https://doi.org/10.64211/oidaijsd191002

Digitalization of Inclusive Tourism in Ukraine for People with Disabilities

Oksana Kravchenko [1*], Oksana Osetrova [2], Valentyna Kharytonova [3], Natalia Dubova [4], Inna Honchar [1], Halyna Mamus [5], Nazar Salata [4]

[1] Department of Social Pedagogy and Social Work, Uman National University, Uman, Ukraine.
[2] Department of Philosophy; Department of Social Work and Management of Social Processes, Oles Honchar Dnipro National University, Dnipro, Ukraine.
[3] Department of Technology Education, Uman National University, Uman, Ukraine.
[4] Department of Professional Education and Technologies by Profiles, Uman National University, Uman, Ukraine.
[5] Department of Service Sector, Technologies and Occupational Safety, Ternopil Volodymyr Hnatiuk National Pedagogical University, Ternopil, Ukraine.
* Corresponding author: oksolkravchenko@ukr.net

© Authour (s)
OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.
ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com
Also available at https://www.ssrn.com/

Abstract: Digital technologies have changed how tourism works, and nowhere more so than in its inclusive segment. In Ukraine, two pressures now coincide: the number of people with disabilities keeps rising, while the cultural sites they might wish to visit are being destroyed. Virtual tourism and online excursions answer both at once – not as a full substitute for travel, but as a way of keeping cultural and educational resources within reach of people for whom physical access has become difficult or impossible. We examine the prospects of digital inclusive tourism in Ukraine, focusing on online excursions and virtual tours. Ukrainian tourism platforms are assessed against the Web Content Accessibility Guidelines (WCAG) 2.1, which set out how digital content should work for users with visual, hearing, motor and cognitive impairments. The four POUR principles – Perceivable, Operable, Understandable, Robust – provide the analytical frame. Special attention is paid to the analysis of the platforms "Museum of Ukraine in the Open Air" and "Cultural and Recreational Tourist Cherkasy Region: Inclusive Social 3D Map". A survey of 120 students shows that young people associate online excursions almost exclusively with the needs of people with disabilities. Their educational and social potential goes largely unnoticed, which is itself a barrier: a format seen as an accommodation for someone else attracts neither audience nor funding. Progress in this area depends on standardised inclusive web design, better digital accessibility, stronger technical solutions and wider awareness of what inclusive practice actually involves. Online tourism deserves to be treated as a permanent part of cultural preservation and social inclusion, not as a wartime stopgap.

Keywords: inclusive tourism, digitalization, virtual tourism, online excursions, accessibility, people with disabilities, WCAG 2.1, digital accessibility, cultural heritage, Ukraine.

Introduction

According to the State Statistics Service, as of January 1, 2023, there were over 2.7 million people with disabilities in Ukraine. Of those, over 230,000 people received disability status, including 138,100 men and 92,500 women. Of those recognized as people with disabilities, 50,200 were under the age of 39 years old and 105,800 were between 40 and 60 years old. Additionally, 74,700 people of retirement age received the relevant certificate, including 41,600 women over 60 and 33,000 men. The most common cause of disability last year was general illness, accounting for 126,300 cases. Among military personnel, 5.800 people received this status. Nearly 2,500 people became disabled due to workplace accidents or occupational diseases. Another 10,600 people were recognized as having a disability from childhood, and 2,200 due to the Chornobyl disaster. The Ministry of Health also reported that 254,000 people were recertified as disabled during Medical and Social Expert Commission (MSEC)

reviews [13]. Notably, a significant number of children have received disability status. In 2022, there were 158,900 minors with this status in the country. The most common causes of disability among children were: congenital anomalies (developmental defects), deformations, and chromosomal abnormalities (43,000 cases); mental and behavioral disorders (35,400 cases); diseases of the central nervous system (22,700 cases); and endocrine diseases, nutritional disorders, and metabolic disorders (16,700 cases) [8]. According to former Deputy Minister of Social Policy Nazar Tanasyshyn, more than 3 million people with disabilities live in Ukraine as of 2024 [8]. The war has damaged the cultural infrastructure this audience would use. By 25 September 2025, Russian aggression had destroyed or damaged 1,599 cultural heritage sites and 2,415 cultural infrastructure facilities, with losses recorded across 18 regions and 326 local communities. Of the 1,599 damaged heritage sites, 149 are of national importance, 1,300 are of local importance, and 150 are newly identified sites. Due to military actions and shelling, 2,415 cultural infrastructure facilities were affected, 491 of which were destroyed. Community centers (1,175 facilities), libraries (848), art education institutions (184), museums and galleries (133), and theaters, cinemas, and philharmonics (50) suffered the greatest losses. Cultural infrastructure in the Donetsk, Kharkiv, Kherson, Kyiv, Sumy, and Mykolaiv regions was most significantly damaged.

In light of the urgent issues mentioned above, we propose the following task for Ukrainian society: to promote and develop virtual travel as a specific type of tourism [11].

Literature Review

Analysis of recent research and publications.

Work on human-centred artificial intelligence in tourism has moved beyond general accessibility toward specific user groups. Mauro et al. address travel planning for adults with autism spectrum disorder (ASD), where the difficulty is rarely physical access and more often sensory load, unpredictability and the anxiety both produce. They argue that adaptive recommendation systems help only when the user can see why a recommendation was made – hence the emphasis on explainable AI alongside personalisation. For our purposes, the relevant point is that accessibility here is achieved through the interface rather than through the site itself [21].

An integrated approach to assessing inclusive tourist objects has been proposed in the article “Methodological Support of Social and Natural-Resource Evaluation of Inclusive Tourist Objects in the Sustainable Development Context” (2023), which combines indicators of social inclusiveness with environmental and natural-resource criteria. Accessibility, social equity and the rational use of natural resources are treated there as a single evaluation problem rather than as competing objectives, and the resulting methodology is addressed to policymakers and local authorities deciding where to invest in tourist infrastructure [14].

A study of internally displaced persons in Ukraine, based on survey data, maps the gap between the support mechanisms that exist and what displaced people actually expect from them across employment, income, housing, access to social services and psychological well-being [15]. The relevance to virtual tourism is indirect but real: displacement removes people from the cultural environment they belong to, and online access to that environment is one of the few substitutes available.

Museums have been examined as a channel for disseminating scientific knowledge outside formal education. Karamanov et al. describe interactive formats and interdisciplinary content as the means by which museums bridge academic science and the general public, raising scientific literacy through informal learning [12]. Digitalisation extends that channel to anyone who cannot reach the building.

Digital tools have also been studied in national and patriotic education under distance learning. Bezliudniy et al. show that online platforms and interactive resources can carry value-oriented content, but only where the pedagogy behind them is deliberate; a digital environment does not by itself produce civic engagement [22]. Virtual tours of heritage sites fall squarely into this category of content.

Turning to inclusive tourism proper, Conde et al. reviewed the literature on children diagnosed with ASD and their families. The barriers they identify are practical rather than architectural: sensory overload, staff who have not been trained, and information that is either missing or unusable. Their conclusion – that the field needs evidence-based guidelines and interdisciplinary work rather than isolated good practice – applies equally to the digital environment [5].

Dattolo et al. take the same population and ask what a tourism website should look like for it. Their recommendations reduce to four requirements: simplicity, predictability, clear navigation and minimal sensory load. Accessible design, on their evidence, improves not only comprehension but the user’s ability to decide at all [6]. This is worth stating

plainly, because accessibility is often treated as a matter of perception alone when it is equally a matter of whether the user can act.

Freund et al. approach "tourism for all" from the staffing side, arguing that accessible accommodation depends less on infrastructure than on whether hospitality professionals have been trained to provide it. Curriculum design and competency-based training are treated as the mechanism through which universal accessibility standards actually reach the guest [9].

Gillovic examines leisure travel at its intersection with intellectual disability, and reaches a conclusion that complicates the others. Care relationships – with careers, providers, the surrounding social environment – can enable participation or constrain it, and they bear directly on autonomy, dignity and emotional well-being. Accessibility, on this reading, is relational and not only technical [10].

Lim et al. propose a trip recommendation model built on user interests, the duration of visits to points of interest, and how recently those visits occurred. It was not designed for inclusive tourism, and the authors do not claim otherwise; its value here is methodological, as a demonstration that itineraries can be adapted automatically to individual patterns of use [17].

The development of online tours has been studied by researchers of Ukraine such as L. Bozhko [4], Z. Kuzyk [16], A. Opeida [23], O. Morhulets and O. Kravtsova [18], and others. Z. Kuzyk, in particular, views a virtual tour as both an object of observation and a means of documenting historical monuments [16]. A. Opeida notes that virtual travel protects tourists from the dangers of the modern world and preserves cultural heritage from wear and tear [23]. O. Morhulets and O. Kravtsova define virtual tourism's role in the modern world as a tool that facilitates cultural exchange despite physical limitations and circumstances that prevent travel [18]. Virtual tourism creates new opportunities for education, entertainment, and cultural discovery, expanding people's horizons worldwide.

Object, Subject, and Methods of Research

Object of research: The development process of inclusive tourism in Ukraine.

Subject of research: Prospects and features of online tour development in Ukraine within the context of digital accessibility.

Goal of the research: To analyze the compliance of Ukrainian tourism platforms with the Web Content Accessibility Guidelines (WCAG) 2.1 and, based on the evaluation of the websites "Open-Air Museum of Ukraine" and "Cultural, Recreational, and Tourism Cherkasy Region: Inclusive-Social 3D Map", to identify the advantages, disadvantages, and prospects for the development of online travel in Ukraine.

Methods: A comparative analysis was used to compare domestic platforms with international counterparts.

To assess young people's awareness of online tours as a form of inclusive tourism, the authors conducted the «Online Tours in Ukraine» survey among 120 university students. The sample comprised 50 second-year students (41.7%), 60 first-year students (50.0%), and 10 fourth-year bachelor's students (8.3%). Regarding disability status, 70 respondents (58.3%) reported no disability, 40 respondents (33.3%) reported having a disability, and 10 respondents (8.3%) reported health impairments without an officially recognized disability, including color blindness, myopia, or hyperopia. The survey used statements, open-ended questions, and a five-point rating scale to assess respondents' awareness, perceptions, and attitudes toward online tours and digital accessibility. The survey data were analyzed descriptively and are presented in the tables and figures below.

Next page

Table 1: Characteristics of the Survey Sample

Sample characteristic	Category	n	%
Year of study	First-year students	60	50.0
	Second-year students	50	41.7
	Fourth-year bachelor's students	10	8.3
Disability/health status	No disability	70	58.3
	Disability	40	33.3
	Health impairment without officially recognized disability	10	8.3
Total	**All respondents**	**120**	**100.0**

Source: Developed by the authors based on the results of the «Online Tours in Ukraine» survey.

Rationale for the Sample Size. The sample size of 120 respondents was considered appropriate for the exploratory and descriptive purpose of the study, which was to assess young people's awareness and perceptions of online tours as a form of inclusive tourism rather than to obtain statistically representative estimates for the entire population of Ukrainian youth. The sample was sufficiently diverse to include students at different stages of university education and respondents with different disability and health-status characteristics. This composition made it possible to identify general patterns in young people's awareness of inclusive tourism, perceptions of digital accessibility, and attitudes toward online tours. The study therefore used a purposive/convenience sample of 120 participants, with the findings interpreted as descriptive evidence rather than as nationally representative estimates.

Results and Discussion

WCAG 2.1 defines how web content should be made available to people with visual, hearing or motor impairments, as well as to users with intellectual and complex disabilities. Its scope covers both content and interface, and applies across devices – desktop computers, laptops, tablets and smartphones alike.

The guidelines are based on four fundamental principles.

