SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 217

PROCESS OF KNOWLEDGE MANAGEMENT IN INNOVATIVE PROJECTS OF EDUCATIONAL ORGANIZATIONS IN THE SILESIAN VOIVODOSHIP

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Purpose: This article provides an overview of the changes that have taken place, focusing on innovation in project management in educational organizations, The aim of the article is to present the problem of knowledge management in projects of educational organizations, co-financed from European Union funds. The article presents selected issues of improving students' knowledge on the basis of selected projects in the Silesian Voivodeship.
Design/methodology/approach: The research problem in the field of knowledge management in the form of projects in the financial perspective 2014-2020 was defined on the basis of the literature studies carried out. The empirical research used data from the Regional Programme of the Silesian Voivodeship concerning the improvement of teaching processes in schools through the implementation of projects. Statistical methods were also used to determine the impact of project financing on the quality of student education in the Silesian Voivodeship.
Findings: The proposed framework focuses on assessing knowledge management and innovative projects that will offer leaders in educational organizations both balanced insights and valuable information. The research shows that the level of financing from innovative projects is directly related to the scope of change of schools using the EU funds of educational organisations' projects.
Originality/value: The practical and scientific value of this paper is that is describes an integrated approach to contextual knowledge management and project management.
Keywords: co-financing of projects of knowledge management, knowledge management, projects of educational organizations
Category of the paper: research paper.

1. Introduction

The increasing importance of knowledge in the development of society, the economy and organisations is an issue that is being addressed more and more in the relevant literature. The importance of knowledge on a macroeconomic scale makes the knowledge-based economy

stand out. (Skrzypek, 2011) This type of economy points to the need for knowledge management as an important area of management science and quality (Turek, 2018). The fragmentation of the discipline 20highlights the validity of improving knowledge management processes to improve effectiveness and decision-making efficiency. One of the more recognised methods of improving the effectiveness of knowledge management is through projects, where innovative projects are identified along with their intended outcomes.

The results of projects are a derivative of their type, nature and intensity of relationship with knowledge management. A particular relational intensity in the analysed area is shown by projects in educational organisations predisposed by their key functions to absorb knowledge. An element strengthening the processes of knowledge absorption through projects is their co-financing by European Union funds. The potential for co-financing especially in the 2014-2020 perspective has influenced a large increase in projects in educational organisations in Poland. A specific illustration of the processes of knowledge management in projects of educational organisations is presented on the example of the Silesian Voivodeship.

The article was developed on the basis of the latest foreign and national literature on knowledge management. The problem of knowledge management was also referred to the projects of educational organisations, in which there are particular reasons for absorbing modern solutions.

Knowledge management in educational organisations is an integrated problem of the concept of management science and the tasks carried out in education. The integrative nature of relationships is due to the increasing role of knowledge management in an economy in which educational organisations are of fundamental importance. These organisations, with their considerable intellectual capital resources, undertake a wide variety of activities to absorb knowledge. The activities are dominated by projects that make it possible to determine the potential of the intellectual capital of educational organisations by influencing the effectiveness of the organisation, and they are based on knowledge management processes in projects. Projects in educational organisations are implemented on many levels. These include projects aimed at modernising the teaching base together with improving the knowledge of participants in educational processes. Achieving a higher level of knowledge management in projects of educational organisations is to a large extent the result of co-financing the processes of knowledge absorption.

2. Processes of knowledge management

The increasing importance of knowledge in the development of society, the economy and organisations is an issue that is being addressed more and more in the relevant literature.

The dynamically expanding number of publications indicates the importance and scope of issues that have been identified on a macroeconomic scale for many years with the economy, and especially with its part referred to as the knowledge-based economy (Jemielniak, 2012),

This fragmentation is a derivative of the importance of knowledge for socio-economic development, in which management and quality sciences set substantive priorities. (Mohapatra, 2016), Issues of knowledge management are located in their area. (Knop, 2008).

