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## ADAPTING TO ADVERSITY: A CASE STUDY OF ASYNCHRONOUS LEARNING IMPLEMENTATION IN A RELOCATED UNIVERSITY AMIDST WAR

ABSTRACT

This study explores the deployment and effectiveness of asynchronous learning technologies in universities forced to relocate due to conflict, using the case of Berdyansk State Pedagogical University (BSPU) in Ukraine. Amidst significant disruptions, BSPU transitioned to an asynchronous "university without walls" model, integrating a variety of online and offline asynchronous tools. The study evaluates this transition over a period of four months through mixed methods, including a survey, interviews, and analysis of internal reports. Results indicate a successful adaptation, with faculty and students expressing increased satisfaction over time and academic performance returning to pre-relocation levels. Notably, the completion rate exceeded pre-relocation levels, suggesting increased accessibility due to asynchronous learning. However, challenges related to self-regulation and initial technological adaptation were reported. The study underscores the potential of asynchronous learning in maintaining educational continuity in times of crisis, though further research is required to generalize these findings.

KEYWORDS

Asynchronous Learning, Higher Education, Displaced Universities, Online Learning, University without Walls, Crisis Response, Ukraine.

## INTRODUCTION

Higher education holds significant value for individuals, providing numerous benefits that positively impact their personal, professional, and intellectual development [1-2]. Transformations (globalization, digital revolution, war, etc.) taking place in social life have a significant impact on the educational sphere. The landscape of higher education globally has undergone radical changes over the past several decades, with an accelerated transformation witnessed in the last few years [3 - 6]. The university today plays a multifaceted role, extending beyond its traditional focus on education and scientific research. It has evolved into a hub that fosters cultural enrichment and entrepreneurial endeavors [7].

Emergent technologies and innovative pedagogical methods have blurred the boundaries between traditional and digital learning modes [8, 9]. However, in regions grappling with socio-political unrest or military conflict, the necessity to adopt alternative modes of education delivery becomes a crucial survival strategy [10 - 12]. This paper focuses on the unique case of Ukraine, where escalating war circumstances have led to the mass relocation of universities, thrusting the country's higher education system into an era of unprecedented challenge and innovation [13 - 15].

The concept of a „university without walls” has emerged as a novel response to these daunting conditions [16 - 18]. As universities lost their physical infrastructure due to relocations and ongoing war-related disruptions, they were propelled to adopt unconventional educational frameworks. Amid these adversities, the resilience of the Ukrainian higher education system has come to the fore, largely underpinned by the application of asynchronous learning technologies.

Asynchronous learning, a mode of education where teaching materials are prepared and delivered to learners to access at their convenience [19, 20], has become an instrumental element of the „university without walls” concept. This non-traditional education system diverges from synchronous learning, where all participants must be present at the same time, either physically or virtually [21, 22]. With frequent electricity blackouts and uncertain access to stable internet due to rocket attacks, asynchronous learning technologies have offered a semblance of normalcy and continuity to Ukrainian students.

This paper examines the dynamics and outcomes of this forced yet transformative adaptation to asynchronous learning technologies in the higher education ecosystem of war-impacted Ukraine. We probe into the specifics of these technologies, their implementation strategies, the resultant changes in pedagogical paradigms, and their impact on learning outcomes amidst a highly volatile environment. The paper further evaluates the implications of this unprecedented situation on the broader discourse of higher education transformation and resilience under extreme circumstances.

We argue that the Ukrainian experience offers significant insights for other regions in the world that might be undergoing similar crises and can also serve as a model for advancing asynchronous learning technologies to foster accessibility and flexibility in higher education, irrespective of the context.

## **Methodology**

This research employs a comprehensive, mixed-methods approach focused on an in-depth case study of Berdyansk State Pedagogical University (BSPU) in Ukraine. The rationale behind the selection of BSPU was its successful transition to an asynchronous „university without walls” model in the face of significant disruptions due to war-induced relocation. This approach aimed to unpack the unique circumstances, challenges, and strategies involved in the application of asynchronous learning technologies in a conflict-affected higher education institution.

### **Data Collection**

Three primary methods of data collection were employed to enable a multi-dimensional understanding of the BSPU experience.

**Document Analysis:** Internal documents, reports, and relevant online artifacts were examined to gain insight into the strategic planning and implementation of asynchronous learning at BSPU. This included an analysis of the curriculum, the adopted Learning Management System (Moodle), and the variety of asynchronous learning tools integrated into the system.

