Exploring astro-tourism and education in Kenya and Tanzania: A literature review

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ABSTRACT

Past scholars noted that one of the challenges is education in relation to tourism particularly the aspects of training and curriculum design. Existing literature has explored challenges of customer services education in tourism and suggest measures such as retraining and improving the curricula as a remedy to match the skills needed in the post pandemic for the hospitality and tourism industry. Conversely, there is less attention on other forms of tourism like astro-tourism. Hence, this paper's aim is to expand literature on education in tourism with the main objective of exploring astro-tourism and education in tourism. Guided by the behaviorist learning theory, the specific objective is to explore the forms of astro-tourism and training programs from the perspective of Kenya and Tanzania. A systematic literature review supplemented by integrative literature review is deployed as a research methodology. A total of 16 papers from journals, conferences and newsflash deemed sufficient for descriptive statistics and literature analysis to avail findings. The findings indicate that although various forms of astro-tourism exist, these are not fully complemented with training programs. Very few public institutions or private enterprises offer astro-tourism programs like astro tour guide. The findings suggest that both higher education institutions and the private sector should continue promoting tourism education that includes training programs aligned with the growing trends in astro-tourism.

1. INTRODUCTION

After the COVID-19 pandemic, most nations seek to regain the tourist arrival records of the pre-pandemic levels. In Africa, the international tourist arrivals in the post-COVID-19 indicate 88% of the pre-pandemic levels of 2019 (United Nations World Tourism Organization [UNWTO], 2023). In the tourism space, Kimeto & Mkwizu (2023) advocate for sustainability of national parks in the post-COVID-19 recovery phase. In addition, there are challenges in tourism recovery worldwide with evidence from a number of studies and reports including United Nations Educational, Scientific and Cultural Organization [UNESCO] (2023) and Vu et al. (2022). For example, past scholars such as Kidere & Mkwizu (2022), Mkwizu & Kimeto

(2022), and Kimeto & Mkwizu (2023) noted that one of the challenges is education in relation to tourism particularly the aspects of training and curriculum design.

Furthermore, Mkwizu & Kimeto (2022) focused on customer's services in relation to education by exploring challenges of customer services education in tourism and suggested measures such as retraining and improving the curricula as a remedy to match the skills needed in the post pandemic for the hospitality and tourism industry. However, there is less attention on other forms of tourism like astro-tourism in relation to education. Additionally, there are limited studies on astro-tourism within Kenya and Tanzania. For example, Paskova et al. (2021), Jiwaji (2010a, 2010b, 2016), Kulvinder et al. (2020) and Mahadevan et al. (2021) are among the few existing studies that have examined astro-tourism in Kenya and Tanzania. At least, these limited studies have collaboration involving more than one scholar which is good for collaborative research as indicated in Mkwizu (2024) although more studies are needed. Therefore, this paper expands literature on education in tourism with the main objective of exploring astro-tourism and education in tourism.

Interestingly, the study by Herrero (2019) carried out in Spain stated that there are types of astro-tourism and these are spiritual sky-gazing, amateur sky-gazing, astro-photography and scientific astro-tourism. Amateur sky-gazing is a type of astro-tourism that involves Variable Star Observing (VSO), naked-eye stargazing and school trips while scientific astro-tourism engages visiting planetariums, astronomical observatories, space centers, professional sky-gazing and archeoastronomy (Herrero, 2019). Additionally, this study is guided by the behaviorist learning theory and the research specific objective of this paper is to explore forms of astro-tourism and training programs from the perspective of two East African countries namely Kenya and Tanzania. The research question posed in this paper is what are the forms of astro-tourism and training programs from the perspective of Kenya and Tanzania?

It is assumed that the above questions when addressed will result in destination competitiveness since both countries will have employees with skills and competencies in astro-tourism and having most of the types of astro-tourism. This is because tourism institutions developing curricula that are tailor-made for tourism industry in terms of skills and competencies is key in becoming a preferred destination regionally and globally (Kimeto, 2023).

From an education managerial implication is that the institutions of higher learning offering tourism programs and policy makers in tourism should consider having astro-tourism in the curricula and as a tourism product both in Kenya and Tanzania since it has received less attention as a form of tourism.

