HAL open science

Benefit Segmentation of Tourists to Geosites and Its Implications for Sustainable Development of Geotourism in the Southern Lake Tana Region, Ethiopia

Getaneh Tessema, Jan van Der Borg, Anton van Rompaey, Steven van Passel, Enyew Adgo, Amare Minale, Kerebih Asrese, Amaury Frankl, Jean Poesen

To cite this version:

Getaneh Tessema, Jan van Der Borg, Anton van Rompaey, Steven van Passel, Enyew Adgo, et al.. Benefit Segmentation of Tourists to Geosites and Its Implications for Sustainable Development of Geotourism in the Southern Lake Tana Region, Ethiopia. Sustainability, 2022, 14, 10.3390/su14063411 . hal-03612851

HAL Id: hal-03612851

https://hal.inrae.fr/hal-03612851v1

Submitted on 18 Mar 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Distributed under a Creative Commons Attribution 4.0 International License

sustainability

MDPI

Article

Benefit Segmentation of Tourists to Geosites and Its Implications for Sustainable Development of Geotourism in the Southern Lake Tana Region, Ethiopia

Getaneh Addis Tessema [1,2,*], Jan van der Borg [1,3], Anton Van Rompaey [1], Steven Van Passel [4], Enyew Adgo [5], Amare Sewnet Minale [6], Kerebih Asrese [7], Amaury Frankl [8,9] and Jean Poesen [1,10]

1 Department of Earth and Environmental Sciences, Katholieke Universiteit Leuven, 3001 Leuven, Belgium; jan.vanderborg@kuleuven.be (J.v.d.B.); anton.vanrompaey@kuleuven.be (A.V.R.); jean.poesen@kuleuven.be (J.P.)
2 Department of Tourism and Hotel Management, Bahir Dar University, Bahir Dar P.O. Box 79, Ethiopia
3 Department of Economics, Ca' Foscari University of Venice, 30121 Venezia, Italy
4 Department of Engineering Management, University of Antwerp, 2000 Antwerp, Belgium; steven.vanpassel@uantwerpen.be
5 Department of Natural Resource Management, Bahir Dar University, Bahir Dar P.O. Box 79, Ethiopia; enyewadgo@gmail.com
6 Department of Geography and Environmental Studies, Bahir Dar University, Bahir Dar P.O. Box 79, Ethiopia; amare1974@gmail.com
7 Department of Social Work, Bahir Dar University, Bahir Dar P.O. Box 79, Ethiopia; kerebih2000@yahoo.com
8 Department of Geography, Ghent University, 9000 Ghent, Belgium; amaury.frankl@ugent.be
9 INRAE, AMAP, IRD, CIRAD, CNRS, University Montpellier, 34090 Montpellier, France
10 Institute of Earth and Environmental Sciences, Maria Curie-Sklodowska University, 20-718 Lublin, Poland
* Correspondence: gechzadd23@gmail.com or getanehaddis.tessema@kuleuven.be

check for updates

Citation: Tessema, G.A.; van der Borg, J.; Van Rompaey, A.; Van Passel, S.; Adgo, E.; Minale, A.S.; Asrese, K.; Frankl, A.; Poesen, J. Benefit Segmentation of Tourists to Geosites and Its Implications for Sustainable Development of Geotourism in the Southern Lake Tana Region, Ethiopia. *Sustainability* **2022**, *14*, 3411. https://doi.org/10.3390/su14063411

Academic Editor: Nicoletta Santangelo

Received: 2 February 2022
Accepted: 10 March 2022
Published: 14 March 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

Abstract: Geotourism is a sustainable type of tourism that focuses on the geological and geomorphological heritages of an area, and the associated cultural and biodiversity features. Though the popularity of geotourism is rapidly growing, research on the demand side, particularly on segmenting tourists to geosites and understanding their profiles, is limited. This obviously makes the designing of effective tourism policies that aim at developing geotourism sustainably very difficult. Hence, the main objectives of this study were to segment and profile tourists to geosites based on the benefits sought, and to show its implications for sustainable development of geotourism. With a survey of 415 tourists, this study clustered tourists to geosites in the southern Lake Tana region in Ethiopia based on the benefits sought. A factor–cluster method was applied to segment the tourists. The study identified four distinct segments: Activity–Nature Lovers, Culture Lovers, Nature–Culture Lovers, and Want-It-Alls. These segments differed in their demographic, trip, and behavioral characteristics. The findings implied that for sustainable development, destination managers and marketers need to customize their geotourism product development and marketing strategies based on the needs and characteristics of each market segment.

Keywords: geotourists; clustering; profiling; product development; destination development; sustainability

1. Introduction

Geotourism is one of the newest concepts in tourism studies [1,2]. It has become an important source of economic and social energy at local, regional, and international levels [3], and its popularity is rapidly growing [1]. Rocha & Duarte [4] also assert that the demand for geotourism destinations is growing. Geotourism "attracts people who wish to interact with the earth environment to develop their knowledge, awareness and appreciation of it" [5] (p. 67).

Analyzing the behavior of tourists to geosites and their needs helps to deepen insights into the geotourism phenomenon [6]. "The emergence of a specific geotourist typology

model provides a better understanding of the segments within this niche tourism market and will contribute to more specific geotourism product development and marketing. It can also provide insights into destination choice, which can be used to build a competitive advantage" [5] (p. 69). In addition, an understanding of tourists' motivations to visit and their level of involvement helps destinations to achieve sustainability goals [7].

Most geotourism studies so far have been carried out in Europe, Asia, and South America [8], and were mainly related to the study of geotourism potential (supply side; e.g., [1,8]. It emerged that researchers were less interested in geotourism stakeholders such as tourists (demand side) and tourism firms [1]. Other related aspects, such as the profile of the tourists visiting geosites, have received little attention [8]. However, Ólafsdóttir & Tverijonaite [1] argued that future geotourism research needs to focus more on empirical knowledge about geotourists, their profiles, and their motivations. In fact, the typologies of geotourists are not yet well described and developed [9,10]. If this is true in general, it is especially true for Africa, a continent that has enormous geotourism opportunities [11].

Hence, segmenting tourists visiting geosites, based in particular on the benefits they are looking for, is necessary because the essence of geotourism lies in the visitors' interests in geosites and the experiences derived from these geosites. The key and distinctive feature in geotourism is that geotourists are motivated to visit, appreciate, and learn about the geosites [12]. Understanding which benefits visitors seek is "an important step in providing products usable to the visitor and in developing a sustainable tourism policy" [13] (p. 234). To our knowledge, benefit segmentation of tourists to geosites was not applied in previous geotourism studies.

The southern Lake Tana region in Ethiopia, the case study area on which this article focuses, has a diverse geomorphology and is home to many geosites, such as Lake Tana and its islands (with monasteries and churches), the Zegie peninsula and its monasteries, the Bezawit viewpoint, and the Blue Nile Falls [2]. The region is part of the Lake Tana Biosphere Reserve, which was registered by UNESCO in 2015. Furthermore, the area is strategically located in the northern tourist route of the country. For a detailed description of the geotouristic offer of this area, see Tessema et al. [2]. In the years between 2007/8 and 2018/19, over 28,000 international tourists on average every year visited this region (data from Bahir Dar City Culture and Tourism Office). In addition, official data from the Tourist Information Center at Tis Abay town shows that in the years between 2013/14 and 2019/20, an average of ca. 23,000 domestic and ca. 18,000 international tourists per annum visited the Blue Nile Falls. This shows that there is clear potential for developing geotourism even further in this specific part of Ethiopia.

The objectives of this study were to identify the market segments in the southern Lake Tana region in Ethiopia based on the benefits sought and to indicate the implications of segmentation for sustainable development of geotourism. The market segments were further profiled using demographic, trip, and behavioral characteristics. The findings not only helped to understand the geotourism market in the study area better, but also contributed to the better formulation of a sustainable geotourism development strategy for the area. Moreover, this study is one of the first on segmenting tourists to geosites in Africa, and hence will serve as an important showcase for the geotourism market on the continent, and as a springboard for future research.

2. Literature Review

2.1. Market Segmentation and Its Application in Tourism

The concept of market segmentation was first introduced in the 1950s [14]. It refers to "the process of dividing a market into distinct groups of buyers who have different needs, characteristics, or behavior and who might require separate products or marketing programs" [15] (p. 92). In other words, market segmentation is about finding homogeneous groups of consumers from a heterogeneous population [16]. The assumption underlying market segmentation is that consumers are not one homogeneous group; they differ in many ways, such as in their motivations, activity preferences, benefits needed, etc. [17].

Therefore, the goal of market segmentation is to establish segments in which members of one group are highly similar to one another and members of different groups are as distinct as possible.

Market segmentation helps to understand consumer needs and develop a marketing mix that meets these needs [14,18], providing a long-term competitive advantage. Thus, segmentation is central to the marketing strategies of tourism destinations [19].

The major segmentation bases in tourism (and also in other consumer markets) include geographic (e.g., nations, regions, states, counties, and cities), demographic (e.g., gender, age, education, and income), psychographic (e.g., personality and lifestyle), and behavioral (e.g., benefits sought, loyalty status) variables [15]. It is also possible to use a multivariable segmentation approach (also called hybrid segmentation) by merging geographic, demographic, psychographic, and behavioral segmentation bases.

Market segmentation can be conducted using two alternative approaches: commonsense (a priori) and data-driven (a posteriori) segmentation [20]. The former refers to segments that are known in advance without any statistical analysis (i.e., grouping of tourists using known characteristics such as based on age, gender, purpose of trip, and country of origin); while in the latter, the segments are not known in advance and are determined by collecting and analyzing market data (such as motivation, benefits sought, and vacation activities) [21]. Each approach has its own merits and weaknesses. According to McKercher et al. [16], commonsense segmentation is easy to use and data is readily available, but the data may not reflect consumer needs. On the other hand, the data-driven segmentation needs technical skills such as statistical analysis, but helps to obtain a deeper insight about consumers.

Data-driven market segmentation is widely used in tourism research [17]. The steps required in this segmentation approach are selecting the segmentation base, data collection, extracting the segments, and profiling the segments [22]. Profiling or describing segments helps to understand each of the segments, select which one(s) to target, and consequently customize marketing activities [19].

2.2. Segmenting Tourists to Geosites

Geosites offer the opportunity for the development of geotourism. This study adopted the definition of geosites as "geological or geomorphological features with one or more intrinsic values (i.e., scientific, educational, scenic, and recreational) as well as associated cultural and ecological values" [2] (p. 2).

In order to give a brief insight into geotourist typologies, we identified published studies relating to geotourist typology from online sources, mainly Google Scholar. Additional studies were gathered from bibliographies of published papers. The keywords used to identify published papers were: "geotourist typology", geotourist segmentation", "clustering geotourists", "segmenting geotourists", and "geotourism market segmentation". These studies were qualitatively analyzed for their research objectives, research methods and data sources, segmentation bases, and the resulting segment types (Table 1).

Table 1. Overview of research on geotourist typology.

