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ONLINE-BASED COMPETITIONS IN EDUCATIONAL TOURISM IN UKRAINE: AN EMPIRICAL STUDY IN CRISIS CONTEXTS

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Abstract. Information and communication technologies have become widely integrated into education in Ukraine and globally. Their relevance significantly increased during crisis periods, particularly under COVID-19 quarantine restrictions and martial law in Ukraine. At the same time, the application of distance-based formats in educational tourism remains insufficiently studied. The purpose of this article is to generalize and scientifically interpret the experience of organizing online competitions in sports tourism and orienteering in Ukraine during 2020–2023. The study analyzes the practice of implementing such events by the Ukrainian State Center for National-Patriotic Education, Local History and Tourism of Student Youth and regional after-school education institutions. The research identifies the main types of tasks used in distance competitions, examines methodological and technical challenges, and analyzes participant composition, workload levels, and technical conditions of participation. The scientific novelty lies in the development of a classification of online competitions by content and technological implementation, as well as in substantiating, through methods of mathematical statistics, the influence of visual stimulus material quality and device type on competition outcomes. Expert evaluation of visual content made it possible to justify methodological approaches aimed at minimizing the impact of technical factors. The practical significance of the study consists of outlining ways to improve the organization of online competitions, including mechanisms for preventing academic dishonesty and violations of the Fair Play principle, as well as recommendations for task design that account for participants' technical capabilities. The findings confirm that, under appropriate methodological and technical conditions, online competitions can serve as an effective instrument of educational tourism in crisis contexts and a complementary format to face-to-face activities.

Keywords*:* educational tourism, sports tourism, orienteering, information and communication technologies (ICT), online competitions, distance education.

1. INTRODUCTION

One of the key tasks of modern education is the search for ways to transform educational processes, develop and implement new forms and methods of work, and respond to the challenges of a rapidly changing world. Educational and tourism-related activities represent an effective form of organizing the educational process and are commonly united under the concept of educational tourism (Tomasi et al., 2020). At the same time, educational tourism evolves alongside societal changes (McGladdery & Lubbe, 2017), and one of its significant development vectors in contemporary conditions is the wide implementation of information and communication technologies (Dzitac et al., 2025; Lee et al., 2021), including online formats of educational and competitive activities, which make it possible to overcome challenges associated with emergency situations such as epidemics, armed conflicts, and other crisis

conditions.

In this study, the term "online" is used as an umbrella concept to denote both synchronous and asynchronous formats of educational and competitive activities implemented with the use of digital and information-communication technologies.

Among the various forms of activity implemented by educational institutions, competitions and contests occupy a prominent place. They play a particularly important role in educational tourism (Martínez-Roget & Rodríguez, 2021). Competitions in sports tourism and orienteering contribute to preparation for tourist expeditions, while the competencies developed during such competitions are subsequently applied in educational excursions and travel activities. Under non-crisis conditions, competitions are predominantly conducted in face-to-face formats. In sports tourism, on-site competitions involve completing routes as quickly and accurately as possible (on foot, by bicycle, skis, watercraft, etc., depending on the type of tourism), overcoming various obstacles, and complying with established rules. In orienteering, competitions involve covering a designated course in the shortest possible time using a map and compass or accurately identifying the locations of controls.

During crisis periods, the organization of mass events in traditional formats becomes limited or impossible. This creates an urgent need to identify alternative forms of organizing such activities, particularly through the use of information and communication technologies, which ensure the continuity of the educational process.

In contemporary academic research, educational tourism is considered a multidimensional phenomenon that combines educational, social, cultural, and economic functions. A significant body of research focuses on the analysis of factors influencing its development, market trends, and spatial organization. In this context, educational tourism is conceptualized as a form of mobile learning aimed at acquiring competencies outside traditional educational environments (Tkachuk, 2010), as well as a tool for socio-economic and cultural recovery, particularly in post-crisis contexts (Silichova, 2024). A number of studies highlight current trends in the development of educational tourism in Ukraine, including the growth of local travel, excursions, and hiking activities, the increase in patriotic-oriented educational tourism events, and challenges caused by martial law, along with proposed strategies for overcoming them (Naumchuk, 2022; Narovlianskyi, 2025).

A separate research strand focuses on educational tourism within the system of after-school education. These studies emphasize organizational models, the educational potential of tourism and local history activities, and their role in fostering cognitive engagement and social skills among learners (Redina, 2000). The historical perspective on the development of after-school educational institutions specializing in tourism and local history allows tracing the evolution of forms and methods of educational tourism and their adaptation to changing societal demands (Kosylo, 2018).

In international research, educational tourism is predominantly examined through the lens of sustainable development, intercultural communication, and non-formal education. Educational travel is analyzed as an effective instrument for environmental education and the development of responsible attitudes toward the environment (King et al., 2020), as a component of international educational mobility within academic exchange programs (Lupu et al., 2024), and as a factor contributing to the achievement of the Sustainable Development Goals (Dwyer, 2022).

In parallel with the development of educational tourism, academic discourse has increasingly focused on distance education and the digital transformation of the learning process. International studies characterize distance education as one of the most dynamically developing sectors of contemporary education (Ghosh et al., 2012). Current research trends concentrate on the analysis of educational content, the effectiveness of digital educational technologies, and learners' perceptions of online learning across different groups (Szulc, 2020). Particular attention is given to methodological aspects of organizing distance education, the use of digital devices, and comparative analyses of learning outcomes in distance versus face-to-face formats (Bušelić, 2012).