The multidimensionality of the knowledge management issue makes it possible to cite the basic principles of codified knowledge. These principles include:

- the decision-making processes that knowledge will serve,
- methods of identifying knowledge, determining the achievement of the strategic and operational goal of the organisation. Many organisations that take on different challenges seek the basis for their decision choices in different forms, such as projects,
- assessment of the knowledge acquired in the context of usefulness and codification,
- identification of the appropriate means of disclosure with a wide dissemination of knowledge, in particular by structuring it. In this area, the processing of knowledge that increases the efficiency of the organisation is particularly justified.

The above principles provide the basis for defining the problem of knowledge management. Knowledge management is the decision-making process of an organisation's knowledge resources in order to create value and take account of strategic and tactical requirements. This process includes initiatives, activities, strategies and systems to support improved retention, engagement along with systematic improvement of the process of knowledge creation (Krupski, 2012).

The knowledge management increases the information exchange among organization participants, boosting the generation of innovations. (Martins, 2019). Employee participation not only enables the managers to investigate problems from different perspectives, but also supports in proposing innovative solutions. (Abbas, 2019).

Considering the multifaceted nature of the problem, we can quote a definition according to which knowledge management is identified with the purposeful design of processes, methods and structures to increase, renew, share or improve the use of knowledge corresponding to intellectual capital (Hamid, 2021)

Issues of knowledge management are analysed in the context of assessing knowledge resources in creating and achieving the organisation's goals (Olko, 2015).

The achievement of objectives is determined by the transfer of knowledge in organisations of a different nature. It is especially important to establish, strengthen and build relationships aimed at the success of the organisation. Its source is the processes of knowledge management affecting the effectiveness of the organisation and creating value. (Imran, 2021).

The view that knowledge in organisations constitutes the most valuable intellectual capital resource requiring effective management should be considered fully justified. (Swierczek, 2019) The above approach stems from the proliferation of knowledge in management initiatives concerning the capture and sharing of knowledge accumulated by an organisation's intellectual

capital Wiktor J.W. (2020). Furthermore, it is accepted that knowledge management should primarily concern knowledge in the form of a resource enhanced or shared by social interactions. (Hamid, et al, 2021) The social perspective refers to the knowledge transfer relationships among the employees (Hock-Doepgen, 2021). They are responsible for the transfer of their knowledge to projects. Knowledge sharing allows employees to access both: knowledge and information, which has an significant influence on employees' own innovation. (Zhao, 2021).

The resource approach in knowledge management justifies the preparation and implementation of projects in virtually every form of social and economic activity.

3. Innovative projects of educational organisations in processes of knowledge management

The diversity of issues of knowledge management causes the search for methods of improving intellectual capital resources in organisations. Projects should be considered as a significant method. Their nature and nature require knowledge management to be adapted to the needs of the organisation (Karbownik, 2021) Such needs are particularly important in educational institutions which, due to their purpose and functions in society, are obliged to systematically improve and transfer knowledge. Improving knowledge in educational organisations is characterised by considerable complexity. It is then required to answer the question of who and where gathers knowledge as a sum of experiences from the process of planning, preparation and implementation of new solutions in educational organisations. (Trocki, 2020).

Educational organisations, when preparing projects on knowledge management, set the strategic objectives of public education as a central point. Education professionals and school projects are an exceptional tool to start improvements in the educational systems. (Gairín, 2012). Managing projects in educational organisations in a systematic way enables achieving the strategy of knowledge development. The areas of knowledge identified in the projects by creating a problem-solving plane, together with the assignment of appropriate techniques, enable a proper selection of decision-making options. (Dyduch, 2019) Variantiveness is created on the basis of knowledge – standards of improvement – social challenges. (Poznańska, 2018) Relativity determines the basis of knowledge management in the organisation's projects. Project management was increasing its effort to point at a strategic business perspective with the impact of the development of innovation. (Allahar, 2019).

