AMCIS 2022 Proceedings

SIG GlobDev - Global Development

Aug 10th, 12:00 AM

A Shift Towards Remote Education and Work at a University: A Preliminary Case Study

Janusz Stal
Cracow University of Economics, stalj@uek.krakow.pl

Jan Madej
Cracow University of Economics, madejj@uek.krakow.pl

Follow this and additional works at: https://aisel.aisnet.org/amcis2022

A Shift Towards Remote Education and Work at a University: A Preliminary Case Study

Emergent Research Forum (ERF) Paper

Janusz Stal
Cracow University of Economics
stalj@uek.krakow.pl

Jan Madej
Cracow University of Economics
madejj@uek.krakow.pl

Abstract

In knowledge-based economies, the growing demand for knowledge and qualified workforce forces the necessity to improve employees' competences. This implies changes in the education system. The main goal of the research is to analyze and evaluate the entire process enabling a university's transition from traditional to remote education and work. Based on a case study, the level of satisfaction of main university stakeholders (students, staff, authorities) will be examined along with determining the impact of remote work on the structure of students and employees, and finally an analysis of expenditures allocated to the implementation of remote education and work.

Keywords

Remote education, remote work, case study, SWOT analysis

Introduction

In knowledge-based economies, the growing demand for knowledge and qualified workforce forces the necessity to improve employees' competences and adopt lifelong learning. This implies changes in the education system. The European Commission (2014) points to the need to modernize higher education, emphasizing the importance of distance learning. Unfortunately, in the case of Poland, a country with a transition economy, the efforts related to higher education so far make little reference to remote education. It becomes necessary, in line with the recommendations of the European Commission, to develop and implement new solutions enabling the use of remote education to a greater extent. It is worth noting that Poland participates in the so-called Process Bologna (Crosier and Parveva 2013) that aims to ensure the comparability in the standards and quality of higher-education qualifications and to raise the prestige of European universities. Therefore, solutions and experiences in the field of remote education in one country can be successfully used in other European countries. Additionally, the pandemic, which has forced the use of distance learning, may also be a catalyst for change, increasing expectations of the main stakeholders (students, teachers, employees) for faster changes in the implementation of remote education (Sadeghi 2019). It should be emphasized that remote education implies the implementation of remote or hybrid work, in line with the current market trends (Yang et al. 2021).

Recent years have brought a rapid increase in research on the methods and forms of remote education, especially in the conditions of the pandemic (Sari and Nayır 2020). However, there is little work dealing with the implementation of remote management and organizational solutions at universities. It should be noted that remote education is facilitated at universities by the work of a vast number of people, including lecturers, administration, and ICT supporting staff. Hence, we propose a broader context for the study, and the aim of the research is to analyze and evaluate the entire process enabling a university's transition to remote education and work. In particular, we would like to answer the following research questions:

RQ1: What measures have been taken to transform a university to remote education and work?

RQ2: How is this transition evaluated by its main stakeholders (students, employees, university authority)?

In order to answer the research questions a case study was undertaken at the Cracow University of Economics, Poland (CUE). The next section presents the research background. Then, the research method

is described, followed by a preliminary case study result description. Finally, the research plan is presented, as well as the research impact both on theory and practice.

Research Background

In developed economies, changes in education leading to remote education have been observed for many years (Clark 2020, Ali 2018). This is confirmed by the rapidly increasing number of papers on the methods and forms of remote education and their impact on the main stakeholders (students, teachers) (based on Google Scholar, research increased by 12% in 2018-2019 and by 220% in 2020-2021). Mazur (2020) indicates the key trends in modern teaching: (1) global e-learning that allows students to obtain diplomas from foreign universities without leaving their homes, (2) data-driven learning and learning personalization and (3) "humanization of distance learning", manifested by activating students in online work environment and facilitating interaction. At the same time, he points out that the Covid-19 pandemic revealed the shortcomings in the level of digitization of universities in Poland. Długosz and Foryś (2020) indicate that the remote education model requires and also develops many soft skills, such as the ability to work independently, time management or high self-discipline. Długosz (2020) also draws attention to the psychological aspects of education and remote work. On the other hand, in the post-pandemic time, a new model of work based on a hybrid form is taking shape (Radonić et al. 2021). The hybrid model may contribute to increasing work efficiency (Gratton 2021). These activities can be a prerequisite for the implementation of remote solutions at universities in order to improve the effectiveness of education and increase work efficiency.

