed in a new situation. A. Khutorskoy distinguishes competence as an external educational requirement, and competence as a set of personal qualities related to acting in accordance with that requirement [4]. Based on this distinction, the requirement in the module description is not equated with the student's actual product. The student does not prove that he applied the theoretical rule in accordance with the situation. The argument for application is manifested in the

decision: which option was chosen, why it was chosen, and why the other option was not sufficient, is stated.

The principle of collaborative work and individual justification distinguish between a group product and an individual's learning. In an integrative task, where one performs the content, another the form, and the third the presentation, the final work may appear as a whole. However, the fact that each participant understands the knowledge link does not directly follow from this. This is why after a group project, each student independently justifies a choice or revises a decision for a changed situation. An individual argument does not cancel out the collaboration within the group; it is a supplementary product that shows how the result of the collaboration has been absorbed by the student.

Table 1. Principles of integrative teaching and their didactic examination

Principle	Loyihalash savoli	Learning product	Check mark
Common problem	What decision is needed?	Muammo tavsifi	The result is clear
Subject accuracy	What does each subject provide?	Knowledge contribution map	The concept is appropriate.
Content consistency	What is the foundation of knowledge?	Sequence of tasks	The basics are sufficient
Open migration	How was knowledge applied?	Explanation of the decision	Link-based
Individual asoslash	Does Kim Nimani have anglagan?	Personal edit	There is an independent comment
Appropriate assessment	Which evidence will be examined?	Feedback record	The criterion is purpose-oriented.

The principle of consistency of evaluation and revision requires that the final product be checked in accordance with the objective of integration. If only subject-specific knowledge questions are asked, the interdisciplinary link itself may be obscured. If only the appeal of the presentation is assessed, a substantive error may be hidden. The proposed examination assesses the accuracy of the problem, the contribution of each discipline, the appropriate application of the concept and the revision of the decision. The criteria are explicitly stated in advance, but their exact

score weighting is not specified in the theoretical work in question. The table shows a working matrix linking the principle to practical evidence.

The six principles are not independent sections of the module. The common problem affects the knowledge choice, the knowledge choice affects the activity, and the activity affects the assessment argument. For example, if the goal is to support the student's independent argument, the memorization of a prepared argument cannot be the main product. If the assessment remains unchanged, adding new subject material to the lesson may not enhance the content of the integration. Therefore, the outline of the module is constructed as a project whose elements are re-examined, rather than a one-way list. The impact of each correction on subsequent elements is considered.

To develop the module, a sequence of "problem, knowledge contribution, joint action, reasoned decision, edit" is proposed. First, the conflict in the professional situation is identified. Then it is written down which side of this conflict each subject would unravel. Then an action is defined in which students use knowledge simultaneously: comparison, creating an alternative solution, or defining the conditions of the decision. At the end the basis of the choice is written down and reviewed after new information is provided. This order is not a universal lesson algorithm; the teacher can shorten or revert to a stage according to the situation.

Terminology reconciliation can be organized as a separate subtask of the module. Students explain the use of the word "independence," "activity" or "outcome" within each subject with a brief example. It is then determined that two judgments using the same word are not identical in meaning. This lexical work does not have to end with a general definition; it is agreed which meaning should be used in which situation while maintaining the difference. The result is that conceptual inconsistency is not seen as a personal defect of the student, but as a didactic issue that needs to be addressed in the transition between subjects.

In a conditional example to train a history teacher, the student is given a brief answer about a historical document. The answer assumes that the content of the text is correctly noted, but the conclusion about the author's intention is written without evidence. From a didactic point of view, the student is asked to identify the place of the error and choose the next intellectual action. In the analysis of the theory of education, a form of communication that does not devalue the student's opinion is discussed. Within the framework of pedagogical technology, questions are developed that gradually reduce assistance. All three contributions must be harmonized in a single feedback text.

The final product of this sample is not limited to the general recommendation "Analyze better." The student suggests questions that help the student select a phrase in the document, relate it to the author's situation, and carefully rewrite the conclusion. He then explains the purpose of each question. If polite communication loses the content requirement or the content requirement is expressed in a way that disparages the reader, the integrative decision is reconsidered. The example is not the result of a conducted exercise; it is a didactic project that shows how theory, activity, and criterion meet in a decision.