Within the Ukrainian academic context, recent years have seen efforts to generalize the experience of

implementing distance education across various educational sectors (Londar & Pietsch, 2023; Fedoniuk et al., 2021; Kosenko et al., 2025; Bykov et al., 2022). Studies also examine the application of distance-based methods in sports orienteering, particularly in relation to training processes and competition organization, analyzing their advantages, limitations, and development prospects (Lukatskyi, 2022). Furthermore, the conditions for the effective use of information and communication technologies in the educational process of after-school education institutions, as well as the specifics of teacher preparation for ICT integration, have been substantiated, forming an important foundation for the implementation of distance-based activities (Narovlianska, 2025).

At the same time, analysis of scientific sources indicates that despite the substantial body of research on educational tourism and distance education, there is a lack of systematic studies that comprehensively address the use of information and communication technologies and distance-based formats within educational tourism. In particular, the organization and implementation of online competitions in sports tourism and orienteering as a specific form of educational activity combining competitive, instructional, and tourism-related components remain insufficiently studied.

The purpose of this study is to generalize the experience of organizing online competitions in educational tourism in Ukraine, particularly during crisis periods such as the COVID-19 quarantine and the period of martial law.

2. RESEARCH METHODS

The study is based on materials from the current archive of the Ukrainian State Center for National Patriotic Education, Local History, and Tourism of Student Youth, which include documentation related to the organization and implementation of educational tourism activities and online competitions. These materials cover the period from 2018 to 2024 and reflect the practical experience of organizing competitive and educational events under both non-crisis and crisis conditions.

To achieve the purpose of the study, a set of qualitative and quantitative research methods was applied. Methods of analysis and classification were used to systematize the accumulated experience of organizing online competitions within educational tourism and to identify their key content-related and technological characteristics. The observation method was employed to examine the specific features of implementing digital and distance-based formats in the educational process, particularly under conditions of quarantine restrictions and martial law.

In addition, a questionnaire survey of participants in the educational process was conducted to identify their prior experience, attitudes, and challenges associated with participation in online competitive activities. The survey included both competitive and non-competitive (technical) questions, which made it possible to analyze not only learning outcomes but also technical and organizational aspects of participation in online competitions.

An expert evaluation method was applied to analyze the impact of the quality of visual stimulus materials on competition results, depending on the type of digital devices used by participants. Experts assessed the quality of visual materials (photographs, graphic images, and cartographic materials) in terms of their clarity, interpretability, and suitability for use on devices with different screen sizes, including small-screen devices such as smartphones.

To ensure the validity and reliability of the findings, the collected empirical data were processed using methods of mathematical statistics. Statistical analysis was applied to identify significant differences in competition results depending on device type and to verify hypotheses regarding the influence of visual stimulus characteristics on participants' performance in online competitions.

3. RESULTS AND DISCUSSION

The widespread introduction of distance-based educational formats into the practice of educational institutions, including educational tourism, was associated with the need to ensure the continuity of the

educational process under the conditions of the COVID-19 pandemic, which began globally and in Ukraine in 2020. An analysis of archival materials and regulatory documents indicates that the transition to distance-based formats in 2020 was primarily driven by quarantine restrictions. In particular, on March 11, 2020, Resolution No. 211 of the Cabinet of Ministers of Ukraine prohibited learners from attending educational institutions (Cabinet of Ministers of Ukraine, 2020). In implementation of this resolution, the Ministry of Education and Science of Ukraine issued Letter No. 1/9-154 on the same day, which provided for the development of measures to ensure the continuation of educational activities through distance learning technologies (Ministry of Education and Science of Ukraine, 2020).

During April–May 2020, a number of online-based orienteering competitions (trail orienteering) were organized in Ukraine. The organizers included the Ukrainian State Center for National and Patriotic Education, Local History and Tourism of Student Youth, and the Dnipropetrovsk Regional Orienteering Federation. In particular, the international online-based competition KyivDay-2020 (May 2020) involved nearly 500 participants from 17 countries. The youngest participants were 7 years old, while the oldest were over 80 years of age. Among youth participants, the majority were students of Ukrainian after-school educational institutions.

It should be noted that 2020 became the peak year for the development of online-based orienteering competitions worldwide. In previous years, attempts to promote online-based formats in orienteering were sporadic and did not receive significant support either from the International Orienteering Federation (IOF) or from the majority of athletes and coaches. However, with the introduction of strict quarantine measures, such formats temporarily became almost the only available form of training and competitive activity. Online-based competitions were officially recognized by the IOF, although they did not receive the status of official championships. Competitions and open training sessions in orienteering were conducted by representatives of many countries, and in some cases two to three international events were held on the same day. The most active organizers included representatives from Portugal, the Czech Republic, Spain, Poland, Hong Kong, and others.

From a technological perspective, these events can be divided into two main groups: those organized using widely available online tools—most often solutions from the Google ecosystem of Alphabet Inc. (such as Google Forms, Google Street View, and related services)—and those organized on specialized platforms. Among the latter, the Czech platform TORUS, designed for training and competitions in trail orienteering in the TempO format, became the most widely used and received recognition from the IOF. Attempts to develop specialized platforms for online-based trail orienteering competitions were also made in Ukraine; however, they have not yet achieved wide dissemination or sustained support. As of now, Google Forms remains the most commonly used tool for organizing such events in Ukraine.

The experience accumulated during the period of quarantine restrictions in 2020 contributed to the search for effective organizational solutions after February 24, 2022, when Ukraine found itself under the conditions of full-scale war. The introduction of martial law, active hostilities, temporary occupation of significant territories, and the widespread threat of shelling made it impossible to organize educational activities and competitions in face-to-face formats. Under these circumstances, along with the organization of distance-based education, a series of online-based competitions was introduced as a partial substitute for traditional in-person events, the organization of which during wartime became either impossible or extremely difficult.