Research Method

As a research method we used a case study, enabling a broad description of a given phenomenon, its in-depth analysis and evaluation (Yazan 2015; Yin 2018). The case study has been conducted at the Cracow University of Economics, Poland. We divided the case study into two stages. To date, we conducted the first stage of the case study, the results of which are presented in the next section. They allow us to answer RQ1. The detailed description of the next stages of the case study, which can provide the answer to RQ2, are described in the Research Plan section.

Preliminary Case Study Results

Taking into account the number of students, CUE is the largest business-oriented state university in Poland, and the second oldest. The University employs nearly 1,400 people, 750 of whom are research or teaching staff and 650 are administration staff. Currently, about 12,000 students study at the University. The organizational structure of the University includes 3 colleges, which are divided into 9 institutes, which include 67 departments. In addition, the University includes units supporting scientific research, cooperation with business environment and also 11 organizational departments. To sum up, the extensive University structure consists of 165 organizational units in total. The key element for remote work in any organization is an appropriate ICT infrastructure. At the beginning of the transformation, CUE has possessed ICT systems, which to a small extent cooperate with each other and supported traditional work and the traditional way of education. The list of these ICT systems is presented in Table 1.

Before the outbreak of the pandemic, remote education and work at CUE was implemented to a limited extent. The only area in which remote work was carried out was education with the use of the university e-learning platform Moodle. It should be noted, however, that despite the positive attitude of students towards remote learning, such a form of teaching was not popular among lecturers and the number of remote classes did not exceed 5%. Significant changes in the field of ICT at the university were planned for the end of 2023 in accordance with the implementation of a document workflow system (DW), providing solutions for remote work.

Since the outbreak of the pandemic, the transformation process has accelerated, but some of the actions taken were temporary. During the pandemic, classes for students were obligatorily carried out remotely, and administrative staff worked in a remote or hybrid mode. In addition, the university equipped its employees with portable computers that allowed access to the university ICT systems (ERP, student service system - USOS) via a virtual private network, and videoconferencing tools for employee collaboration.

System	Function
ERP class system	financial and accounting services, human resources and warehouse management
Student service system (USOS)	study management: (1) enrolling students, (2) handling the diploma theses, (3) surveying and voting
Moodle	e-learning management system platform supporting distance education
Zimbra Collaboration	handling e-mail and communication within the organization
Another	proprietary systems created for the university's needs to collect information about the academic achievements (publications) of employees.

Table 1. CUE ICT systems until 2019

At the same time, the university took steps to develop procedures for education and remote work and to unify the ICT tools used. This meant that the university authorities treated remote work not only as a temporary solution forced by the pandemic, but as a permanent model of work and education. The final decision to implement remote education and work at the university was preceded by a SWOT analysis (Zavadskas, Turskis & Tamosaitiene, 2011) which showed:

- **Strengths**: (1) financial savings (rooms, car parking places, used media), (2) saving time of employees and students (travel time to the university), (3) increasing the university's range (some employees and students lived far away from the university), (4) increasing the employees' and students' competencies and ICT skills, (5) increasing the efficiency and effectiveness of information processes, (6) introducing a new type of work management and monitoring;

- **Weaknesses**: (1) maintaining an appropriate ICT infrastructure and ICT services, (2) the necessity of using compatible ICT solutions by students and university partners, (3) the need to improve the employees' skills, (4) limited employee direct supervision, (5) limited motivational mechanisms and interpersonal relations, (6) blurred identity of employees and students and difficult integration and identification with the university, (7) lower quality of work and education;

