

Website Traffic Patterns and User Behavior: A Comprehensive Study of Visitor Interactions and Engagement Metrics

Roger S. Mission *

Abstract: Websites play a crucial role in disseminating information, promoting communication, and engaging various stakeholders. In the context of universities, websites serve as central online hubs for academic programs, campus life, faculty profiles, resources, news, and more. This study focuses on the website of the University of Antique (UA), a state university in the Philippines, to analyze visitor behavior and engagement. The research objectives include collecting and analyzing data on website visits, page views, bounce rates, time spent on pages, and navigation patterns. The study aims to identify frequently accessed pages, assess the impact of marketing campaigns, capture visitor demographics, and identify areas for website improvement. Data collection took place over a 60-day period using Google Analytics tools, including acquisition, page statistics, and search tools. The study follows a systems approach, where visitor data is automatically recorded in the Google Analytics database. The research methodology involves measuring acquisition metrics, page and screen metrics, device and browser metrics, and geographic metrics. The results indicate that organic search traffic performs well in attracting new users, with the home page showing the highest engagement. Mobile devices are dominant in accessing the website, while the majority of users are from the Philippines. The findings provide insights for optimizing website design, content relevance, and user experience to enhance engagement and achieve conversion goals.

Keywords: Website behavior, User experience, Web analytics, Website statistics, University of Antique

1. Introduction

Websites are essential tools for disseminating knowledge, promoting communication, showcasing accomplishments, and encouraging involvement among various stakeholders. In the context of universities, websites serve as a central online hub for information and communication, providing details about their academic programs, admission requirements, application procedures, and important dates.

* College of Computer Studies, University of Antique, Sibalom, Antique, Philippines
Email: rsmision@antiquespride.edu.ph

Received [February 24, 2023]; Revised [April 14, 2023]; Accepted [May 22, 2023]



The website also showcases the vibrant campus life, extracurricular activities, student organizations, cultural events, and campus facilities. Additionally, it features directories or profiles of faculty members, allowing prospective students and researchers to learn about the expertise and research interests of the faculty. Websites also provide access to academic resources such as libraries, research centers, laboratories, online databases, and educational support services. Universities use their websites to share news, announcements, and updates about campus events, conferences, lectures, workshops, and other activities. Finally, it also provides platforms for hosting course materials, online discussions, assignments, and grading systems. They often have sections dedicated to alumni, give information on various support services offered by the university, highlight research achievements, and promote the university's reputation as a hub of innovation and knowledge creation. The website also functions as a marketing tool for luring prospective students and advancing the institution's importance.

The University of Antique (UA) is a state university located in Sibalom, Antique, Philippines. It was founded in 1954 and is the only state university and college in the province. UA offers a wide range of undergraduate and graduate programs across various fields of study. The university provides quality, relevant, and responsive scientific, technological, and professional education and advanced training in different areas of specialization and undertakes research and extension services in support of the socio-economic development of Antique, the Filipino nation, and the global community [1]. The university has a website that provides information about the university, its academic programs, admission requirements, faculty members, campus facilities, events, news, and other relevant details. The website also includes sections dedicated to student services, such as registration, enrollment procedures, academic calendars, and announcements. Additionally, the university maintains active social media accounts on platforms such as Facebook and Twitter. The university also utilizes online platforms for e-learning, virtual classrooms, and distance education, especially in response to the COVID-19 pandemic.

The research objectives and scope of the study include collecting and analyzing data on website visits, page views, bounce rates, time spent on each page, and navigation patterns within the University of Antique's website. This analysis will provide insights into visitor behavior and engagement with the website. It will also determine the most frequently accessed pages, resources, and sections on the website, identify which pages attract the highest traffic and engagement, assess the impact of marketing campaigns and content initiatives, capture data on visitor demographics, identify areas of the University of Antique's website that may need improvement, and explore opportunities to enhance website design, navigation, content relevance, and calls to action to improve the user experience, increase visitor engagement, and achieve conversion goals. It provides counts of visitors and user engagement on the website.

The rest of the paper is organized as follows: Methods are discussed in Section 2, Results and Discussion are presented in Section 3. Finally, Section 4 concludes the paper and provides further areas of research.

2. Methodology

This section discusses in detail the research methodology employed in this study, as shown in Figure 1. As shown here, the employed methodology consists of three distinct steps. Each of these steps is further discussed in subsequent sections.