1. Perceivable (33 recommendations). All website content must be presented in a way that users can perceive, whether visually, through sound, or via text. This includes:

- text descriptions for images (alt-text);
- subtitles for videos and sign language translation;
- contrast colors for better readability;
- the ability to change font size;
- structured headings.

2. Operable (33 recommendations). All functions must be operable with a keyboard, mouse, or alternative devices. Key points:

- all buttons and links must be focusable (tab navigation);
- enough time for interaction (no automatic form closures);
- clear controls: labeled buttons and icons with text;
- avoiding "flickering" or elements that could cause epileptic seizures.

3. Understandable (20 recommendations). Users should be able to easily navigate the interface, read text, and perform actions. Key aspects:

- simple language;
- consistent page structure;
- explanations for all actions (hints, error messages);
- predictable website behavior (the "submit" button actually submits).

4. Robust (4 recommendations). Content must keep working across devices, browsers and assistive technologies, including those that do not exist yet. In practice this requires:

- clean HTML code;
- use ARIA attributes (e.g., aria-label);

- testing with screen readers (VoiceOver, TalkBack);
- compatibility with mobile devices [25].

To better understand how these principles are implemented in practice, it is helpful to consider practical guidance on making websites accessible [3] and to examine international practices for creating inclusive interfaces. For instance, Atyantik's resources [2] demonstrate a standard implementation of these tools.

A common implementation is an accessibility panel, which is a circular icon with a wheelchair image. Clicking it gives the user access to the following functions:

- language selection: The user can choose the panel language from 35 available options.
- selection of an appropriate accessibility profile:
- seizure-safe profile: Reduces flickering and color saturation;
- vision-impaired profile: Enhances the visual perception of the site;
- ADHD-Friendly profile: Reduces distractions;
- the cognitive disability profile: Assists with reading and concentration.
- keyboard navigation (for people with motor impairments): allows users to navigate the site via a keyboard.
- Screen Reader (for users with visual impairments): optimization of the website for screen access software.

Content Adjustments:

- content scaling;
- readable font;
- highlighting headings and links;
- text magnification or font size changes;
- alignment: center, left, or right;
- changing line height and letter spacing.

Color Adjustments:

- dark contrast, light contrast, and high contrast;
- high saturation, low saturation, or monochrome mode;
- color changes for text, headings, and background.

Orientation and Perception Adjustments:

- muting sounds;
- hiding images;
- stopping animations;
- Reading Mode: converts the page into a simplified text format without unnecessary elements;
- reading guide and useful links;
- Reading Mask: darkens the entire screen except for a narrow horizontal strip to focus on the current line of text;
- hover or focus highlighting;
- large black or large white cursor.

Among the platforms currently offering virtual travel and access to cultural heritage, those built on 3D, VR and AR technologies deserve separate attention. We examined four, two Ukrainian and two international.

These platforms include:

1. eMuseum.online [7] – an online platform dedicated to virtual exhibitions of Ukrainian museums. Users can view virtual tours, explore 3D models of exhibits, listen to audio guides, and experience augmented and virtual reality. Its catalog covers various topics, such as Ukrainian portraits from the 17th–20th centuries and a "Chernobyl" tour. Users can access free materials and purchase tickets for specific exhibitions. The platform is convenient for home viewing as it supports various devices, from VR glasses to regular smartphones and PCs.

2. YouVisit / "Virtual Reality & 360° Experience" [26]. The YouVisit platform and its "Virtual Reality & 360° Experience" page are global resources offering a wide selection of virtual tours covering education, travel, real estate, events, hospitality, and more. Users must create a free account to access the content. Tours can be viewed using VR glasses or directly in a browser. YouVisit also allows users to create their own VR

tours. Different levels of access and functionality are offered depending on the user category (e.g., student or institution).

3. Ukraine (NIBU) [20]. The "Virtual Tours of Museums in Ukraine and the World" section on the NIBU website is a valuable catalog of online tours. It contains links to Ukrainian museums, such as the Museum of Ukrainian Home Icons, the Museum of Pottery in Opishne, and the Museum of Modern Art of Ukraine, as well as foreign museums in Germany and Latvia. This is a useful resource for studying museum collections online. However, users should note the technical requirement that Adobe Flash Player is needed to view most tours, which indicates an outdated technological base. The Kyiv library website also provides access to an electronic library, catalogs, and information about NIBU's services.

4. 360Tourist [1] – an international platform that specializes in panoramic tours, 360° photos, and videos of tourist locations around the world, such as Stephansplatz in Vienna. The platform supports viewing with VR glasses, including the Oculus Rift, highlighting its focus on modern virtual reality technologies. Overall, it is a multilingual resource ideal for an introductory panoramic view of landmarks around the world.

After evaluating the *"Open-Air Museum of Ukraine"* virtual tour project [19] and visiting sites such as the Museum of Folk Architecture and Rural Life in Uzhhorod (Zakarpattia region), the Zaporizhian Sich in Zaporizhzhia, the Residence of Bohdan Khmelnytskyi in Chyhyryn (Cherkasy region), the Museum of Folk Architecture and Rural Life of Middle Dnieper Ukraine in Pereiaslav (Kyiv region), Mamajeva Sloboda in Kyiv, the National Museum of Folk Architecture and Rural Life of Ukraine in Kyiv, and the "Shevchenkivskyi Hai" Museum of Folk Architecture and Rural Life in Lviv, we identified the advantages, disadvantages, and prospects of online travel:

- 3D Panorama: a digital image of the surrounding space covering 360° horizontally and 180° vertically, which the viewer explores in any direction. In the "Open-Air Museum of Ukraine" project, users can zoom, change the angle, and move through the space with arrows. The result is a sense of presence – the viewer forms a concrete idea of the location rather than an approximate one.

- *Economically and geographically accessible leisure (2).* Online travel is available to everyone, regardless of their location. Such tours allow people to virtually visit any location in real time.

- *Accessibility for all (3).* Regardless of their economic, physical, or psychological state, people can visit at any convenient time. For example, someone with limited mobility does not have to leave their comfortable surroundings. The "Open-Air Museum of Ukraine" provides audio accompaniment for people with visual impairments. When entering the "Mamajeva Sloboda" museum, for example, the narrator highlights its location and provides an artistic description of the village. "...[it] brings peace from the hustle and bustle of modern life".

- High educational potential (4). Virtual tours work well in patriotic education. Learning about the country's architectural and national monuments fosters attachment to its history.

- *Preservation of cultural heritage (5).* Virtual tours can be useful for historians and restorers. While "traveling" in virtual reality, they can "feel" as if they are at the site, "touch" an object, and study or analyze it from their office computer.

- *"Realizing the impossible" (6).* Virtual tours allow travel to hard-to-reach places and offer experiences such as extreme tourism and caving.

However, online tourism has several disadvantages:

- *Not everyone has the opportunity to acquire the necessary technology. (1)*

- *Difficulties for people with visual impairments (2)*: The website lacks color contrast (the main color is beige), the ability to scale text, and the ability to duplicate information conveyed only by color.

These issues fail to meet WCAG Criterion 1.4.4. "Except for captions and images of text, text can be resized up to 200 percent without loss of content or functionality" [25].

- *Difficulties for people with hearing impairments (3)*: Lack of subtitles for the narrator's voice.

Noncompliance with WCAG Criteria 1.2.2 ("Captions are provided for all prerecorded audio content in synchronized media") and 1.2.6 ("Sign language interpretation is provided for all prerecorded audio content in synchronized media") [25].

- *Insufficient information and communication competence (4)*: This affects individuals such as the elderly and people with disabilities. It includes a lack of digital literacy and the necessary skills to navigate a digital environment.

- *Lack of translation (5)*: Foreigners cannot explore the "Open-Air Museum of Ukraine" project because they cannot select a language they understand.

- *Unclear controls (6)*: The interface is not intuitive, making it difficult for users to navigate.

- *Limited accessible area (7)*: For example, users cannot enter buildings, approach doors, or view structures from different angles in the "Mamajeva Sloboda" museum.

- Users cannot operate the website with only a keyboard *(8).*

This results in non-compliance with WCAG Criterion 2.1.1: "All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints" [25].

"Cultural, Recreational, and Tourism Cherkasy Region: Inclusive-Social 3D Map" [24]

The "Cultural, Recreational, and Tourism Cherkasy Region: Inclusive-Social 3D Map" project was implemented by Pavlo Tychyna Uman State Pedagogical University with financial support from the Ukrainian Cultural Fund, within the National Strategy for Creating a Barrier-Free Space in Ukraine to 2030. It was presented on 18 August 2021.

The goals of the project are:

- To present the cultural diversity of the region as a stimulus for physical visits, taking into account the individual physical needs of visitors;
- To broaden students' knowledge of the historical and cultural wealth of their own region and to encourage independent learning about it;
- To ensure access to tourism for people with disabilities, developing an inclusive society that allows them to participate actively in cultural life.

Thanks to digital technologies, specifically 360° video filming, the platform allows users to visit the most famous historical and cultural sites of the Cherkasy region. Four 3D tours capture the unique atmosphere of the region's heritage, including monuments of the Trypillian culture (3rd–4th millennia BC), Hetman capital Chyhyryn sites, Shevchenko-related locations, the landscape art masterpiece "Sofiyivka", and other landmarks that reveal Ukrainian national culture and traditions.

The evaluation of the virtual tour allows for a detailed look at the following routes:

Tour 1. Uman. The route runs through the city's principal sites: the National Dendrological Park "Sofiyivka" and the fantasy park "Nova Sofiyivka", the grave of Rabbi Nachman ("Little Israel"), the catacombs of the Basilian Monastery, the "Pearl of Love" fountain complex, the ship museum and a laser show.

Tour 2. Monastyryshche, Zhashkiv, Zvenyhorodka and Talne. A broader route, from the Dakhovsky estate in Leskove and the equestrian complex in Zhashkiv to the Butsky Canyon. Shevchenko sites are represented by the National Reserve "Taras Shevchenko's Homeland", and Trypillian culture by the state reserve in Lehedzyne and the Talianky settlement. The route also takes in Count Shuvalov's hunting palace, the "Heart of Ukraine" monument and the Holy Ascension Church in Vodianyky.

Tour 3. Korsun-Shevchenkivskyi–Kaniv. This excursion covers the Lopukhin-Demidov Palace, Green Island and the Ivan Nechuy-Levytskyi Literary and Memorial Museum, together with the Transfiguration Church, the Oak with Alder, Lake Buchak and the Trakhtemyriv Regional Landscape Park. Its focal point is the Shevchenko National Reserve "Tarasova Hora".

Tour 4. Chyhyryn. The historical heart of the Cossack era is represented by the "Chyhyryn" National Historical and Cultural Reserve, the "Cossack Settlement" complex, Kholodny Yar, and Maksym Zalizniak's Oak. Religious sites include the St. Onuphrius and Trinity Matronynskyi monasteries and the "Zhyvun" and St. Onuphrius healing springs. The tour concludes with the Kamianka State Historical and Cultural Reserve.

Analyzing this internet resource allows us to identify its advantages and disadvantages.

- Features for people with visual impairments. There is a dedicated tab where users can choose:
- font size: normal, larger, or large;
- two contrast schemes are available: black-and-white (black text on a white background) and inverted (white text on a black background).
- Graphics settings. Static images can be switched to monochrome or hidden altogether. One technical detail undercuts this, however: 3D panoramas and 360° galleries stay in colour even in the mode intended for visually impaired users, or revert to colour once activated.
- Video gallery. This section contains five overview videos where users can control the playback speed. The final video is subtitled with white text on a black background.
- Informative tours. Each tour includes a brief description, a 3D viewing option, a 360° video, a 360° photo gallery, a gallery of standard images, information about the distance between objects in kilometers and the estimated travel time by both transport and on foot.
- Interactivity. During playback of the 360° video the viewer can change the camera angle from an on-screen control panel. Subtitles and sign language interpretation accompany this feature.
- Language barrier. Although the interface has an English version, the video gallery content is in Ukrainian and lacks translated subtitles, limiting access for an international audience.
- Visual accessibility of media. In "Visually Impaired" mode, static images are black and white, but 360° videos remain in color. Photos from the 360° gallery appear as black strips. However, clicking on them opens a full-color image.
- Problems with keyboard navigation. Users cannot fully navigate the site without a mouse. While the site responds to Ctrl+"+" (text magnification) and Tab (moving between elements), users cannot move left or close a tab using only the keyboard.