In April 2022, the Ukrainian State Center for National and Patriotic Education, Local History and Tourism of Student Youth organized distance-based competitions in tourist knot tying, consisting of twelve stages. Knot tying is an essential skill for participants in hiking activities, which constitute one of the forms of educational tourism. At each stage, participants were required to tie a specific knot defined by the organizers as quickly as possible. To participate, competitors had to submit a video recording of task completion with time fixation via e-mail. However, the use of this approach revealed several technical and security-related challenges.

Observation of the organization of distance-based competitions and analysis of the processes of

material processing showed that, first, the reception of a large number of unprocessed files via e-mail significantly increased cybersecurity risks, including the possibility of receiving malicious files, phishing attacks, or the compromise of user accounts. Second, this approach led to a substantial overload of cloud storage resources used by the organizers, as video files are characterized by large data volumes. At the initial stage, this overload resulted in reaching the available server storage limit, which required urgent expansion of storage capacity and the creation of additional accounts for file reception.

A third challenge was the considerable expenditure of human and organizational resources required for processing the submitted materials. Verification, systematization, and distribution of video recordings among judges demanded significant effort and time.

Despite these difficulties, the video-based format enabled effective assessment of participants' practical skills, which proved particularly valuable under conditions of distance-based operation and generated considerable interest among both participants and educators. A total of 604 participants from nearly all regions of Ukraine took part in the competitions. Among them were children from territories that were temporarily occupied at the time, including Kherson and Berdiansk, as well as participants from Luhansk, Donetsk, and Mykolaiv regions, where active hostilities were ongoing. In addition, a significant number of participants were internally displaced children, including those residing in twelve different countries worldwide.

In May 2022, all-Ukrainian online-based competitions in applied orienteering and topography were organized. The competitions were conducted using Google Forms technology. Participants were offered twenty tasks of various types, including single-choice questions and matching tasks. The absolute majority of tasks required analysis of the provided information and application of previously acquired knowledge to solve topographic problems. The tasks were designed in such a way that answers could not be obtained through simple searches in textbooks or on the Internet.

The competitions attracted considerable interest: more than 400 children from 23 regions of Ukraine participated. At the same time, 14% of participants were children who were forced to stay outside Ukraine. Although the use of Google Forms imposed certain limitations on task formats, this technology significantly simplified and accelerated the process of response verification and result summarization for the organizers.

During the first online-based competitions conducted under martial law, a number of additional features caused by wartime conditions were identified. First of all, the issue of ensuring confidentiality and minimizing risks related to the collection, storage, and publication of personal data became critical, particularly for participants from potentially dangerous regions. This issue is especially relevant given the hybrid nature of modern military conflicts.

Thus, in the final result protocols only surnames and results were indicated, without initials (except in cases of identical surnames). Electronic certificates were sent individually to participants, coaches, or parents using the contact information provided during registration. In addition, taking into account the importance of psychological support and positive motivation of participants, the organizers decided to depart from the traditional sports competition model, which usually recognizes only one winner for each of the first three places. By analogy with academic Olympiads and subject-based competitions, it was decided to recognize up to 50% of participants as winners, with distribution into first, second, and third places in an approximate ratio of 1:2:3.

A new form of online-based competitions implemented using digital platforms and distance-based technologies involved competitions in hiking tactics. The first such competitions were organized by the Vinnytsia Regional Center for Tourism and Local History of Student Youth in the spring of 2022. Participants performed tasks of various types, including textual questions and analysis of photographs and video fragments, which required identification of violations of obstacle-crossing rules or selection of optimal routes.

In June 2022, the Mykolaiv Center for National and Patriotic Education, Local History and Tourism of Student Youth conducted competitions in a distance-based format due to the impossibility of holding

the traditional "Bug Cup" in person. Participants worked in a synchronous format with mandatory use of video cameras. Some tasks involved feedback mechanisms: "athlete-actors," whose roles were performed by center staff, crossed obstacles at a training ground following instructions provided by competition participants.

This format of competitions proved to be more challenging for participants due to increased organizational requirements, the need for stable Internet connectivity, and a higher level of preparedness in tourism techniques and tactics. As a result, the number of participants was relatively small. However, the synchronous format demonstrated significant advantages, particularly in preventing violations of the Fair Play principle, ensuring academic integrity, eliminating external assistance, and increasing participants' stress resilience under time constraints. These conditions more closely simulate real-life situations encountered during in-person competitions, tourist expeditions, and emergency scenarios.

At the same time, some teams were unable to complete their participation due to unstable Internet access. Technical difficulties were experienced not only by teams from regions with active hostilities or temporarily occupied territories, but also by teams located in relatively safe regions. Dependence on network quality remains a serious limitation of synchronous competition formats, especially under strict time constraints for task completion.

Positive feedback from educators and participants encouraged the Ukrainian State Center for National and Patriotic Education, Local History and Tourism of Student Youth to introduce a series of all-Ukrainian online-based competitions in various types of sports tourism. During the second half of 2022 and throughout 2023, competitions in hiking, cycling, and water tourism (which means Rafting and Kayaking) were conducted.

However, from November 2022 to February 2023, the competition cycle was temporarily suspended due to massive emergencies and scheduled power outages. These disruptions made it impossible to ensure stable Internet access across different regions, placing participants in unequal conditions and preventing some of them from taking part in the competitions.

As shown in Table 1, the number of competition participants gradually increased. The smaller number of participants in hiking competitions (the most popular type of sports tourism) was, in our opinion, related to the vacation period during which these competitions were held. At the same time, the number of regions represented by participants remained almost unchanged.

The tasks offered to participants in each type of tourism differed in their level of complexity. Each competition necessarily included one or two questions that were relatively easy to answer. This approach was applied deliberately, using the principle of "success scaffolding", in order to ensure that every participant could correctly complete at least several tasks. At the same time, the majority of tasks required a creative approach and were based on the expected learning outcomes of after-school education groups specializing in sports tourism at the basic level. Their formulation excluded the possibility of finding direct answers through textbooks or Internet searches. These tasks addressed issues related to hiking techniques and tactics, campsite organization and nutrition, provision of first aid, and working with topographic maps. Tasks requiring analysis of photographs were mandatory, including identification of errors, violations, or, conversely, the most appropriate actions. Thus, participants were required to apply not only theoretical knowledge but also their practical experience gained during training sessions and trips.