2.1 Data Collection Method

The University of Antique website (<https://antiquespride.edu.ph>) was observed and analyzed for a period of 60 days, specifically from March 15, 2022, to May 14, 2022. During this time, Google

Analytics was used for data collection, which involved the use of acquisition, page statistics, and search tools to gather information about visitor behavior. The collected data was then subjected to descriptive analysis.

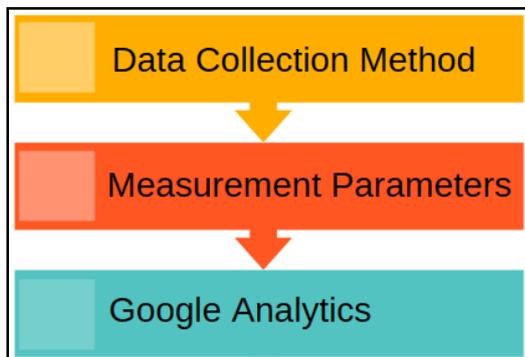


Figure 1. Research Methodology

The systems approach used in this study can be seen in Figure 2, which shows how Google Analytics works. Every time a visitor enters a search query on the Google.com search engine, Google Analytics collects the data, then processes it, and finally the data is automatically recorded in the database. Web data analytics is an essential component of website growth. A website's proper analytics will provide visitors with data that is essential for content optimization based on the user's preferences [2].

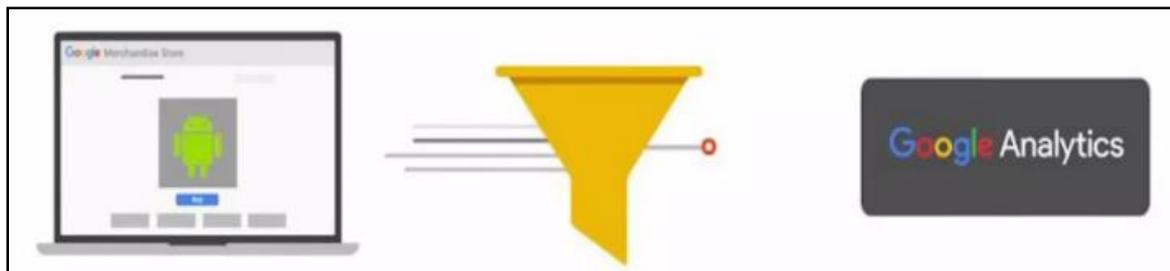


Figure 2. How Google Analytics Works

2.2 Measurement Parameters

The analysis of website visitor behavior in this study uses four (4) parameters, namely:

- a. **Acquisition Metrics.** Evaluates the performance of different marketing channels, identifies areas for improvement, and optimizes acquisition strategies to drive more targeted and qualified traffic to the website, including: Organic search refers to the visitors that land on a website as a result of unpaid (“organic”) search results [3]. Social traffic refers to traffic coming from social networks and social media platforms. Direct traffic can include visits that result from typing the URL directly into a browser or any traffic where the referrer or source is unknown. Referral traffic comes from a site other than a major search engine [4].
- b. **Pages and Screen Metrics.** These metrics help analyze the performance of individual pages or screens and identify areas for improvement. By understanding the number of views, engagement duration, and exit rates for specific pages or screens, you can optimize your content, user experience, and navigation to enhance user engagement, reduce bounce rates, and drive conversions.

- c. **Device and Browser Metrics.** It helps make data-driven decisions to improve a website's compatibility, optimize its responsive design, and enhance the user experience for different devices and browsers. It can identify any device or browser-specific issues, assess the need for browser compatibility testing, and prioritize optimization efforts based on the preferences of your target audience.
- d. **Geographic Metrics.** Provide valuable insights into the geographic reach of the website, identify high-potential markets, and tailor the marketing efforts to specific regions or countries. Understanding where your audience is located can help you develop targeted marketing campaigns, adapt content to regional preferences, optimize your website's language settings, and improve the user experience for visitors from different geographic locations.

2.3 Google Analytics

Google Analytics is a highly popular web analytics software provided by Google. It offers a wide range of features and tools for tracking and analyzing website data. It helps website owners and digital marketers gain valuable insights into their website's performance, visitor behavior, conversion rates, and other key metrics. Google Analytics is a free service offered by Google that generates detailed statistics about visits to a website and which is a user-friendly application with the guarantee of Google technology [5].

3. Results and Discussion

This section presents the results of data processing for the four metrics that are measured based on queries, pages, and devices used by users to access website pages (<https://antiquespride.edu.ph>).

