Competences 4.0 As Resilience Factors in Educational Project Management During COVID-19

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Abstract

The Covid-19 pandemic affected all aspects of human life and education systems became one of the spheres most severely disrupted. The international dimension of education, and especially Erasmus+ Programme – the European Union initiative supporting the development of competitive skills and competences among pupils, students, adults, teachers, academics and professionals – was also affected. International mobility projects were either stopped or their implementation was significantly hindered. This paper presents the results of Authors' own study on 990 Erasmus+ project leaders who were carrying out their projects during the peak of the pandemic in Poland in 2020. The Authors discuss the role of 4.0 competences (digital and technical competence, managerial competence, cognitive competence, social and psychosocial competence) of adult professionals in the implementation and assuring sustainability of projects under Erasmus+ Programme. The aim of the research was to study whether those competences are able to become resilience factors and to empower Erasmus+ project leaders in sustaining their international cooperation in the times of global crisis, widespread online learning and common project disruption or cancellation. The research hypothesis assumed that the above-mentioned competences might increase resilience and help project leaders to carry out and complete their projects. The Authors also show that project leaders' high 4.0 competences might constitute a sort of protective shield for functioning in a globalized, digitalized and drastically changing environment, which demands fast and effective adaptation to new challenges.

Keywords: Competences 4.0, Competitive Skills, Resilience, Sustainability, Project Management, Erasmus+

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Introduction

The current era is characterized by the rise of global connectivity and increased use of advanced technology and media that is accessible to almost anyone in any part of the world (Future World Skills 2020 Report, 2019). The World Economic Forum predicts that up to 47% of jobs will become automated in the next 15 years, and the Covid-19 pandemic has only accelerated the transition to a digital-based education and work environment. This fast-changing environment, referred to as the 4th industrial revolution, requires individuals to have updated skills and competencies in order to participate fully in modern society and tackle challenges such as the global pandemic, climate change, migration crisis, and youth unemployment (Conclusions of the World Economic Forum, 2017).

These competencies, according to the World Economic Forum, are referred to as 4.0 competencies and can be divided into digital and technical, managerial, cognitive, and social and psychological competencies. They include literacy, multilingual skills, mathematical abilities, scientific knowledge, digital skills, personal and social development, learning, citizenship, cultural awareness, entrepreneurship, and more.

Governments around the world are taking various initiatives to enhance the development of these competencies among their citizens. One such initiative is the Erasmus+ program, an European Union scheme designed to address societal challenges such as high unemployment rates, particularly among young people, social marginalization, and low skill levels (Erasmus+ Programme Guide, 2020). The program aims to create more inclusive and cohesive societies that allow citizens to play an active role in democratic life. The Erasmus+ program offers international mobility opportunities for pupils, teachers, students, academics, professionals, and youth workers through projects such as exchanges, trainings, and cooperation activities. These projects follow a specific life cycle and help promote common European values, foster social integration, and enhance intercultural understanding. The program is also an effective tool for promoting inclusion for individuals from disadvantaged backgrounds, including newly arrived migrants.

Research rationale a theoretical background

The purpose of the research described in this article was to investigate how Erasmus+ project leaders adapted and managed their projects during the COVID-19 pandemic. The main questions the research aimed to answer were:

- What competencies do the project leaders' believes are important for managing Erasmus+ projects?
- Which competencies are considered particularly crucial for managing Erasmus+ projects during the pandemic, according to project leaders?
- Which of the three groups of competencies is considered most important for managing Erasmus+ projects?

The research was conducted among 990 Erasmus+ Polish project leaders from various sectors (public, non-government and private) who had carried out Erasmus+ projects during the pandemic. The data was collected through an anonymous online survey (70 questions, both closed and open-ended) and the data collection took place over a period of five weeks in December 2020.

The research is based on two management theories, Taylor's and Le Chatelier's. Taylor's system emphasizes a scientific approach to work, proper training, cooperation between managers and workers, and shared responsibilities (Taylor, 1912). This theory aligns with the nature of Erasmus+ projects, which focus on distributing tasks based on expertise and promoting cooperation. Le Chatelier's system, a cycle of goal-setting, planning, resource acquisition, implementation, and evaluation, mirrors the life cycle of Erasmus+ projects (Le Chatelier, 1926). Additionally, the Polish perspective of Adamecki's rules of organization function, which emphasizes the division of responsibilities, specialization and complementarity of units, and harmony among them, also aligns with the management of Erasmus+ projects, where the proper mix of responsibilities and expertise among project partners is crucial for successful project assessment (Adamecki, 1970).