This indicates non-compliance with WCAG Criterion 2.1.1. "All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input dependent on the path of the user's movement and not just the endpoints" [25].

To study awareness of online tours as a form of inclusive tourism among modern youth, we surveyed 120 participants. The group included 50 sophomores (second-year students), 60 freshmen (first-year students), and 10 seniors (fourth-year bachelor's students). The group was composed of individuals without disabilities (58.3%), individuals with disabilities (33.3%), and individuals with health impairments but without an official disability status (e.g., color blindness, nearsightedness, farsightedness, etc.) (8.3%).

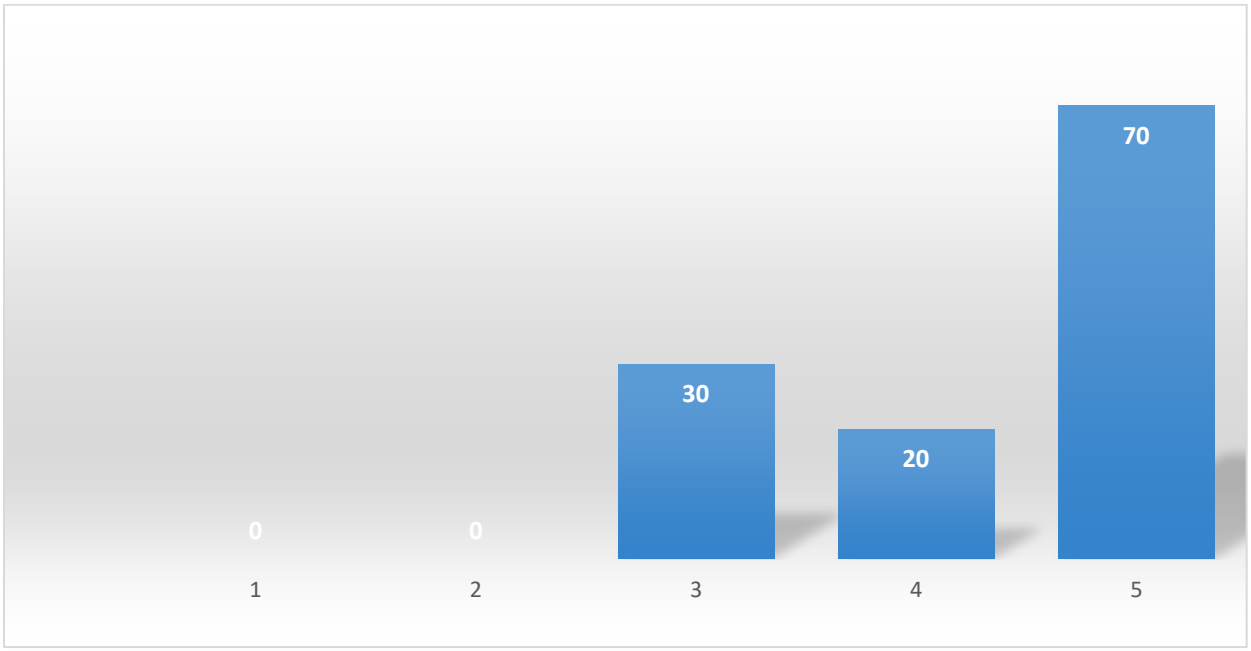
In analyzing the results of the "Online Tours in Ukraine" survey, which aimed to determine the level of youth awareness of online excursions, we based our approach on statements, open-ended questions, and a rating scale. Respondents were asked to select the statement that best answered each question.

To determine young people's opinions on the relevance of accessibility issues in Ukraine today, we used a rating scale where: "One point meant "not relevant at all", and five points meant "extremely relevant/critical".

The results are presented in Figure 1.

Next page

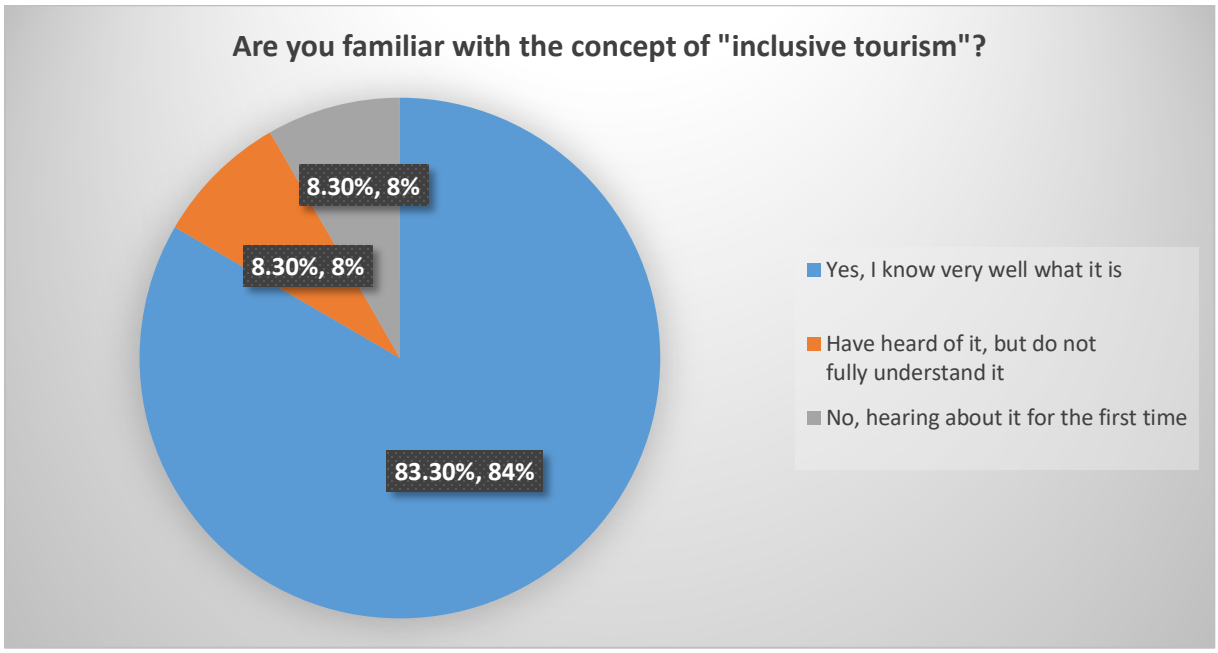
Figure 1: Assessment of the Relevance of Tourism Accessibility in Ukraine.



Source: Developed by the authors based on the survey results.

It was found that 30 people (25%) rated the problem as 3 points of relevance, 20 people rated it as 4 points, and 70 people rated it as 5 points. In response to the question, "Are you familiar with the concept of 'inclusive tourism'?" (see Figure 2), 100 people answered: "Yes, I know very well what it is". Ten people had heard of the concept but did not fully understand it, and ten people were hearing about it for the first time.

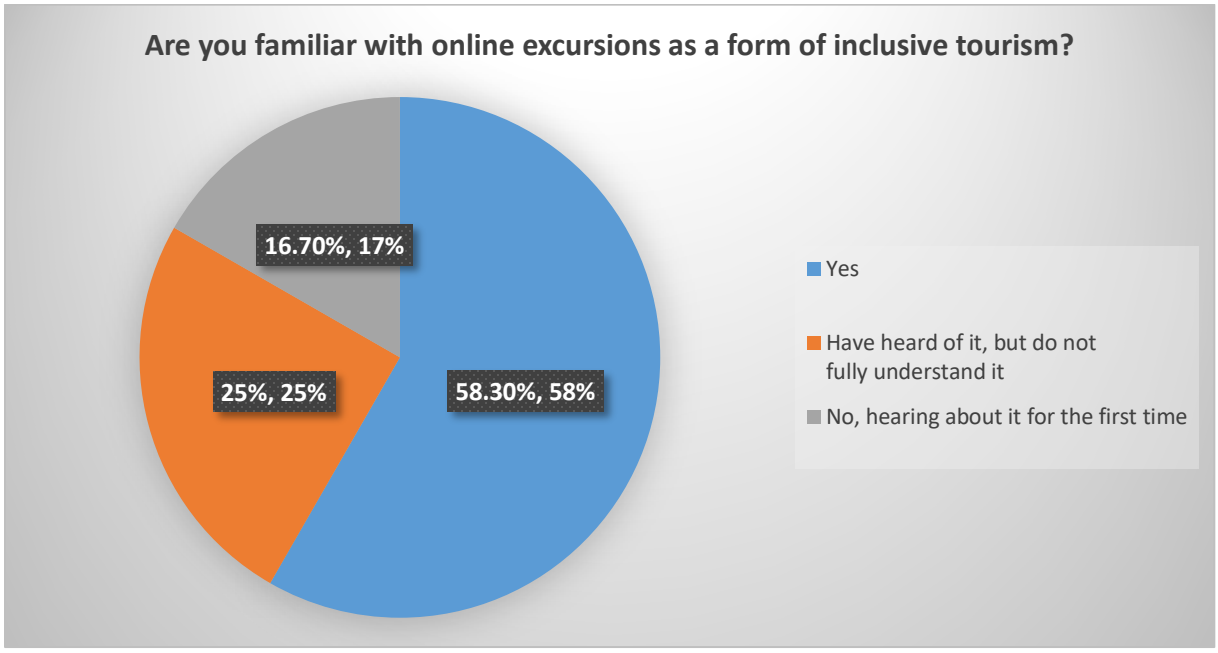
Figure 2: Level of Awareness of the Concept of "Inclusive Tourism" Among Respondents



Source: Developed by the authors based on the survey results.

As shown in Figure 3, 58.3% (70 people) of respondents are familiar with online tours, one type of inclusive tourism. Twenty-five percent (30 people) have heard of online tours but do not fully understand them, and 16.7% (20 people) are hearing about them for the first time.

Figure 3: Youth awareness of online tours as a direction of inclusive tourism

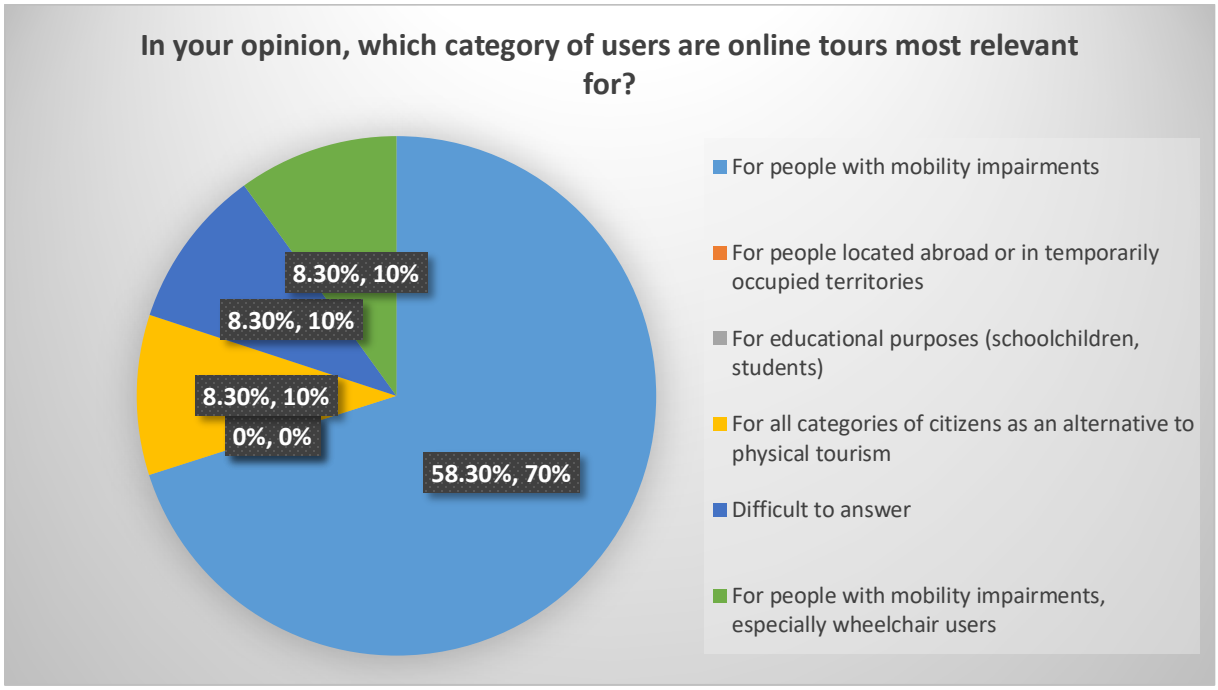


Source: Developed by the authors based on the survey results.