3.1 Acquisition Metrics

Acquisition metrics refer to the process of obtaining or collecting data from various sources for the purpose of analysis. Figure 3 shows a user acquisition report that brings up the website <https://antiquespride.edu.ph>. The data suggests that the "Organic Search" traffic source performs well in terms of attracting new users. Out of a total of 58,459 users, 25,717 were acquired through organic search. Additionally, the report indicates that this traffic source achieved a high engagement rate of 60.89%. This means that a significant proportion of users acquired through organic search interacted with the website, such as by clicking on links or spending time on the site.

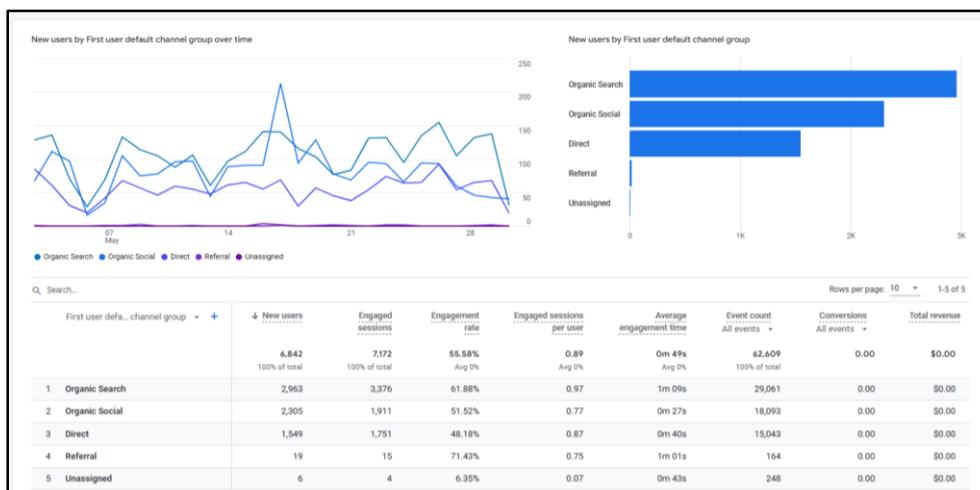


Figure 3. User Acquisition Report

The "Organic Social" traffic source brought in 17,638 new users, achieving a slightly lower engagement rate of 50.52%. The "Direct" traffic source accounted for 14,668 new users and achieved a higher engagement rate of 68.42%. Lastly, the "Referral" traffic source acquired 155 users with an engagement rate of 68.42%.

By analyzing this data, website owners or marketers can identify the most effective sources of user acquisition and optimize their strategies accordingly, especially organic and direct sources [6].

Users' search queries and the algorithm that search engines use to determine the relevance and ranking of website pages in search results are what generate organic search traffic. This form of traffic is valuable because it implies that consumers are discovering the website organically rather than through paid advertising.

