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DEVELOPING TEACHERS' COMPETENCIES FOR INITIATING LOGISTIC PROJECTS IN EARLY CHILDHOOD EDUCATION INSTITUTIONS

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This article focuses on teachers' preparation for initiating logistic projects in early childhood education institutions and on their willingness to become involved in such activities. The research included 50 teachers from early childhood education institutions, divided into two equal groups: an experimental group and a control group. Initially, teachers' knowledge and involvement in relation to logistic projects were examined. A managerial training program was then applied in the experimental group, with activities focused on defining project objectives, planning actions, distributing responsibilities, estimating resources, analysing risks and monitoring results. The study used a questionnaire, document analysis and comparison of the results recorded before and after the intervention. After the program, the experimental group moved from mainly low levels of knowledge and involvement toward medium and high levels, while the control group recorded only minor changes. The applied project concerned the improvement of energy efficiency at "Albinuța" Kindergarten.

Keywords: *educational management, logistic project, early childhood education, managerial competencies, professional development, project management.*

DEZVOLTAREA COMPETENȚELOR CADRELOR DIDACTICE PENTRU INIȚIEREA PROIECTELOR LOGISTICE ÎN INSTITUȚIILE DE EDUCAȚIE TIMPURIE

Articolul abordează pregătirea cadrelor didactice pentru inițierea proiectelor logistice în instituțiile de educație timpurie și disponibilitatea acestora de a se implica în asemenea activități. Cercetarea a inclus 50 de cadre didactice din instituții de educație timpurie, repartizate în două grupuri egale: grup experimental și grup de control. Inițial, a fost analizat nivelul de cunoaștere și implicare al cadrelor didactice în raport cu proiectele logistice. Ulterior, în grupul experimental a fost aplicat un program de formare managerială, cu activități axate pe definirea obiectivelor, planificarea acțiunilor, distribuirea responsabilităților, estimarea resurselor, analiza riscurilor și monitorizarea rezultatelor. Studiul a utilizat chestionarul, analiza documentară și compararea rezultatelor înainte și după intervenție. După program, grupul experimental a trecut de la niveluri preponderent scăzute spre niveluri medii și înalte, iar grupul de control a înregistrat schimbări reduse. Proiectul aplicat a vizat eficientizarea energetică a Grădiniței „Albinuța".

Cuvinte-cheie: *management educațional, proiect logistic, educație timpurie, competențe manageriale, dezvoltare profesională, managementul proiectelor.*

Introduction

Educational institutions are increasingly required to manage not only teaching activities, but also resources, infrastructure and institutional development projects. In this context, managerial flexibility becomes important, especially when the institution needs to improve material conditions, organize available resources and respond to concrete educational needs. Project management can support this process because it offers a clear way to plan activities, coordinate people and resources, monitor progress and achieve objectives within limits of time, cost and performance [7].

In the specialized literature, project management is described through several connected stages: initiation, planning, execution, monitoring and closure. These stages are also reflected in international standards, where project quality and efficient use of resources are treated as central requirements [5]. A systemic view of project management draws attention to the relation between objectives, resources and constraints.

A project cannot be reduced to a list of activities; it requires planning, coordination and permanent control of what is being implemented [6]. Project-based management is also relevant for institutional change, because it helps organizations translate strategic intentions into concrete actions and adapt to external demands [9].

In education, project management cannot be applied mechanically, as in a purely technical field. It has to be connected with the specific nature of the teaching–learning process and with the people involved in it. Effective educational leadership depends on the ability to mobilize human and material resources in a way that supports institutional development and improves organizational performance [1]. At the same time, lasting change in education is difficult to achieve without the participation of staff and without the continuous development of their professional competencies [3].

In early childhood education institutions, logistic projects are especially important because they are directly linked to the conditions in which children learn and teachers work. Such projects may refer to infrastructure, equipment, safety, heating, energy efficiency or other material aspects that influence the quality of the educational environment. For these projects to be successful, teachers need more than general willingness to participate. They need to understand how a project is initiated, how objectives are formulated, how resources are planned and how implementation is monitored [2]. Teacher motivation and professional commitment also matter, because institutional initiatives depend on the active involvement of the people who will later apply or sustain them [4, 8].