Author/s, Year [a]	Research Objective (and Method/Data Source)	Segmentation Variables/Base	Segments
Gorman [7]	Landscape and geotourism: market typologies and visitor needs (conceptual)	Duration of stay, level of involvement and experience	• Accidental • General • Interested • Scholarly
Hose [23]	Analyzing geotourism provision and management issues in Almeria (perhaps conceptual typology)	Not clearly mentioned	• Dedicated • Casual

Table 1. *Cont.*

Author/s, Year [a]	Research Objective (and Method/Data Source)	Segmentation Variables/Base	Segments
Kim et al. [24]	Characterizing and segmenting cave tourists (survey of 537 tourists)	Motivation	• Escape-seeking • Knowledge- and novelty-seeking • Novelty-seeking • Socialization
Grant, 2010, as cited in Dowling [25]	Toward a typology of visitors to geosites (details about the methodology could not be found)	Relationship between entertainment and complexity of interpretative tools; interest and previous knowledge; goal of geosite visits	• Aware visitors • Unaware visitors • Interested visitors • Geo-amateurs • Geo-specialists • Geo-experts
Kim and Brown [26]	Examining the profile of visitors traveling to a geotourism destination (164 domestic and international visitors)	The preferred demand for potential geotourism activities	• General nature-based tourists • Independent explorers • Geotourists
Hurtado et al. [27]	Developing a geotourist typology model with a case study of cave visitors (119 visitors, on-site self-administered survey)	Motivation (low to very high) and experience outcomes (negative versus positive)	• Purposeful • Intentional • Serendipitous • Accidental
Timčák et al. [28]	Wellness and relaxation in geotourism (conceptual typology)	Based on operational definition of geotourism [b]	• Educational tourists • Adventurers • Soft tourists • Seekers
Prendivoj [29]	Tailoring signs to engage two distinct types of geotourists to geological sites (conceptual)	Experience sought, characteristics, involvement, (un)organized group/independent travel, time spent	• Geotourist lite • Mass geotourists • Social geotourists • Classic geotourists
Vasiljević et al. [10]	Analyzing attitudes and behavior of visitors of National Park Fruška Gora (196 visitors, online survey)	Attitude (and habit)	• Local community oriented • Environmentally aware • Nature-based traveler • Eco-responsible • Plog psychocentric
Allan and Shavanddasht [30]	Segmenting rural geotourists by motivation on weekends and weekdays (300 weekday and 300 weekend visitors; on-site, self-administered questionnaire)	Motivation (pull and push)	• Escape seekers • Multipurpose seekers • Historical and geological-attraction seekers • Enjoyment and socialization seekers • Geological-attraction seekers • Novelty seekers

[a] The studies are mentioned chronologically based on the year of publication. [b] Geotourism is understood as "leisure activities connected with visiting natural sites where geological, hydrological or geomorphologic features give special aesthetic experience as well as opportunity for relaxation or sport" [28] (p. 63).

Though geotourism is considered as a niche type of tourism [31], tourists to geosites have been grouped into various segments based on different segmentation variables (Table 1). Previous studies on geotourist typologies can be grouped into two types: conceptual and empirical. The conceptual typologies are those that were developed based on

theories and literature about geotourism and geotourists (e.g., [7,23,28,29]). On the other hand, the empirical typologies focus on different types of geosites and/or used different variables for segmenting the geotourists based on empirical data (e.g., [11,24,26,27,30].

2.3. Benefit Segmentation in (Geo)Tourism

Benefit segmentation involves the "segmentation of a market based on the benefits sought in a product" [32] (p. 21). The assumption underlying this segmentation strategy is that "the benefits which people are seeking in consuming a given product are the basic reasons for the existence of true market segment" [33] (p. 30). Haley argued that though most people want as many benefits as possible, the relative importance they attach to individual benefits can differ, creating an opportunity for market segmentation.

Since its introduction by Haley in 1968, benefit segmentation has been applied in many study fields [32], one of which is tourism. Benefit segmentation was conducted on different types and forms of tourism, such as ecotourism (e.g., Palacio & Mc Cool [13]), rural tourism (e.g., Frochot [34]), rural community-based festivals (e.g., Li et al. [35]), spa goers (e.g., Koh et al. [36]), wellbeing tourism (e.g., Pesonen et al. [37]), health tourism (e.g., Dryglas & Salamaga [38]), outbound summer package tourism (e.g., Zečević & Kovačević [39]), nature-based tourism (e.g., Nduna & van Zyl [40]), summer destination (e.g., Perera et al. [41]), and pleasure boating (e.g., Benevolo & Spinelli [42]).

A better understanding of tourists' preferences helps to identify markets for a certain tourism product [37]. Haley [33] indicated that in benefit segmentation, "if the items rated are potential consumer benefits, the clusters that emerge will be groups of people who attach similar degrees of importance to the various benefits" (p. 32). Market segmentation based on benefits sought is a very useful tool for destination planners and managers [43,44], such as in product development and modification [32], and in gaining a competitive advantage [45].

One approach for segmenting tourists in benefit segmentation is the use of destination attributes [32]. Sangpikul [46] argued that "destination-based attributes are fundamentally related to benefit segmentation which is regarded as a useful segmentation technique to understand tourists' buying behavior" (p. 27). Such applications are specifically referred to as attribute-based benefit segmentation [32]. Sangpikul [46] indicated that "in several tourism studies of benefit segmentation approach, the list of benefits included mostly destination-based attribute items such as natural attractions, cultural and historical sites, shopping facilities, availability of entertainment and services, etc." (p. 27). He also called destination attributes "pull motivational factors".

So far, to the best of our knowledge, benefit segmentation, particularly destination-attribute-based segmentation, was not applied in segmenting tourists to geosites (see Table 1). Hence, this study aimed to examine the possibility of segmenting tourists to geosites in the southern Lake Tana region based on destination attributes that attract tourists to the area and examine the implications of such segmentation for sustainable development of geotourism in the region.

3. Methodology

3.1. Study Area

The southern Lake Tana region is located in northwestern Ethiopia (Figure 1). The region is strategically located on the northern tourist route of Ethiopia, a route that houses four of the nine UNESCO registered World Heritage Sites in the country: the Gondar castles, Semien Mountains National Park, and the Aksum and Lalibela rock-hewn churches. In addition, the study area has two important water bodies, Lake Tana and the Blue Nile River, with a large potential for geotourism development. Lake Tana is the largest lake in Ethiopia and is the source of the Blue Nile River. The major geosites of the southern Lake Tana region currently being visited by tourists are the Blue Nile Falls, Lake Tana and its monasteries (including the Zegie peninsula and island monasteries), the Blue Nile outlet, and the Bezawit viewpoint. The region also has other tourist attractions, such as birds

(ca. 215 bird species have been observed in Lake Tana and its wetlands; see Vijverberg et al. [47], hippos, festivals and events, a museum, souvenir shopping centers, traditional cultural clubs, and a local market, which are frequently visited by tourists. Furthermore, the region also has other potential geosites such as Mt. Guna (ca. 4110 m a.s.l.), caves and cave churches, volcanic cones and plugs, hot springs, and rock-hewn churches (see Tessema et al. [2] for details). Most tourists visiting the southern Lake Tana region spend their overnight stay in Bahir Dar city. In terms of origin, the majority of international tourists visiting the destination are most likely from Europe (see Figure A1 in Appendix A).

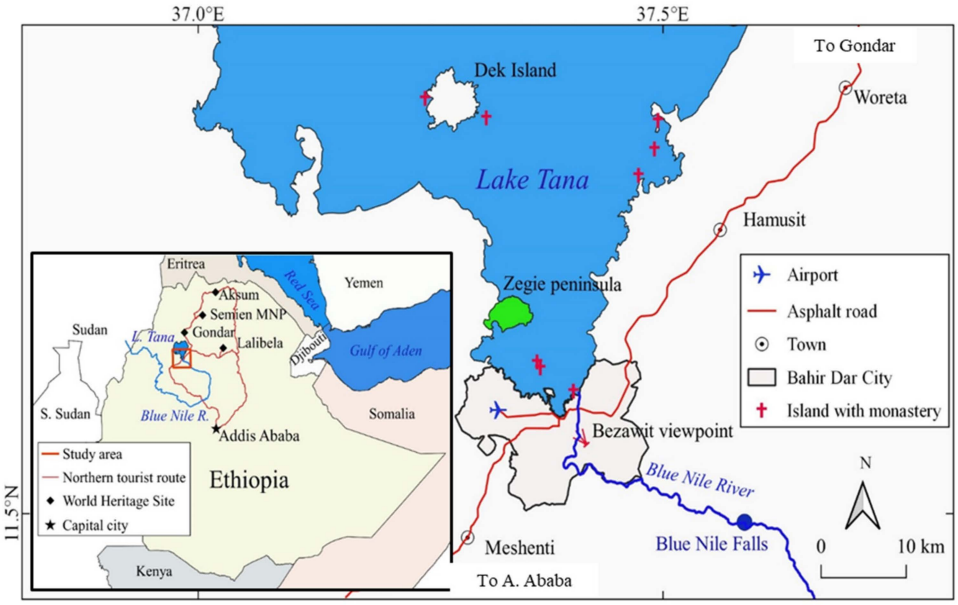

Figure 1. Location map of the study area (southern Lake Tana region with its island monasteries, Zegie peninsula, Bahir Dar City, Bezawit viewpoint, and the Blue Nile Falls). The inset map shows the location of the study area in the northern tourist route of Ethiopia.

3.2. Data Collection

3.2.1. Questionnaire Design

This research was part of a larger study investigating tourist segmentation and profiling, as well as destination attractiveness, in the southern Lake Tana region. The questionnaire for this study had two parts. The first part consisted of tourists' demographic, trip, and behavioral characteristics, which were used to profile the tourist segments. The second part comprised questions related to benefits sought, which served as a base for segmentation. To identify the benefit segments, tourists were asked to rate, on a 1–5 Likert scale (where 1 meant *not at all important* and 5 suggested a benefit was *very important*), the importance of 20 benefit attributes (Table 2) in their choice of a geotourism destination. The selection of the variables reflecting the benefits sought were developed based on a review of the literature related to the nature of geotourism and benefit segmentation in tourism [6,12,26,34,37,40,45,48,49]. The variables were adapted to the context of the destination.

To ensure content validity, a panel of three tourism lecturers from Bahir Dar University evaluated the contents and language of the questionnaire. Moreover, these experts were asked to complete the questionnaire as a pilot test, and further feedback was received. The questionnaire was fine-tuned based on their feedback from the discussions and the pilot test.

The questionnaire was further pilot-tested on 14 domestic and 30 international tourists in December 2019. The domestic tourists were from six cities in Ethiopia, while international tourists came from Africa, Asia, Australia, Europe, and North America. Based on the pilot test, total household income was removed, as many pilot-test tourists did not complete it.

3.2.2. Data Collection

Two undergraduate students with a tourism background from Cá Foscari University of Venice, six tourism lecturers from Bahir Dar University, and two local tour guides (one from the Zegie peninsula and the other from the Blue Nile Falls) distributed and collected the questionnaire. Training on the contents of the questionnaire, where and how to approach tourists and distribute the questionnaire, and when to collect the completed questionnaire was given to the data collectors by the first author of this paper. Most international tourist data were collected by the two students from Cá Foscari University of Venice.

Convenience sampling was used in this study because it was difficult to control who the respondents were (they were continuously moving and had a short stay at the destination). This sampling technique was used by many tourist-segmentation studies (e.g., [30,41,50–52]. To make the sample size representative of the population, tourists with the largest presence in the destination (based on the major tourist origin countries) were considered. As there was a lack of data on international tourist arrivals based on origin country, we estimated the sample size based on national tourist flow data and five months of tourist flow data to the Blue Nile Falls (see Figure A1 in Appendix A), as well as on the lead author's knowledge (based on his personal observations and frequent contacts with tourist service providers such as tour leaders, tour guides, hotel managers, and tourist information center employees). The data were collected during the peak season of international tourist flows. In addition, to meet most tourists who visited the study area during the data collection period, places where tourists could be typically found (such as restaurants and lobbies of hotels, as well as attraction sites) were selected. Moreover, at restaurants and accommodation establishments, the best times for meeting tourists (i.e., lunch time and evening time) were selected for distributing the questionnaire.

The respondents were asked to complete the questionnaire at the end of their tour of the study area. The questionnaire was self-administered. Two places were identified for intercepting tourists for data collection: attraction sites (i.e., the Blue Nile Falls and Zegie peninsula), and accommodation establishments (in the lobby and cafeteria) and restaurants in Bahir Dar city. Collecting data from tourists at attraction sites was quite difficult because they were in a hurry, tired, and there was no place to rest and complete the questionnaire. Hence, ca. 65% of the questionnaires were collected at ca. 25 accommodation establishments (16 being star-rated hotels).