Open-ended tasks played a significant role in determining the competition results. As shown in Table 1, their number gradually increased. These tasks made it possible to identify violations of competition rules related to independent task performance. During the evaluation process, judges analyzed the content of responses, submission times, and typical mistakes made by participants.

Tab. 1

Information on All-Ukrainian Online-Based Competitions in Sports Tourism

Competition title	Total number of tasks	Number of open-ended tasks	Number of participants	Number of represented regions
Hiking competition	20	0	179	14
Cycling competition	10	1	227	13
Water tourism competition	16	2	288	15

Source: Compiled by the authors

Identical response texts and recurring errors—especially among participants from the same educational institution or supervised by the same coach—served as grounds for more detailed examination and, in many cases, led to participant disqualification. The absence of protests or appeals against such decisions indicates, in our opinion, the validity of the applied analytical procedures and decisions made on their basis.

During the hiking competitions, organizers hypothesized that participants might experience certain difficulties when completing tasks. To verify this assumption and identify specific problems, participants in cycling and water tourism competitions were asked to answer additional technical (non-competitive) questions. This approach made it possible to analyze several technical aspects of competition participation.

Based on the results of participant questionnaires (non-competitive technical questions), it was found that from 54% to 60% of participants (depending on the competition) had prior experience participating in online-based competitions, while more than 90% got to know about the competitions from their group leaders or coaches. This indicates a relatively high proportion of recurring participants in distance-based competitions and highlights the significant role of educators in motivating learners to participate. An important indicator for analysis, in our view, was the amount of time participants spent completing the tasks, given the relevance of student workload issues in distance education. The fact that more than half of the participants reported spending between 10 and 30 minutes completing tasks suggests a moderate and acceptable workload.

According to the questionnaire data, most participants prepared for the competition during after-school education classes (from 16.3% to 34.1% in the remote format and about 25% in the in-person format). From 12.8% to 17% prepared independently, while a small proportion (from 2.7% to 4.5%) received assistance from parents. At the same time, 24.8% to 37.2% indicated that they did not prepare specifically for these competitions, relying on previously acquired knowledge and experience.

The technical devices used for participation were also analyzed. The vast majority of participants (from 63.7% to 75%) used a smartphone; from 13.6% to 16.4% used a laptop. Only a small number worked using a desktop computer or a tablet.

Most participants completed the tasks at home using a home Wi-Fi network (from 64.6% to 73.3%) or wired home Internet (from 5.9% to 8%). A considerable share (from 17% to 20.8%) used mobile networks. It is noteworthy that only a very small proportion of participants—less than 2%—used Internet access provided by educational institutions, which is even lower than the share of participants who used public Wi-Fi networks in shops, cafés, etc. (from 2% to 5%).

Responses regarding difficulties encountered by participants are also informative. From 45.1% to 67.3% reported no difficulties at all during participation. From 11.1% to 14.2% pointed to communication issues and Internet quality problems. In our view, under current conditions this is a fairly good indicator, suggesting relatively stable Internet access across Ukraine even in challenging wartime circumstances. From 4% to 10% noted problems related to the device used, in particular, screen size. This, in our opinion, is also related to another issue mentioned by participants—insufficient quality of photographs and maps used as visual stimulus materials in certain tasks (reported by 9.4% to 13.7% of participants). If a device with a larger screen (e.g., a computer) were used, part of these complaints

would likely disappear. From 12.4% to 33.7% noted an insufficient level of knowledge in the types of tourism covered by the competitions, which, to some extent, correlates with the share of participants who reported no prior preparation.

Participants were also asked to propose ways to improve such competitions in the future. Among the suggestions were increasing the number of tasks with maps and photographs while simultaneously improving image quality, and requests to hold such competitions more often. Interestingly, opinions about the number of questions were mixed: some suggested increasing it, while others, on the contrary, considered it appropriate to reduce it. At the same time, the vast majority expressed satisfaction with the competition and noted the creative and problem-oriented character of the questions.

A significant proportion of participants used smartphones to take part in the competitions, which was unexpected for the organizers. This circumstance prompted an analysis of the impact of the type of device used on competition results using methods of mathematical statistics. The type of device may influence performance primarily in tasks based on visual stimulus material, i.e., tasks that require detailed analysis of images, maps, or graphic elements, which can be difficult to interpret correctly on a small screen.

For this purpose, an individual device impact coefficient K_{im} was calculated for each participant (Formula 1):

$$Kim = \frac{Kverbal + 1}{Kvisual + 1} \quad (1)$$

where Kim is the device impact coefficient; $Kverbal$ is the percentage of correct answers to verbal tasks (tasks without visual stimulus material); and $Kvisual$ is the percentage of correct answers to visual tasks (tasks based on images used as stimulus material).

Values of $Kim \geq 1$ were interpreted as indicating a potential impact of the device type on performance, whereas values of $Kim < 1$ were interpreted as indicating no significant impact.

The coefficients obtained for participants using devices with relatively small screens (smartphones and tablets) were compared with those of participants using devices with relatively large screens (desktop computers and laptops). To determine the statistical significance of differences in competition results depending on the type of device, Fisher's angular transformation criterion (φ*) was applied (O. Hulbs et al., 2023). Calculations were performed separately for the competitions in cycling and water tourism. The results of the calculations are presented in Table 2.