The development of managerial competencies among teachers can strengthen the institution’s capacity to identify needs, prepare project proposals and implement initiatives with lasting effects [10]. For early childhood education institutions, this is not only a managerial issue, but also a practical condition for improving the educational environment. When teachers understand the logic of project management, they can participate more actively in modernization processes and contribute to better organization of material and educational resources.

Starting from these considerations, the present study analyses teachers’ competencies in initiating logistic projects and examines the effects of a managerial training program applied within an early childhood education institution.

Materials and Methods

The study was designed as an applied experimental research carried out in an early childhood education institution. It focused on two aspects: the initial level of teachers’ competencies in initiating logistic projects and the changes produced after the application of a managerial training program.

The sample included teaching staff from the institution who were involved in managerial activities or in the development of institutional projects. Participation was voluntary and followed the ethical requirements of educational research. In total, 50 teachers took part in the study. They were divided into two equal groups: an experimental group of 25 teachers and a control group of 25 teachers.

The research combined theoretical and empirical methods. The theoretical part included the analysis of institutional documents and the review of literature related to project management and educational management. The empirical part focused on the assessment of teachers’ managerial competencies, the examination of logistic projects previously developed in the institution and the comparison of results recorded before and after the training program.

The intervention consisted of a managerial training program developed for teachers who needed to initiate and manage logistic projects. The program followed the main stages of a project:

- defining the idea,
- planning actions,
- organizing resources,
- implementing activities,
- monitoring progress and evaluating results.

Its purpose was to develop practical competencies related to project planning, structuring, implementation and evaluation at institutional level. The structure of the program is presented in Table 1.

Table 1. Managerial program for developing teachers' competencies in initiating logistic projects within the early childhood education institution

No.	Stage of the logistic project	Formative activities	Competencies developed	Persons involved
1.	**Executive summary**	Workshop focused on formulating the project idea, defining objectives, identifying beneficiaries, estimating duration and outlining the initial budget.	Formulating clear objectives; identifying target groups; selecting essential project elements; estimating basic financial needs.	Project manager; teaching staff
2.	**Project description**	Group work and case analysis on the relevance of the project, expected impact, connection with institutional priorities and continuity with previous initiatives.	Explaining the need for the project; linking the proposal to institutional development; analysing relevance and expected impact.	Project manager; project team members
3.	**Project action plan**	Collaborative drafting of the action plan, setting deadlines, distributing tasks and identifying the resources needed for implementation.	Planning activities; organizing tasks; coordinating responsibilities; working collaboratively within the project team.	Project manager; teacher working groups
4.	**Expected results and risk analysis**	Group discussions on expected results, possible risks and practical solutions for reducing or managing difficulties during implementation.	Formulating measurable results; identifying risks; proposing solutions; making decisions in uncertain situations.	Project manager; project team
5.	**Monitoring and evaluation**	Simulation of monitoring procedures, development of simple performance indicators, self-assessment and peer feedback activities.	Monitoring progress; using evaluation criteria; reflecting on results; assuming responsibility for the quality of implementation.	Project manager; competent bodies; teaching staff
6.	**Managerial implementation activity**	Development and application of the institutional implementation plan for the logistic project.	Applying managerial decisions in practice; coordinating implementation; assuming leadership roles and institutional responsibility.	Project manager; entire teaching staff

Following the general methodological design, the managerial program presented in Table 1 was applied as the main formative intervention of the study. The program was organized around the main stages of a logistic project, but its focus was not only on knowing these stages in theory. The purpose was to help teachers practise the actions needed to prepare, organize and follow a logistic project within their own institution.

The activities included workshops, group tasks, analysis of practical situations, guided reflection and collaborative work. Through these activities, teachers worked with concrete elements of project design: defining the project idea, identifying beneficiaries, formulating objectives, estimating resources, distributing responsibilities, anticipating risks and monitoring results. In this way, project management was approached as a practical process, connected to the real needs of the early childhood education institution.