A total of 840 questionnaires were distributed to domestic and international tourists in December 2019 and January 2020, and 506 questionnaires were collected. Of these, 415 (82%) questionnaires were usable, and the rest were excluded due to incomplete responses. In exploratory factor analysis, the recommended sample size should have a 10:1 ratio of observations to variables [53]. We had a sample size of 415 respondents and 20 variables, resulting in a ratio of 21:1, which was well over the recommended sample size.

3.3. Exploratory Factor Analysis

The assumption of multivariate normality of data should be checked before performing exploratory factor analysis (EFA) [54]. Therefore, a multivariate normality test was performed using the three most widely used tests: Mardia's, Henze–Zirkler's, and Royston's [55]. In addition, multivariate outliers must be checked before conducting EFA [56]. A robust Mahalanobis distance (significant at $\alpha = 0.01$) was used [57]. Watkins [58] argued that in the presence of multivariate outliers, the use of polychoric correlations might be more appropriate.

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used to check whether the factor model was appropriate for factor analysis [56]. For ordinal data, polychoric correlation is more appropriate than Pearson correlation in EFA [59–62].

To identify the underlying dimensions of benefits sought, EFA with principal axis factoring (PAF) and varimax rotation were conducted on the 20 benefit attributes. PAF is fairly robust to violations of multivariate normality [63–65]. The number of factors to

retain was determined using four stopping rules: the *Kaiser* criterion of eigenvalues greater than one, the scree test, optimal coordinates and parallel analysis [53,66]. Parallel analysis is recommended for ordinal data [60,67]. In addition to the use of criteria in selecting the appropriate number of factors, it is also important to consider their interpretability [53]. It should be noted that with sample sizes of 350 and more, factor loadings of 0.3 are significant [53].

3.4. Cluster Analysis

The factor scores from the EFA were used for clustering the tourists. Some clustering methods are sensitive to outliers [68]. To determine the appropriate clustering method, the data were checked for multivariate outliers using a robust Mahalanobis distance with a significance level of $p < 0.01$ [57].

Though *k-means clustering* has become a popular data-clustering algorithm [69,70], it is sensitive to outliers [68]. An alternative clustering method that is robust to outliers is the partitioning around medoids (PAM) algorithm [69,71]. PAM requires that the optimal number of clusters be determined before the algorithm is applied [70]. The optimal number of clusters was determined using hierarchical clustering [53], silhouette and elbow methods [72–74], and the NbClust package in R [75]. All the statistical analyses were performed using R software.

4. Results

4.1. Profiles of the Respondents

4.1.1. Demographic Profile of the Respondents

There were an almost equal number of women (51.1%) and men (48.9%) among the respondents (Figure 2). In addition, about one-fifth of the respondents (21.2%) were in the age range of 65 and above, and over half of the respondents (58.6%) were in the age range of 45 and above. Furthermore, nearly half of the respondents (49.4%) had attained a postgraduate degree. The respondents were from over 30 countries, but most were from Ethiopia (17.8%), Italy (14.7%), France (14.0%), the USA (8.7%), Germany (8.4%), and the UK (4.8%).

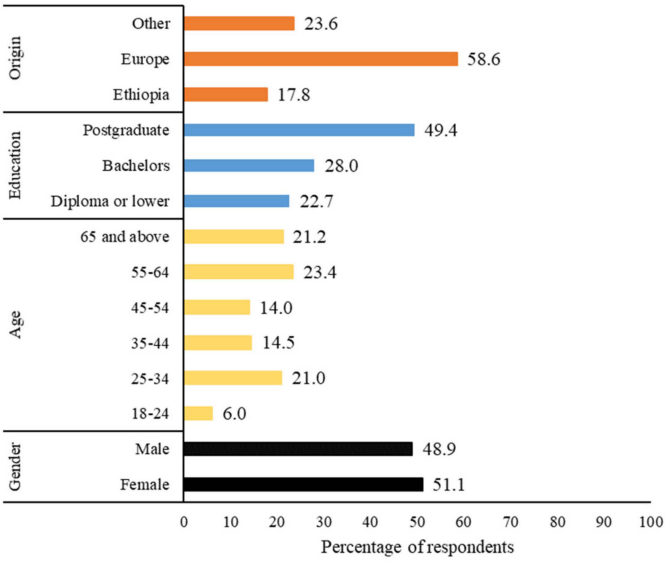

Figure 2. Demographic profile of the respondents (n = 415). Total of percentages may not equal 100% due to rounding.

4.1.2. Trip Profile of the Respondents

Most respondents (82.2%) were international tourists (Figure 3). The vast majority (91.9%) traveled in a group (with family, friend(s), or other traveling groups). Most re-

spondents (67.6%) traveled in a group having three or more adults. The mean number of adults in a travel group was nine (with SD = 10). On the other hand, only ca. 10% of the respondents traveled to the area with children.

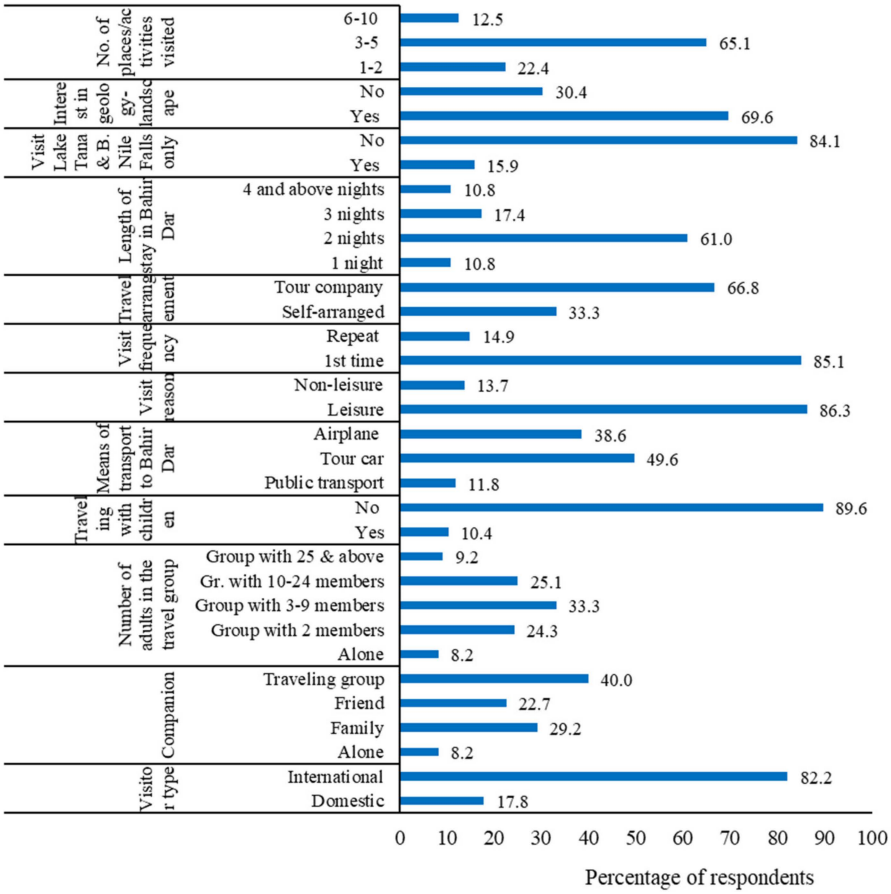

Figure 3. Trip profile of the respondents (n = 415). Total of percentages may not equal 100% due to rounding.

Nearly half (49.6%) of the respondents traveled to the destination by car (either 4WD or tour bus), 38.6% by plane, and the rest using public transport. Leisure tourists (those who came for leisure, recreation, and holiday) constituted 86.3% of the respondents, while the rest were nonleisure tourists (those who came for business/conference, education/training, visiting friends and relatives, and religious purposes). About 85% of the respondents were first-time visitors to the area. Approximately two-thirds of the respondents (66.8%) traveled in tours arranged by tour operators (foreign and/or Ethiopian). The majority (61.0%) stayed two nights in Bahir Dar. The mean length of stay of tourists in Bahir Dar was 2.9 nights with SD of 4.8 (international tourists stayed an average of 2.3 nights with SD = 1.9; domestic tourists stayed 5.6 nights with SD = 10.1).

Most tourists (69.6%) indicated their interest in attractions related to geology/landscape. Few tourists (15.9%) visited Lake Tana and/or the Blue Nile Falls only. In other words, many tourists visited Lake Tana and/or the Blue Nile Falls and other less popular attractions in the southern Lake Tana region. The mean number of sites in the region visited by the respondents were 3.7 (with SD = 1.6). About two-thirds of the respondents (65.1%) visited three to five sites in the region.

4.1.3. Behavioral Profile of the Respondents

Concerning the behavior of the respondents, ca. half (45.8%) indicated that learning about geosites was an important reason for visiting the southern Lake Tana region (Figure 4). Nearly half of the respondents (46.8%) mentioned that they read nothing or very little

about the destination before traveling. In addition, the majority of respondents (85.5%) indicated that they were (very) satisfied with their overall visit to the destination. Moreover, about one-third of the respondents (30.4%) were likely to stay longer than their actual stay and visit more geology/landscape-related attractions in the southern Lake Tana region. Furthermore, about three-quarters of the respondents (76.9%) were (very) likely to recommend that other people visit Bahir Dar and its vicinity.

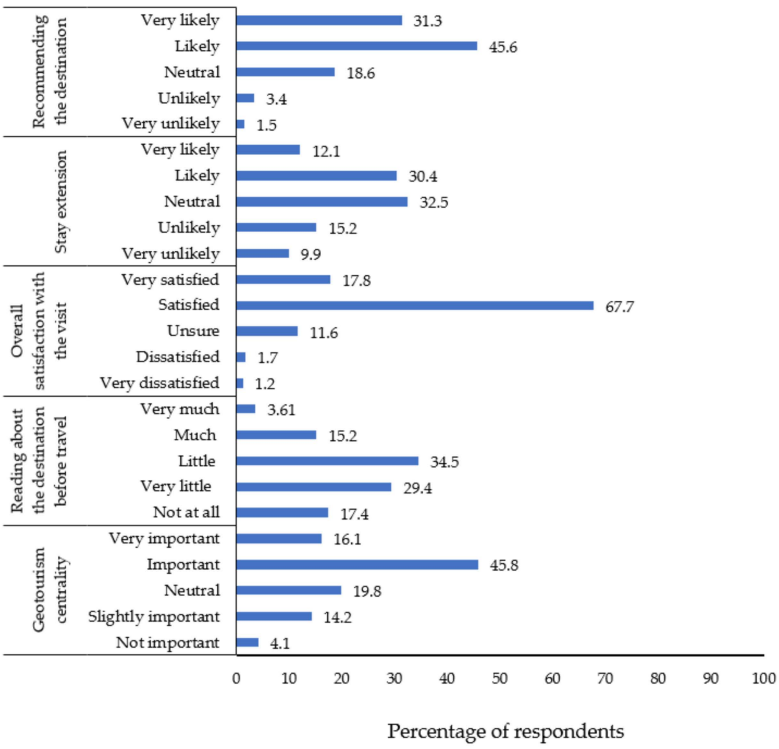

Figure 4. Behavioral profile of the respondents (n = 415). Total of percentages may not equal 100% due to rounding.

4.2. Exploratory Factor Analysis (EFA) Results

The multivariate normality test results indicated that the data were not normally distributed. In addition, the multivariate outlier detection result indicated 67 outliers. Therefore, robust factoring methods (i.e., principal axis factoring and polychoric correlations) were used.

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (0.86) was quite high, and Bartlett's test of sphericity was significant (approx. $\chi 2$ = 2846.50, df = 190, $p < 0.001$), indicating that the factor model was appropriate for factor analysis.