Thus, the dependence of competition results on the screen size of the device used by participants proved to be statistically significant for online-based competitions in cycling and statistically insignificant for online-based competitions in water tourism. According to our hypothesis, this difference may be explained by the characteristics of the visual stimulus materials used (in particular, their size and image quality). To verify this hypothesis, the method of expert evaluation was applied.

Tab. 2

Calculation of Fisher's Angular Transformation Criterion (φ)*

Indicator	Competitions in Water Tourism	Competitions in Cycling
φ_1	1.061	1.758
φ_2	1.133	1.314
φ^*	0.492	3.140
φ^*_{krit}	1.29 (p≤0,1)	2.31 (p≤0,01)
Conclusion	$\varphi_{emp} = 0.49 < \varphi^*_{krit}$ (0.1) Differences are not statistically significant	$\varphi_{emp} = 3{,}139 > \varphi^*_{krit}$ (0.01) Differences are statistically significant

Source: Compiled by the authors

Five experts were involved in assessing the quality of visual materials. They were asked to evaluate

the quality of each image (or a group of images related to one task) on a five-point scale, based on how strongly the image quality affected the possibility of providing a correct and meaningful answer, including when viewed on a small screen. According to the results of the expert assessment, the average score for images used in water tourism competitions was 4.6 points, while for cycling it was 3.5 points.

To statistically assess the significance of differences in image quality (based on expert evaluations), the Mann–Whitney U test was applied (Hulbs et al., 2023). The results of the calculations are presented in Table 3.

Tab. 3

Calculation of the Mann–Whitney U Test

Indicator	Competitions in Water Tourism	Competitions in Cycling
Sum of ranks (T)	17.5	60.5
Number of elements (n)	5	7
U_{emp}	2.5	
U_{krit}	6 ($p \leq 0.05$); 3 ($p \leq 0.01$)	
Conclusion	$U_{emp} < U_{krit}$ (0.01) Differences are statistically significant	

Source: Compiled by the authors

As can be seen, the quality of images used in online-based competitions in water tourism was statistically significantly higher than the quality of images used in cycling competitions. Therefore, our hypothesis regarding the influence of visual stimulus characteristics on competition results, as well as the sensitivity of these results to the type of device used (screen size), was confirmed.

Overall, the analysis of experience in organizing online-based competitions, their results, and participant feedback demonstrates their effectiveness as an alternative form of educational activity during crisis periods, provided that specific methodological, organizational, and technical requirements are met.

The accumulated experience of organizing online-based competitions highlights the need for their scientific systematization and classification. Based on an analysis of practices related to the organization of online-based competitions in the field of tourism and local history education conducted using information and communication technologies in Ukraine and internationally during 2018–2024, it can be concluded that, according to their content, such competitions may be classified as theoretical, tactical-practical, simulation-based, creative and integrated (Figure 1). This classification is illustrated using the example of online-based orienteering competitions.

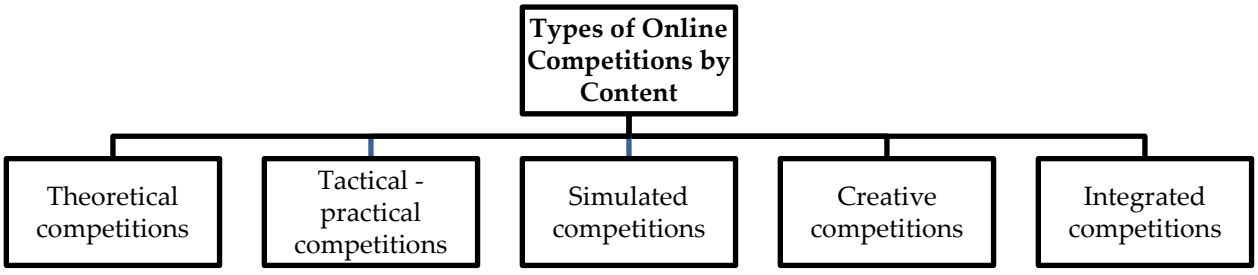

Fig. 1. Classification of Online Competitions by Content

Source: Compiled by the authors

Theoretical competitions assess participants' levels of basic and specialized knowledge, including knowledge of orienteering map symbols, tactical and technical principles, and competition rules. Tactical-practical competitions focus on practical skills and the ability to apply knowledge in practice and typically include tasks related to measuring distances and azimuths, selecting optimal routes on maps, and similar activities. Simulation-based competitions are structurally similar to offline

competition courses and/or sports tourism expeditions and use digital technologies to simulate athletes' actions in real-world competitive or expedition contexts. Creative competitions evaluate the outcomes of participants' independent creative activities, such as reports, photo and video documentation of excursions, travels, or competitions, independently created maps, and landscape studies. Integrated competitions are the most widespread and combine tasks from two or more of the above types.

According to the technological mode of implementation, online-based competitions organized using information and communication technologies can be divided into those based on integrated solutions (Table 4) and those that rely on particular technologies or their combinations (Table 5).

Tab. 4

Integrated Solutions for Organizing Online Competitions

Technological implementation	**Advantages**	**Problems and limitations**
Specialized software and platforms with a web interface	● Full compliance with the content and rules of a specific competition type. ● As a rule, materials from previous competitions are available for training purposes	● Platform owners (server administrators) may impose restrictions on both participants and organizers
Specialized software and platforms with Android/iOS applications	● Full compliance with the content and rules of a specific competition type. ● Designed for use on portable devices. ● May include an archive of previous competition materials available for training.	● Requirement to install an application. ● Small screen size of devices in most cases, which complicates work with visual content.
Universal distance learning platforms (Google Classroom, Moodle, etc.)	● Integrated implementation (combination of email accounts, mailing lists, information boards, chats, video meetings, feedback tools, etc. within a single platform). ● Possibility to organize events with division into groups or courses.	● Difficulty in adapting competition content to the platform format

Source: Compiled by the authors

Among the technologies most commonly used for organizing online-based competitions are tools for conducting surveys and tests (e.g., Google Forms), digital online maps (Google Street View, Google Maps, etc.), asynchronous communication tools (e-mail, messaging services), synchronous communication platforms (Zoom, Google Meet, etc.), and chatbots. Each of these technologies has its own specific advantages; however, due to their narrow functional specialization, organizing online-based competitions in most cases requires the combined use of several technologies.