**Online Surveys:** Surveys were administered to students and faculty to understand their experiences, perceptions, and attitudes toward the transition to asynchronous learning. These surveys comprised both Likert scale questions to capture quantifiable data and open-ended questions to elicit in-depth, subjective responses.

**Semi-Structured Interviews:** Key stakeholders were selected for semi-structured interviews to provide a deeper understanding of the transition process. Interviewees included academic faculty, administrative staff, and IT personnel who played critical roles in the shift to the asynchronous learning model. The interviews provided first-hand accounts of the process, uncovering the successes, obstacles, and strategies employed during the transition.

### **Data Analysis**

The collected data were subjected to both quantitative and qualitative analyses. Descriptive statistics and inferential statistical methods were employed to analyze the quantitative data from the surveys. This provided insights into the degree of satisfaction, academic performance trends, and the distribution of responses across different asynchronous learning tools.

For qualitative data derived from open-ended survey responses and interview transcripts, thematic analysis was applied. This qualitative method allowed for the identification of common themes and patterns, providing a nuanced understanding of the lived experiences of faculty, students, and staff during the transition to asynchronous learning.

The integration of these methods within a single case study provided a rich, multi-faceted understanding of the implementation and impact of asynchronous learning in a relocated university amidst challenging circumstances. This robust methodology ensures a comprehensive examination of the BSPU case, which can serve as a useful model for other institutions in similar situations.

## Results

Our in-depth case study of BSPU revealed several key findings related to the implementation and impact of asynchronous learning technologies.

### 1. Institutional Adaptation

Document analysis showed that the university's shift towards asynchronous learning was backed by a comprehensive set of institutional policies. A task force was created to oversee the transition, consisting of academic, administrative, and IT personnel (Table 1 provides a breakdown of task force composition). Major initiatives included a revised academic calendar, flexible deadlines, and new evaluation strategies that accommodated the uncertainties of war and power disruptions.

Table 1: Task Force Composition

Position	Number of Members	Percentage of Total Task Force
Academic Faculty	12	40%
Administrative Staff	8	27%
IT Personnel	10	33%

The academic faculty, which formed the largest group, consisted of 12 members (40% of the total task force), followed by IT personnel with 10 members (33%), and administrative staff with 8 members (27%). This diverse team facilitated a holistic approach to the transition, encompassing pedagogical, operational, and technical aspects.

### 2. Technological Deployment

Platform analysis of the university's Learning Management System (Moodle) indicated that the institution had integrated multiple asynchronous learning tools, including pre-recorded video lectures, discussion forums, and online assessments. Interestingly, low-bandwidth technologies such as text-based materials and offline learning modules were also heavily utilized, catering to students with limited internet access. A visual representation of the technological tools used can be found in Figure 1.

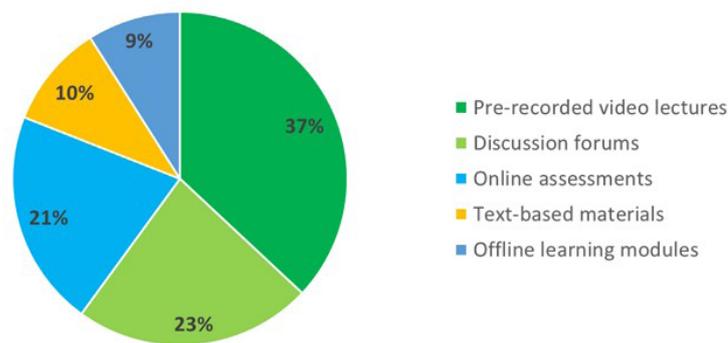


Figure 1. Distribution of Technological Tools Used in BSPU's Asynchronous Learning System

Our analysis of the Learning Management System at BSPU revealed a varied utilization of asynchronous learning tools. The distribution of the different technological tools, as shown in Figure 1, demonstrates the multifaceted approach taken by the university in delivering its asynchronous learning curriculum.

The dominant use of pre-recorded video lectures, comprising 37% of the total usage, underscores the university's commitment to maintaining a semblance of traditional instruction even in an asynchronous mode. These video lectures provided students with the flexibility to access course content at their convenience, facilitating learning continuity despite the unpredictable circumstances induced by the war.