An alternative example could be a small educational activity plan for a school museum. The student selects the historical content, determines the work the student will do independently, sees the requirement for respectful communication in working with personal memory, and justifies how he or she evaluates the product. The history of pedagogy may open the question here about not hastily evaluating the old-school experience by today's standards. However, the museum visit itself does not constitute evidence of integration. The evidence is presented in the written basis of the relationship between the selected material, the student's action, and the pedagogical goal.

To check the transfer of knowledge to a new situation, not only the external topic of the initial task is changed, but also the decision condition. For example, the student

is given the task of rescheduling assistance for a student whose language of the document is difficult to understand. He adapts the text explanation or the scope of the question while preserving the historical operation to be studied. Here, success is not defined as simply easing the task. The student explains which obstacle he has reduced and what intellectual requirement he has retained. Such an explanation may indicate that the interdisciplinary knowledge has been processed according to the situation.

A resource map is also proposed for the integrative module. It connects the key concept, the short text, the conditional situation, the product sample and the evaluation question. It is not recommended to add the resource to the module until the purpose of the resource is defined. Otherwise the abundance of colourful material may obscure the underlying problem. The map is a project tool that helps the teacher see which element is being repeated and which necessary framework is missing. Its effectiveness should be checked separately; the mere existence of an orderly list of resources does not indicate that the student has achieved a holistic knowledge.

DISCUSSION

The relationship between integration and the depth of subject knowledge is the main theoretical constraint of the proposal. M. Young's understanding of knowledge-oriented learning content as merely a proper list of information suggests that the teacher loses the task of pedagogically developing the content [5]. D. Lambert, on the other hand, considers access to specialized knowledge and the teacher's preparation for the subject as an important issue of the curriculum [6]. These arguments justify the requirement not to reduce the content of knowledge in an integrative module in favor of general skills. Integrating content must create a new task for its thorough assimilation.

At the same time, understanding integration as merely a bridge between disciplines may fail to see some implicit justifications for the decision. A. Montuori sees research in integrative transdisciplinarity as a creative process, emphasizing the

reflection of the researcher's theoretical views and assumptions [8]. His discussion is relevant to the doctoral context; it is not transferred to the undergraduate study as a finished outcome. The limited idea that can be derived from it for this paper is that the student must also state a implicit hypothesis of the pedagogical solution chosen. For example, the assumption that "All students will understand this text the same way" requires verification.

The normative requirement of integrative education is also taken into account. The decision about which pedagogical outcome to prefer is not just a technical issue: it contains choices about the student's autonomy, the complexity of the content, and the form of collaboration. The model recommends discussing such choices without hiding them. For example, a quickly completed group assignment may not fully demonstrate individual understanding. Time savings, a beautiful product, or active participation are therefore not made the sole criterion of integration. Each preference must be justified by the preference for which learning objective it is.

From the point of view of curriculum management, it is not claimed that it is desirable to turn all topics into integrative modules. Certain concepts may initially require a consistent explanation of individual subject logic. When selecting modules, consideration is given to the common professional problem, the need for the contribution of the sciences and the possibilities available for teacher collaboration. In this way integration will not be a means of eliminating differences in the curriculum. It is used as a limited form of teaching the link between knowledge to be used together in professional activity. It is recommended that the basis of the choice be clearly stated in the programme document.

Another constraint on implementation in practice is the allocation of study time. When additional material is included in an integrative assignment, the amount of independent study of the student also changes. It is therefore recommended that the planning of the module indicate which task incorporated or shortened the previous

work. Integration should not become an unexplained burden for the student. It is proposed at project level that it is possible to construct a meaningful module with a short text, a simple description of the situation and written editing, even in conditions where resources are scarce; the presence of complex technology is not a mandatory criterion.

Although teachers' cooperation is an organizational condition for integration, conducting a joint lesson alone does not guarantee a substantive outcome. In cooperation, a common product, the knowledge and criteria for which each subject is responsible must be agreed upon. If disagreements are not discussed before the assignment begins, a student may not understand why another rejected a solution approved by one teacher. The recommended solution is not to prepare a single standard answer, but to make the basis for differing grades clear. If the decision is based on a balance between several criteria, this balance must also be understandable to the student.