Research results

Out of the 990 project leaders who participated in the survey, 816 implemented their Erasmus+ projects between March and November 2020, during the peak of the COVID-19 pandemic in Poland. The majority of respondents, 80%, were from the public sector, while non-governmental organizations and private sectors made up 13% and 7% respectively. The majority of projects implemented during the pandemic had 1 to 3 international partners, with 16% of the project leaders working with 5 or more international partners. 26% of the respondents stated that they coordinated up to 3 Erasmus+ projects at the same time during the pandemic. 32% of the respondents were the main coordinators of their projects, while 51% joined an existing partnership. The research studied the self-perceived competences of the Erasmus+ project leaders, including digital and technical skills, managerial skills, cognitive and reasoning abilities, and social and psychosocial skills. The reliability of each of these dimensions was measured using Cronbach's Alpha and only one dimension, critical thinking, did not meet the reliability criteria (value of 0.7 or higher). The highest reliability was recorded in the use of computers in everyday work (0.91), while the lowest reliability was in critical thinking (0.55).

The profile of average level of competences is presented in the Table 1.

Table 1. The Erasmus+ project leaders' competence profiles

Competences	Dimensions	Average level (scale 1-5[1])
Digital and technical	Use of computer in everyday work	4.37
	Work with online documents	4.18
Managerial	Cooperation with people	3.77
	Team coordination	3.86
Cognitive and thinking	Pro-activeness, innovation, openness to challenges	3.96
Social and psychosocial	Relations and emotions	3.94
	Adaptability and managing stress during the pandemic	1.74
	Maintaining contacts, cooperation	3.96
	Communication	3.63

Source: own work based on research results. First published in: Proceedings of the 25th World Multi-Conference on. Systemics, Cybernetics and Informatics: WMSCI 2021

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[1] Scale 1-5, where 1 is the lowest score and 5 – the highest.

The competencies of Erasmus+ project leaders were found to be highest in the use of computers and online work, followed by cognitive and managerial competencies, and cooperation with others. The lowest rated competency was adapting and managing stress during the pandemic. The scores were slightly higher for leaders who completed their projects successfully, compared to those who suspended or extended them due to the pandemic. This evaluation, however, is based on self-assessment by the leaders, and thus should be taken with caution. Nearly 72% of the project leaders reported that they had to make significant changes to their projects as a result of the pandemic, while another 22% made minor adjustments. Only 3% claimed no changes were necessary, and 3% answered "I don't know". Out of the project leaders who participated in the study, 62% were only able to complete less than half of the originally planned activities due to the pandemic. There was a statistically significant difference in the level of managerial competencies, specifically in team coordination, between leaders who carried out less than 25% and those who completed more than 75% of their activities (see Table 2).

Table 2. Relation between the sustainability of Erasmus+ projects and the level of managerial competence of their coordinators

Indicator question from the questionnaire	%	N	The level of managerial competence in the dimension of team coordination
In your opinion, to what extent the project activities conducted during Covid-19 pandemic were implemented successfully?	Maximum 25%	387	3.78
	Between 75% and 100%	222	4.03

Source: own work based on research results. First published in: Proceedings of the 25th World Multi-Conference on. Systemics, Cybernetics and Informatics: WMSCI 2021

Additionally, project leaders who had lower levels of stress and uncertainty and better adaptability skills tended to have higher average levels of cognitive, managerial, and digital competences, with the exception of managerial competence in terms of working with others. Finally, the older age group (46 and above) showed a lower average score for social competence in the area of adaptability and stress management, indicating that it may have been harder for them to deal with the pandemic than for those under 46.

Conclusion

The study found that, on average, Erasmus+ project leaders have a high level of 4.0 competencies (according to their own evaluations), particularly in the areas of digital and technical skills and cognitive competencies. In the challenging period of the Covid-19 pandemic, these 4.0 competencies played a role in the successful management of Erasmus+ projects, particularly regarding computer usage and managerial competencies. Additionally, the study revealed a relationship between stress and efficiency in implementing Erasmus+ projects during the pandemic.

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