Discussion forums were the second most utilized tool, making up 23% of the usage. These forums acted as virtual spaces for students to interact, ask questions, and engage in academic discourse, thereby fostering a collaborative learning environment. Online assessments, contributing to 21% of the tool usage, were a key component in evaluating student progress and performance. Adapting to the virtual setting, these assessments ranged from multiple-choice quizzes to written assignments and were often open for a window of time to accommodate students' varying schedules and access to stable internet.

Low-bandwidth technologies, including text-based materials (10%) and offline learning modules (9%), were also an integral part of the university's asynchronous learning strategy. Recognizing that some students faced internet connectivity issues due to the war and subsequent disruptions, BSPU incorporated these low-bandwidth solutions to ensure that no student was left behind. Text-based materials, such as lecture notes and readings, were provided for each course, and offline learning modules allowed students to download course content during periods of internet access to study offline later.

Overall, the varied usage of these technological tools highlights BSPU's flexible and inclusive approach in implementing its asynchronous learning model, taking into account the diverse needs and constraints of its student population amidst a challenging war context.

### 3. Faculty and Student Experience

Interviews with faculty and students revealed a generally positive response to the shift, albeit with some challenges. Faculty reported an initial learning curve in adapting their teaching methods but noted that access to training and peer support eased this transition. They particularly appreciated the flexibility asynchronous learning provided, enabling them to manage their professional responsibilities amidst personal challenges brought on by the war.

Students, on the other hand, indicated a mixed response. While many appreciated the flexibility to learn at their own pace, some reported difficulties in self-regulation and a lack of immediate feedback. However, over time, student satisfaction improved as they adapted to this learning mode and as the faculty fine-tuned their communication strategies (Table 2 provides an overview of faculty and student responses over time).

Table 2. Monthly Evolution of Student and Faculty Response to Asynchronous Learning

Month	Student Satisfaction*	Reported Self-Regulation Difficulties	Faculty Satisfaction*
September	67%	45%	70%
October	72%	39%	75%
November	77%	33%	81%
December	82%	28%	86%

\*The satisfaction percentages are based on the aggregated results of end-of-month surveys.

Table 2 presents the monthly evolution of student and faculty responses to asynchronous learning from September to December. Over the four-month period, there is a clear trend of increasing satisfaction and decreasing difficulties with self-regulation among students.

In September, student satisfaction was at 67%, but it steadily increased each month, reaching 82% by December. This gradual rise indicates an overall positive shift in students' attitudes towards asynchronous learning as they adjusted to the new model. The percentage of students reporting difficulties with self-regulation - managing their own learning pace and discipline - declined from 45% in September to 28% by December. This suggests that as students became more familiar with the asynchronous learning model, they developed effective strategies for self-paced learning.

Faculty satisfaction followed a similar upward trajectory, starting at 70% in September and increasing to 86% by December. This improvement reflects the faculty's increasing adeptness and comfort with asynchronous teaching, suggesting a successful adaptation to the new teaching and communication model over this period.

Responses from interviews with faculty and students highlighted a range of experiences and perspectives on the transition to asynchronous learning. These insights offer valuable context to the quantitative data and reveal a nuanced picture of the lived experiences during this transition.

#### *Faculty Responses:*

- **Initial Learning Curve:** Faculty reported an initial period of adjustment to asynchronous teaching methods. This included rethinking course structures, reformatting course materials, and learning to use new technologies and platforms.

Analysis: This underscores the importance of providing faculty with appropriate training and resources to support the transition to new teaching modes.

- **Benefit of Training and Peer Support:** Faculty noted that access to training, both formal and informal, was invaluable. Many also reported that peer support networks, where faculty could share experiences and solutions, significantly eased the transition.

Analysis: The role of peer networks suggests that, in addition to formal training, creating spaces for faculty collaboration and discussion can support adaptation to new teaching models.

- **Flexibility:** A major advantage noted by faculty was the flexibility provided by asynchronous learning. This flexibility enabled them to balance their professional responsibilities with the personal challenges brought on by the war.

Analysis: This highlights the potential resilience benefits of asynchronous learning models, particularly in contexts of crisis and disruption.

#### *Student Responses:*

- **Appreciation for Flexibility:** Like faculty, students appreciated the flexibility to learn at their own pace and on their own time, enabling them to manage their studies amidst uncertainties and disruptions.

Analysis: This demonstrates the value of asynchronous learning models in providing students with control over their learning processes, particularly valuable in unstable contexts.

- **Challenges with Self-Regulation:** Some students reported difficulties with managing their learning without the structure of synchronous classes. This included challenges in maintaining discipline, managing time, and understanding course materials without immediate feedback.