2. LITERATURE REVIEW

Astro-Tourism as a New Concept

The concept of astro-tourism is new and it is a growing special interest tourism (Paskova et al., 2021). According to Fayos-Solé et al. (2014), astro-tourism is a tourism that uses the natural resource of unpolluted night skies, cultural and environmental activities and suitable scientific knowledge in astronomy. It attracts tourists whose focus is enjoying the dark sky that is free from light pollution (Collison, 2012) and can be accessed by all humanity, as opposed to just the rich class in relations to time, cost and originality (Dursun, 2021). Tourists mainly observe and appreciate the celestial phenomena which occur naturally (Weaver, 2011). Astro-tourism is an exceptional form of ecotourism that brings tourists closer to nature (Najafabadi, 2012; Fayos-Solé et al., 2014) and is considered a form of sustainable tourism that utilizes the sky as the key resource (Rodrigues et al., 2015; Kunjaya et al., 2019).

Astro-tourism involves two tourism activities, which is stargazing and space tourism (Gerasimova, 2021). Celestial observations may include activities such as seeing interesting cloud formation, glowing sunsets and sunrises, star-filled skies, viewing comets and sky gazing. All these are viewed as mega skies (Jacobs et al., 2020). Astro tourists desire to experience unique things and to acquire more knowledge about the universe. Rosenberg et al. (2014) stated that throughout history, humankind have used sky features to guide their direction, agree on what to plant, respond to queries on issues to do with their origin. Interest in astronomy to humankind and sky observation has been there long enough (Iwaniszewski, 2011) and has created a cultural heritage that is allied to science through heritage caused by ancient astronomical knowledge, interpretations and observations. There is also the involvement of traditions, myths, and ancient instruments used during observations (Planesas, 2009; Valls-Gabaud, 2011).

Destinations of astro-tourism should be light pollution-free site and this can be developed in varied areas such as high mountains, rural areas, islands, desert areas or sparsely populated regions (Paskova et al., 2021; Charlier & Bourgeois, 2013). Astro-tourism being an exceptional form of tourism requiring no maintenance or development and is more community oriented which is ideal for enlightening rural tourism destinations since it has economic benefits to support communities and other existing forms of tourism (Jacobs et al., 2020; Kunjaya et al., 2019). This special form of tourism allows developing countries to reveal their unique offerings in a clear dark night sky free from artificial light (Belij & Tadić, 2015; Najafabadi, 2012). This paper defines astro-tourism as a tourism that utilizes celestial phenomena like solar eclipse, stars and meteorites.

Education in Astro-tourism

Astro-tourism being an activity done in the dark sky parks should be endorsed widely because of its effects on environmental and socio-economic aspects of a destination (Iwanicki, 2022). Dark sky parks give tourists an opportunity to learn more on effects of use of artificial lights at night and how it could be minimized (Iwanicki, 2022). Astro-tourism has educationally received less attention yet it is considered a form of sustainable tourism and could act as a stable source of income to the individual destinations. However, Friel (2019) highlighted that astro-tourism poses negative environmental impacts because of burned fuel in large quantities during rocket launches and in arranged orbital and suborbital flights which upsurges the global warming (Duval & Hall, 2015).

Astro-tourism being a new concept offers openings for collaboration between tourism stakeholders, local communities and scientific institutions (Fayos-Solé et al., 2014). According to (Ingle, 2010), tour guiding skills and competence plus specialist experience is required to enhance product delivery. Therefore, professional involvement is required to offer a solid knowledge foundation of astro-tourism and an understanding of the different demands of tourism market (Fayos-Solé et al., 2014). Dursun (2021) pointed out that humanity has focused in learning and acquiring knowledge about the sky, the moon, the sun, the planets and much wider universe. The quest for improved knowledge and experience in scientific discoveries about the universe has led to space-oriented tourism activities (Dursun, 2021). Activities of astro-tourism enables practitioners not only to appreciate and value astronomical phenomena uniqueness but to also create awareness and spread knowledge on ways of protecting the environment (Paskova et al., 2021). Being a science and open for knowledge and experience sharing with the tourists, astronomy has turned out to be an emerging tourists' activity that possesses development prospects for the destination where it is taking place (Tejada et al., 2016).

Behaviorist Learning Theory

Behaviorist learning theory traces back to John Watson in 1913 who was concerned with behaviorism from a child psychology point of view (Malone, 2014; Reese, 2013; Watson, 1913). Apart from the child psychology perspective, Feder (2022) noted that behaviorist learning theory assumes that people interact with their own environment. For example, the study by Sokip et al. (2019) was interested in the implementation of behaviorist learning theory in a senior high school in Indonesia. The results showed that there is a positive attitude of students on the actual application of behaviorist learning theory (Sokip et al., 2019). However, in the case of this study, the environment is the astronomic space comprising objects like the

moon and stars in promoting destinations using astro-tourism particularly, exploring the forms of astro-tourism in relation to training programs.