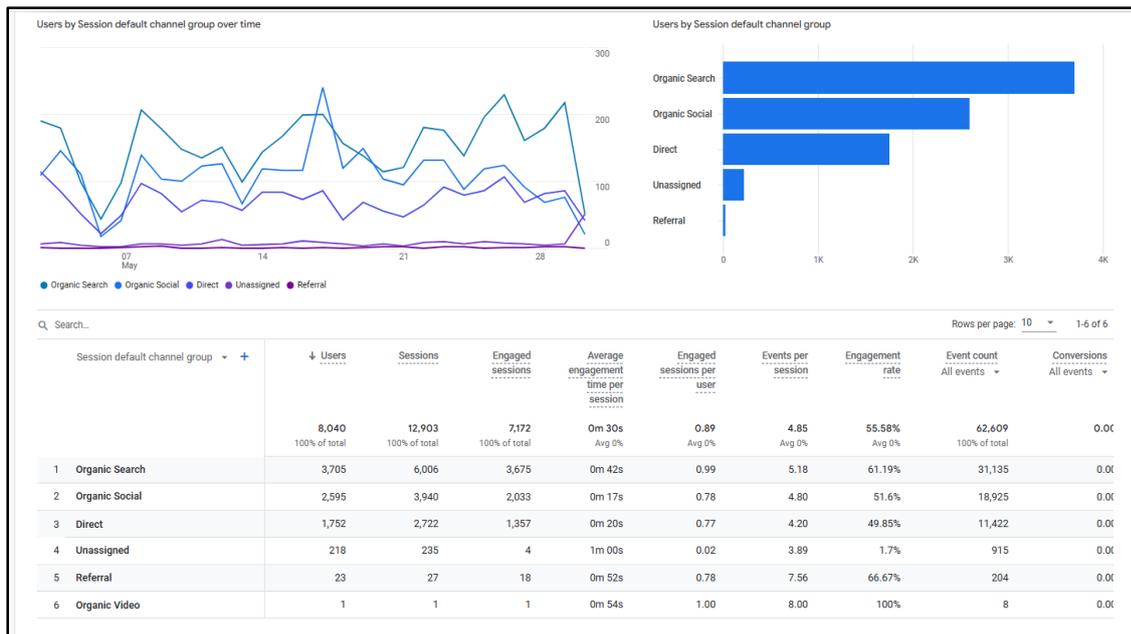


Figure 4. Traffic Acquisition Report

Figure 4 shows a traffic acquisition report that brings up the website <https://antiquespride.edu.ph>. The data shows that the "Organic Search" traffic source performs well, with 31,135 followed by 18,925 for "Organic Social", 11,422 for "Direct", and 915 for "Referral".

This data can be used for tracking and analyzing the sources of traffic that bring visitors to the website. It helps understand how users discover and arrive at websites, providing insights into the effectiveness of marketing efforts and the channels that drive traffic. These metrics can help identify the content sought by visitors.

3.2 Pages and Screen Metrics

These metrics group website pages based on the frequency of visitors. These metrics also help understand user engagement and the extent to which users interact with different pages or screens within a digital property. Figure 5 shows the results of grouping website pages.

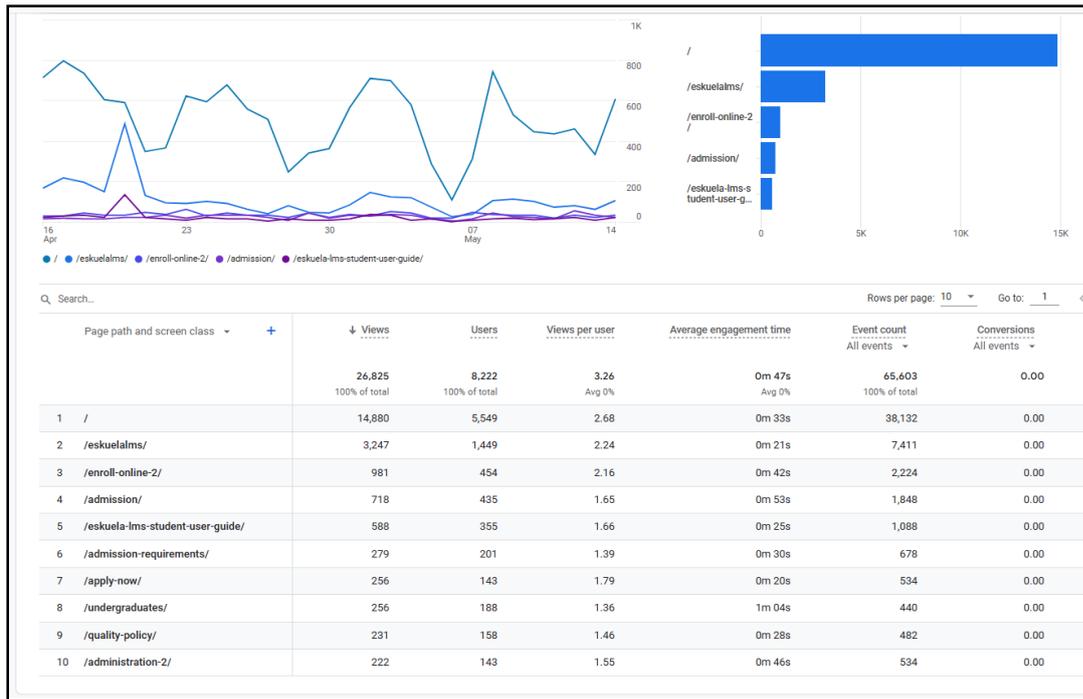


Figure 5. Pages and Screens Report

The data suggests that the home page has the highest engagement with 14,880 out of 26,825 views, followed by the learning management system page with 3,247 engagements. This suggests that the page may be highly relevant to the search queries or keywords that users are using to find the website.

3.3 Device and Browser Metrics

The metrics provide insights into the types of devices used by visitors to access the website. It helps understand the device distribution and optimize the content and user experience accordingly. Figure 6 shows the devices that users use to access the website.