Using EFA, the underlying benefit dimensions shown in Table 2 were found. Concerning the number of factors to retain, the eigenvalue and scree test (Figure A2 in Appendix A) indicated a five-factor solution, while parallel analysis and optimal coordinates gave a four-factor solution. We conducted both five- and four-factor solution analyses and found that for the five-factor solution, no variable loaded higher on Factor 5. We found the four-factor solution to be better interpretable. This four-factor solution explained 49.5% of the variance. Factor loadings above 0.3 only were retained. To test the internal consistency of items within each factor dimension, Cronbach's alpha was calculated. The alpha coefficients of the factor dimensions ranged from 0.81 to 0.67, which were above the minimum reliability indicator value of 0.6 [53].

Table 2. Results of the factor analysis of benefit attributes (n = 415).

***Factors* (*Reliability*) and Benefit Attributes/Items**	**Mean [a]**	**Factor Loadings**	**Eigenvalue**	**Variance Explained (%)**	**Communalities**
Factor 1: Activities (alpha = 0.81)	*2.63*		5.97	14.40	
Adventure activities (e.g., mountain climbing, paragliding)	2.54	0.88			0.85
Cave exploration/visiting caves	2.63	0.83			0.75
Horse/mule riding	2.17	0.66			0.62
Hiking/biking	3.18	0.52			0.37
Factor 2: Relaxation (alpha = 0.79)	*3.60*		2.02	14.00	
Places to sit and rest around attraction sites	3.46	0.62			0.47
Overall cleanliness of the destination	3.69	0.61			0.50
Shopping opportunities (souvenirs and others)	3.55	0.60			0.66
Boat trip (quality of boats and their service)	3.58	0.52			0.43
Variety of local food and drink	3.68	0.51			0.41
Calm and peaceful atmosphere	3.71	0.50			0.53
Climate conditions	3.55	0.46			0.27
Factor 3: Nature (alpha = 0.72)	*3.91*		1.62	12.50	
Scenic beauty of landscape	4.28	0.71			0.54
Unspoiled nature	4.13	0.71			0.58
Diversity of geosites/attractions (e.g., waterfalls, lake, islands, viewpoints)	4.21	0.64			0.47
Fauna and flora (diversity and uniqueness)	3.65	0.53			0.31
Waterfall	3.28	0.38			0.32
Factor 4: Culture (alpha = 0.67)	*3.49*		1.30	8.60	
Special festivals and events	3.07	0.62			0.51
Human–environment interaction, local/rural village life	4.00	0.61			0.42
Religious, cultural, and historical heritage (diversity and uniqueness)	4.13	0.59			0.41
Entertainment (e.g., traditional cultural clubs)	2.76	0.42			0.50
Total % of variance explained				49.50	

[a] Mean values were computed based on a 5-point Likert scale ranging from 1 = not at all important to 5 = very important.

The four benefit dimensions were then named according to the characteristics of the attributes/items they respectively grouped. The first factor was named *Activities*, as it included items related to hiking and biking, horse riding, cave exploration, and adventure. This factor explained the highest variance (14.40%) in the data. The second factor (explaining 14.00% of the variance) consisted of favorable climate, clean destination, shopping, places to sit and rest around attraction sites, and boat trips, and was hence named *Relaxation*. The third factor was named *Nature,* as it consisted of attractions related to nature such as diversity of geosites (e.g., viewpoints, waterfall, lake, and islands), scenic beauty, fauna and flora, a calm and peaceful atmosphere, and unspoiled nature. The last factor, named *Culture*, was related to cultural and historical heritages, including human–

environment interaction, special events and festivals, and entertainment (e.g., traditional cultural clubs).

4.3. Cluster Analysis Results

As the multivariate outlier detection method showed 18 outliers, the clustering was conducted using the PAM algorithm. The optimal number of clusters from hierarchical clustering (Figure A3 in Appendix A), NbClust, silhouette (Figure A4 in Appendix A), and elbow methods indicated four clusters. PAM clustering was then conducted for a four-cluster solution. Figure 5 presents the four segments and their respective mean factor scores on the perceived importance of the benefits. The ANOVA results (Table A1 in Appendix A) showed a significant difference among the segments based on each factor. It was noted that the means of Factor 1 (*Activities*) across the four segments differed the most ($F = 187.46$), whereas the means of Factor 4 (*Culture*) differed little across the four segments ($F = 50.60$).

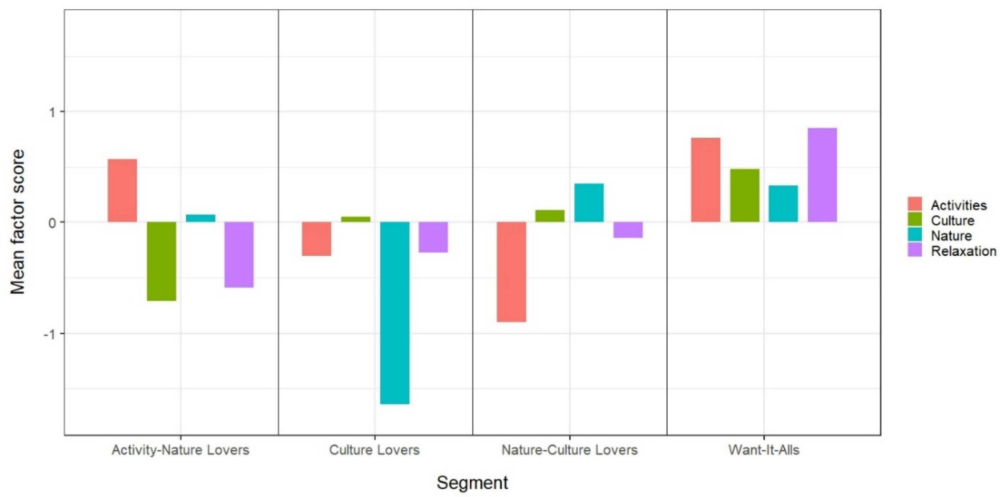

Figure 5. Cluster analysis results: the four market segments and their respective mean factor scores on the perceived importance of benefits ($n = 415$). One-way ANOVA results can be seen in Table A1 in Appendix A.

The segments were named according to the perceived importance of the benefit factors to the group. In other words, the four segments were named based on the positive mean scores on each of the factors. Segment one (24.82% of the sample) was named as the Activity–Nature Lovers. This segment was mainly interested in the *Activities* factor (such as hiking, biking, caving, horse riding, and mountain climbing). It also included some interest in nature (including diversity of geosites, scenic beauty of landscapes, waterfalls, fauna and flora, and unspoiled nature). The second segment was Culture Lovers, which comprised 13.73% of the sample. The important benefits for this segment were those related to the factor *Culture*, which included cultural and historical heritage, human–environment interaction, special festivals and events, and entertainment. It was the smallest market segment in this study. Segment three (34.22% of the sample) comprised Nature–Culture Lovers. *Nature* was an important benefit factor for this segment, followed by the factor *Culture*. It was the largest segment in our study. The last segment, comprising 27.23% of the sample, was the Want-It-Alls. This segment consisted of tourists interested in all four factor dimensions (all the different benefits linked to a visit of the area). The most important benefits were, however, those related to *Relaxation* (such as local food and drink, shopping opportunities, conducive climate, clean areas, a calm and peaceful atmosphere, places to sit and rest, and boating trips) and *Activities* factors. It was the only segment that valued benefits related to *Relaxation*.

4.4. Profiling the Segments

Demographic, trip, and behavioral variables (Table 3) were used to profile the four segments identified in this study using Welch's two-sample t-test. This test was conducted in each segment and compared to the rest of the dataset to explore segment differences. The categorical variables were transformed into numerical variables for the sake of t-value calculations, as shown in Table 3.

Table 3. Demographic, trip, and behavioral variables used for profiling the four segments.

Variable	Variable Class	Code
Gender	Male	0
	Female	1
Age	18–24	1
	25–34	2
	35–44	3
	45–54	4
	55–64	5
	65 and above	6
Education	Diploma or below	1
	Bachelors	2
	Postgraduate	3
Origin	Other	1
	Europe	2
	Ethiopia	3
Visitor type	Domestic	0
	International	1
Companion	Alone	1
	Family	2
	Friend	3
	Traveling group	4
Number of adults in the travel group	Alone	1
	Group with 2 members	2
	Gr. with 3–9 members	3
	Gr. with 10–24 members	4
	Gr. with 25 and above	5
Traveling with children	No	0
	Yes	1
Transport mode to Bahir Dar	Public transport	1
	Tour car	2
	Airplane	3
Visit reason	Nonleisure	0
	Leisure	1
Visit frequency	1st time	0
	Repeat	1
Travel arrangement	Self-arranged	0
	Tour company	1
Length of stay in Bahir Dar	1 night	1
	2 nights	2
	3 nights	3
	4 or more nights	4
Primary interest in geology/landscape	No	0
	Yes	1
No. of places visited	Numeric	1–10
Visited Lake Tana and Blue Nile Falls only	No	0
	Yes	1
Geotourism centrality	Not important	1
	Slightly important	2
	Neutral	3
	Important	4
	Very important	5
Read about the destination before travel	Not at all	1
	Very little	2
	Little	3
	Much	4
	Very much	5
Overall satisfaction with the visit	Very dissatisfied	1
	Dissatisfied	2
	Unsure	3
	Satisfied	4
	Very satisfied	5
Stay extension	Very unlikely	1
	Unlikely	2
	Neutral	3
	Likely	4
	Very likely	5
Recommend that other people visit the destination	Very unlikely	1
	Unlikely	2
	Neutral	3
	Likely	4
	Very likely	5

The segments differed in most variables related to demographic, trip, and behavioral characteristics. The only exceptions that showed nonsignificant differences among the

segments were two trip-related variables: mode of transport used to travel to the destination and whether they visited the major attractions only (i.e., Lake Tana and/or the Blue Nile Falls).

4.4.1. Activity–Nature Lovers

This segment mainly consisted of Europeans and younger tourists (Figure 6). Their travel companions were other traveling groups, and not families or friends (Figure 7). They were predominantly first-time visitors who traveled to the destination for leisure purposes. Learning about geosites was not important to their visits of geosites (Figure 8). In addition, they read nothing or little about the destination before travel. They were also unlikely to extend their stay or recommend that other people visit the destination.

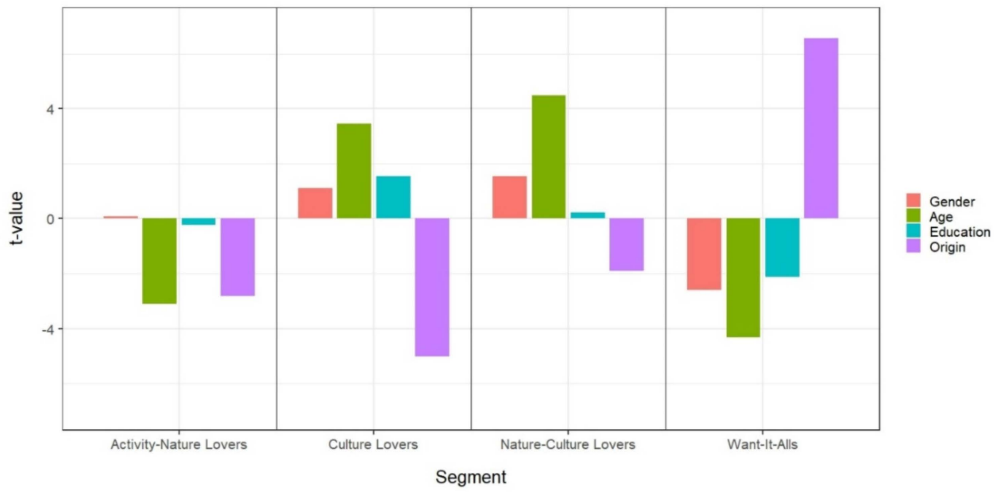

Figure 6. Demographic profile of the market segments (n = 415).

