The 4.0 competences as facilitators in the realization, management and sustainability of Erasmus+ projects in the times of COVID-19 pandemic

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ABSTRACT[1]

This article discusses the research on the role of 4.0 competences in the implementation of projects under Erasmus+ Programme – the European Union initiative for education, training youth and sport (2014-2020). It also puts the competences 4.0 in the perspective of labour market expectations in times of the fourth industrial revolution.

Keywords: Competences 4.0, Project Management, Erasmus+, Covid-19, Fourth Industrial Revolution.

1. INTRODUCTION AND KEY NOTIONS

According to the Future World Skills 2020 Report we are witnessing nowadays the rise of global connectivity, unprecedented use of intelligent machines and new media reachable to almost anyone in any part of the globe [1]. According to the World Economic Forum up to 47% of jobs will be automated within the next 15 years [2]. The Covid-19 pandemic even accelerated digital transitions both in the world of education and work. In this fast changing environment, referred to as the 4th industrial revolution, an updated set of skills and competences is needed for students, employees (irrespective of the economy sector) and citizens in general, in order to be able to participate fully in economic and democratic life of modern societies and face the paramount challenges such as the global pandemic, climate change, migration crisis or youth unemployment [3].

The World Economic Forum refers to these competences as the 4.0 competences [4]. They can be grouped in the following clusters: digital and technical, managerial, cognitive, social and psychological competences and include: literacy, multilingual competences, mathematical competences, competence in science, digital competences, personal, social and learning to learn-related competences, citizenship competences, cultural awareness and expression and entrepreneurship [5].

Governments across the globe undertake various initiatives in order to enhance the development of these competence sets amongst their citizens. An example of intergovernmental approach in this respect is the Erasmus+ programme - one of key instruments of the European Union to fight paramount societal challenges such as: high levels of unemployment, particularly among young people, social marginalisation, and low skills level [6]. Europe strives to build more cohesive and inclusive societies which allow citizens to play an active role in democratic life [7]. Education, training, youth work and sport are key to promoting common European values, fostering social integration, enhancing intercultural understanding and a sense of belonging to a community, and preventing violent radicalisation. Erasmus+ is therefore an effective instrument to promote the inclusion of people with disadvantaged backgrounds, including newly arrived migrants [8]. It offers international educational mobility activities (projects) (i.e. exchanges, trainings, cooperation activities) for pupils, teachers, students, academics, professionals and youth workers, linking formal, informal and non-formal learning paradigms [9]. These projects follow a specific lifecycle (from setting goals, through planning, financial resources acquisition, project implementation and evaluation).

2. RESEARCH SUBJECT AND DESIGN

The COVID-19 pandemic had a significant impact on Erasmus+ projects and one of the main research goals was to study how Erasmus+ project leaders managed to carry on with the implementation of their activities during this

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challenging time. Therefore, the key research questions included:

- Which competences are useful in the management of Erasmus+ projects, according to project leaders?
- Which competences are especially useful in the management of Erasmus+ projects in times of COVID-19 pandemic, according to project leaders?
- Which of the three blocks of competences is most important in the management of Erasmus+ projects?

The research presented in this article took place in December 2020 and was carried out among 990 Erasmus+ Polish project leaders coming from public, non-governmental and private sectors who implemented Erasmus+ projects during Covid-19 pandemic. An anonymous Computer-Assisted Web Interview (70 questions – closed and open-ended) was used and data collection process took 5 weeks.

3. THEORETICAL BACKGROUND

The research discussed in the present article is based on the teachers' competence model proposed by P. Poszytek and M. Madalińska-Michalak [10]. The model argues that professional competences are based on three pillars: 1) professional knowledge, 2) professional practice and 3) professional identity and commitment. The model offers also a distinction between professional proficiency level: level 1 – beginner, level 2 – specialist and level 3 – expert. This model was adapted to the research needs and three pillars were applied to Erasmus+ project coordinators and can be presents in a form of a table, where each pillar of professional work is divided into three stages of professional advancement.

The research is also grounded in the following management theories: the scientific approach of F.W. Taylor [11] and H. L Le Chatelier [12]. Taylor's system was based on four key elements: (1) scientific approach to each aspect of human work; (2) scientific recruitment followed by proper training of workers so that each worker is assigned to proper tasks in which he will achieve maximal efficiency; (3) cooperation between managers and workers; (4) almost equal distribution of responsibilities between managers and workers [13]. In the context of this theory, the aspects of proper distribution of tasks according to relevant expertise and ability to cooperate are the essence of the nature of Erasmus+ projects.