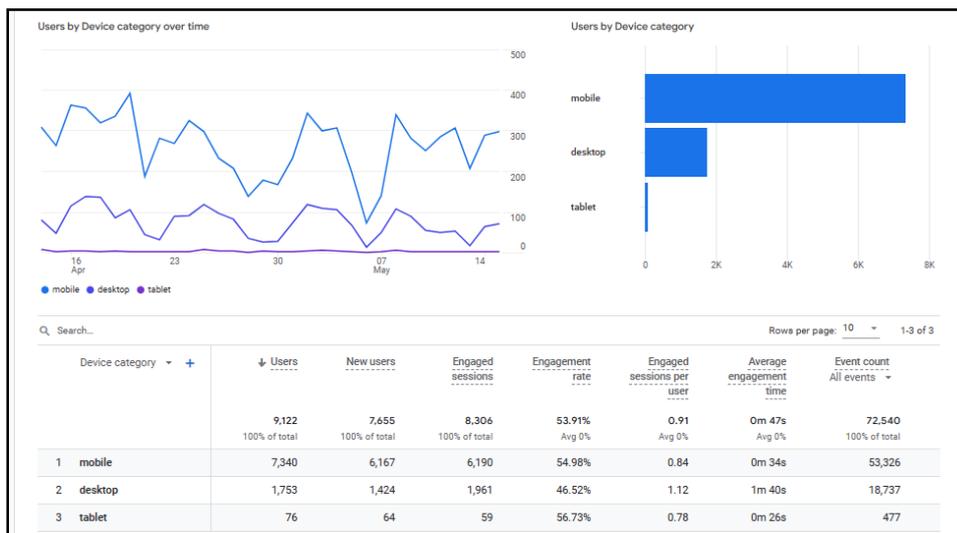


Figure 6. Devices that Users Use to Access

The data revealed that 53,326 users accessed the website using mobile devices. This includes smartphones and other mobile devices. The data indicates that 18,737 users accessed the website using desktop devices such as desktop computers or laptops. The data also shows that 477 users exclusively use tablets to access the website. Based on the data, the page of the website is well optimized for mobile devices. However, tablets are a less commonly used device category compared to mobile and desktop devices, as indicated by the relatively smaller number of users in this category. The findings shed light on the growing dominance of mobile devices in website access and provide valuable recommendations for organizations to effectively cater to the needs of mobile users [7].

3.4 Geographic Metrics

These metrics provide insights into the demographic characteristics of website visitors. It helps us understand the distribution of the audience, allowing us to tailor the marketing strategies and content to better align with the interests and preferences of specific demographic segments. Figure 7 shows the demographic details of users that access the website.

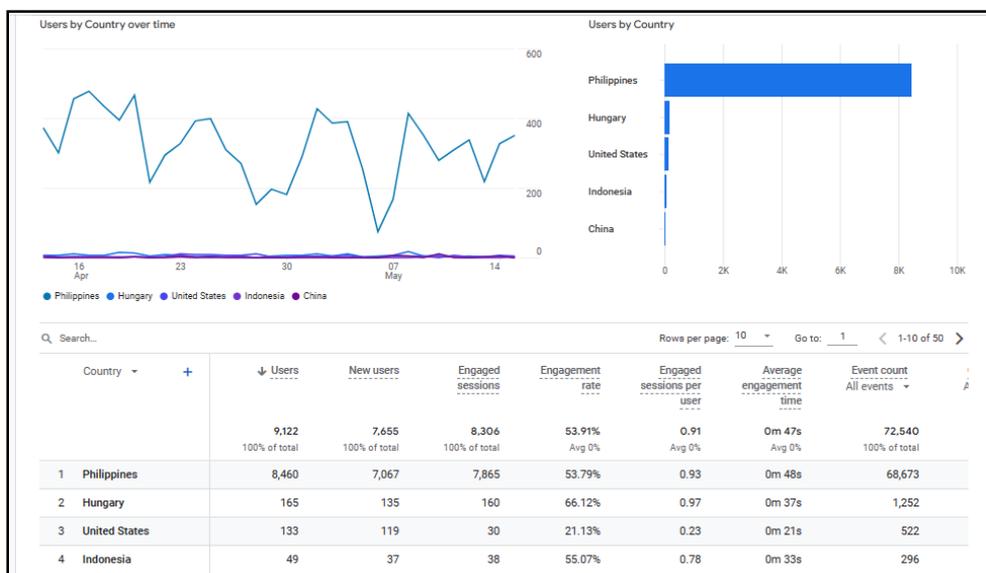


Figure 7. Demographics of Users

The data indicates that the highest number of website users are from the Philippines, with a total of 68,673 users. This suggests that the majority of the website's audience is comprised of Filipinos. The Philippines appears to be the primary source of traffic for the website based on the data provided. The data further reveals that the second highest number of users is from Hungary, with a total of 1,252 users. While the number of users from Hungary is significantly lower compared to the Philippines, it still represents a notable portion of the website's audience.