Other scholars like Salamah et al. (2020) have applied the behaviorist learning theory in education. Salamah et al. (2020) adopted the behaviorist learning theory in a classroom learning environment through a qualitative research design and found that the students learning can be classified as low, middle and high. Whereas the study by Salamah et al. (2020) entails students learning, this study considers learning in reference to astro-tourism through training programs. The education aspect that this study delves on is the training programs.

Interestingly, Sumaduzzaman (2021) also applied the behaviorist learning theory to investigate e-learning settings with findings showing that universities should offer training courses which demonstrate the benefits of online learning systems for accounting students in higher education. On the other hand, this paper applies the behaviorist learning theory to guide in exploring training programs in astro-tourism as opposed to accounting students. This paper assumes that learning astro-tourism is through training courses or rather training programs. Hence, it is imperative to explore existing forms of astro-tourism and training programs in the context of two East African countries.

Therefore, the application of behaviorist learning theory is to guide this paper in exploring the forms of astro-tourism and training programs from the perspective of Kenya and Tanzania. Furthermore, in this paper, the behavioral learning is associated with training programs related to observing objects such as stars that constitute astro-tourism.

Astro-Tourism and Education in Kenya and Tanzania

Globally, astro-tourism has not been fully exploited and yet a number of countries have the potential especially in their remote sparsely habited areas. Astro-tourism was noted in Izera Mountains in Czechia when Polish and Czech group of astronomers planned for a hiking trip to Czech and Polish sides of the mountains in 2006 (Mrozek et al., 2012). This was followed with Polish High School First Edition of School Workshop on Astronomy (SWA) in 2007. This led to the initiation of astro-tourism Project Astro Izery, which later led to the creation of a dark sky park at Izera Mountains (Mrozek et al., 2012). Astro-tourism in Malaysia exist but at small scale level since the tourism agencies have not fully explored. The few governments linked bodies have promoted Astro-tourisms through education and research (Faid et al., 2022). Dark Sky Malaysia is the only private astro-tourism industry player that offers training to the local tourism sites to have Astro-tourism as an added tourism product in Malaysia. In Africa, Karoo Rural Node in South Africa has managed to initiate astro-tourism. The local economy of the area, including the nearest Karoo towns have started benefitting from this form of tourism (Jacobs et al., 2020). Namibia as a country is ideal for astronomy and has initiated

astro-tourism because of low population density, little to no light in most parts of the country and also its gain from the dry weather which gives clarity in the observation of celestial objects (Dalgleish et al., 2021).

Kenya has implemented astro-tourism in Maasai Mara National Reserve. This was achieved through collaboration between hoteliers and Sayari team trainers (Kulvinder et al., 2020). The team carried out staff training on the basic astronomy and provided telescope to the guides of the two lodges in the Mara. The purpose of introducing training is to supplement the main product of the Reserve. Sayari ("Planet" in Swahili) initiative was for job opportunities, development of the local community through the generated revenue (Kulvinder et al., 2020). According to Holbrook et al. (2008), astro-tourism depends on two forms of knowledge in the service industry. Ethnoastronomy being the local knowledge of the night sky and appreciating the night in the modern science pattern. This clearly shows that the night sky is a tourism product and a source of knowledge (Kulvinder et al., 2020). The guides from the two lodges were taken through training on modern scientific knowledge of celestial bodies and on basic visual astronomy. The guides trained from the two lodges were expected to carry out educative outreach programs to the local community on light pollution and conservation (Kulvinder et al., 2020).

In Tanzania, astro-tourism and education is evident in the mentioned project by Mohammed (2022) that focuses on two major issues which are academic curriculum development and short course training for astro tour guides. Mohammed (2022) added that The Open University of Tanzania (OUT) as a public academic institution is leading in astronomy and with astro-tourism focus but also as a tourism department. Furthermore, Mohammed (2022) acknowledged that astro-tourism is a new field which needs to be integrated in the curriculum within OUT as well as in secondary schools. Jiwaji (2016) also emphasized on the need to train astro-tour guides which is also been echoed by (Mohammed, 2022). However, Jiwaji noted that more research is needed in the area of astro-tourism in Tanzania. Considering the recommendations of more research by Jiwaji (2016) in Tanzania and also limited studies such as Kulvinder et al. (2020) in Kenya, this paper specifically explores forms of astro-tourism and training programs from the perspective of Kenya and Tanzania.