When asked, "In your opinion, which category of users are online tours most relevant for?" students responded as follows (Figure 4): 58.3% (70 people) – "People with mobility impairments"; 16.7% (20 people) – "All categories of citizens as an alternative to physical tourism"; 8.3% (10 people) – "Difficult to answer". Another 8.3% (10 people) selected "For people with mobility impairments, especially those who use wheelchairs", and 8.3% (10 people) chose "For all of the above". Options such as "for people located abroad or in temporarily occupied territories" and "for educational purposes (schoolchildren and students)" received no votes.

Next page

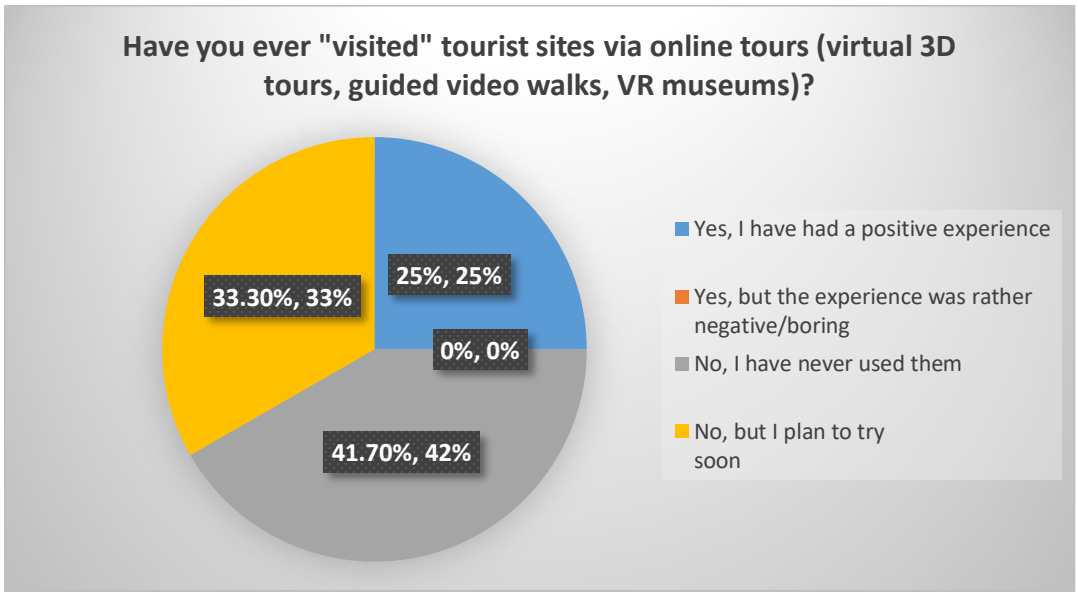
Figure 4: Respondents' opinions on the target audience for online tours



Source: Developed by the authors based on the survey results.

When asked, "Have you ever 'visited' tourist sites in the form of online tours, such as virtual 3D tours, guided video walks, or VR museums?" 41.7% (50 people) replied that they had never used such technologies (Figure 5). 33.3% (40 people) had not used them but planned to do so soon. 25% (30 people) answered that they had visited such platforms and had a positive experience. None of the respondents had a negative or boring experience.

Figure 5: Experience Using Online Tourism Products

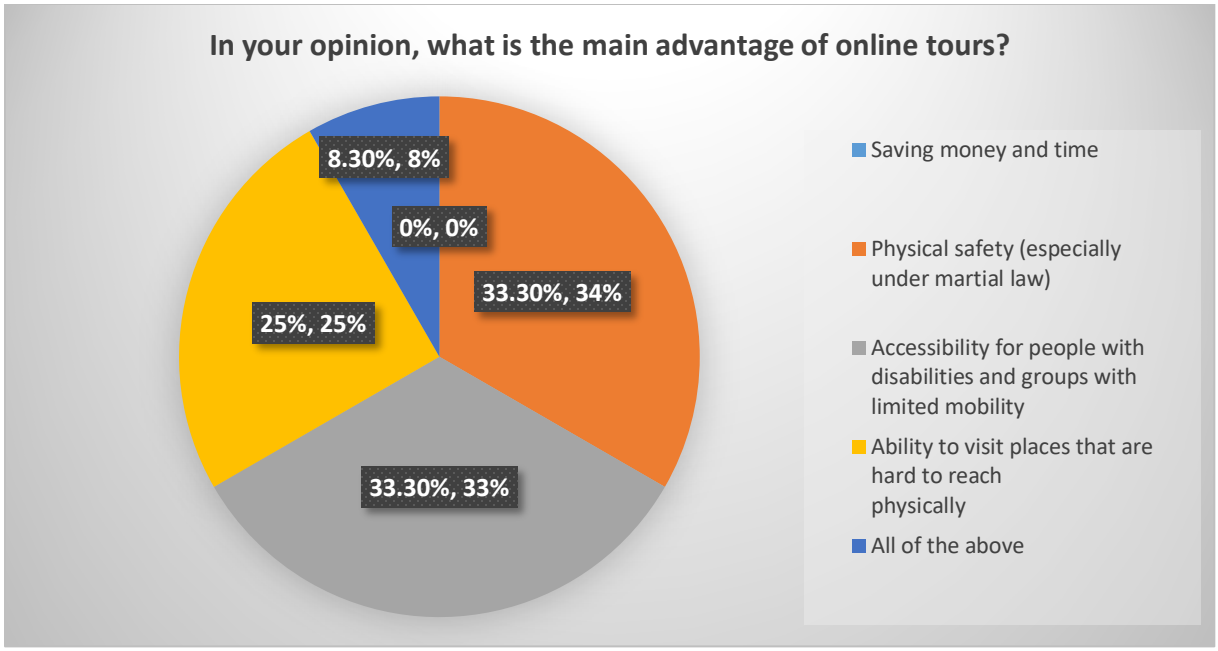


Source: Developed by the authors based on the survey results.

According to the students, the primary benefits of online tours are accessibility for people with disabilities and groups with limited mobility (33.3%, or 40 people) and the ability to visit hard-to-reach locations (25%, or 30 people). Another 33.3% (40 people) considered physical safety to be the main advantage, particularly under martial law. The

option "saving time and money" was ignored by the young participants. Finally, 8.3% (10 people) selected "All of the above". The distribution of responses is shown in Figure 6.

Figure 6: Primary Advantages of Online Tours According to Students

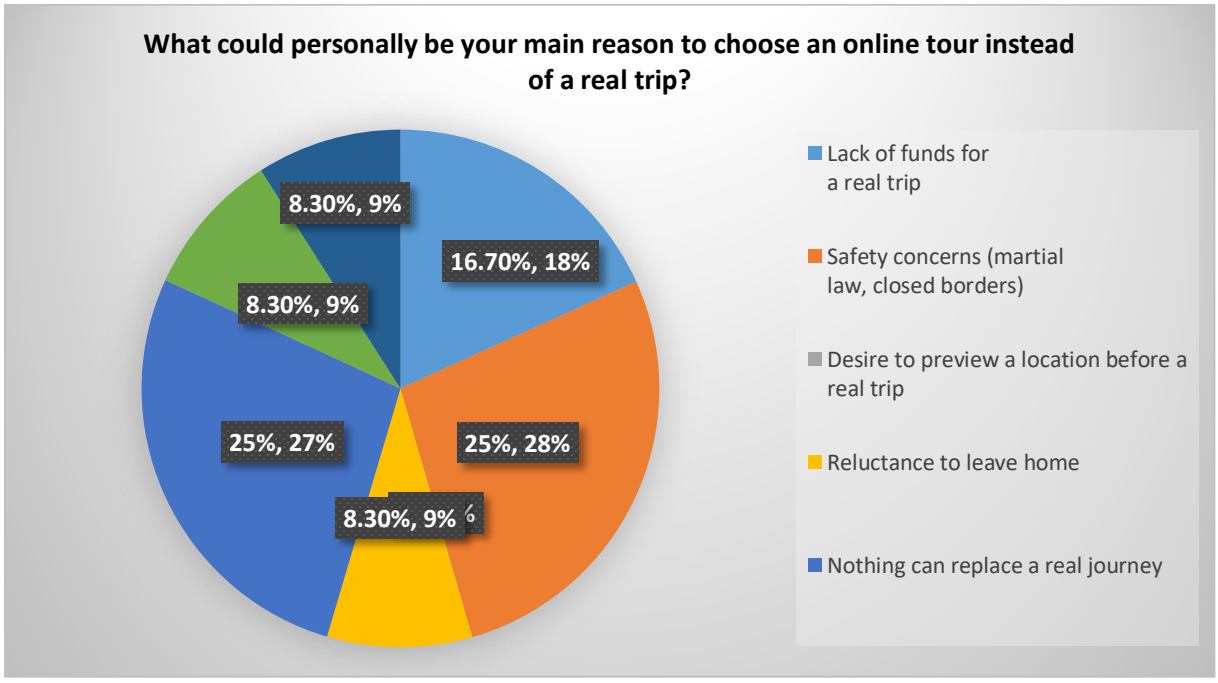


Source: Developed by the authors based on the survey results.

When asked about the main reasons for choosing online tours over physical travel, students responded as follows: 16.7% (20 people) cited lack of funds for an actual trip, and 25% (30 people) cited safety concerns such as martial law and closed borders (Figure 7). No one selected the desire to preview a location before a physical visit as a standalone option. However, ten people (8.3%) selected the first three reasons combined: lack of funds, safety issues, and the desire to preview a location before visiting it in person. For 8.3% (10 people), the incentive was reluctance to leave home. Meanwhile, 30 people (25%) are convinced that nothing can replace a real journey. Another 8.3% (10 people) cited the lack of accessibility at desired locations and the shortage of available hotels as reasons for choosing online tours. The remaining 8.3% (10 people) simply chose "accessibility".