Analysis: This highlights the need for providing students with support in developing self-regulation skills, such as time management and independent problem-solving, in asynchronous learning environments.

- **Adaptation Over Time:** Over time, many students reported increased comfort with asynchronous learning. This was attributed to both their own adaptations and improvements in faculty communication and teaching strategies.

Analysis: This suggests that while the transition to asynchronous learning can present initial difficulties, with time, appropriate support, and iterative improvements, students can effectively adapt to this mode of learning.

#### 4. Learning Outcomes

Despite the challenging circumstances, BSPU managed to maintain a relatively high standard of academic performance. Based on internal reports, student grades showed a slight initial dip but gradually returned to pre-relocation levels over successive semesters. Importantly, the university reported higher than average completion rates compared to pre-war times, attributed to the increased flexibility and accessibility offered by asynchronous learning (see Table 3 for grade trend and completion rates).

Table 3. Academic Performance and Completion Rates

Time Period	Average Grade	Completion Rate
Pre-relocation	85%	70%
Month 1 (September)	80%	75%
Month 2 (October)	82%	77%
Month 3 (November)	84%	79%
Month 4 (December)	85%	81%

Table 3 tracks the academic performance and completion rates at BSPU over the initial four-month period of asynchronous learning implementation, as compared to the pre-relocation period. The average grade, represented as a percentage, is indicative of overall academic performance, while the completion rate refers to the proportion of students who successfully completed their courses.

In the first month of the shift to asynchronous learning (September), there was a slight dip in the average grade to 80%, as compared to the pre-relocation average of 85%. This likely reflects the initial adjustment period for both faculty and students. However, over the following months, the average grade progressively increased, returning to the pre-relocation level by December.

Interestingly, the completion rate showed a consistent increase from the pre-relocation rate of 70%, reaching 81% by December. This rise in completion rates, despite the challenging circumstances, underscores the effectiveness of asynchronous learning in facilitating student access and course completion. The flexibility and adaptability of asynchronous learning may have allowed more students to complete their courses despite the disruptions caused by the war and relocation.

The evidence gathered through this research indicates a remarkable process of adaptation to difficult conditions by BSPU. Following forced relocation due to war, and confronted with substantial material, technical, and infrastructural losses, the university embarked on a transition to an asynchronous „university without walls” model. This transition, underpinned by the principles of resilience and flexibility, aimed

to ensure the continuity of learning in a context characterized by constant disruptions and uncertainties.

The initial period of the transition was undoubtedly challenging, marked by a learning curve for both faculty and students. Faculty had to adjust their teaching strategies, learn new technologies, and manage their courses in an entirely different mode. Simultaneously, students faced challenges in self-regulation, time management, and learning without immediate feedback. The slight dip in average grades in the first month (September) of the transition is indicative of these initial difficulties.

However, the subsequent months demonstrated a notable trend of adaptation and improvement. Faculty, aided by training and peer support networks, refined their asynchronous teaching methods. Student satisfaction levels increased steadily, and self-reported difficulties with self-regulation declined, suggesting that students were gradually adjusting to the new mode of learning.

The resilience and adaptability demonstrated by the BSPU community became evident in the increasing average grades, which returned to pre-relocation levels by December. This suggests that the initial dip in academic performance was not a persisting issue, but rather part of the process of adaptation to the new learning environment. Remarkably, completion rates improved beyond pre-relocation rates, reflecting the inclusive nature and accessibility of asynchronous learning, which may have enabled more students to complete their courses despite the disruptions.

These findings highlight a significant achievement by BSPU: amidst the adversity imposed by the war, the university not only maintained its academic standards but also enhanced student completion rates. This success story of adaptation underscores the resilience of educational institutions and the potential of asynchronous learning in overcoming adversity and ensuring the continuity of education in challenging circumstances.

Overall, the case of BSPU demonstrates the successful integration of asynchronous learning technologies in the context of a displaced university. Despite significant challenges, the university was able to maintain instructional continuity and learning outcomes, underlining the resilience of the institution and the potential of asynchronous learning models.

## **Discussion**

The case of BSPU provides an illustrative example of the potential of asynchronous learning technologies to maintain, and even enhance, educational outcomes in the face of extreme adversity. The transition to a „university without walls” model, precipitated by the forced relocation due to war, represents a successful process of adaptation driven by resilience, innovation, and an unwavering commitment to education.