3. METHODOLOGY

This paper adopts a systematic literature review. Kraus et al. (2020) noted that a systematic literature review is a widely used methodology to synthesize existing literature in a field. Moreover, Kraus et al. (2020) and Oktavio et al. (2024) added that a systematic literature review is a specific methodology which allows for the creation of a whole article based on

reviewing literature without collecting empirical data. This paper adopts a systematic literature review for purposes of reviewing literature related to forms of astro-tourism and training programs in the context of Kenya and Tanzania without collecting the empirical data. According to Khan et al. (2003), the five steps for conducting a systematic literature review are from framing question, identifying relevant work which consists of criteria development and search for articles, appraising the quality of included studies, summarizing the evidence, and interpreting the results.

For the first step, this paper, posed the question of what are the forms of astro-tourism and training programs from the perspective of Kenya and Tanzania? The second step involved key search words “astro-tourism”, “forms of astro-tourism”, “training programs in astro-tourism”, “Kenya”, and “Tanzania”. Africa Journals Online (AJOL), CAP Journal, Emerald Insights and HURIA Journal are the selected journals for the systematic literature review which at least, had astro tourism and also articles on Kenya and Tanzania related to astro-tourism. The selected period is from 2016 to 2023. The selected studies included in the review are only those that are within the search words and those that were not relevant to this paper’s interest were excluded. The third step ensures that only studies from journals are considered due to peer review quality. The search articles were AJOL (12 articles), CAP Journal (102 articles), Emerald Insights (3), Huria Journal (174) making a total sample article of 291 from journal articles.

Due to the limited articles using systematic literature review, this paper supplemented with integrative literature review in order to allow for other sources of relevant literature like conferences and newsflash. Uttley et al. (2023) noted that systematic literature review has limitations including omission of grey literature which tends to be excluded. Therefore, the conference presentations from OUT Astro Tourism Conference 2023 (26 presentations) and DarkSky Global Conference 2023 (27 presentations) were used to provide additional sample of conference papers relevant for this study.

The fourth step is the selection of studies on astro-tourism and education in Kenya and Tanzania. Although there are 291 searched journal articles, there were 2 articles that were relevant. And for conference papers from the OUT Astro Tourism Conference 2023 and DarkSky Global Conference 2023, the relevant papers were 10 out of 26 and then 2 out of 27 respectively whereas the newsflash from OUT and Office for Astronomy for Development (OAD) had 1 source each. Therefore, there was a total of 16 relevant literatures for this study. Table 1 summarized the reviewed relevant literature in terms of journals, conference papers and newsflash.

Table 1. Astro-Tourism and Education in Kenya and Tanzania

KENYA	
Authors	**Findings**
Kulvinder et al. (2020)	a. The Sayari team trained guides from two lodges in Maasai Mara National Reserve in Narok County. b. Interest in local ethnoastronomy. c. The plain Nilotes residents have a rich ethnoastronomy tradition
Office of Astronomy for Development (OAD) (2023)	Tanzania and Kenya in Space Club - East Africa project that aims to create awareness on space related disciplines to primary school students access to information and materials that can help them pursue Space related careers in the future including new content on astronomy.
Owen (2023)	The Travelling Telescope Africa as an enterprise focuses on education and tourism particularly using astronomy tools like computerized portable telescope and mobile planetarium around Kenya and Tanzania to promote science and technology and encourage the value of dark skies.
TANZANIA	
Authors	**Findings**
Jiwaji (2016)	Night time star gazing. Tanzania has a 16 tons Mbozi meteorite in Mbeya. The annular solar eclipse passed across southern Tanzania in September 2016. Recommends i) fixed or mobile observatories with good quality telescopes, ii) Astro-tour guides be trained locally, and iii) monthly night sky updates to highlight local delights.
OUT (2020)	Tanzania can benefit from astronomical tourism by exploring and investing in available spectacular astronomical attractions to increase the number of tourists and the national income.
Batinoluho & Magobe (2023)	Astro-tourism and space tourism are distinctive contributors to tourism product development.
Havugimana (2023)	Astro-tourism is an important niche tourism for economic development which requires strategic planning, collaboration among tourism stakeholders.
Kilungu & Munishi (2023)	Stargazing and walking outside at night may promote good sleep and relaxation.
Mollel & Batinoluho (2023)	Existing wildlife captive facilities in Tanzania are among the strategic tourist attractions due to their proximity to major trading centers, cities and towns.
Mtae (2023)	Communities living near Mbozi Meteorite benefit socially than economically as its value is not well known and appreciated as expected.
Mungure & Mushy (2023)	Community awareness, community behavior, entrepreneurial skills and knowledge are dimensions that explain astro-tourism performance as opportunity for rural communities.
Mushy (2023)	The local community members are aware of presence of Kimondo as they associate it with varied taboos and traditions but recently it has attracted a number of tourists.
OAD (2023)	Tanzania and Kenya in Space Club – East Africa project that aims to create awareness on space related disciplines to primary school students access to information and materials that can help them pursue Space related careers in the future including new content on astronomy.
Rangi (2023)	Local community awareness and socialization is crucial as it will add inputs to the strategies for increasing awareness of astronomy for astro-tourism development.
Sichone (2023)	Tanzania is now moving to this new form of tourism because of its potential dark skies, beautiful astronomical destinations that can be established.
Tonya & Lameck (2023)	Southern regions of Mbeya and Songwe have rich potential tourists' sites.