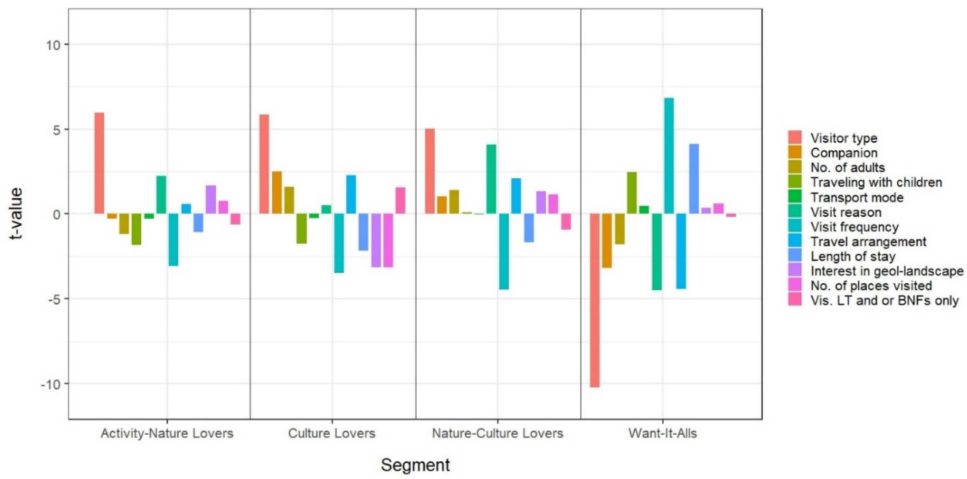

Figure 7. Trip profile of the four market segments (n = 415).

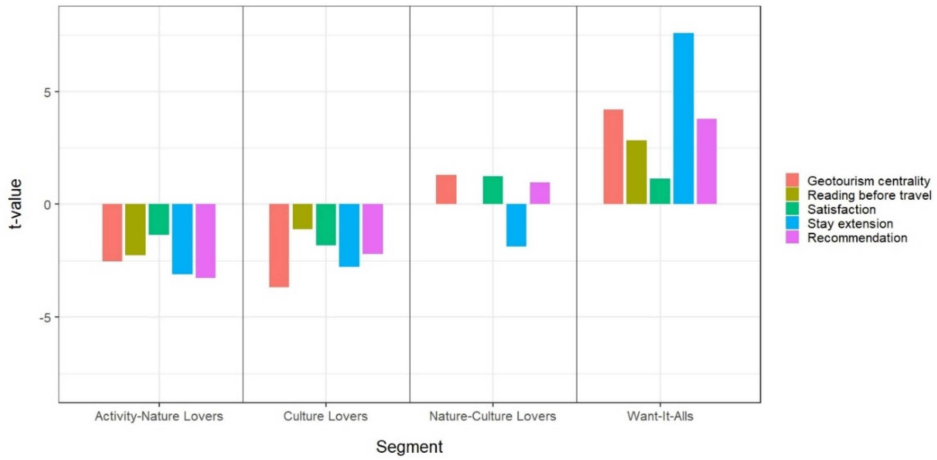

Figure 8. Behavioral profile of the four market segments (n = 415). Note: the t-value of the variable "reading before travel" for Nature–Culture Lovers was too small, and its plot is not visible.

4.4.2. Culture Lovers

These were international tourists from outside Europe and were relatively old. They were leisure tourists who came to the region for the first time. Their trips were arranged by tour operators, and they had relatively short stays in the destination (mostly two nights). Obviously, they had no interest in attractions related to geology and landscape, and learning about geosites was not important in their visit to the geosites. They visited a smaller number of attractions in the destination compared to the other segments. They were dissatisfied with their trip to the destination. In addition, they were unlikely to extend their stay at the destination or recommend that other people visit the destination.

4.4.3. Nature–Culture Lovers

Similar to the Culture Lovers, the Nature–Culture Lovers were relatively older tourists. They were mainly Europeans who came to the destination for leisure purposes. They were first-time visitors and traveled with a large number of adults. Their trips were arranged by tour operators, and they had relative short stays at the destination (mostly two nights). They were unlikely to extend their stay at the destination.

4.4.4. Want-It-Alls

This segment was dominated by men and consisted of relatively younger tourists. The Want-It-Alls segment comprised tourists with a lower education level, and was dominated by domestic tourists; i.e., Ethiopians. These tourists traveled in a small group (with family or friends) or alone, and also traveled with children. It was the only segment that came to the destination mainly for nonleisure reasons, such as visiting friends and relatives, meetings, or religious purposes. They were repeat visitors. The Want-It-Alls segment had mainly self-arranged travel and stayed longer (three nights or more) at the destination. Learning about geosites was important in their visit of Lake Tana and the Blue Nile Falls. They read much about the destination before their journey. They were likely to extend their stay and to recommend that other people visit the destination.

5. Discussion

EFA on the 20 benefit items indicated a four-factor solution: Activities, Relaxation, Nature, and Culture. Previous EFA studies on benefits sought also found four factors. For example, Nduna & van Zyl [40] conducted an EFA on 32 benefit variables for a nature-based destination and found nine factors. Four of their factors—outdoor adventure, relaxation, natural environment, and culture—were closely related to the four factors in our study. It should be noted that they had more benefit variables and quite a different study area context compared to ours. In addition, Frochot [34] found a four-factor solution based

on EFA on 13 benefit variables related to rural areas. These factors were sport, relaxation, outdoors, and rurality.

This study provided more insights into the possible segments of tourists to geosites based on the benefits sought. The results showed that the tourists could be divided into four segments: Activity–Nature Lovers, Culture Lovers, Nature–Culture Lovers, and Want-It-Alls. The median (and mean) number of segments in the previous geotourism segmentation studies (Table 1) was also four. The segments in our study were reflective of the attractions in the study area, which is endowed with both natural and cultural attractions. Except for the Culture Lovers, the segments were interested in geosites and related activities such as mountain climbing, caving, and hiking. This offers an opportunity for the sustainable development of geotourism at the destination.

The segments differed in their demographic, trip, and behavioral characteristics. The Want-It-Alls differed from the other segments in many demographic, trip, and behavioral variables. This most likely was because this segment was dominated by domestic tourists who were different from international tourists (mostly Western tourists, in our case) in their sociodemographic and cultural backgrounds.

As there were no previous studies on benefit segmentation of tourists to geosites (see Table 1), direct comparisons of our findings with others was not possible. Thus, comparisons were made with segmentation studies in which either the base for clustering (i.e., benefit segmentation) or the destination (i.e., being a geotourism or nature-based destination) was similar, as shown in Table 4. The results showed that similar market segments were found in previous studies.

Table 4. Comparison of segments found in previous studies with the ones found in our study.

Author/s [a], Year	Segmentation [b]; and Its Base	Segment Found	Similar Segment in Our Study	Similarity
Lang and O'Leary [76]	850 Australian nature travelers; motivations, activity participation, and destination preferences	Physical-challenge seekers	Activity–Nature Lovers	Physical challenge, nature and related activities
Galloway [77]	9495 tourists to parks in Ontario, Canada; motivations	Active enjoyment of nature		Motivation
Konu & Kajala [78]	34,868 tourists to protected areas in Finland; motivations	Nature-oriented relaxation seekers		Motivation (nature experiences, scenery, relaxation)
Smith et al. [79]	3610 tourists to 33 parks in Western Australian protected area; psychographic and behavioral variables	Nature-experience seekers		Purpose of visit and activities undertaken
Lang and O'Leary [76]	850 Australian nature travelers; motivations, activity participation, and destination preferences	Culture and entertainment seekers	Culture Lovers	Interest in cultural attractions and entertainment
Lang and O'Leary's [76]	850 Australian nature travelers; motivations, activity participation, and destination preferences	Nature tourists	Nature–Culture Lovers	Natural and cultural attractions
Beh and Bruyere [80]	465 tourists to national reserves in Kenya; motivation	Learners		Interest (culture and nature)

Table 4. *Cont.*

Author/s [a], Year	Segmentation [b]; and Its Base	Segment Found	Similar Segment in Our Study	Similarity
Allan and Shavanddasht [30]	300 rural weekday geotourists; motivation	Historical and geological-attraction seekers		Interest in historical and geological attractions
Nduna and van Zyl [40]	400 tourists to a nature-based destination in South Africa; benefits sought	Cultured–naturist		Interest (culture and nature)
Kastenholz et al. [45]	200 tourists to rural areas in Portugal; benefits	Want-It-All ruralists		Interest in various benefits, young
Frochot [34]	734 tourists to rural areas in Scotland; benefits sought	Actives		All benefits at the destination, younger
Almeida et al. [49]	170 rural tourists in Madeira, Portugal; benefits sought	Want-It-Alls	Want-It-Alls	Interest in all activities
Fung and Jim [81]	647 Hong Kong Global Geopark visitors; motivations	Want-It-Alls		Motivated by all benefits
Drápela et al. [82]	556 tourists to a UNESCO Global Geopark; preferences for different types of attractions	Cluster 2		Interest in all attractions

[a] The studies are mentioned chronologically based on the year of publication. [b] The segmentation studies on nature-based tourism presented for comparison were those that have variables related to geotourism (such as landscape or topography; scenic beauty; activities related to geosites such as rock climbing, boating; etc.).

Tourists try to maximize the benefits they get from a destination. That is why three of the four segments were interested in at least two of the benefits the destination offered (Figure 5). Of course, in tourist segmentation, it is not uncommon to have segments that value most or even all of the benefits in the destination (e.g., [34,45,49,83]. Similarly, many of the segments presented for comparison in Table 4 also showed that tourists were interested or motivated by a range of destination benefits (see the rightmost column) rather than a single benefit. The study of rural geotourist segments (Table 1) by Allan and Shavanddasht [30] also found that three of the six geotourist segments also were motivated by two or more benefits.

It was found that learning about geosites, which is one of the main features of geotourism [31], was an important reason in visiting the geosites for only the Want-It-Alls segment. For the Activity–Nature Lovers and Nature–Culture Lovers, learning about geosites was not an important issue. One possible reason might be that geotourism is given little to no attention by the touristic sector in the study area. Hence, the tourists might not be aware of the geotouristic values of the geosites. Unlike cultural heritage, geosites in Ethiopia are undervalued as tourist attractions [84]. Another reason might be that only a few people are truly interested in certain core products. Frochot [34] suggested that " ... within most types of tourism, the proportion of tourists that clearly expresses a real motivation for a product (and an associated behavior and activity choice) might only represent a small proportion of a wider market" (p. 344). Similarly, in their benefit segmentation of rural tourists of Madeira in Portugal, Almeida et al. [49] found that " ... the number of visitors genuinely interested in rural activities is rather small. ... Rural tourists are attracted to rural areas in Madeira by quite generic features" (p. 828). In addition, Drápela

et al. [82] studied the motivation and preferences of visitors in the Bohemian Paradise UNESCO Global Geopark and found that most visitors were not primarily interested in geology. They indicated that many of the visitors preferred to stay in nature without an educational element.

The Culture Lovers segment was dissatisfied with their travel to the destination. A possible reason might be that this segment was interested in only culture. In addition, this segment traveled in package tours that included other important cultural destinations in northern Ethiopia, including Gondar, Lalibela, and Aksum. Hence, compared to these cultural heritages, the southern Lake Tana region might not have met the expectations of Culture Lovers.

The Want-It-Alls segment is an attractive market for many reasons. Tourists from this segment traveled in smaller groups, stayed longer, and made repeat visits to the destination. They also traveled to the destination for nonleisure purposes and then visited the geosites in and around Bahir Dar, thereby increasing their length of stay and amount of spending at the destination. As this segment was interested in all the benefits the destination offered, potential tourist sites could be promoted to this group, and once the attractions become popular, promotions can be made to the other market segments. In addition, this segment mainly consisted of domestic tourists, which offers many opportunities to the destination. For example, the COVID-19 pandemic and the internal conflict (which started in November 2020) have highly affected the tourism sector in Ethiopia, including the southern Lake Tana region. As a result, an emphasis on domestic tourists could be part of the solution in sustaining the tourism industry. Almeida et al. [49] argued that the domestic market segment is "relatively immune to . . . crisis, which could help to reduce the overall impact of falling demand rates in the main market" (p. 828). Kastenholz et al. [45] also indicated that domestic tourism is "more stable and less sensitive to competition from other countries". Of course, a major issue for tourism in many parts of Africa is to "generate greater participation of nationals within and between African countries", including Ethiopia [11].