Next page

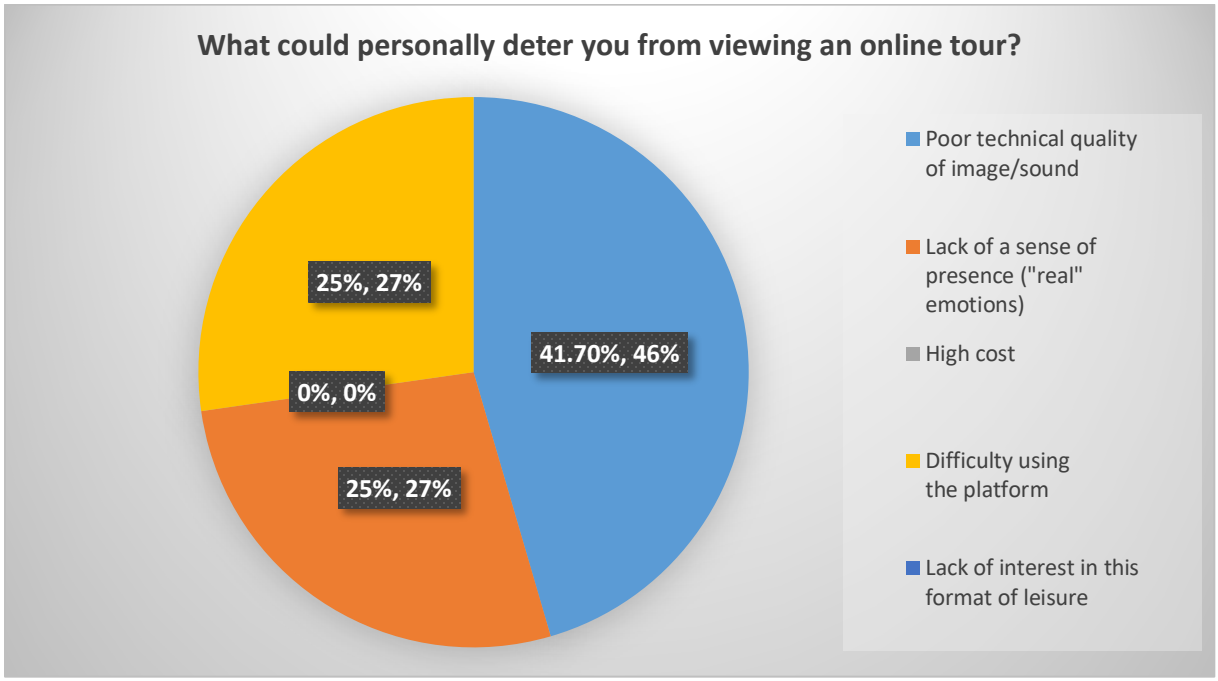
Figure 7: Reasons for Choosing Online Tours Over Physical Travel



Source: Developed by the authors based on the survey results.

For 41.7% (50 people), the poor technical quality of images or audio is a primary barrier to engaging with online tours. Meanwhile, 25% (30 participants) cited a "lack of a sense of presence (real-life emotions)", and another 25% (30 people) cited "difficulty navigating the platform". "Lack of interest in this type of leisure activity" was the deciding factor for 8.3% of respondents (see Figure 8).

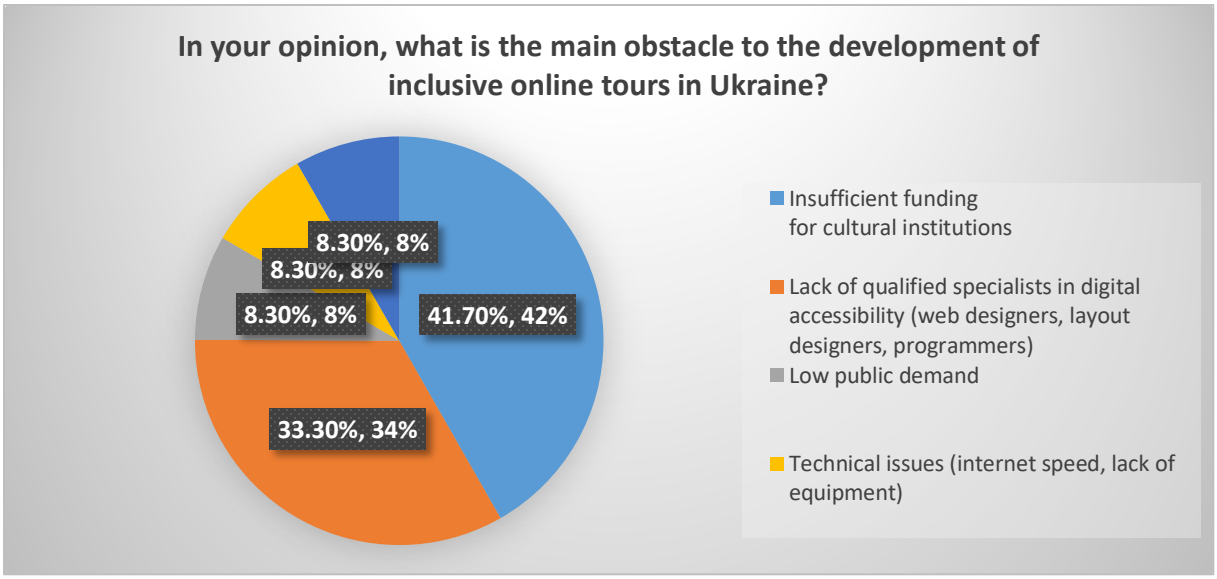
Figure 8: Factors Deterring Respondents from Viewing Online Tours



Source: Developed by the authors based on the survey results.

University students identify the primary obstacles to the development of inclusive online tours in Ukraine as follows (Figure 9): insufficient funding for cultural institutions (41.7%, or 50 people); a lack of qualified specialists in digital accessibility, such as web designers, layout designers, and programmers (33.3%, or 40 people); and low public demand (8.3%, or 10 people). Technical issues, including internet speed and a lack of equipment, were noted by 8.3% (10 people), while another 8.3% (10 people) selected "All of the above".

Figure 9: Obstacles to the Development of Inclusive Online Tours in Ukraine

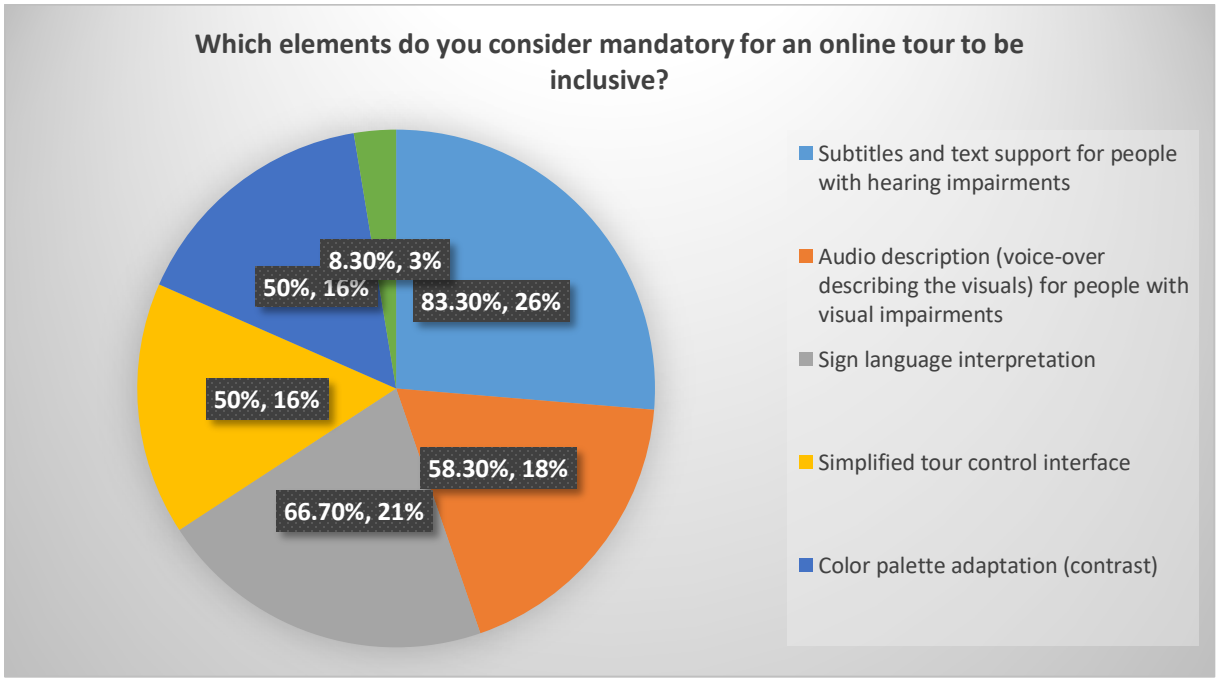


Source: Developed by the authors based on the survey results.

In response to the question, "What elements are mandatory for an online tour to be considered inclusive?" respondents provided the following answers (Figure 10): subtitles and text support for people with hearing impairments (83.3%, or 100 people); sign language interpretation (66.7%, or 80 people); audio description (a voice-over describing the visual content) for people with visual impairments (58.3%, or 70 people); a simplified tour control interface (50%, or 60 people); and color palette adaptation (contrast) (50%, or 60 people). An additional 8.3% (10 participants) noted that different categories of disabilities require different elements, highlighting the need for all listed options to provide users with a choice.

Next Page

Figure 10: Essential Elements of an Inclusive Online Tour

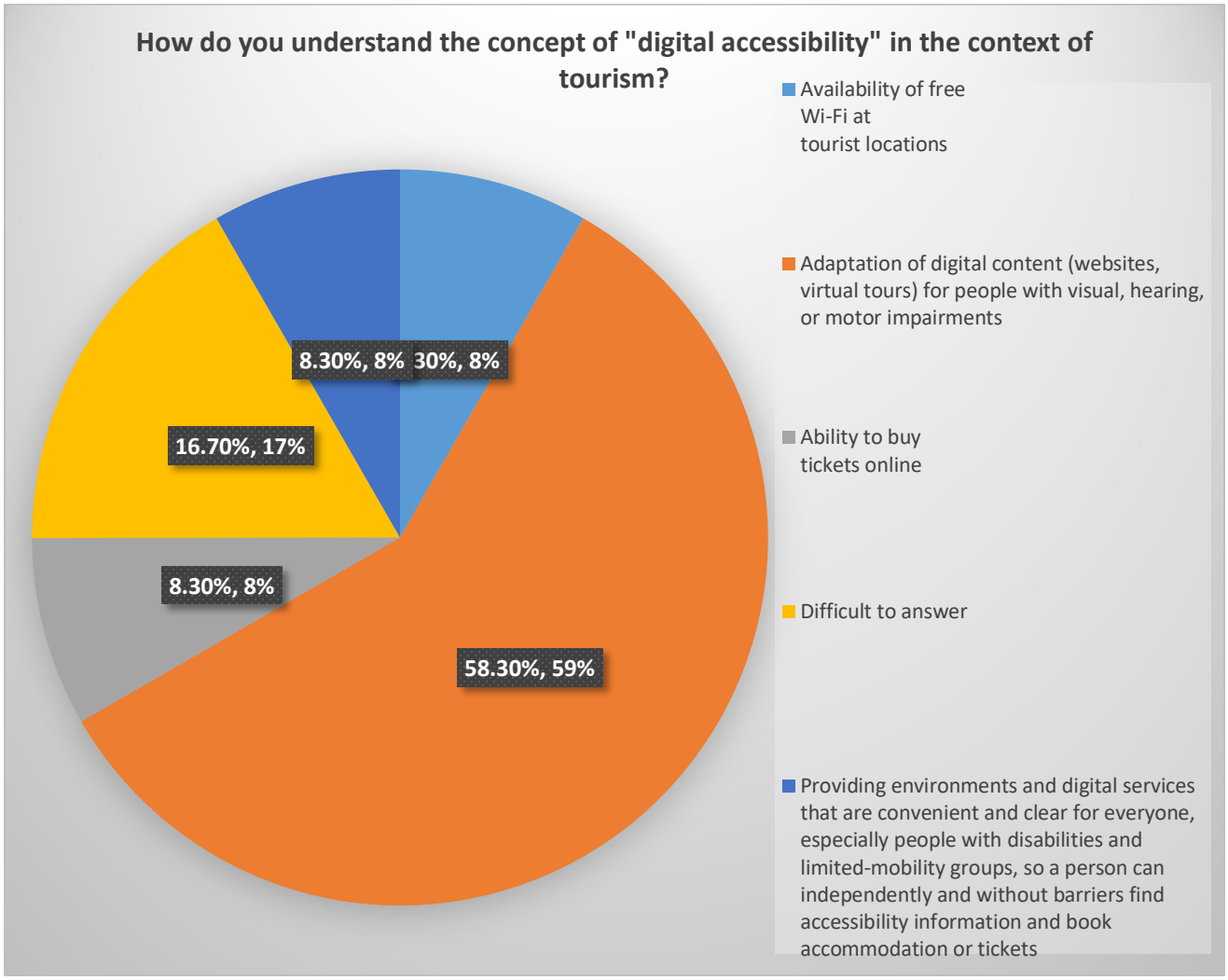


Source: Developed by the authors based on the survey results.