Le Chatelier's system of organized cycle was based on the following assumptions: (1) establishing goals and objectives; (2) planning activities including means and conditions needed to achieve a goal; (3) acquiring, preparing and distribution of resources needed to realize the plan; (4) plan realization, or implementation; (5) supervision and results assessment in line with established goals and objectives [14]. Le Chatelier's cycle fully reflects the life cycle of Erasmus+ projects: from goals, through planning and acquiring resources (both manpower and financial) to plan realization and implementation.

The Polish perspective must be mentioned here in the form of Adamecki's rules of functioning of organizations: (1) the rule of the division of responsibilities between managers and workers; (2) the rule of concentration and integration – referring to specialization of organization's units and their complementarity; (3) the rule of harmony – all units work and cooperate with each other [15]. In this case as well one can see full reflection of the nature of Erasmus+ projects' management where a proper mix of responsibilities among project coordinator and project partners and an adequate mix of expertise among project partners are an important part of ex-ante assessment of projects.

4. RESEARCH ON PROJECT COORDINATORS' COMPETENCES

In 816 cases (out of 990 project leaders who filled in the survey) the project leaders implemented project activities between March and November 2020, namely in the peak of the pandemic in Poland. 80% of respondents came from the public sector (schools, universities). Non-governmental organisations and private sectors were represented by 13% and 7% respectively. In most cases the projects implemented during the pandemic involved from 1 to 3 international partners. 16% of the project leaders claimed to have carried out a project in question with 5 or more partners from abroad. It is worth mentioning that 26% of the respondents admitted to having coordinated up to 3 Erasmus+ projects simultaneously during the pandemic. 32% of respondents were initiators and main coordinators of their projects while 51% joined an already existing partnership.

The research examined the self-perception of the competences among Erasmus+ project leaders:

- Digital and technical competences (the use of computer in everyday work, work with online documents)

- Managerial competences (cooperation with other people, team coordination)
- Cognitive competences and reasoning (pro-activeness, innovation, openness to challenges, critical thinking)
- Social and psychosocial competences (relations with people and managing emotions, adaptability and managing stress during the pandemic, maintaining contacts, cooperation and communication)

Each of the above-mentioned dimensions was verified against the reliability of scales with Cronbach's Alfa measure. The values range from 0.91 in the case of the use of computer in everyday work to 0.55 in the case of critical thinking. It is assumed that the scale is reliable if the value is over 0.7 (with value span from 0 to 1), therefore only for one dimension (critical thinking) the value of the scale was not deemed reliable.

The profile of average level of competences is presented in the table below:

Competences	Dimensions	Average level (scale 1-5[2])
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

The Erasmus+ project leader's competence profile attributed the highest score to the use of the computer in everyday work and work with online documents. Slightly lower scores were obtained for cognitive competence, managerial competence and cooperation with people. On the other hand, the lowest score was accorded to adaptability and managing stress during the pandemic. In case of all competences, the scores were slightly higher for project leaders who finished projects successfully than for leaders who suspended or prolonged their projects because of COVID-19 pandemic.

It must be noted however that the assessment presented in the table above is based on self-evaluation of the respondents and therefore is of a declarative character.

Moreover, as much as 72% of project leaders stated that the pandemic situation required introducing significant changes in the project and another 22% had to implement minor changes. Only 3% of the respondents claimed that they did not have to change anything in their projects as a result of the Covid-19 pandemic (and 3% answered "I do not know").

As much as 62% of project leaders who took part in the study managed to carry out successfully only less than half of the project activities initially planned, as a result of Covid-19 pandemic. There is a statistically significant difference with respect to the level of managerial competences in the dimension of team coordination between project leaders who carried out their projects in less than 25% and those who succeeded in carrying out more than 75% of project activities.

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

Furthermore, project leaders with a lower level of uncertainty and stress and at the same time with higher adaptation abilities had slightly higher average levels of cognitive, managerial and digital competences with the exception of managerial competence in its dimension related to cooperation with other people.

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

Finally, in the older age cohort (46 years old and more) lower average score for social competence in the dimension of adaptability and managing stress was observed, which may mean that it was more difficult for them to cope with the situation of pandemic than for those of age less than 46.

5. CONCLUSION

The research demonstrated that on the average, Erasmus+ project coordinators have a relatively high level of 4.0 competences (based on their self-assessment), especially with respect to digital and technical skills and cognitive competences. Furthermore, in the demanding time of Covid-19 pandemic, the competences 4.0, to a certain extent, play role in successful management of Erasmus+ projects, especially regarding to computer use-related and managerial competences. Finally, stress-efficiency relation was observed with respect to the implementation of Erasmus+ projects in Covid-19 pandemic.

6. ACKNOWLEDGEMENT

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