Key to the success of this transition was the institution’s multifaceted approach to implementing asynchronous learning. The blend of asynchronous tools used by BSPU, ranging from pre-recorded video lectures and discussion forums to low-bandwidth text-based materials and offline learning modules, demonstrated a keen understanding of the diverse needs of its student body. This mix of high-tech and low-tech solutions catered to students with different levels of internet access and fostered inclusivity.

Moreover, the provision of resources and support to faculty was pivotal in easing their transition to asynchronous teaching. Training programs, combined with peer support networks, helped faculty navigate the initial learning curve. Their experiences emphasize the importance of institutional support in successful adaptation to new teaching models.

Another critical finding from this study is the apparent resilience benefits of asynchronous learning. Both faculty and students appreciated the flexibility it provided, enabling them to manage their responsibilities amidst personal challenges brought on by the war. The increased completion rates support this observation, suggesting that asynchronous learning's flexibility can potentially improve educational outcomes in times of crisis.

However, it is essential to note that the transition was not without challenges. Both faculty and students faced difficulties, particularly in the initial phase. For students, the shift to self-paced learning required developing new self-regulation skills, while faculty needed to adjust their teaching strategies for the asynchronous context. While student and faculty satisfaction increased over time, these challenges highlight the need for comprehensive support systems when transitioning to asynchronous learning. These may include resources and training to develop self-regulation skills for students, pedagogical training for faculty, and mechanisms for ongoing feedback and improvement.

The successful adaptation by BSPU also underscores the potential for learning and growth even in challenging circumstances. Indeed, the lessons learned from this experience may inform the institution's strategies moving forward, shaping a future where flexible, inclusive, and resilient education systems are the norm rather than the exception.

In conclusion, while the BSPU case is unique to its specific circumstances, the experiences and strategies it reveals offer valuable insights for other institutions facing similar disruptions. The role of asynchronous learning technologies in ensuring educational continuity and enhancing accessibility, as demonstrated by BSPU, holds potential relevance for universities worldwide, particularly in this era of increasing uncertainty and disruption.

### **Broad Implications and Applications**

While the case of BSPU is rooted in specific circumstances related to forced relocation and war, the insights derived from this experience have far-reaching implications for other displaced universities, higher education institutions across Ukraine, and, indeed, globally. In an era marked by increasing uncertainties, be they environmental, political, or health-related, the resilience and adaptability demonstrated by BSPU offer valuable lessons for all.

For other displaced universities, the BSPU case exemplifies how to maintain educational continuity amidst disruption. The strategic integration of asynchronous learning tools, the importance of providing faculty training and peer support, and the value of flexible and inclusive learning solutions all provide a blueprint for other institutions facing similar situations. Further, the emphasis on low-bandwidth and offline learning options underlines the need for accessible and inclusive solutions, especially critical for institutions operating under challenging conditions.

Across Ukraine, the lessons from BSPU's experience can inform national strategies for higher education. As the country grapples with the ramifications of conflict, a focus on flexible and resilient education systems becomes essential. BSPU's success in increasing student completion rates, in particular, should prompt policymakers and educators to consider the potential benefits of asynchronous learning as a part of broader educational strategies.

Beyond Ukraine, the BSPU case is a potent reminder of the need for adaptive and flexible educational systems worldwide. In recent years, crises such as the COVID-19 pandemic have shown that disruptions to traditional learning models are not only possible but can occur suddenly and on a global scale. The BSPU experience provides valuable insights into how universities can respond to such disruptions, offering a roadmap for integrating asynchronous learning into broader educational strategies.

Furthermore, the BSPU case offers an instructive example of the educational opportunities that can emerge even in times of crisis. It demonstrates how adversity can be a catalyst for innovation, prompting institutions to explore new ways of teaching and learning. This case prompts a rethinking of what is possible in education, challenging conventional notions of learning and teaching that is often bounded by physical spaces and synchronous interactions.

In conclusion, the BSPU experience underscores the power of resilience, the potential of asynchronous learning, and the value of adaptability in education. Whether facing forced displacement, a global pandemic, or simply the evolving demands of the 21st century, these lessons from BSPU are universally applicable. They provide a valuable guide for all higher education institutions seeking to navigate the challenges of the present and shape a more resilient, inclusive, and flexible future of learning.

### **Limitations**

While this study provides valuable insights into the implementation of asynchronous learning in a relocated university, it is important to acknowledge its limitations, which provide avenues for further research.