There is a risk of equating integration in assessment with the aggregate sum of individual subject knowledge. The student may have written the correct sentences for each subject and failed to indicate their impact on the decision. To determine this, it is suggested that an explanatory question be used, "What changes in your solution if this concept is removed?" The question focuses on the student’s reasoning rather than the assessor’s assumption. However, its diagnostic sensitivity has not yet been measured. It is therefore appropriate to test the criterion initially as a means of qualitative analysis and feedback.

Two strands are devoted for further research. The first is the content expertise of the module: specialists from various pedagogical disciplines check the appropriate application of concepts and their contribution to the overall problem. The second is the analysis of students' products during the process: the initial solution, the post-discussion comment, and the revision in the new situation are compared. Only looking at the final

SCIENCE CONNECTS PEOPLE

evaluation can obscure which link of knowledge has changed. Empirical examination should take into account previous preparation, language capability and task distribution within the group. Once these conditions are met, a cautious conclusion can be drawn about the model's advantage and limitation in a specific context.

CONCLUSION

The integrative teaching of pedagogical sciences was interpreted not as a combination of different topics, but as a process of identifying and coordinating the necessary contribution of knowledge specific to the sciences in solving a general professional problem. Its didactic basis is manifested in the verifiable relationship between goal, content, activity, and assessment. The principles of general problem, subject clarity, content consistency, open transfer of knowledge, individual justification, and appropriate assessment were proposed to design this relationship. When the principles work together, the student should not limit themselves to counting the concepts derived from the subjects but show how they changed their pedagogical decision. Conditional tasks revealed that the product of integration is not limited to a report or presentation, but can also be expressed in the form of a reasoned decision and explanatory editing. In doing so, the accuracy of subject knowledge must be maintained, and group activity complemented by evidence of individual understanding. The model does not imply a requirement to integrate all subjects into a single course or to conduct all classes in the same form. It is a theoretical-didactic tool that serves to select the connections necessary for a specific professional task. The practical value of the proposal must be verified through substantive expertise, teacher collaboration and analysis of students' products during the process. It is this examination that, under the name of integration, makes it possible to distinguish between the substantive unification of the decision grounds by the mere aggregation of materials. In the future, the comprehensibility of the criteria, the agreement of the evaluators and the possibility of transferring to another situation need to be studied separately. These directions will

form the basis for transforming the theoretical proposal into a pedagogical practice that is contextual and verifiable.

REFERENCES

1. Maqsudova, N. A. (2026). Theoretical and methodological foundations of the integrative approach in teaching special pedagogical subjects in higher education. Education Horizons, 2, (pp. 80–90). DOI: 10.5281/zenodo.23032606

2. Oblakulova, N. A. (2026). Pedagogical and psychological foundations of using interdisciplinary integration in education. Preschool and School Education, 4(5), (pp. 154–159). DOI: 10.5281/zenodo.19968325

3. Danilova, U. B. (2020). Interdisciplinarity as the basis for implementing an integrative approach to the formation of professional culture. Pedagogy. Issues of Theory and Practice, 5(4), (pp. 431–436). DOI: 10.30853/ped200103

4. Khutorskoy, A. V. (2017). Methodological foundations for applying the competency-based approach to educational design. Higher Education in Russia, 12(218), (pp. 85–91).

5. Young, M. (2018). A knowledge-led curriculum: Pitfalls and possibilities. Impact, 4, (p. 1–4).

6. Lambert, D. (2017). Who thinks what in geography classrooms? Powerful disciplinary knowledge and curriculum futures. The New Geography, 65(3), (p. 1–15). DOI: 10.5996/newgeo.65.3_1

7. Klein, J. T. (2017). Typologies of Interdisciplinarity: The Boundary Work of Definition. In The Oxford Handbook of Interdisciplinarity (2nd ed., p. 21–34). Oxford University Press. DOI: 10.1093/oxfordhb/9780198733522.013.3

8. Montuori, A. (2022). Integrative Transdisciplinarity: Explorations and Experiments in Creative Scholarship. Transdisciplinary Journal of Engineering & Science, SP-3, (p. 161–183). DOI: 10.22545/2022/00209