Young people understand the concept of "digital accessibility" in the context of tourism as follows (Figure 11): for 58.3% (70 respondents), it means the adaptation of digital content (websites, virtual tours) for people with visual, hearing, or motor impairments; for 8.3% (10 people), it is the availability of free Wi-Fi in tourist locations; for another 8.3% (10 people), it is the ability to purchase tickets online; and 16.7% (20 people) chose the option "difficult to answer". The remaining 8.3% (10 participants) noted that digital accessibility involves providing convenient, clear environments and digital services for everyone, especially people with disabilities and groups with limited mobility. This allows individuals to independently and without barriers find tourist information about accessibility conditions, book accommodations, tickets, or tours, and receive assistance.

Next page

Figure 11: Respondents' Understanding of the Concept of "Digital Accessibility"

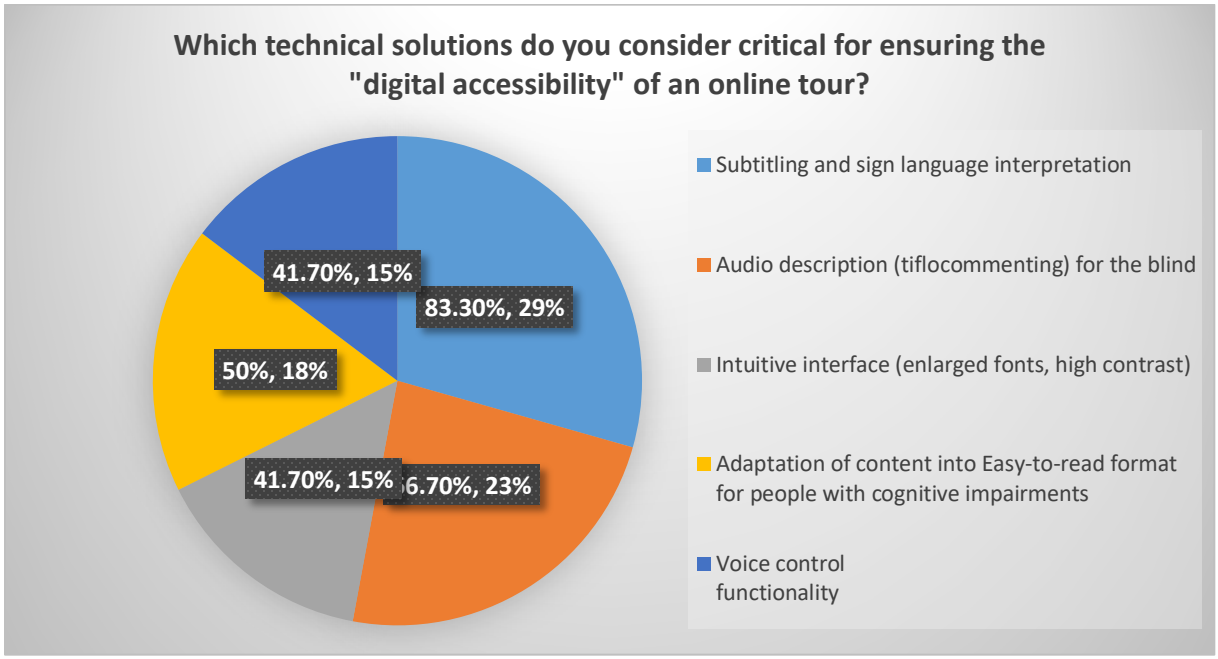


Source: Developed by the authors based on the survey results.

In response to a multiple-choice question about critical technical solutions for ensuring the digital accessibility of online tours, respondents provided the following answers (Figure 12): subtitling and sign language interpretation (83.3%, or 100 people); audio description (tiflocommenting) for the blind (66.7%, or 80 people); adaptation of content into an Easy-to-read format for people with cognitive impairments (50%, or 60 people); an intuitive interface featuring enlarged fonts and high contrast (41.7%, or 50 people); and voice control functionality (also 41.7%, or 50 people).

Next page

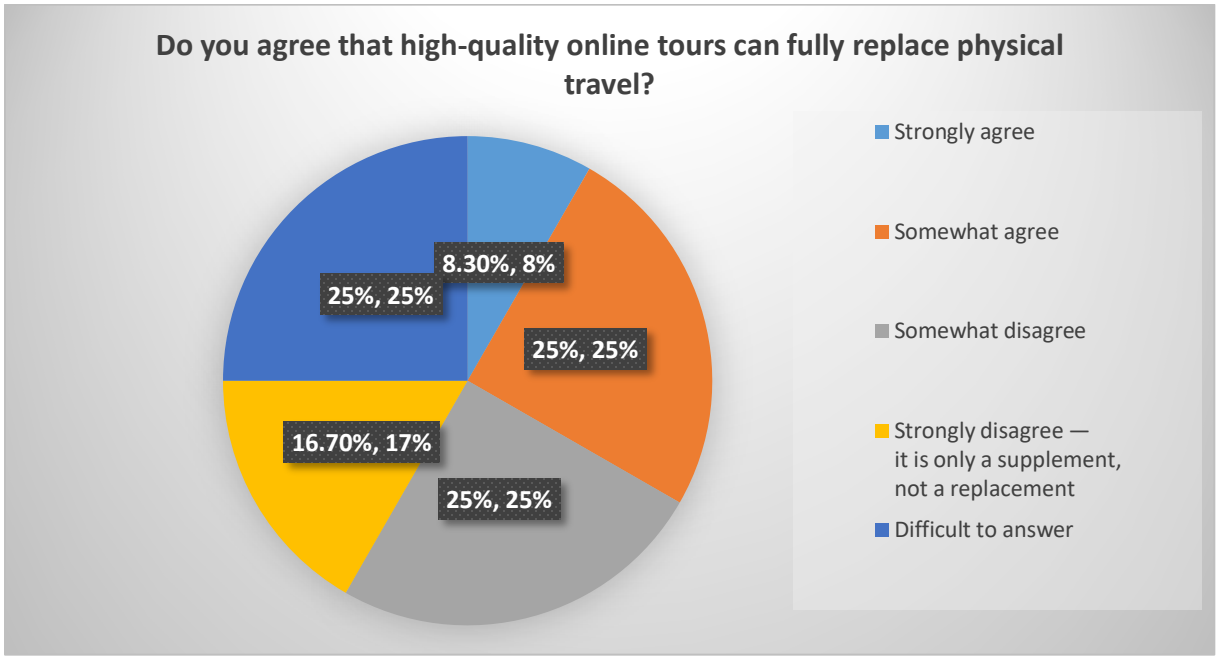
Figure 12: Technical Solutions Required to Ensure Digital Accessibility



Source: Developed by the authors based on the survey results.

When asked whether high-quality online tours could fully replace physical travel, respondents answered as follows (Figure 13): 8.3% (10 people) “Strongly agree”; 25% (30 people) “Somewhat agree”; 25% (30 people) “Somewhat disagree”; 16.7% (20 people) “Strongly disagree – it is only a supplement, not a replacement”; and another 25% (30 people) chose the option “Difficult to answer”.

Figure 13: Evaluation of Online Tours as an Alternative to Physical Travel

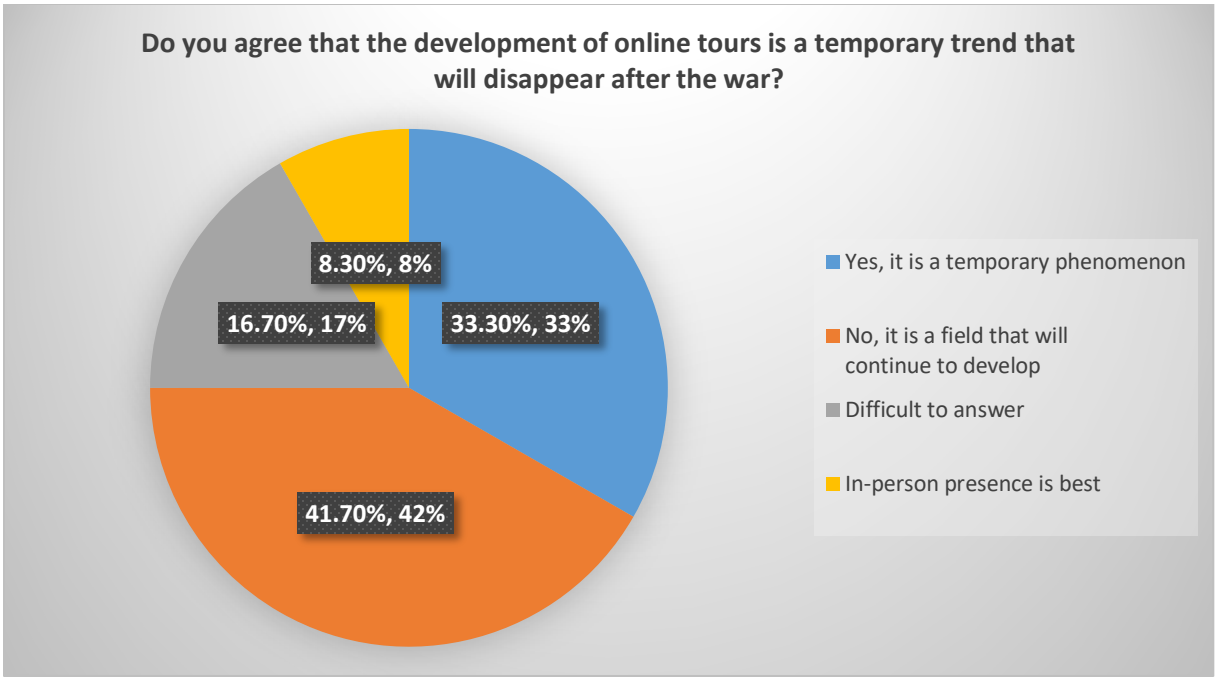


Source: Developed by the authors based on the survey results.

As shown in Figure 14, 33.3% (40 people) of students believe that the development of online tours is a temporary trend that will disappear after the war ends. Meanwhile, 41.7% (50 people) believe that it is a field that will continue

to evolve in the future. Another 16.7% (20 people) found it difficult to answer, and 8.3% (10 people) believe that an in-person presence is still the best option.

Figure 14: Youth Projections Regarding the Future Development of Online Tours



Source: Developed by the authors based on the survey results.

Our study assessed the awareness level of modern youth regarding online tours as a branch of inclusive tourism. We found that most students are familiar with the concepts of "inclusive tourism" and "online tours". However, young people primarily believe that online tours are intended only for people with disabilities. They overlook the fact that such tours can meet the needs of people living abroad or in occupied territories and can be used for educational purposes. According to the data, 41.7% of respondents believe that insufficient funding for cultural institutions is the main obstacle to developing inclusive online tours in Ukraine. Only 10 people realized that, in order for an online tour to be considered inclusive, the internet platform must provide a comprehensive set of features and offer users a choice. A website cannot be considered inclusive if it only offers subtitles or color contrast. Additionally, 58.3% of respondents (70 people) understand "digital accessibility" as the adaptation of digital content, such as websites and virtual tours, for people with visual, hearing, or motor impairments.