- **Opportunities**: (1) competitiveness in relation to other universities offering full-time education, (2) extending cooperation with other universities and organizations, (3) the possibility of studying and work from distant regions and from abroad, (4) implementing new technologies and searching for more efficient solutions, (5) increasing ICT outsourcing, (6) increasing ICT and management related knowledge;

- **Threats**: (1) ICT infrastructure vulnerability to internal and external threats, (2) difficulties in supervising employees, students and university partners, (3) maladjustment (employees, students) to use ICT tools, (4) difficulties in adapting students and employees to remote work (lack of self-discipline, lack of time management skills, lack of motivation, lack of contacts, lack of local conditions), (5) formal and legal requirements of remote education and work, (6) negative psychological and social effects of remote work resulting from isolation.

It should be noted that the university is made up of three groups of stakeholders: students, employees, and university staff (researchers and teachers). The perception of remote work by each of the groups may differ. Hence the identified strengths, weaknesses, opportunities, and threats contained in the SWOT analysis relate largely to the university as an organization.

Five stages of university transformation into remote education and work can be distinguished (Table 2). It should be noted that Stage IV took almost a year, but the action plan adopted by the university was preceded by: (1) a review of the ICT infrastructure owned, (2) an examination of the level of advancement in the use of ICT tools among students and employees, (3) an examination of the level of students' satisfaction with the implementation of remote education in the previous academic year, (4) purchase of the necessary ICT equipment and tools, and (5) training of students and employees. Stage V is currently under implementation. DW implementation should be completed by 2023 and provide solutions supporting remote work with the use of modern ICT tools. It would be then possible to introduce fully remote education and work at the university. This does not mean, however, that research on remote education and work will

no longer be needed. On the contrary, further research will answer a number of questions related to the effects and consequences of such implementation.

Stage and description	Action taken
Stage I: until March 2020 implementation of ICT solutions	integration of available ICT systems; preparation for the DW implementation; using the Moodle platform for remote classes
Stage II: March-June 2020 remote work (March 2020), remote classes, exams (12,000 students) and thesis defenses (4,000 students)	purchase of additional devices for remote work (notebooks, graphic tablets, webcams); purchase of a video teleconferencing software (Zoom); students' and staff training for remote communication for the use of the e-learning platform
Stage III: July-September 2020 development of rules for the organization of the next academic year (2020/2021)	implementation of the distance learning rules with the use of video teleconferencing software and related to remote education and work (MS Teams)
Stage IV: October 2020 - September 2021 development of rules for post-pandemic remote education and work	purchase of a platform (subscription services) for remote education and work (Microsoft Office 365 A3) for all students and university staff (December 2020); pilot training (November 2020), training for administration employees (February-March 2021), training for managerial staff (March-April 2021), training for university teachers (September 2021); pilot DW implementation (March 2021)
Stage V: from October 2021 implementation of the rules and tools supporting remote education and work	DW platform selection (December 2021), the beginning of DW final implementation (February 2022); final decision of using MS Teams for remote education and work in the organization; implementation of the university e-mail service in cloud computing (MS Exchange in Office 365); the usage of additional cloud computing tools (MS Yammer, MS Sway, MS Stream, MS Share Point) for communication, publication of materials as well as intranet creation

Table 2. Stages of shifting the university to remote education and work

Research Plan

In the future, we would like to continue the case study by evaluating the university transformation from the viewpoint of students, employees, and the university authority (RQ2). In particular we plan to:

- conduct surveys among employees and students of CUE in order to examine the level of their satisfaction with remote education and work and to evaluate the implemented ICT solutions; define a set of potential recommendations (best practices) for other universities that would like to implement remote education and work,

- perform statistical analysis of recruitment data concerning applicant structure (their number and place of residence); analysis of data from the human resource system in terms of home distance from university (before and after the transformation),

- analysis of university data concerning financial transformation effects.

The planned research scope is large. We are aware of the existing limitations and difficulties, primarily in the field of financial data analysis and their clear division between remote and on-premise work.