In the first stage, focused on the executive summary, teachers practised formulating the main idea of the project, defining objectives, identifying target groups and estimating the duration and budget. This stage

helped them understand what information is needed at the beginning of a project proposal and how it should be presented clearly.

The project description stage was based on guided analysis. Teachers discussed the relevance of the project, its expected impact and its connection with the institution's development needs. Particular attention was given to the continuity between the proposed logistic project and previous institutional actions, so that the project would not remain an isolated initiative, but would be linked to the broader improvement of educational conditions.

During the action plan stage, participants worked on setting deadlines, distributing tasks and identifying the resources needed for implementation. These activities required them to connect objectives with concrete actions and to think realistically about time, responsibilities and available resources.

The stage dedicated to expected results and risk analysis focused on anticipating possible difficulties. Teachers discussed what results could be expected, what risks might appear during implementation and what solutions could be prepared in advance. This part of the program supported decision-making and problem-solving skills.

Monitoring and evaluation were treated as part of the project process, not only as a final control activity. Teachers worked with simple performance indicators, self-assessment and peer feedback. These activities helped them understand how evaluation can be used to follow progress, make corrections and improve implementation during the project.

The program involved the project manager and the teaching staff. Responsibilities were distributed collaboratively, and teachers had the opportunity to assume concrete roles in the preparation and implementation of the logistic project. This form of participation supported the development of managerial competencies and encouraged a more active attitude toward institutional project initiatives.

The effectiveness of the program was assessed by comparing the results recorded before and after the intervention in the experimental and control groups. Descriptive statistical methods were used to observe the changes in teachers' knowledge, involvement and project-related competencies. Through this approach, the study aimed not only to test the training program, but also to outline a practical model that could be adapted for other early childhood education institutions.

Results and Discussion

Level of knowledge of logistic projects. Teachers' knowledge of logistic projects was examined by comparing the results recorded before and after the training program. The comparison was made separately for the experimental group and the control group, which allowed us to observe whether the changes were related to the formative intervention or only to the natural evolution of the participants.

Table 2. Degree of identification of teachers' level of knowledge regarding logistic projects

Level	Experimental sample (n = 25)				Control sample (n = 25)			
	Before program implementation		After program implementation		Before program implementation		After program implementation	
	Nr.	%	Nr.	%	Nr.	%	Nr.	%
High	3	12	8	32	2	8	3	12
Medium	9	36	14	56	7	28	8	32
Low	13	52	3	12	16	64	14	56

At the beginning of the study, both groups showed a similar problem: most teachers had a low level of knowledge about logistic projects. In the experimental group, 13 teachers (52%) were at the low level, 9 teachers (36%) at the medium level and 3 teachers (12%) at the high level. The control group showed an even stronger concentration at the low level: 16 teachers (64%), compared with 7 teachers (28%) at the medium level and 2 teachers (8%) at the high level. These results show that, before the intervention, the concept of logistic project was not sufficiently understood or used by most participants.

After the managerial training program, the experimental group changed visibly. The number of teachers at the high level increased from 3 to 8, which means a change from 12% to 32%. The medium level also increased, from 9 teachers (36%) to 14 teachers (56%). At the same time, the number of teachers at the low level decreased from 13 to 3, or from 52% to 12%. This movement from the low level toward the medium and high levels suggests that the program helped teachers understand the structure and logic of logistic projects more clearly.

In the control group, the changes were much smaller. The high level increased only from 2 to 3 teachers (8% to 12%), and the medium level from 7 to 8 teachers (28% to 32%). The low level decreased from 16 to 14 teachers, or from 64% to 56%. Compared with the experimental group, this evolution is limited. It suggests that the progress recorded in the experimental group was mainly connected with the training program, not only with the passage of time or with informal accumulation of information.