For example, online competitions frequently organized using Google Forms often need to be supplemented with synchronous communication platforms such as Zoom or Google Meet with enabled video cameras to ensure compliance with the principles of fair play, allowing organizers to verify that participants complete tasks independently. At the same time, e-mail or messaging services are commonly used to disseminate information about competitions, announcements for participants, and competition results. In orienteering competitions, a typical technological combination involves Google Forms for distributing tasks and collecting responses, together with digital online maps such as Google Street View or Google Maps, which allow participants to virtually "move" along the course.

A promising and convenient tool for organizing online-based competitions is the use of chatbots, which can automate a significant portion of organizational processes, including registration, reminders, task distribution, and result notifications. Chatbots can also operate in an asynchronous mode and be

integrated with other platforms for data collection and analysis. However, the development of chatbots requires advanced IT expertise and substantial time investments. In addition, each type of competition typically requires a dedicated, customized chatbot, which currently limits the widespread adoption of this technology in educational tourism practice.

Tab. 5

Particular Technologies Used for Organizing Online Competitions

Technological implementation	**Advantages**	**Problems and limitations**
Survey tools (Google Forms, etc.)	● Easy to organize. ● Convenient processing and summarizing of results. ● Well-known and familiar technology for most participants (both adults and children).	● Limited types of tasks. ● Limited access of organizers to raw responses. ● Need to use additional technologies to ensure Fair Play, work with digital maps, time tracking, etc. ● Requirement to register on third-party foreign services.
Digital online maps (Street View, Google Maps, etc.)	● Direct practical work with digital cartographic materials. ● Virtual interaction with terrain.	● Need to use additional technologies to provide feedback.
Asynchronous communication tools (e-mail, messengers)	● Can be used with low-quality internet connections. ● Independent of time zones and schedules.	● Lack of live interaction.
Communication platforms (Zoom, Google Meet, etc.)	● Simultaneous use of audio, video, and screen sharing. ● Live communication. ● Possibility to divide participants into groups/sections with administrator control.	● Insufficient protection against unauthorized access if links or credentials are compromised. ● Insufficient level of encryption. ● High requirements for internet speed and stability.
Chatbots	● Automation of organizational processes (registration, reminders, distribution of tasks). ● Availability in asynchronous mode. ● Possibility of integration with other platforms (e.g., for collecting responses or analysis). ● Ability to collect statistics and monitor in real time.	● Need to develop specialized bots for each competition type. ● Significant time and IT resources required for development. ● High probability of technical failures without thorough testing. ● Unstable connections may cause delays in responses.

Source: Compiled by the authors

A promising and convenient tool for organizing online-based competitions is the use of chatbots, which can automate a significant portion of organizational processes, including registration, reminders, task distribution, and result notifications. Chatbots can also operate in an asynchronous mode and be integrated with other platforms for data collection and analysis. However, the development of chatbots requires advanced IT expertise and substantial time investments. In addition, each type of competition typically requires a dedicated, customized chatbot, which currently limits the widespread adoption of this technology in educational tourism practice.

The use of integrated technological solutions makes it possible to avoid relying on multiple separate and loosely connected tools. Such solutions include specialized software and platforms specifically designed for organizing particular types of competitions, as well as universal distance learning

platforms.

Specialized software and platforms are typically used for organizing simulation-based online-based competitions that most closely resemble offline competitions. These platforms are tailored to the specific content and rules of the corresponding competition type and usually incorporate built-in tools for feedback, information dissemination, and result processing. In some cases, they also provide access to archives of tasks from previous competitions that can be used in a training mode. Such software solutions generally do not require the integration of additional technologies during competition or training activities.

Specialized platforms may be implemented either through a web-based interface or via mobile applications for Android and iOS. An example of such a platform is the TempO Simulator (http://temposim.yq.cz/index.cgi), developed by Czech specialists led by Libor Forst. This platform is designed for organizing training sessions and competitions in trail orienteering (TempO format). As of December 29, 2024, more than 1,600 users from 44 countries were registered on the platform, and over 1,800 task sets were available for training use. The primary limitation of such systems lies in the need to develop separate software solutions for each specific competition type, as well as the complexity and high cost of development. As a result, the number of such platforms remains limited, and platform owners may impose restrictions or specific requirements on both participants and competition organizers.

Universal distance learning platforms, such as Google Classroom or Moodle, provide integrated environments for organizing competitions by combining personal user accounts, information boards, chats, mailing tools, video conferencing, and feedback mechanisms within a single system. These platforms allow participants to be grouped by categories or courses; however, they offer primarily generic tools for competition organization, which do not always fully meet the specific requirements of particular competition disciplines.

4. CONCLUSIONS

Thus, it has been established that during crisis periods, one of the effective means of organizing educational tourism is the use of information and communication technologies, in particular distance-based forms of educational and competitive activities (hereafter referred to as online). During the COVID-19 pandemic, significant experience in this area was accumulated in Ukraine, which made it possible in 2022 to promptly organize the educational process under the extremely challenging conditions of martial law. At the same time, the organization of educational tourism activities during the wartime period was characterized by the need to ensure the physical safety of participants, to take into account restrictions on the use of cartographic and photographic materials, as well as problems related to Internet access and disruptions in energy supply.