6. Implications

6.1. Theoretical Implications

This study established a four-factor solution to benefits sought at a geotourism destination based on EFA. As the study was exploratory in nature, future studies can build on this and test whether similar results could be found in other geosites. In addition, this study also identified four benefit segments of tourists visiting geosites: Activity–Nature Lovers, Culture Lovers, Nature–Culture Lovers, and Want-It-Alls. The findings indicated that tourists were interested in multiple benefits (Figure 5) at a geotourism destination. Though further research is needed at other geosites elsewhere, the study shed light on a possible typology of tourists that visit geosites, and hence contributes to the geotourism literature. More specifically, this study was one of the first in Africa to segment tourists to geosites, and will therefore serve as a springboard for future studies on the continent.

For the development of destinations, it is important to study the current and potential demand for geosites that are currently being visited, as well as those that could be developed in the future. In this regard, our study provided such a showcase. Future studies at other destinations could include potential geosites that are not currently being visited (but have the potential) in the segmentation survey, and find potential demand for their products.

6.2. Managerial Implications for Sustainable Development of Geotourism

The study provided important insights for destination managers and marketers to sustainably develop geotourism in the region. It will help them to customize their geotourism product development and marketing strategies based on the needs and profiles of these market segments. The possible practical implications of the findings are presented as follows.

One approach that destination managers and marketers could follow in developing and marketing geotourism in the region would be to develop and promote existing and potential geosites at the destination to the market segments identified in this study. Gardiner & Scott [85] developed a 2 × 2 matrix of experience–market innovation framework called the "Destination Innovation Matrix". One axis of the matrix represents products or experiences (existing/new), and the other represents markets (existing/new). Therefore, there can be four quadrants: existing experience to an existing market, existing experience to a new market, new experience to an existing market, and new experience to a new market. Our study will therefore motivate destination managers and marketers to focus on two quadrants of the Destination Innovation Matrix; i.e., existing products to an existing market and new products to an existing market. The former might include developing and promoting existing tourist sites that are currently being visited by only a few people (e.g., see Figure 5). The latter could include developing and promoting new attractions such as caves, volcanic cones and plugs, mountains, etc. to the existing market segments that are interested in such features.

In order to meet the needs of each market segment, destination managers and marketers can use a tourism product diversification approach called "integrative diversification [86]. This approach involves linking tourism products. For example, for the Activity–Nature Lovers, activities and nature-related tourism products could be combined. Attractions related to nature and culture were important for two of the four segments. As a result, the destination must integrate different benefits to satisfy the needs of the market.

Destination managers and marketers should also emphasize the Want-It-Alls segment, particularly domestic tourists. This segment has several interesting characteristics (see Figures 7 and 8) that make it more attractive to the destination than other segments.

The trips of Culture Lovers and Nature-Culture Lovers were arranged by tour operators, and they stayed shorter at the destination. Destination managers and marketers should consider this in the product development and marketing process. There should be a mechanism to either extend their stay or maximize what the tourists can do within their short stay.

Three of the four segments read nothing or little about the destination before travel. In addition, information about the destination (be it in print, electronic, or other forms) was very limited. On the other hand, geo-interpretations can help enhance tourists' appreciation and learning about geosites [31]. Thus, the destination marketers must design appropriate ways (materials) to provide information to the tourists. One approach is to use interpretive panels, which are considered as "silent ambassadors" for attractions [29]. Another approach is to provide online materials about the geosites in the region (which can be consulted on smartphones in the field).

This study could also help destination managers and marketers to develop and promote geotourism products based on the profiles of the segments. For example, the Want-It-Alls segment traveled with children, and this should be considered when developing and promoting products for this market. In addition, this segment had a lower education level and was dominated by Ethiopians. Hence, one consideration for the destination marketers in the geo-interpretation, especially interpretive panels, would be to prepare them in Amharic (the working language of the federal government of Ethiopia) in addition to English, which mainly addresses international tourists. Another example would be to consider the age of the respondents. The Culture Lovers and Nature–Culture Lovers consisted of older tourists, and this should be taken into account in the geotourism product-development process.

7. Conclusions

Geosites and geotourism are receiving increasing attention globally. However, so far, the emphasis of the studies on tourism at geosites has been on the supply side, mainly focusing on the inventory and assessment of (potential) geosites for geotourism development. The study of tourism demand, and in particular segmenting the growing tourism

demand for geosites, helps policymakers and entrepreneurs to make better investment and policy decisions, which then help geotourism destinations develop more competitively and sustainably. This study tried to shed some light on the benefit segmentation of tourists to geosites. It investigated whether potential segments might exist within the general market that visits geosites. Four distinct market segments visiting geosites were identified; i.e., Activity–Nature Lovers, Culture Lovers, Nature–Culture Lovers, and Want-It-Alls, which differed in their demographic, trip, and behavioral characteristics. These differences between segments indicated that benefit segmentation of tourists to geosites worked well in practice.

It was observed that tourists with an interest in geotourism were found in three of the four market segments; i.e., Activity–Nature Lovers, Nature–Culture Lovers, and Want-It-Alls. However, currently, the destination is offering the same products to all the segments. The tourist attractions being visited, mainly Lake Tana and its monasteries, as well as the Blue Nile Falls, provide only some of the benefits for which the tourists of particular segments are looking. Therefore, for a sustainable development of geotourism in the study area, destination managers and marketers should consider what is important for each of the market segments.

This study could be considered as exploratory, as it developed the benefit attributes for segmentation based on a review of previous studies discussing benefit segmentation in tourism in general and based on the nature of geotourism. The study results were also destination-specific, and making generalizations based on our findings might be difficult. However, the methods used are universal, and hence can be applied in future studies.

Our study had some shortcomings that should be addressed in future research. The segmentation was done for both domestic and international tourists combined. We recommend that future research segment domestic and international tourists separately and compare the results. In addition, translating the questionnaire into at least the language of major markets (such as French and German) visiting the destination may enhance the response rate, and this should be considered in future studies.

Author Contributions: Conceptualization, G.A.T. and J.v.d.B.; methodology, G.A.T.; formal analysis, G.A.T.; investigation, G.A.T.; resources, J.v.d.B. and E.A.; data curation, G.A.T.; writing—original draft preparation, G.A.T.; writing—review and editing, J.v.d.B., A.V.R., S.V.P., E.A., A.S.M., K.A., A.F., and J.P.; visualization, G.A.T.; project administration, J.v.d.B.; funding acquisition, J.v.d.B., S.V.P., E.A., A.S.M., and A.F.; supervision, J.v.d.B., A.V.R., A.S.M., K.A., and J.P. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by VLIR-UOS through the IUC-BDU project: the Institutional University Cooperation (IUC) between Flemish Universities, Belgium, and Bahir Dar University (BDU), Ethiopia.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: The authors would like to thank those who helped in the data collection (Martina Marcon, Carlotta Migliori, Yiahlem Kebete, Tefera Ewunetu, Endalew Tegegne, Belachew Kassahun, Tadesse Bekele, Lake Abebe, Wagnew Eshetie, Kassa Mitikie, and Negesse Teshager). The authors are also grateful to managers and other staff in hotels and restaurants, tour guides, and tour leaders who were cooperative in the data-collection process. Special gratitude is extended to Allard van Riel of UHasselt for his valuable comments on an earlier draft of the paper. Last but not least, the authors would like to thank the anonymous reviewers for their constructive comments.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

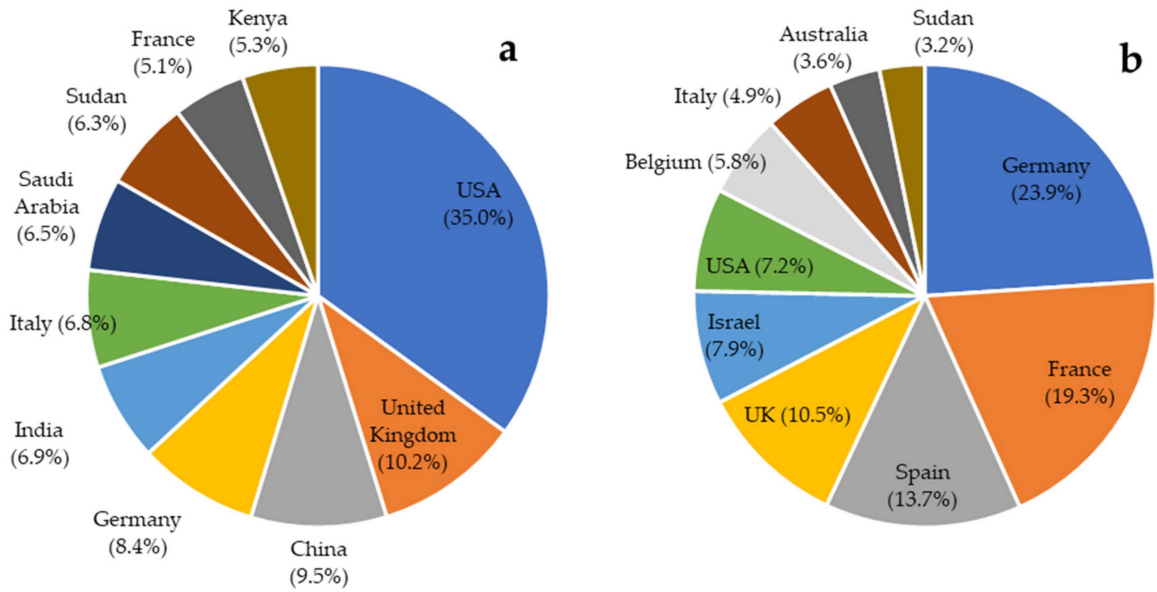

Figure A1. The top 10 origin countries of international tourists. (**a**) The top 10 origin countries of international tourists traveling to Ethiopia during 2012–2018, based on official data from the Ministry of Culture and Tourism (recently renamed the Ministry of Tourism). Note that tourist arrivals include both leisure and business travelers, and most tourists from Asia and Africa might have traveled for business/conference purposes to the capital city, Addis Ababa. (**b**) The top 10 origin countries of international tourists traveling to the Blue Nile Falls during October 2019–February 2020 (source: based on data from the tourist registration sheet of the Tourist Information Center at Tis Abay town). Note that these data are only for tourists visiting the Blue Nile Falls, and does not include tourists visiting Lake Tana and its monasteries.