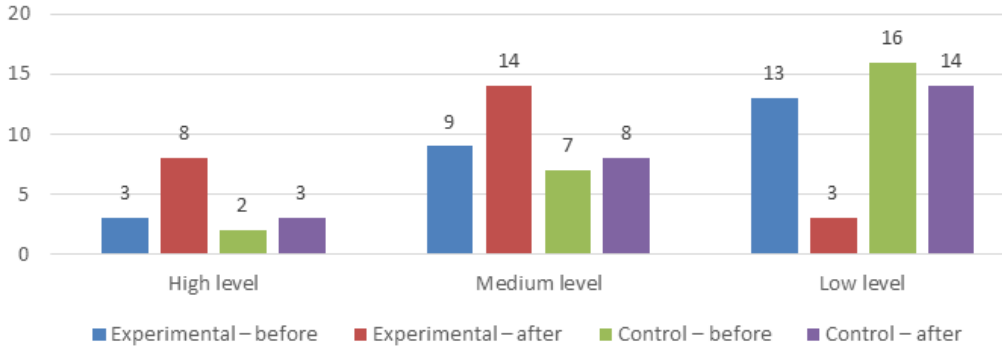


Figure 1. Comparative distribution of teachers' knowledge levels regarding logistic projects

Figure 1 makes the differences between the two groups easier to observe. The most visible change appears in the low level category. In the experimental group, this category decreased strongly after the training program, while in the control group the decrease was much smaller. The same figure also shows the movement of teachers from the low level toward the medium and high levels in the experimental group.

These results indicate that the training program had a positive effect on teachers' knowledge of logistic projects. The decrease in the low level, together with the increase in the medium and high levels, shows that teachers did not only receive new information. They began to understand more clearly how a logistic project is structured and what steps are needed for its initiation and development.

The results therefore support the idea that a formative intervention can strengthen teachers' capacity to understand, initiate and participate in logistic projects within an early childhood education institution.

Degree of involvement in future projects initiated by the administration. Teachers' willingness to participate in future logistic projects initiated by the administration was analysed by comparing the results recorded before and after the training program. The comparison was made in both groups, in order to see whether the changes were stronger in the experimental group than in the control group.

Table 3. Degree of teachers' involvement in future projects initiated by the institution's administration

Level	Experimental sample (n = 25)				Control sample (n = 25)			
	Before program implementation		After program implementation		Before program implementation		After program implementation	
	Nr.	%	Nr.	%	Nr.	%	Nr.	%
High	5	20	12	48	-	-	2	8
Medium	7	28	13	52	20	80	21	84
Low	13	52	-		5	20	2	8

Before the training program, the experimental group showed a rather low level of involvement in logistic projects. A total of 13 teachers (52%) were placed at the low level, 7 teachers (28%) at the medium level and 5 teachers (20%) at the high level. This distribution suggests that many teachers were not yet ready to participate actively in project-based activities. The result is also consistent with the low level of knowledge identified earlier, because limited understanding of logistic projects can reduce the willingness to become involved.

After the managerial program, the situation changed clearly in the experimental group. The number of teachers at the high level increased from 5 to 12, while the medium level increased from 7 to 13 teachers. At the same time, the low level disappeared from the distribution. This change shows that teachers became more willing to assume responsibilities and to participate in the initiation and implementation of logistic projects.

In the control group, the changes were much smaller. Before the program, 20 teachers (80%) were at the medium level and 5 teachers (20%) at the low level, while no teacher was recorded at the high level. After the same period, the medium level increased slightly and the low level decreased, but the high level remained much lower than in the experimental group. This indicates that the stronger progress observed in the experimental group was related to the managerial training program.

Figure 2 shows more clearly the difference between the two groups. In the experimental group, the change is visible through the movement from the low level toward the medium and high levels. In the control group, the structure remained relatively stable, with most teachers still placed at the medium level.