Opinions on whether high-quality online tours can fully replace physical travel are divided: 30 people somewhat agree with this statement, 30 somewhat disagree, and 30 more found it difficult to answer. Finally, only 50 out of 120 respondents believe that the development of online tours is not a temporary trend that will disappear once the war ends.

The findings of this study demonstrate that the digitalization of inclusive tourism is directly relevant to sustainable development because it addresses the social, educational, cultural, and technological dimensions of sustainability. The results show that online tours can reduce barriers to participation in tourism and cultural life for people who experience physical, geographical, financial, or security-related limitations. In this regard, digital tourism contributes to a more inclusive model of development in which access to cultural and recreational resources is not determined exclusively by an individual's physical ability or capacity to travel.

The strongest connection with sustainable development concerns social inclusion and equal access. In the survey, respondents identified accessibility for people with disabilities and people with reduced mobility as one of the principal advantages of online tours. Physical safety and access to locations that are difficult to visit in person were also recognized as important benefits. These findings indicate that online tourism can support the social dimension of sustainable development by expanding opportunities for participation among groups that may otherwise experience

barriers to conventional tourism. Thus, digital accessibility should be understood not only as a technical requirement but also as a mechanism for promoting social equity and participation.

The results also reveal an important educational dimension of sustainable digital tourism. Online tours can provide students and other users with opportunities to explore museums, historical sites, cultural institutions, and other places of interest without the need for physical travel. Such experiences can complement formal education, support experiential learning, and increase awareness of cultural heritage. The integration of accessible virtual tours into educational practices may therefore contribute to the development of more inclusive learning environments while simultaneously broadening access to cultural and educational resources.

Another important contribution concerns the preservation and dissemination of cultural heritage. Digital representations of museums, historical sites, architectural monuments, and other cultural resources can make heritage accessible to audiences who cannot visit these locations physically. This function is particularly significant in Ukraine, where war-related risks and restrictions may limit physical access to cultural and tourism sites. From a sustainable development perspective, digital documentation and dissemination can support the continuity of cultural participation and increase the visibility of Ukrainian cultural heritage while reducing dependence on physical access alone.

The findings further demonstrate that technological innovation does not automatically result in sustainable or inclusive development. Respondents identified insufficient funding and a shortage of qualified specialists in digital accessibility among the major barriers to the development of inclusive online tours. These results establish a direct connection between the technological and institutional dimensions of sustainability. Sustainable digital transformation requires long-term investment, professional competencies, accessibility expertise, and institutional capacity to create, update, and maintain accessible digital tourism products.

The analysis of respondents' views regarding digital accessibility provides further evidence of this relationship. Subtitles and sign-language interpretation, audio description, intuitive interfaces, high contrast, and easy-to-read content were identified as important accessibility solutions. These findings demonstrate that sustainable digital tourism must be based on universal and user-centred design principles. When accessibility is incorporated into the development of digital tourism products from the outset, the resulting services can benefit not only people with disabilities but also older users, people with temporary impairments, users with limited digital skills, and individuals experiencing geographical or situational barriers.

The relationship between digital tourism and sustainable development should therefore be understood as multidimensional. Social sustainability is supported through greater participation and accessibility; educational sustainability is strengthened through wider access to learning and cultural resources; cultural sustainability is supported through the preservation and dissemination of heritage; and technological sustainability depends on the development of accessible, maintainable, and user-centred digital infrastructure. The findings of this study indicate that these dimensions are interconnected rather than independent.

At the same time, the study does not suggest that online tours should replace physical tourism. The results indicate that respondents continue to value the experience of actual travel, while recognizing specific advantages of online alternatives. This suggests that the most sustainable model is complementary rather than substitutive: online tours can expand access, provide educational and cultural opportunities, and overcome certain physical and geographical barriers, while physical tourism continues to provide experiences that cannot be fully reproduced digitally. Such complementarity can increase the resilience and inclusiveness of the tourism sector.

Overall, the findings contribute to the understanding of sustainable development by demonstrating that digital accessibility can function as an instrument of social inclusion rather than merely as a technological characteristic of tourism websites and virtual tours. The study shows that the sustainability of digital tourism depends on whether technological innovation translates into meaningful opportunities for participation, learning, cultural engagement, and access to heritage. Consequently, the development of inclusive online tourism in Ukraine should be incorporated into broader strategies for sustainable tourism, digital transformation, accessibility, cultural preservation, and social inclusion.

Conceptually, the study establishes a link between digitalization, inclusive tourism, and sustainable development through the principle of equitable access. The findings suggest that the contribution of digital tourism to sustainability is determined not simply by the availability of virtual content but by the extent to which this content enables different groups of users to participate in tourism, education, and cultural life. Accordingly, accessibility represents the connecting mechanism between digital innovation and sustainable development. Where digital tourism platforms are accessible, adequately funded, professionally supported, and designed around diverse user needs, digitalization can

contribute to more inclusive and resilient tourism development. Where these conditions are absent, digitalization may reproduce existing inequalities rather than reduce them.

Conclusions

Virtual excursions matter on two counts: they give people with disabilities access to cultural life, and they document heritage sites that may not survive. Both justify continued work on the format. The prospects for online tours in Ukraine are good, provided several things change.

The first is a standard for inclusive website design. It should cover:

- Contrast schemes. Beyond the usual black-on-white and inverted options, a site should offer sepia, black on yellow, blue on yellow, green on white, yellow on black, yellow on blue and white on green. Different impairments call for different combinations, and a single alternative scheme does not serve them all.
- Subtitles. All video and audio content needs subtitling with adequate contrast and font size, set on an opaque background, so that sound, music and other information carried by audio actually reaches the viewer.
- Text as sound. Voice-over or text-to-speech duplication of written content serves users with visual impairments and users with dyslexia – two groups whose needs coincide here even though they differ in most other respects.
- Adaptive typography. Fonts should stay legible on small screens, and the user – not the designer – should choose the size.
- Technological improvement of tours:
- A stronger sense of presence, achieved by combining 3D panoramas with live tours: a guide carrying first-person audio and video equipment approaches an object and conducts the tour in real time.
- Audio description (tiflocommenting). For visually impaired users, the narrator should describe the space itself, not only the object in it – whether a room is square, its dimensions (say, 35 metres by 30), what it is built from. Spatial description is what allows a listener to construct the room mentally.
- Full keyboard accessibility. Every function must work without a mouse. Operating a cursor presupposes being able to see it, which for a substantial share of the intended audience cannot be assumed.

Our analysis of Ukrainian virtual tourism platforms against the WCAG 2.1 principles found real advantages – geographical accessibility, educational value, the preservation of heritage – alongside shortcomings that recur from site to site: keyboard navigation that stops halfway, missing language options, weak visual contrast, and multimedia that is only partly accessible. None of these is difficult to fix. They persist because inclusive design is treated as an addition rather than a requirement.

The student survey points to a problem of perception rather than technology. Young people know what inclusive tourism and online tours are, yet read virtual excursions as something provided for people with disabilities specifically, which leaves their educational, social and cultural uses out of view. Digital accessibility needs to be presented as a universal value – something that improves a site for everyone – rather than as a narrow adaptation for a defined group.

Inclusive online tourism is therefore not a wartime substitute for physical travel but a durable component of Ukraine's cultural, educational and social development. Getting there requires standardised inclusive web design, better digital accessibility solutions, professional training in inclusive practice, and technologies built around the user. Together these would support long-term social inclusion, cultural preservation and the growth of barrier-free tourism in Ukraine.

The findings of this study demonstrate that the digitalization of inclusive tourism can contribute to sustainable development in Ukraine by expanding access to tourism, cultural heritage, education, and leisure for people who face physical, geographical, financial, or other barriers to conventional travel. In this context, online tours should not be viewed merely as a technological alternative to physical tourism. Rather, they represent an instrument for strengthening the social dimension of sustainable development by supporting equal participation in cultural and tourism activities. The results of the survey indicate that students recognize accessibility for people with disabilities and people with limited mobility (33.3%) and physical safety (33.3%) among the principal advantages of online tours. The possibility of accessing locations that are difficult to reach physically was also identified by 25% of respondents. These findings demonstrate the potential of digital tourism to reduce barriers to participation and expand access to cultural and tourism resources.

At the same time, the study identifies several challenges that may limit the contribution of online tourism to sustainable development. The most significant barriers identified by respondents were insufficient funding for cultural institutions

(41.7%) and a shortage of qualified specialists in digital accessibility (33.3%). These findings indicate that technological digitalization alone cannot ensure sustainable and inclusive tourism development. Sustainable digital transformation requires investment in accessible digital infrastructure, professional competencies, accessible content production, and systematic implementation of accessibility standards. Consequently, the development of inclusive online tourism should be understood as an institutional and social process rather than exclusively as a technological innovation.

The analysis of digital accessibility further demonstrates that sustainable development depends on the quality and inclusiveness of digital environments. Respondents identified subtitles and sign-language interpretation, audio description, simplified interfaces, high-contrast design, and Easy-to-Read content among the important technical solutions required for accessible online tours. In particular, 83.3% of respondents identified subtitling and sign-language interpretation, while 66.7% identified audio description as critical accessibility solutions. These findings reinforce the argument that digital inclusion requires a combination of technical, communicative, and user-centred solutions. An online tour cannot be considered genuinely inclusive if it provides access only to users without sensory, motor, or cognitive barriers.

The results also demonstrate that inclusive digital tourism can contribute to the sustainable preservation and dissemination of cultural heritage. Virtual access enables users to explore museums, historical sites, architectural monuments, and other cultural resources without physically visiting them. This creates opportunities for education, cultural participation, and heritage interpretation while reducing the limitations imposed by geographical distance, physical accessibility, and periods of restricted mobility. The potential of online tours is therefore particularly relevant in the Ukrainian context, where physical access to cultural and tourist sites may be restricted by security conditions and the consequences of war.

An important contribution of the study is the identification of a gap between general awareness of inclusive tourism and a more comprehensive understanding of digital accessibility. Although 83.3% of respondents reported that they were familiar with the concept of inclusive tourism, only a smaller proportion demonstrated a broader understanding of accessibility as a system of mutually complementary digital solutions. In particular, the findings show that respondents tended to associate inclusive online tourism primarily with people with disabilities, while paying less attention to its potential value for people who are geographically isolated, temporarily unable to travel, or using online tours for educational purposes. This finding suggests that awareness-raising and education should form an integral part of sustainable tourism development.

From the perspective of sustainable development, the results therefore suggest that the future development of online tourism in Ukraine should be based on three interconnected dimensions: accessibility, sustainability, and social participation. Accessibility requires compliance with recognized digital accessibility standards and the provision of multiple formats of information. Sustainability requires institutional investment, professional capacity, technological maintenance, and long-term strategies rather than short-term digital solutions. Social participation requires that people with different abilities and circumstances be involved not only as users but also as participants in the design and evaluation of digital tourism services.

The study consequently contributes to a broader understanding of sustainable tourism by demonstrating that digital accessibility is not an additional feature of tourism services but one of the conditions for their social sustainability. The development of accessible online tours can support more equitable access to cultural and tourism resources, strengthen educational opportunities, facilitate cultural participation, and contribute to the preservation and dissemination of cultural heritage. At the same time, the identified financial, technological, and human-resource challenges demonstrate that these benefits cannot be achieved automatically through digitalization. Coordinated action by cultural institutions, tourism organizations, educational institutions, technology specialists, and policymakers is required to ensure that digital transformation produces sustainable and inclusive outcomes.