The conducted analysis showed that online-based competitions in various disciplines of sports tourism and orienteering generated considerable interest among learners and were generally positively perceived by educators. At the same time, a number of specific features and problems related to the organization and implementation of such activities were identified.

In particular, it was found that only a small proportion of participants in online-based competitions used desktop computers or tablets, whereas the vast majority relied on devices with small screen sizes. This necessitates consideration of the technical characteristics of participant devices when designing competition tasks. It has been demonstrated that image quality and screen size significantly affect performance on tasks in which the stimulus material consists of photographs, graphic elements, or cartographic materials. To minimize the impact of device type on competition outcomes, it is advisable at the preparation stage to assess visual stimulus materials in terms of their suitability for accurate interpretation on different types of devices, especially those with small screens. Provided that these requirements are taken into account, online-based competitions can serve as an effective tool for

organizing the educational process and assessing learning outcomes when in-person activities are not feasible, or as a complementary format alongside them.

When organizing activities that require participants to submit materials in the form of files (photo, video, textual, or graphic materials), the use of specialized platforms for data upload and processing is advisable. Such platforms make it possible to optimize organizational workflows, enhance cybersecurity, and reduce the load on internal infrastructure. In this context, the development of a dedicated specialized platform for organizing online-based educational tourism activities appears to be both relevant and justified.

Prospects for further research are seen in the formulation and substantiation of specific methodological, organizational, and technical recommendations for the organization of distance-based (online) educational and sports activities, addressed to the pedagogical community.

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REFERENCES

[1] Bušelić, M. (2012). Distance learning – Concepts and contributions. *Oeconomica Jadertina,* 1(1), 23–34. URL: https://www.academia.edu/34703658/Distance_Learning_concepts_and_contributions

[2] Bykov, V. Yu., Ovcharuk, O. V., Ivaniuk, I. V., Pinchuk, O. P., & Halpierina, V. O. (2022). Current state of use of digital tools for organising distance learning in general secondary education institutions: Results of the 2022 survey. *Information Technologies and Learning Tools,* 90(4), 1–18. https://doi.org/10.33407/itlt.v90i4.5036 (In Ukrainian)

[3] Cabinet of Ministers of Ukraine. (2020). On preventing the spread of the COVID-19 coronavirus in Ukraine (Resolution No. 211). URL: https://zakon.rada.gov.ua/laws/show/211-2020-%D0%BF#Text (In Ukrainian)

[4] Dzitac, S., Simut, R., Badulescu, D., Simut, C., & Badulescu, A. (2025). The role of education and digitalization in tourism development: evidence for the European Union. *Technological and Economic Development of Economy*, 31(4), 1181–1205. https://doi.org/10.3846/tede.2025.24388

[5] Dwyer, L. (2022). Tourism contribution to the SDGs: Applying a well-being lens. *European Journal of Tourism Research,* 32, Article 3212. https://doi.org/10.54055/ejtr.v32i.2500

[6] Fedoniuk, V. V., Fedoniuk, M. A., & Pushkar, N. S. (2021). The use of ICT in the development of STEM projects in natural and geographical after-school education. *Information Technologies and Learning Tools,* 85(5), 78–94. https://doi.org/10.33407/itlt.v85i5.3955 (In Ukrainian)

[7] Ghosh, S., Nath, J., Agarwal, S., & Nath, A. (2012). Open and distance learning (ODL) education system: Past, present and future – A systematic study of an alternative education system. *Journal of Global Research in Computer Science,* 3(4), 53–57. http://old.midnaporecollege.ac.in/RemoteClass/382-421-1-PB.pdf

[8] Hulbs, O., Kravchenko, O., Lantukh, I., Makhometa, T., & Polishchuk, T. (2023). Statistical analysis of pedagogical and psychological research]. Uman–Kyiv: Drukarskyi dim. (In Ukrainian)

[9] King, H., García-Rosell, J.-C., & Noakes, S. (2020). Promoting children–nature relations through play-based learning in ecotourism sites. *Journal of Teaching in Travel & Tourism,* 20(3), 187–202. https://doi.org/10.1080/15313220.2020.1797612

[10] Kosenko, Yu., Korol, O., Boriak, O., & Chobanian, A. (2025). "Wordwall" as a means of forming historical concepts in students with intellectual disabilities in distance learning]. *Information Technologies and Learning Tools,* 106(2), 15–34. https://doi.org/10.33407/itlt.v106i2.6023 (In Ukrainian)

[11] Kosylo, M. (2018). Development of tourism and local history work in out-of-school educational institutions of Ukraine (second half of the 20th – early 21st century)] [Candidate dissertation, Khmelnytskyi Humanitarian-Pedagogical Academy]. Khmelnytskyi. (In Ukrainian)

[12] Londar, L., & Pietsch, M. (2023). Providing distance education during the war: The experience of Ukraine. *Information Technologies and Learning Tools,* 98(6), 31–51. https://doi.org/10.33407/itlt.v98i6.5454

[13] Lee, C.-C., Chen, M.-P., Wu, W., & Xing, W. (2021). The impacts of ICTs on tourism development: International evidence based on a panel quantile approach. *Information Technology and Tourism,* 23, 509–547. https://doi.org/10.1007/s40558-021-00215-4

[14] Lukatskyi, Ye. D. (2021). The use of information and communication technologies in the training of orienteering athletes [Master's thesis, National University of Ukraine on Physical Education and Sport]. Kyiv. URL: https://reposit.uni-sport.edu.ua/server/api/core/bitstreams/d3901581-8313-4f3b-8f2b-7abcb63782a8/content (In Ukrainian)

[15] Lupu, C., Gallarza, M. G., & Barton-Harvey, J. (2024). Erasmus-driven destination experience and students' ambassadorship behaviour: A multi-stakeholder perspective. *European Journal of Tourism Research,* 37, Article 3719. https://doi.org/10.54055/ejtr.v37i.2974