Implications for Research and Practice

The conducted research will contribute to the literature on the use of remote education and work at universities primarily through: (1) determining the impact of remote work on the structure of students and

employees, (2) analysis of expenditure allocated to the implementation of remote education and work, (3) examining the level of satisfaction and changes in the quality of work of students and employees.

The innovativeness of the economy is strongly dependent on the development of higher education and the effectiveness of the available forms of education. The system of higher education in Poland is unified. All Polish state universities are subject to national legal acts that define the organization and university structure and requirements in the field of education and research work. It means that in terms of structure and operation, universities are similar to each other. This may constitute a premise for the generalization of the research results and thereby a valuable contribution to the socio-economic development. Therefore, the potential implications for the practice may include the possible use of the research results by other universities, in particular at the universities with a similar structure and number of employees and students, and by the universities in other countries that are at a similar stage of economical development.

Acknowledgments

REFERENCES

Ali, W. 2020. "Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic", *Higher education studies* (10:3), pp. 16-25.

Clark, J. T. 2020. "Distance education" in *Clinical engineering handbook,* Academic Press, pp. 410-415.

Crosier, D., and Parveva, T. 2013. *The Bologna process: Its impact in Europe and beyond*. Unesco.

Długosz, P. 2020. "Report on the second stage of research on students of the University of Life Sciences. Opinion on distance learning and mental well-being", retrieved from https://rep.up.krakow.pl/xmlui/bitstream/handle/11716/7488/Raport%20Studenci%20UP%20II%20etap.pdf?sequence=1&isAllowed=y

Długosz P., and Foryś, G. 2020. "Remote teaching at the Pedagogical University of National Education Commission in Krakow from the perspective of students and lecturers", retrieved from https://ifis.up.krakow.pl/wp-content/uploads/sites/9/2020/12/Raport-ze-zdalnego-nauczania-w%C5%9Brod-student%C3%B3w-i-pracownik%C3%B3w-UP.pdf

European Commission. 2014. "New modes of learning and teaching in higher education", in *Report European Publication Office*, NC-02-14-899-EN-C, doi: 10.2766/81897.

Gratton, L. 2021. "Four principles to ensure hybrid work is productive work", *MIT Sloan management review* (62:2), pp. 11A-16A.

Mazur, J. 2021. "Remote Learning. Taming the (Un) known Impact of COVID-19 on higher education" [White paper], *Digital Economy Lab*, The Warsaw University, retrieved from https://www.delab.uw.edu.pl/wp-content/uploads/2021/01/ENG-Report_Remote-Learning-Taming-the-Unknown-Impact-of-COVID-19-on-higher-education.pdf

Radonić, M., Vukmirović, V., and Milosavljević, M. 2021. "The Impact of Hybrid Workplace Models on Intangible Assets: The Case of an Emerging Country", *Economic Amphitheater* (23:58), pp. 770-786.

Sadeghi, M. 2019. "A shift from classroom to distance learning: Advantages and limitations", *International Journal of Research in English Education* (4:1), pp. 80-88.

Sari, T., and Nayır, F. 2020. Challenges in distance education during the (Covid-19) pandemic period. Qualitative Research in Education (9:3), pp. 328-360.

Yang, E., Kim, Y., and Hong, S. 2021. "Does working from home work? Experience of working from home and the value of hybrid workplace post-COVID-19", *Journal of Corporate Real Estate*, DOI: 10.1108 / JCRE-04-2021-0015.

Yazan, B. 2015. "Three approaches to case study methods in education: Yin, Merriam, and Stake", *The qualitative report* (20:2), pp. 134-152.

Yin, R. K. 2018. *Case Study Research and Applications: Design and Methods (6th ed.)*. Sage.

Zavadskas, E, K., Turskis, Z., and Tamosaitiene, J. 2011. "Selection of construction enterprises management strategy based on the SWOT and multi-criteria analysis", *Archives of civil and mechanical engineering* (11:4), pp. 1063-1082.