Management processes primarily take into account knowledge, intellectual capital and strategic conditions for socio-economic development. Their relationships occur in the organisation's projects, creating the organisation's resource potential as a result of proper project management.

4. Structural analysis of projects of educational organisations in the Silesian Voivodeship

The 2014-2020 financial perspective has set new goals for the European Union's development strategy. The objectives included economic growth determined by more effective investment in education, research and innovation, and sustainable development. Improvement of the education process was undertaken by implementing various development projects. Planned activities developed in the form of projects can be considered particularly relevant. To illustrate the problem, data on EU projects implemented in educational units in the 2014-2020 financial perspective in the Silesian Voivodeship are presented. The assessment concerned projects implemented during the period considered. The total number of 52 projects in educational institutions can be divided into four groups.

The first group includes 28 projects in the scope of undertakings consisting in the creation of modern didactic base, mainly through the purchase of new infrastructure, modernisation of existing laboratories and workshops.

In the second group, there were projects whose basic assumptions concerned the process of improving the quality of education. 10 projects were included in this group.

The third group consists of 9 projects integrating the modernisation of the teaching base with practical vocational training. The projects are dominated by the problems of synchronizing the activities of educational institutions with the needs of the local labour market.

The fourth group – 5 projects - includes educational projects aimed at practical vocational training for students with disabilities. The objectives of projects of this type emphasise the strengthening of educational infrastructure, teaching facilities for pupils with disabilities in order to equalise opportunities and improve their start in the labour market.

All evaluated groups of projects required adapting knowledge management to the needs of the organisation. They are particularly important in educational organisations, which, due to their functions in society, are obliged to systematically improve and transfer knowledge. Projects in the area of knowledge management, co-financed by European Union funds, have proved to be very useful in this process.

5. Assessment of projects of educational organisations within improving students' knowledge in the Silesian Voivodeship

Educational organisations of the Silesian Voivodeship in the 2014-2020 financial perspective implemented projects in the area of improving the knowledge of students sent to internships with employers. The assessment of the projects concerned the amount of European Union

funding, the number of placements and the level of improvement in students' knowledge after the internship (Table 1).

Table 1.
Summary of the number of students' internships and evaluation of their effects in terms of subsidized projects of educational organisations with EU funds delegated to employers in the Silesian Voivodeship in 2020

Range of Union funding for projects/internships	Number of internships with employers in the projects of educational organisations of the Silesian Voivodeship	Increase in the level of knowledge improvement of students after internships in projects
Less than and equal to PLN 2 million	12	62%
More than PLN 2 million less than and equal to PLN 4 million	17	84%
Over PLN 4 million	7	81%

Source: own study based on project analyses in the Silesian Voivodeship.

A preliminary analysis of the data on the funding of student placement projects within educational organisations shows that the largest number of placements was carried out within the second group of financing, i.e. more than PLN 2 million to PLN 4 million. Within this funding range, 17 internships with employers were financed and the knowledge of students in this range improved the most in relation to the other financing ranges. On the other hand, self-governments which received the lowest (including up to 2 million PLN) or the highest (above 4 million PLN) co-financing, registered a lower number of internships at employers and lower marks for the level of knowledge improvement among students than TSUs which received medium co-financing.

At the same time, the funds from the internship project spent by self-government units dedicated to schools are used not only to organise internships at employers, but also to equip the schools themselves and their workshops and to purchase teaching materials. These activities are aimed at increasing students' knowledge. Hence, it can be assumed that the level of financing received affects not only the number of student placements, but also indirectly other aspects concerning the organisation of schools. This in turn determines better access to practical and theoretical knowledge of students who participate in the studied projects.

It can therefore be hypothesised that the funding range influences the development of educational organisations that take part in internship projects and send a certain number of students on internship, equip schools and laboratories and purchase teaching materials.