[16] Martínez-Roget, F., & Rodríguez, X. (2021). Academic tourism: Conceptual and theoretical issues. In J. P. Cerdeira Bento, F. Martínez-Roget, E. T. Pereira, & X. A. Rodríguez (Eds.), *Academic tourism: Perspectives on international mobility in Europe* (pp. 7–20). Springer. https://doi.org/10.1007/978-3-030-57288-4_2

[17] McGladdery, C., & Lubbe, B. (2017). Rethinking educational tourism: Proposing a new model and future directions. Tourism Review, 72(3), 319–329. https://doi.org/10.1108/TR-03-2017-0055

[18] Ministry of Education and Science of Ukraine. (2020). Regarding the introduction of quarantine for all types of educational institutions (Letter No. 1/9-154). URL: https://mon.gov.ua/ua/npa/shodo-zaprovadzhennya-karantinu-dlya-usih-tipiv-zakladiv-osviti (In Ukrainian)

[19] Narovlianska, M. (2025). Theoretical foundations of forming teachers' readiness to use information and communication technologies in professional activity. *Sotsialna robota ta sotsialna osvita*, (2), 302–312. https://doi.org/10.31499/2618-0715.2(15).2025.343678 (In Ukrainian)

[20] Narovlianskyi, O. (2025). Educational tourism of Ukrainian youth: Current state and development trends. *Osvitnia analityka Ukrainy*, (5), 84–94. https://doi.org/10.32987/2617-8532-2025-5-84-94 (In Ukrainian)

[21] Naumchuk, V. (2022). Development of school tourism in contemporary conditions. In Formation of Modern Concepts of Tourism and Hotel-Restaurant Business Management within the Paradigm of Sustainable Development: Proceedings of the I International Scientific and Practical Conference (pp. 65–70). Zaporizhzhia. URL: https://www.researchgate.net/publication/369033256_rozvitok_skilnogo_turizmu_v_umovah_sogodenna (In Ukrainian)

[22] Redina, V. (2000). Organization of search activities of students in out-of-school educational institutions [Candidate dissertation, Institute of Pedagogy of the Academy of Pedagogical Sciences of Ukraine]. Kyiv. (In Ukrainian)

[23] Silichova, T. (2024). Educational tourism as an opportunity for Ukraine's post-war reconstruction. *Profesionalizm pedahoha: teoretychni y metodychni aspekty*, (21), 136–146. https://doi.org/10.31865/2414-9292.21.2024.307982 (In Ukrainian)

[24] Szulc, J. (2020). Distance learning – The current status and directions for further research. *International Journal of Research in E-Learning,* 6(1), 1–19. https://doi.org/10.31261/IJREL.2020.6.1.02

[25] Tomasi, S., Paviotti, G., & Cavicchi, A. (2020). Educational tourism and local development: The role of universities. *Sustainability,* 12(17), Article 6766. https://doi.org/10.3390/su12176766

[26] Tkachuk, L. (2010). Educational tourism in the world and in Ukraine. *Naukovyi visnyk Instytutu mizhnarodnykh vidnosyn NAU. Seriia: Ekonomika, pravo, politolohiia, turyzm,* 2(2), 147–153. URL: https://core.ac.uk/download/pdf/296365383.pdf (In Ukrainian)

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Наровлянський Олександр, Наровлянська Марина, Лукацький Євгеній, Овчаренко Олена, Дніпров Олексій. Онлайн-змагання в освітньому туризмі України: емпіричне дослідження в кризових умовах. *Журнал Прикарпатського університету імені Василя Стефаника*, **13** (1) (2026), 176-191.

Інформаційно-комунікаційні технології останніми роками набули значного поширення в освіті України та світу. Особливої актуальності їх застосування, зокрема дистанційних форм освітньої та змагальної діяльності, набуло в кризові періоди – під час карантинних обмежень, пов'язаних з пандемією COVID-19, та в умовах воєнного стану в Україні. Водночас питання використання дистанційних технологій в освітньому туризмі залишається недостатньо дослідженим. Метою статті є узагальнення та наукове осмислення досвіду організації дистанційних (online) змагань зі спортивного туризму й спортивного орієнтування в Україні у 2020–2023 рр. У дослідженні проаналізовано практику проведення таких заходів Українським державним центром національно-патріотичного виховання, краєзнавства та туризму учнівської молоді та обласними центрами туризму і краєзнавства. Визначено основні типи завдань, що застосовувалися під час дистанційних змагань, виявлено методичні та технічні проблеми їх реалізації, проаналізовано склад учасників, рівень навчального навантаження та технічні умови участі. Наукова новизна дослідження полягає

у розробці класифікації дистанційних змагань за змістовим наповненням та технологією реалізації, а також у доведенні, на основі методів математичної статистики, впливу характеристик візуального стимуляційного матеріалу й типу пристрою на результати виконання завдань. Проведена експертна оцінка якості візуального контенту дозволила обґрунтувати методичні підходи до мінімізації впливу технічних факторів на результати змагань. Практичне значення отриманих результатів полягає у визначенні шляхів удосконалення організації дистанційних змагань, зокрема методів запобігання проявам академічної недоброчесності та порушенню принципу Fair Play, а також у формулюванні рекомендацій щодо підготовки завдань з урахуванням технічних можливостей учасників. Отримані результати підтверджують, що за умови дотримання специфічних методичних і технічних вимог, дистанційні змагання можуть виступати ефективним інструментом організації освітньо-туристської діяльності у кризових умовах і доповненням до очних форм роботи.

Ключові слова: освітній туризм, спортивний туризм, спортивне орієнтування, інформаційно-комунікаційні технології (ІКТ), онлайн-змагання, дистанційна освіта.