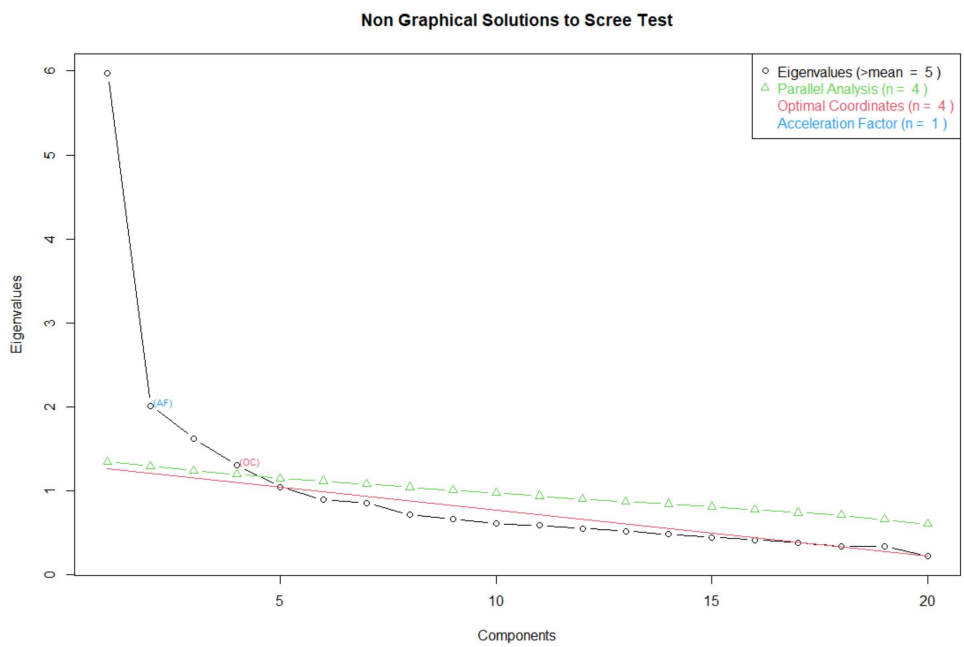

Figure A2. Determining the optimal number of factors to extract in factor analysis based on the scree test.

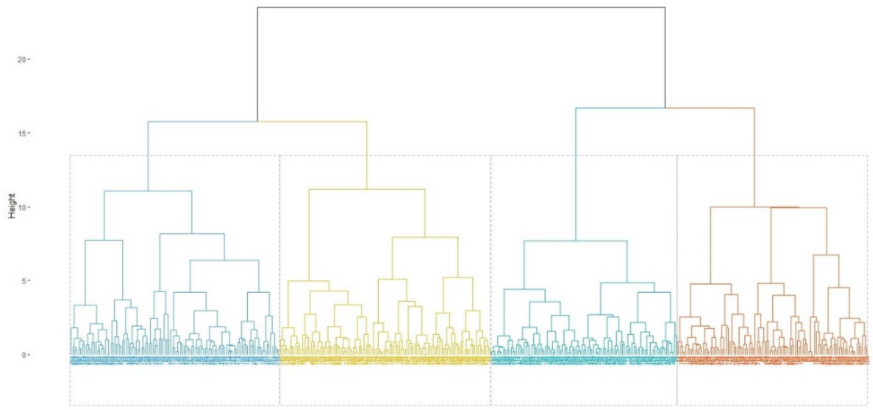

Figure A3. Hierarchical clustering dendrogram using the Ward method with Euclidean distance based on the 20 benefit variables (n = 415).

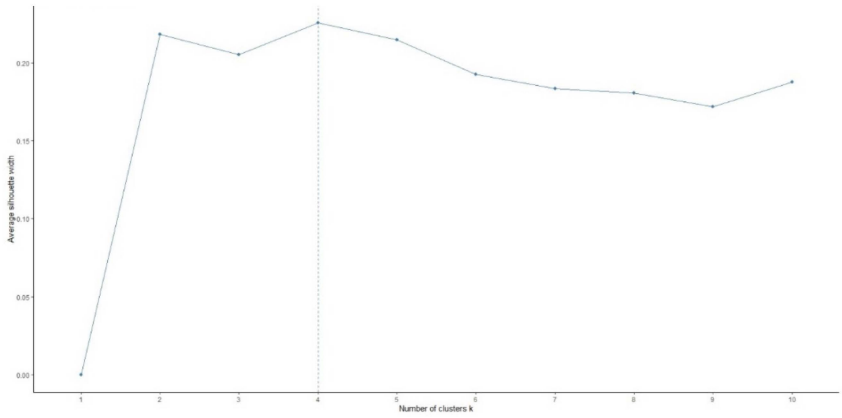

Figure A4. Optimal number of clusters based on the silhouette method (n = 415).

Table A1. Cluster analysis results: the four segments and their respective mean factor scores [a] on perceived importance of benefits (n = 415).

Segment	Factor 1 Activities	Factor 2 Relaxation	Factor 3 Nature	Factor 4 Culture	Number of Respondents (n = 415)	% of Segments in Total Sample
Segment 1: Activity–Nature Lovers	0.42	−0.63	0.09	−0.79	103	24.82
Segment 2: Culture Lovers	−0.36	−0.21	−1.10	0.24	57	13.73
Segment 3: Nature–Culture Lovers	−0.94	0.12	0.061	0.16	142	34.22
Segment 4: Want-It-Alls	0.83	0.68	0.40	0.43	113	27.23
ANOVA results (F statistic)	187.46 ***	89.09 ***	145.81 ***	50.60 ***		

*** $p < 0.001$; [a] Factor score refers to a "composite measure created for each observation on each factor extracted in the factor analysis. The factor weights are used in conjunction with the original variable values to calculate each observation's score" [53] (p. 123).

References

1. Ólafsdóttir, R.; Tverijonaite, E. Geotourism: A Systematic Literature Review. *Geosciences* **2018**, *8*, 234. [CrossRef]
2. Tessema, G.A.; van der Borg, J.; Minale, A.S.; Van Rompaey, A.; Adgo, E.; Nyssen, J.; Asrese, K.; Van Passel, S.; Poesen, J. Inventory and Assessment of Geosites for Geotourism Development in the Eastern and Southeastern Lake Tana Region, Ethiopia. *Geoheritage* **2021**, *13*, 43. [CrossRef]
3. Ruban, D.A. Geotourism—A geographical review of the literature. *Tour. Manag. Perspect.* **2015**, *15*, 1–15. [CrossRef]
4. Rocha, D.; Duarte, A. The Management of Arouca Geopark's Route of Geosites: A Strategic Geologically Based Product in a Geotourism Destination. In *Economics and Management of Geotourism*; Braga, V., Duarte, A., Marques, C.S., Eds.; Springer: Cham, Switzerland, 2022; pp. 87–104. [CrossRef]
5. Dowling, R.K. Global Geotourism—An Emerging Form of Sustainable Tourism. *Czech J. Tour.* **2013**, *2*, 59–79. [CrossRef]
6. Aquino, R.S.; Schänzel, H.A.; Hyde, K.F. Unearthing the geotourism experience: Geotourist perspectives at Mount Pinatubo, Philippines. *Tour. Stud.* **2018**, *18*, 41–62. [CrossRef]
7. Gorman, C.E. Landscape and Geotourism: Market typologies and visitor needs. In Proceedings of the European Tourism and the Environment Conference: Promotion and Protection, Achieving the Balance, Dublin, Ireland, 11–12 October 2007; pp. 1–12.
8. Rivero, M.S.; Rangel, M.C.R.; Martín, J.M.S. Geotourist Profile Identification Using Binary Logit Modeling: Application to the Villuercas-Ibores-Jara Geopark (Spain). *Geoheritage* **2019**, *11*, 1399–1412. [CrossRef]
9. Allan, M.; Dowling, R.K.; Sanders, D. The motivations for visiting geosites: The case of crystal cave, Western Australia. *Geoj. Tour. Geosites* **2015**, *16*, 142–153.
10. Vasiljević, Đ.A.; Vujičić, M.D.; Božić, S.; Jovanović, T.; Marković, S.B.; Basarin, B.; Lukić, T.; Čarkadžić, J. Trying to underline geotourist profile of National park visitors: Case study of NP Fruška Gora, Serbia (Typology of potential geotourists at NP Fruška Gora). *Open Geosci.* **2018**, *10*, 222–233. [CrossRef]
11. Thomas, M.F.; Asrat, A. The Potential Contribution of Geotourism in Africa. In *Handbook of Geotourism*; Dowling, R., D, N., Eds.; Edward Elgar Publishing: Cheltenham, UK, 2018; pp. 168–191.
12. Newsome, D.; Dowling, R. The Scope and Nature of Geotourism. In *Geotourism*; Dowling, R., Newsome, D., Eds.; Elsevier Butterworth Heinemann: Oxford, UK, 2006; pp. 3–25.
13. Palacio, V. Identifying Ecotourists in Belize Through Benefit Segmentation: A Preliminary Analysis. *J. Sustain. Tour.* **1997**, *5*, 234–243. [CrossRef]
14. Foedermayr, E.K.; Diamantopoulos, A. Market Segmentation in Practice: Review of Empirical Studies, Methodological Assessment, and Agenda for Future Research. *J. Strat. Mark.* **2008**, *16*, 223–265. [CrossRef]
15. Kotler, P.; Bowen, J.T.; Baloglu, S. *Marketing for Hospitality and Tourism*; Global Edition (8th Global); Pearson Education: Harlow, UK, 2021.
16. McKercher, B.; Tolkach, D.; Eka Mahadewi, N.M.; Byomantara, D.G.N. Choosing the Optimal Segmentation Technique to Understand Tourist Behaviour. *J. Vacat. Mark.* **2022**. [CrossRef]
17. Hajibaba, H.; Grün, B.; Dolnicar, S. Improving the stability of market segmentation analysis. *Int. J. Contemp. Hosp. Manag.* **2019**, *32*, 1393–1411. [CrossRef]
18. Ernst, D.; Dolnicar, S. How to Avoid Random Market Segmentation Solutions. *J. Travel Res.* **2018**, *57*, 69–82. [CrossRef]
19. Dolnicar, S.; Grün, B.; Leisch, F. *Market Segmentation Analysis: Understanding It, Doing It, and Making It Useful*; Springer: New York, NY, USA, 2018.
20. Dolničar, S. Beyond "Commonsense Segmentation": A Systematics of Segmentation Approaches in Tourism. *J. Travel Res.* **2004**, *42*, 244–250. [CrossRef]
21. Dolnicar, S.; Grün, B. Methods in Segmentation. In *Segmentation in Social Marketing: Process, Methods and Application*; Dietrich, T., Rundle-Thiele, S., Kubacki, K., Eds.; Springer: Singapore, 2017; pp. 93–107. ISBN 9789811018350.
22. Dolnicar, S. Market Segmentation Approaches in Tourism. In *The Routledge handbook of tourism marketing*; McCabe, S., Ed.; Routledge: London, UK, 2014; pp. 197–208.
23. Hose, T.A. Geotourism in Almeria Province, southeast Spain. *Tourism* **2007**, *55*, 259–276.
24. Kim, S.S.; Kim, M.; Park, J.; Guo, Y. Cave Tourism: Tourists' Characteristics, Motivations to Visit, and the Segmentation of Their Behavior. *Asia Pac. J. Tour. Res.* **2008**, *13*, 299–318. [CrossRef]
25. Dowling, R.K. Geotourism's Global Growth. *Geoheritage* **2011**, *3*, 1–13. [CrossRef]
26. Kim, A.K.; Brown, G. Understanding Tourist Perspectives on Geotourism Experience: Implications for Destination Development. *Tour. Rev. Int.* **2012**, *16*, 45–57. [CrossRef]
27. Hurtado, H.; Dowling, R.; Sanders, D. An Exploratory Study to Develop a Geotourism Typology Model. *Int. J. Tour. Res.* **2014**, *16*, 608–613. [CrossRef]
28. Timčák, M.G.; Jablonská, J.; Jaremko, M. Wellness and Relaxation in Geotourism. In Proceedings of the GEOTOUR & IRSE, Miskolc, Hungary, 16–18 October 2014; Štrba, Ľ., Ed.; Technical University of Košice: Miskolc, Hungary, 2014; pp. 63–71.
29. Prendivoj, S.M. Tailoring Signs to Engage Two Distinct Types of Geotourists to Geological Sites. *Geosciences* **2018**, *8*, 329. [CrossRef]
30. Allan, M.; Shavanddasht, M. Rural geotourists segmentation by motivation in weekends and weekdays. *Tour. Hosp. Res.* **2019**, *19*, 74–84. [CrossRef]
31. Newsome, D.; Dowling, R.K. Setting an agenda for geotourism. In *Geotourism: The Tourism of Geology and Landscape*; Goodfellow: Oxford, UK, 2010; pp. 1–12. [CrossRef]