In order to verify the research hypothesis, a multifactorial analysis of variance with a single ANOVA classification was used to compare several dependent groups. Its essence is to break down the variability into components and compare individual variances resulting from the influence of a given factor on the test results. The comparison of variance with the F test allows to assess whether the group averages of the considered effect differ significantly.

The level of co-financing under internship projects (Y) was adopted as a factor. This is an order variable that takes three values. It is important to consider whether the level of funding has a significant effect on the independent variables (i.e. the test variables) expressed on a numerical scale, i.e.: the number of students (X1) who completed the internship, the number of retrofitted schools (X2) and their laboratories (X3) and the value of purchased teaching materials (X4). As a result of the test, statistics of the test were obtained from the use of statistical software (Table 2).

Table 2.
ANOVA Test Statistics

Effect	Total Sum of Effect Squares	Degrees of Freedom	Average Sum of Effect Squares	Value of F test	Significance p
Absolute term	231.2	1	231.2	832.1	0.045
Financing level (PF)	66.12	2	128.34	4.212	0.023
Number of students_PF	22.00	2	42.34	2.241	0.001
Number of schools equipped_PF	432.01	2	723.11	5.242	0.021
Number of studios equipped _PF	341.22	2	653.34	3.245	0.002
Value of purchased didactic materials_PF	12.3	2	25.65	2.132	0.032
Error	192.23	23	8.004		

Source: own study.

Analysing the results obtained, it can be noted that the level of funding significantly differentiates the number of student placements completed (for p = 0.001); the number of schools retrofitted (p=0.021) and their laboratories (p=0.002) and the value of teaching materials purchased (0.032). Testing has confirmed that the level of financing influences the effects of project spending in schools. The surveyed schools can therefore be divided into three groups. The first group with financing of up to PLN 2 million included schools with the lowest number of internships and completed retrofits and the lowest value of purchased teaching materials. The second group of schools that benefited from more than 2 million to 4 million in funding included those with the highest number of students who participated in the placement, the highest number of retrofits completed and the value of materials purchased. The last-third group includes schools that have benefited from the highest funding and are significantly different from the previous two groups in that they send an average number of pupils on internship, are on average equipped and have purchased teaching materials of average value.

The results allow the conclusion to be drawn that the level of funding significantly influences the level of development of schools that use the funds of projects of educational organisations in the Silesian Voivodeship. This is also confirmed by the assessment of the level of im-

provement of students' knowledge after the internship. The statistical analysis conducted provides information on the accuracy of applications by educational organisations for EU co-financing in the Silesian Voivodeship.

The selection of the subject and scope of projects of educational organisations illustrates the problems of effective and efficient knowledge management in educational activities.

6. Conclusions

The literature review and empirical research confirmed the importance of knowledge management in the projects of educational organisations. The importance of the problem of knowledge management in society, the economy and organisations is the starting point for searching for more and more excellent methods of absorbing knowledge. It was assumed that fundamental importance in the processes of knowledge assimilation is played by the projects of educational organisations, which by virtue of their educational functions enable the improvement of the material base. The aim of modernising the teaching infrastructure of schools is to improve the level of teaching and the acquisition of new skills by students. Opportunities in this regard were exploited by educational organisations through the submission of relevant projects in the 2014-2020 financial perspective.

Empirical research on projects of educational organisations co-financed by the European Union was carried out in the Silesian Voivodeship. The results of the research confirmed the usefulness of the projects, which mainly concerned:

- creation of modern teaching facilities, modernisation of equipment in classrooms and laboratories;
- the process of improving the education quality;
- creation and modernization of a teaching base with practical vocational training for the needs of the local labour market;
- construction and modernisation of educational infrastructure for students with disabilities in order to equalise their opportunities and improve their start in the labour market.

In addition, the research shows that the level of financing is directly related to the scope of development of schools using the funds of educational organisations' projects. The higher the financing, the more beneficial the results of knowledge absorption in educational organisations.

It can be concluded that the projects of educational organisations have a positive impact on the knowledge management of the educational sphere.

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