Finally, the findings should be interpreted in light of the exploratory nature of the study and the non-probability sample of 120 university students. The results provide descriptive evidence of young people's perceptions rather than statistically representative estimates for the entire Ukrainian population. Future research should therefore involve larger and more diverse samples, including people with different types of disabilities, tourism professionals, cultural institutions, and digital-service providers. Further research should also examine the accessibility of a larger number of Ukrainian tourism platforms using systematic WCAG-based testing and investigate the long-term social, educational, cultural, and economic effects of accessible online tourism.

Directions for future research

The exploratory findings provide several directions for further investigation. First, future studies should use larger and more diverse samples involving people with different types of disabilities, older adults, tourism professionals, cultural-sector employees, educators, and digital-service providers. This would make it possible to compare the perceptions of users and service providers and to identify differences between expected and actual accessibility needs. Second, longitudinal research could examine whether increased exposure to online tours changes users' awareness, attitudes, and intention to use digital tourism services over time.**

Further research should also move from perception-based assessment toward empirical usability testing of online tourism platforms. Combining surveys with WCAG-based accessibility audits, user testing, interviews, and observation would provide a more comprehensive assessment of digital accessibility. Particular attention should be paid to the accessibility of multimedia content, navigation, audio description, subtitles, sign-language interpretation, colour contrast, keyboard navigation, and cognitive accessibility. Such research would help determine which accessibility interventions produce the greatest improvements in users' experiences and participation.

Finally, future research should examine the long-term contribution of inclusive online tourism to sustainable development at the community and institutional levels. This could include assessment of educational outcomes, cultural participation, social inclusion, economic efficiency, and the resilience of tourism and cultural institutions. Comparative studies between Ukrainian and international digital tourism platforms could further identify transferable practices and help develop evidence-based recommendations for accessible and sustainable digital tourism development in Ukraine.

References

[1] 360Tourist. (n.d.). *Home*. https://en.360tourist.net/

[2] Atyantik Technologies. (n.d.). *15 accessible website examples to inspire your website*. https://atyantik.com/insight/accessible-website-examples/

[3] Blind Brotherhood of Ukraine. (n.d.). *Yak zrobyty sait dostupnym?* [How to make a website accessible?]. https://bbu.org.ua/materials/yak-zrobiti-sajt-dostupnim/

[4] Bozhko, L. D. (2015). Virtualnyi turyzm: novi viiannia chasu [Virtual tourism: New trends of the time]. *Kultura Ukrainy. Seriia: Kulturolohiia*, *49*, 151–160.

[5] Conde, A. R., Caldeira, S., Rego, I., Botelho, T., Silva, O., de Sousa, Á. T., & Mota, P. (2023). Inclusive tourism and children with a diagnosis of autism spectrum disorders: Systematic review of the literature. *European Journal of Tourism Research, 35*, 3502. https://doi.org/10.54055/ejtr.v35i.2806

[6] Dattolo, A., Luccio, F. L., & Pirone, E. (2016). Web accessibility recommendations for the design of tourism websites for people with autism spectrum disorders. *International Journal on Advances in Life Sciences, 8*(3–4), 297–308. https://www.researchgate.net/publication/313598311

[7] eMuseum.online. (n.d.). *About project*. https://emuseum.online/about-project

[8] Fakty. (2024, October 22). *Yaka kilkist liudei z invalidnistiu v Ukraini u 2024 rotsi?* [What is the number of people with disabilities in Ukraine in 2024?]. https://fakty.com.ua/ua/ukraine/20241022-yaka-kilkist-lyudej-z-invalidnistyu-v-ukrayini-u-2024-roczi/

[9] Freund, D., Iñesta, A., & Castelló, M. (2022). Tourism for all: Educating to foster accessible accommodation. *Journal of Hospitality, Leisure, Sport & Tourism Education, 30*, 100370. https://doi.org/10.1016/j.jhlste.2022.100370

[10] Gillovic, B. (2019). *Experiences of care at the nexus of intellectual disability and leisure travel* [Doctoral dissertation, The University of Waikato]. https://hdl.handle.net/10289/12833

[11] Glavcom. (2025, October 2). *Skilky kulturnykh obiektiv zruinuvala RF? Statystyka Minkultu* [How many cultural objects has the RF destroyed? Statistics from the Ministry of Culture]. https://glavcom.ua/country/incidents/rosija-zrujnuvala-v-ukrajini-ponad-chotiri-tis-kulturnikh-objektiv-1081290.html

[12] Karamanov, O., Surmach, O., Kravchenko, O., Polishchuk, N., & Albul, I. (2023). Museum educational activities in the context of disseminating modern scientific knowledge. *Revista Amazonia Investiga, 12*(68), 85–92. https://doi.org/10.34069/AI/2023.68.08.8

[13] Korrespondent.net. (2024, October 21). *V MOZ skazaly, skilky liudei v Ukraini otrymaly invalidnist u 2023-u* [The Ministry of Health stated how many people in Ukraine received disability status in 2023]. https://ua.korrespondent.net/ukraine/4725128-v-moz-skazaly-skilky-luidei-v-ukraini-otrymaly-invalidnist-u-2023-u

[14] Kravchenko, O., Krasnomovets, V., Mishchenko, M., Bondarenko, H., Moroz, L., Voitovska, A., Yaremenko, N., & Sarancha, I. (2023). Methodological support of social and natural-resource evaluation of inclusive tourist objects in the sustainable development context. *Economic Affairs, 68*(4), 2039–2048. https://doi.org/10.46852/0424-2513.4.2023.18

[15] Kravchenko, O., Safin, O., Kucher, G., Yaremenko, N., Balabushka, E., & Levenets, A. (2023). Assessment of socio-economic, psychological needs and expectations of internally displaced persons in Ukraine. *Economic Affairs, 68*(4), 2029–2038. https://doi.org/10.46852/0424-2513.4.2023.17

[16] Kuzyk, Z., & Ivashchenko, S. (2015). Virtualnyi tur yak zasib dokumentuvannia obiektiv kulturnoi spadshchyny [Virtual tour as a means of documenting cultural heritage objects]. *Suchasni dosiahnennia heodezychnoi nauky ta vyrobnytstva, 2*, 82–86.

[17] Lim, K. H., Chan, J., Leckie, C., & Karunasekera, S. (2018). Personalized trip recommendation for tourists based on user interests, points of interest visit durations and visit recency. *Knowledge and Information Systems, 54*(2), 375–406. https://doi.org/10.1007/s10115-017-1056-y

[18] Morhulets, O. B., & Kravtsova, O. M. (2024). Rol ta shliakhy rozvytku virtualnoho turyzmu v Ukraini [The role and ways of development of virtual tourism in Ukraine]. In *The XI International Scientific and Practical Conference "Quality management in education and industry: experience, problems and prospects"* (p. 356).

[19] Museums of Ukraine Open Air. (n.d.). *Holovna* [Home]. https://museums.authenticukraine.com.ua/ua/

[20] National Historical Library of Ukraine. (n.d.). *Holovna* [Home]. https://nibu.kyiv.ua/

[21] Mauro, N., Ferrero, F., Ardissono, L., & Cena, F. (2026). Human-centered AI for inclusive tourism: Enhancing travel planning for adults with autism spectrum disorder. *International Journal of Human-Computer Studies, 208*, 103696. https://doi.org/10.1016/j.ijhcs.2025.103696

[22] Bezliudniy, O., Kravchenko, O., Kondur, O., Reznichenko, I., Kyrsta, N., Kuzmenko, Y., & Tkachuk, L. (2022). National and patriotic education of student youth by means of digital technologies in distance learning environment. *International Journal of Computer Science and Network Security, 22*(8), 451–458. https://doi.org/10.22937/IJCSNS.2022.22.7.55

[23] Opeida, A. R. (2025). Virtualna podorozh yak suchasnyi riznovyd kulturnoho turyzmu [Virtual journey as a modern type of cultural tourism]. *Visnyk Natsionalnoi akademii kerivnykh kadriv kultury i mystetstv*, *1*, 134–139. https://doi.org/10.32461/2226-3209.1.2025.327937

[24] Pavlo Tychyna Uman State Pedagogical University. (n.d.). *Kulturno-rekreatsiino-turystychna Cherkashchyna: Inkliuzyvno-sotsialna 3D-karta* [Cultural-recreational-tourist Cherkasy region: Inclusive-social 3D map]. https://fspo.udpu.edu.ua/inklyuzyvno-sotsial%ca%b9na-3D-karta/

[25] World Wide Web Consortium. (2018). *Web Content Accessibility Guidelines (WCAG) 2.1*. https://www.w3.org/Translations/WCAG21-ua/#keyboard-accessible

[26] YouVisit. (n.d.). *Virtual reality & 360° experience*. https://www.youvisit.com/virtual-reality-360-experience

Oksana Kravchenko, Doctor of Pedagogical Sciences, Professor, Uman National University, Ukraine. Her academic and professional activities focus on social work, social and psychological rehabilitation, inclusive education, community-based social services, and the professional training of social workers. Professor Kravchenko has authored and co-authored numerous scientific publications in national and international journals indexed in Scopus and Web of Science. Her research interests include social inclusion of vulnerable populations, psychosocial support for war-affected individuals, rehabilitation of veterans and internally displaced persons, mental health promotion, inclusive tourism, community development, and innovative approaches in social work. In recent years, she has actively investigated animal-assisted interventions, particularly canine-assisted therapy, as a tool for social and psychological rehabilitation and support for vulnerable groups. She has participated in a number of national and international research projects devoted to social protection, rehabilitation, educational innovation, and sustainable community development. Her current research emphasizes interdisciplinary approaches to rehabilitation, resilience building, social cohesion, and evidence-based practices in social work and social policy. Through her academic, organizational,

and research activities, she contributes to the advancement of social work education and the development of innovative rehabilitation services in Ukraine.

Oksana Osetrova, Department of Philosophy; Department of Social Work and Management of Social Processes, Oles Honchar Dnipro National University, Dnipro, Ukraine. Her academic and professional activities are associated with philosophy, social work, and the management of social processes. Her interdisciplinary academic background combines philosophical approaches with social work and the study of social processes, providing a foundation for research into contemporary social challenges and approaches to social development.

Valentyna Kharytonova, Department of Technology Education, Uman National University, Uman, Ukraine. Her academic and professional activities are associated with technology education and the development of educational approaches in the context of contemporary educational needs. Her affiliation with Uman National University provides an academic foundation for interdisciplinary cooperation in educational and social research.

Natalia Dubova, Department of Professional Education and Technologies by Profiles, Uman National University, Uman, Ukraine. Her academic activities are associated with professional education and technologies, with a particular focus on the development of educational and technological approaches within professional training. Her affiliation with the Department of Professional Education and Technologies by Profiles provides an interdisciplinary context for research related to contemporary educational practices, professional development, and the integration of innovative technologies into education.

Inna Honchar, Department of Social Pedagogy and Social Work, Uman National University, Uman, Ukraine. Her academic activities are associated with social pedagogy and social work, with a focus on contemporary approaches to social and educational support. Her affiliation with the Department of Social Pedagogy and Social Work provides an academic foundation for interdisciplinary research addressing social inclusion, education, social support, and the development of effective social work practices.

Halyna Mamus, Department of Service Sector, Technologies and Occupational Safety, Ternopil Volodymyr Hnatiuk National Pedagogical University, Ternopil, Ukraine. Her academic activities are associated with the fields of service-sector education, technologies, and occupational safety. Her affiliation with the Department of Service Sector, Technologies and Occupational Safety provides an interdisciplinary academic context for research related to professional education, technological development, service-sector practices, and occupational safety.

Nazar Salata, Department of Professional Education and Technologies by Profiles, Uman National University, Uman, Ukraine. His academic activities are associated with professional education and technologies, with an emphasis on contemporary approaches to professional training and the application of innovative technologies in education. His affiliation with the Department of Professional Education and Technologies by Profiles provides an academic context for research related to professional education, educational technologies, and the development of modern approaches to preparing specialists for professional activities.