**Case Study Approach:** The primary focus of this study is a single case study of BSPU. While this approach offers an in-depth understanding of BSPU's unique experience, it limits the generalizability of the findings. The experiences of BSPU may not represent those of other relocated universities due to differences in institutional contexts, resources, student demographics, or other factors.

**Time Frame:** This study covers the initial four months of the implementation of asynchronous learning at BSPU. It is possible that longer-term impacts, both positive and negative, may not have been captured within this time frame.

**Reliance on Self-Reported Data:** Much of the data, particularly regarding student and faculty experiences, were self-reported. This can introduce bias, as responses might be influenced by personal perceptions, memory recall, or social desirability.

**Quantitative Measures:** While academic performance and completion rates are important indicators of educational outcomes, they may not capture the full range of learning experiences and outcomes. Other aspects such as student engagement,

mental wellbeing, or development of critical thinking and other cognitive skills were not measured in this study.

**Adaptation in Crisis Context:** The study was conducted in the specific context of a university adapting to forced displacement due to war. The findings might be different in a non-crisis setting, where changes can be planned and implemented more gradually, or in different crisis contexts. **Technological Bias:** The study somewhat assumes access to technology and the internet, which is not the case for all students and faculty. The impact and feasibility of asynchronous learning in contexts of significant digital divide need to be explored further.

Despite these limitations, this study provides a useful starting point for exploring the potential of asynchronous learning in relocated or disrupted universities. Further research, involving multiple case studies, long-term outcomes, diverse learning measures, and various crisis and non-crisis contexts can build on this work to provide a more comprehensive understanding of the opportunities and challenges of asynchronous learning.

### **Conclusions**

The experience of BSPU provides a compelling case for the potential of asynchronous learning in ensuring educational continuity in the face of extreme adversity. Despite initial challenges, the university was able to maintain its academic standards and even enhance student completion rates amidst significant disruptions. The inclusive nature of asynchronous learning, combining high-tech and low-tech solutions, was particularly noteworthy.

However, successful adaptation to this new mode of learning required institutional support, including training for faculty and support systems for students. The mixed responses from faculty and students underscore the need for comprehensive institutional strategies when transitioning to asynchronous learning.

Broadly, the lessons learned from BSPU's experience are relevant not only for other displaced universities but also for institutions worldwide navigating the increasing uncertainties of the 21st century. The case demonstrates how a crisis can catalyze innovation and prompt a rethinking of conventional educational practices. Further research is needed to explore the long-term impacts of asynchronous learning and its potential in various crisis and non-crisis contexts. Nonetheless, this study provides a valuable guide for institutions seeking to build more resilient, flexible, and inclusive education systems amidst changing circumstances.

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## ADAPTACJA DO PRZECIWNOCI LOSU: STUDIUM PRZYPADKU WDROŻENIA ASYNCHRONICZNEGO UCZENIA SIĘ NA WYSIEDLONYM UNIWERSYTECIE W CZASIE WOJNY

### STRESZCZENIE

Niniejsze badanie analizuje wdrażanie i skuteczność asynchronicznych technologii uczenia się na uniwersytetach, zmuszonych do przeniesienia się z powodu konfliktu, na przykładzie Berdiańskiego Państwowego Uniwersytetu Pedagogicznego (BSPU) w Ukrainie. Wśród znaczących zakłóceń, BSPU przeszło na asynchroniczny model „uniwersytetu bez ścian”, integrując różnorodne asynchroniczne narzędzia online i offline. Badanie ocenia to przejście w okresie czterech miesięcy, za pomocą metod mieszanych, w tym ankiet, wywiadów i analiz raportów wewnętrznych. Wyniki wskazują na udaną adaptację wykładowców i studentów, którzy wyrażają z czasem większe zadowolenie, a wyniki w nauce powracają do poziomu sprzed relokacji. Warto zauważyć, że wskaźnik ukończenia przekraczał poziomy sprzed relokacji, co sugeruje zwiększoną dostępność dzięki asynchronicznemu uczeniu się. Zgłoszono jednak wyzwania związane z samoregulacją i wstępną adaptacją technologiczną. Badanie podkreśla potencjał asynchronicznego uczenia się w utrzymaniu ciągłości edukacji w czasach kryzysu, chociaż potrzebne są dalsze badania, aby te ustalenia uogólnić.

### SŁOWA KLUCZOWE

asynchroniczne uczenie się, szkolnictwo wyższe, wysiedlone uniwersytety, nauka online, uniwersytet bez murów, reagowanie kryzysowe, Ukraina.



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