32. Frochot, I.; Morrison, A.M. Benefit Segmentation: A Review of Its Applications to Travel and Tourism Research. *J. Travel Tour. Mark.* **2000**, *9*, 21–45. [CrossRef]
33. Haley, R.I. Benefit Segmentation: A Decision-Oriented Research Tool. *J. Mark.* **1968**, *32*, 30–35. [CrossRef]
34. Frochot, I. A benefit segmentation of tourists in rural areas: A Scottish perspective. *Tour. Manag.* **2005**, *26*, 335–346. [CrossRef]
35. Li, M.; Huang, Z.; Cai, L.A. Benefit segmentation of visitors to a rural community-based festival. *J. Travel Tour. Mark.* **2009**, *26*, 585–598. [CrossRef]
36. Koh, S.; Yoo, J.J.-E.; Boger, C.A. Importance-performance analysis with benefit segmentation of spa goers. *Int. J. Contemp. Hosp. Manag.* **2010**, *22*, 718–735. [CrossRef]
37. Pesonen, J.; Laukkanen, T.; Komppula, R. Benefit segmentation of potential wellbeing tourists. *J. Vacat. Mark.* **2011**, *17*, 303–314. [CrossRef]
38. Dryglas, D.; Salamaga, M. Applying destination attribute segmentation to health tourists: A case study of Polish spa resorts. *J. Travel Tour. Mark.* **2017**, *34*, 503–514. [CrossRef]
39. Zečević, B.; Kovačević, I. Benefit Segmentation of Outbound Summer Package Tourists. *Facta Univ. Ser. Econ. Organ.* **2017**, *13*, 401–414. [CrossRef]
40. Nduna, L.T.; Van Zyl, C. A benefit segmentation framework for a nature-based tourism destination: The case of Kruger, Panorama and Lowveld areas in Mpumalanga Province. *Int. J. Tour. Cities* **2020**, *6*, 953–973. [CrossRef]
41. Perera, G.; Sprechmann, M.; Bourel, M. Benefit segmentation of a summer destination in Uruguay: A clustering and classification approach. *J. Tour. Anal.* **2020**, *27*, 185–206. [CrossRef]
42. Benevolo, C.; Spinelli, R. Benefit segmentation of pleasure boaters in Mediterranean marinas: A proposal. *Int. J. Tour. Res.* **2021**, *23*, 134–145. [CrossRef]
43. Derek, M.; Woźniak, E.; Kulczyk, S. Clustering nature-based tourists by activity. Social, economic and spatial dimensions. *Tour. Manag.* **2019**, *75*, 509–521. [CrossRef]
44. Huang, R.; Sarigollu, E. Benefit Segmentation of Tourists to the Caribbean. *J. Int. Consum. Mark.* **2008**, *20*, 67–83. [CrossRef]
45. Kastenholz, E.; Davis, D.; Paul, G. Segmenting Tourism in Rural Areas: The Case of North and Central Portugal. *J. Travel Res.* **1999**, *37*, 353–363. [CrossRef]
46. Sangpikul, A. A factor-cluster analysis of tourist motivations: A case of U.S. senior travelers. *Tourism* **2008**, *56*, 23–40.
47. Vijverberg, J.; Sibbing, F.A.; Dejen, E. Lake Tana: Source of the Blue Nile. In *The Nile: Origin, Environments, Limnology and Human Use*; Dumont, H.J., Ed.; Springer Science & Business Media: Dordrecht, The Nertherlands, 2009; Volume 89, pp. 163–192.
48. Cho, B.-H. Segmenting the Younger Korean Tourism Market: The Attractiveness of Australia as a Holiday Destination. *J. Travel Tour. Mark.* **1998**, *7*, 1–19. [CrossRef]
49. Almeida, A.M.M.; Correia, A.; Pimpão, A. Segmentation by benefits sought: The case of rural tourism in Madeira. *Curr. Issues Tour.* **2014**, *17*, 813–831. [CrossRef]
50. Sung, Y.-K.; Chang, K.-C.; Sung, Y.-F. Market Segmentation of International Tourists Based on Motivation to Travel: A Case Study of Taiwan. *Asia Pac. J. Tour. Res.* **2016**, *21*, 862–882. [CrossRef]
51. Varmazyari, H.; Babaei, M.; Vafadari, K.; Imani, B. Motive-based segmentation of tourists in rural areas: The case of Maragheh, East Azerbaijan, Iran. *Int. J. Tour. Sci.* **2017**, *17*, 316–331. [CrossRef]
52. Mgxekwa, B.B.; Scholtz, M.; Saayman, M. A typology of memorable experience at Nelson Mandela heritage sites. *J. Heritage Tour.* **2019**, *14*, 325–339. [CrossRef]
53. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 8th ed.; Cengage Learning: Andover, UK, 2019.
54. Brown, T.A. *Confirmatory Factor Analysis for Applied Research*, 2nd ed.; Guilford Press: New York, NY, USA, 2006.
55. Korkmaz, S.; Goksuluk, D.; Zararsiz, G. MVN: An R Package for Assessing Multivariate Normality. *R J.* **2014**, *6*, 151–162. [CrossRef]
56. Watkins, M.W. *A Step-by-Step Guide to Exploratory Factor Analysis with R and RStudio*; Routledge: New York, NY, USA, 2020. [CrossRef]
57. Santos, F. Modern methods for old data: An overview of some robust methods for outliers detection with applications in osteology. *J. Archaeol. Sci. Rep.* **2020**, *32*, 102423. [CrossRef]
58. Watkins, M.W. Exploratory Factor Analysis: A Guide to Best Practice. *J. Black Psychol.* **2018**, *44*, 219–246. [CrossRef]
59. Baglin, J. Improving your exploratory factor analysis for ordinal data: A demonstration using FACTOR. *Pract. Assess. Res. Eval.* **2014**, *19*, 5.
60. Garrido, L.E.; Abad, F.J.; Ponsoda, V. A new look at Horn's parallel analysis with ordinal variables. *Psychol. Methods* **2013**, *18*, 454–474. [CrossRef]
61. Holgado–Tello, F.P.; Chacón–Moscoso, S.; Barbero–García, I.; Vila–Abad, E. Polychoric versus Pearson correlations in exploratory and confirmatory factor analysis of ordinal variables. *Qual. Quant.* **2010**, *44*, 153–166. [CrossRef]
62. Şimşek, G.G.; Noyan, F. Structural equation modeling with ordinal variables: A large sample case study. *Qual. Quant.* **2012**, *46*, 1571–1581. [CrossRef]
63. Fabrigar, L.R.; Wegener, D.T.; MacCallum, R.C.; Strahan, E.J. Evaluating the use of exploratory factor analysis in psychological research. *Psychol. Methods* **1999**, *4*, 272–299. [CrossRef]
64. Revelle, W. How to: Use the Pysch Packkage for Factor Analysys and Data Reduction. 2020. Available online: https://cran.r-project.org/web/packages/psychTools/vignettes/factor.pdf (accessed on 22 September 2021).

65. Sugawara, E.; Nikaido, H. Properties of AdeABC and AdeIJK efflux systems of Acinetobacter baumannii compared with those of the AcrAB-TolC system of *Escherichia coli*. *Antimicrob. Agents Chemother.* **2014**, *58*, 7250–7257. [CrossRef]
66. Fabrigar, L.R.; Wegener, D.T. *Exploratory Factor Analysis*; Oxford University Press: New York, NY, USA, 2012.
67. Gaskin, C.J.; Happell, B. On exploratory factor analysis: A review of recent evidence, an assessment of current practice, and recommendations for future use. *Int. J. Nurs. Stud.* **2014**, *51*, 511–521. [CrossRef]
68. Patel, A.; Singh, P. New Approach for K-Mean and K-Medoids Medoids Algorithm. *Int. J. Comput. Appl. Technol. Res.* **2013**, *2*, 1–5. [CrossRef]
69. Lopes, H.E.G.; Gosling, M.D.S. Cluster Analysis in Practice: Dealing with Outliers in Managerial Research. *Rev. Adm. Contemp.* **2021**, *25*, 1–19. [CrossRef]
70. Pham, D.T.; Dimov, S.S.; Nguyen, C.D. Selection of K in K-means clustering. *Proc. Inst. Mech. Eng. Part C J. Mech. Eng. Sci.* **2005**, *219*, 103–119. [CrossRef]
71. Kassambara, A. *Practical Guide to Cluster Analysis in R: Unsupervised Machine Learning*; STHDA: Montpellier, France, 2017; Volume 1.
72. Almahri, F.A.A.J.; Bell, D.; Arzoky, M. Personas Design for Conversational Systems in Education. *Informatics* **2019**, *6*, 46. [CrossRef]
73. Hung, P.D.; Ngoc, N.D.; Hanh, T.D. K-Means Clustering Using R A Case Study of Market Segmentation. In Proceedings of the 2019 5th International Conference on E-Business and Applications, Bangkok, Thailand, 25–28 February 2019; pp. 100–104. [CrossRef]
74. Kovács, L.; Iantovics, L.B.; Iakovidis, D.K. IntraClusTSP-An Incremental Intra-Cluster Refinement Heuristic Algorithm for Symmetric Travelling Salesman Problem. *Symmetry* **2018**, *10*, 663. [CrossRef]
75. Charrad, M.; Ghazzali, N.; Boiteau, V.; Niknafs, A. NbClust: An R Package for Determining the Relevant Number of Clusters in a Data Set. *J. Stat. Softw.* **2014**, *61*, 1–36. [CrossRef]
76. Lang, C.T.; O'Leary, J.T. Motivation, participation, and preference: A multi -segmentation approach of the Australian nature travel market. *J. Travel Tour. Mark.* **1997**, *6*, 159–180. [CrossRef]
77. Galloway, G. Psychographic segmentation of park visitor markets: Evidence for the utility of sensation seeking. *Tour. Manag.* **2002**, *23*, 581–596. [CrossRef]
78. Konu, H.; Kajala, L. Segmenting Protected Area Visitors Based on Their Motivations; Nature Protection Publications of Metsähallitus. Series A 194 (Issue Series A 194). 2012. Available online: https://julkaisut.metsa.fi/assets/pdf/lp/Asarja/a194.pdf (accessed on 14 April 2021).
79. Smith, A.J.; Tuffin, M.; Taplin, R.H.; Moore, S.A.; Tonge, J. Visitor segmentation for a park system using research and managerial judgement. *J. Ecotourism* **2014**, *13*, 93–109. [CrossRef]
80. Beh, A.; Bruyere, B.L. Segmentation by visitor motivation in three Kenyan national reserves. *Tour. Manag.* **2007**, *28*, 1464–1471. [CrossRef]
81. Fung, C.K.W.; Jim, C.Y. Segmentation by motivation of Hong Kong Global Geopark visitors in relation to sustainable nature-based tourism. *Int. J. Sustain. Dev. World Ecol.* **2015**, *22*, 76–88. [CrossRef]
82. Drápela, E.; Boháč, A.; Böhm, H.; Zágoršek, K. Motivation and Preferences of Visitors in the Bohemian Paradise Unesco Global Geopark. *Geosciences* **2021**, *11*, 116. [CrossRef]
83. Tan, A.Y.F.; Lo, A.S.Y. A Benefit-Based Approach To Market Segmentation: A Case Study of an American Specialty Coffeehouse Chain in Hong Kong. *J. Hosp. Tour. Res.* **2008**, *32*, 342–362. [CrossRef]
84. Williams, F. Safeguarding Geoheritage in Ethiopia: Challenges Faced and the Role of Geotourism. *Geoheritage* **2020**, *12*, 31. [CrossRef]
85. Gardiner, S.; Scott, N. Destination Innovation Matrix: A framework for new tourism experience and market development. *J. Destin. Mark. Manag.* **2018**, *10*, 122–131. [CrossRef]
86. Benur, A.M.; Bramwell, B. Tourism product development and product diversification in destinations. *Tour. Manag.* **2015**, *50*, 213–224. [CrossRef]