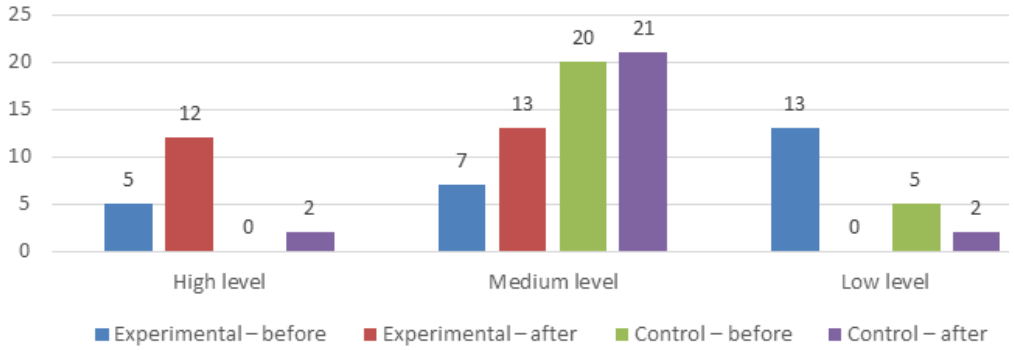


Figure 2. Degree of teachers' involvement in future projects initiated by the institution's administration

These results suggest that the development of managerial competencies was closely linked to teachers' willingness to become involved in logistic projects. As teachers understood better the stages of a project and the responsibilities connected with each stage, their reluctance decreased. Involvement was no longer perceived only as an additional task assigned by the administration, but as a way to participate more actively in the development of the institution.

The data also show a connection between managerial knowledge and professional engagement. When teachers understand how a project is planned, organized and monitored, they are more likely to assume concrete responsibilities in project-based activities. In this sense, the training program contributed to a more proactive professional attitude among the teachers from the experimental group. This result is consistent with the literature, which emphasizes the role of managerial training in developing professional competencies and increasing staff involvement in organizational processes [1, 3].

The progress recorded in the experimental group was related to the application of the Managerial Program for Developing Teachers' Competencies in Initiating Logistic Projects within the Early Childhood Education Institution. Within this program, the teachers worked on a concrete logistic project aimed at improving energy efficiency at "Albinuța" Kindergarten in Dănceni village. The project included thermal insulation works, modernization of the heating system and improvement of material conditions for educational activities.

All 25 teachers from the experimental group were involved in the program through differentiated formative activities and assigned roles. They participated in workshops, collaborative tasks and applied reflection

exercises. Their responsibilities included drafting the executive summary, explaining the relevance and expected impact of the project, developing the action plan, estimating the budget, defining expected results and analysing possible risks. This practical involvement helped teachers move from general knowledge about projects to concrete managerial actions.

Thus, the intervention did not lead only to the accumulation of information. It helped teachers understand how a logistic project is built and how responsibilities are shared inside the institution. The post-test results show this change through the higher level of involvement and the greater readiness of teachers to participate in future project initiatives.

Conclusions

The results obtained at the pre-test stage showed that many teachers had limited knowledge and low involvement in relation to logistic projects. This initial situation confirmed the need for a targeted training program, especially in early childhood education institutions where logistic projects are directly connected with infrastructure, material conditions and institutional development.

After the implementation of the managerial training program, the experimental group recorded clear progress. The number of teachers placed at the low level decreased, while the medium and high levels became more visible. In the control group, the changes were much smaller. This difference shows that the progress recorded in the experimental group was closely related to the formative intervention, not only to the natural accumulation of experience.

The practical work carried out within the project aimed at improving the energy efficiency of IET "Albinuța" had an important role in this process. Teachers were not only informed about project management; they were involved in concrete tasks related to planning, organization, distribution of responsibilities, budget estimation, risk analysis and monitoring. This applied character helped them connect theoretical knowledge with real institutional needs and strengthened their confidence in assuming managerial responsibilities.

The study shows that training in logistic project management should become part of teachers' continuous professional development in early childhood education. Such training can help teaching staff participate more actively in institutional projects and contribute to the improvement of educational conditions.

The experience obtained in this study may also be used as a starting point for extending the program to other early childhood education institutions. Further applications could help refine the training model and develop clearer methodological tools for preparing teachers to initiate and manage logistic projects.

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