The data also shows that the United States is the third highest contributor to the website's user base, with a total of 522 users and 296 for Indonesia. While the number of users from the United States and Indonesia is relatively lower compared to Hungary, it still represents a portion of the website's audience.

4. Conclusion and Recommendations

Websites play a vital role in universities by serving as central hubs of information, communication, and engagement for various stakeholders. The University of Antique (UA) website serves as a comprehensive platform providing information about the university's academic programs, faculty,

campus facilities, events, news, and student services. It also utilizes online platforms for e-learning and virtual classrooms, particularly in response to the COVID-19 pandemic. To assess visitor behavior and engagement with the UA website, data was collected and analyzed using Google Analytics.

The analysis of the data revealed valuable insights into user acquisition, page and screen metrics, device and browser metrics, and geographic metrics. The organic search traffic source performed well, attracting a significant number of new users with high engagement rates. The home page and the learning management system page were among the most visited and engaged pages. Mobile devices were the primary means of accessing the website, followed by desktop devices and tablets. The majority of website users were from the Philippines, with notable contributions from Hungary, the United States, and Indonesia.

To enhance the UA website and improve the user experience, several recommendations can be made. Firstly, the university should focus on optimizing organic search performance by prioritizing search engine optimization (SEO) strategies. This involves conducting keyword research, optimizing content, and building backlinks to improve the website's visibility and ranking in search results. Secondly, it is important to enhance content relevance and user engagement by improving the content, layout, and navigation of highly engaged pages, such as the home page. Analyzing user behavior on these pages will provide insights into what elements resonate most with visitors. Additionally, with the majority of users accessing the website through mobile devices, the university should adopt a mobile-first approach. This means ensuring the website is fully optimized for mobile responsiveness and regularly testing and optimizing the mobile experience. Tablet optimization should also be considered for a consistent user experience across devices. The presence of an international audience should be recognized, and the university should tailor content, language settings, and marketing efforts to cater to their specific needs and preferences. Ongoing monitoring and analysis of website analytics using tools like Google Analytics is crucial to tracking user behavior, identifying trends, and making data-driven decisions for continuous optimization. Lastly, gathering feedback from website users through surveys, interviews, or usability testing sessions will provide valuable insights into user preferences, pain points, and suggestions for further enhancements. By implementing these recommendations, the University of Antique can improve its website's performance, user experience, and engagement, ultimately supporting its mission of providing quality education and research services while attracting more prospective students and enhancing its reputation.

References

- [1] “*University of Antique*”, www.antiquespride.edu.ph (Accessed May 15, 2022).
- [2] B. Thejaswini, R. D. Sree, and K. Suresh, “*Study of user’s behaviour in Structured E-Commerce Websites*”, *International Journal of Scientific Research & Engineering Trends*, vol. 4, no. 4, 2018, pp. 665–667, ISSN (Online): 2395-566X.
- [3] Omniconvert, “*What is organic traffic?*”, www.omniconvert.com/what-is/organic-traffic/ (Accessed January 12, 2023).
- [4] T. Hendry, “*FAF.20.038 website Analytics Update - archive.thebluemountains.ca*,” Website Analytics Update, www.archive.thebluemountains.ca/document_viewer.cfm?event_doc=3915 (Accessed January 12, 2023).
- [5] B. Plaza, “*Google Analytics for measuring website performance*”, *Tourism Management*, vol. 32, no. 3, June 2021, pp. 477-481, doi: 10.1016/j.tourman.2010.03.015.
- [6] V. Gligorovski, G. Mancheski, and A. Mamuti, “*The Importance of the Acquisition Overview Report Using Google Analytics to Measure the Performance of Various Traffic Sources in a Digital Economy*,” 24th

International Scientific Symposium Strategic Management and Decision Support Systems in Strategic Management, vol. 4, May 2019, pp. 503-511, doi: 10.46541/978-86-7233-380-0_25.

- [7] Broadband Search, “*Mobile Vs. Desktop Internet Usage (Latest 2023 Data)*,” www.broadbandsearch.net/blog/mobile-desktop-internet-usage-statistics (Accessed January 12, 2023).