Source: Compiled by the Researcher (2024)

Interpretation of results using descriptive statistics (to describe the frequency and percentages of the reviewed relevant literature in terms of country, author status, and literature focus) and a literature analysis as the fifth and final step of systematic literature supplemented with integrative literature review for this paper is indicated in the findings where the results are also discussed.

4. RESULTS AND DISCUSSION

From the reviewed literature, the findings indicate that there are limited studies on the topic of astro-tourism within Kenya and Tanzania. Table 2 further shows that there is less literature on astro-tourism for Kenya (25%) compared to Tanzania (75%). In addition, the majority of the relevant reviewed literature were of single authors (62.5%) compared to co-authors (37.5%). The findings indicate that there are more single authors and less co-authors. This implies that there is a need for collaboration amongst authors in tourism studies even in astro-tourism. This finding confirms the advocate by (Mkwizu, 2024) to encourage research collaboration in tourism.

Table 2. Reviewed Literature by Country and Author Status (n=16)

Item	Frequency	Percentage (%)
Literature by country:		
Kenya	4	25
Tanzania	12	75
Author status:		
Single	10	62.5
Co-authors	6	37.5

Source: Compiled by the Researcher (2024)

Furthermore, the findings in Table 3 show that the focus of most reviewed relevant studies was on star gazing and dark skies (50%) and these are evident in studies by Batinoluho & Magobe (2023), Jiwaji (2016), Kilungu & Munishi (2023), (Nyaguthii, 2023) and (Owen, 2023). Findings also reveal that astro-tourism in relation to community (25%) and investment/plans/development (25%) have been studied but these studies have focused on awareness and less on training programs. The findings also suggest that astro-tourism is still understudied by scholars in the context of Kenya and Tanzania. Further findings reveal that the forms of astro-tourism that have been scholarly documented in the context of Kenya and Tanzania are “star gazing”, “ethnoastronomy”, “solar eclipse” and “mbozi meteorite” in relation to training programmers (astro tour guide courses offered by Sayari Team and OUT) as indicated in Kulvinder et al. (2020) and Mohammed (2022). In addition, Mohammed (2022) acknowledged that astro-tourism is a new field and needs to be integrated in the curriculum

within OUT and in secondary schools. In fact, planned projects such as Space Club for East Africa can act as a catalyst to encourage astro-tourism as indicated in OAD (2023).

Table 3. Astro-Tourism and Training Programs (n=16)

Item	Frequency	Percentage (%)
Literature by focus:		
Star gazing and dark skies	8	50
Community	4	25
Astro-tourism investment/plans/development	4	25

Source: Compiled by the Researcher (2024)

In terms of training programs related to astro-tourism, it is evident that in Kenya, there is already some training at lodge level as indicated in Kulvinder et al. (2020) but also the Space Club in East Africa project stated by OAD (2023) to impart school children with new content on astronomy. Further findings show that within Kenya there is ethnoastronomy practiced by locals. Additionally, the findings indicate that even though various forms of astro-tourism exist, these are not extensively complemented with training programs. Although the study by Kulvinder et al. (2020) indicated training and availing a leased telescope to complement wildlife tourism in the selected lodges, there is more that needs to be done in order to fully take advantage of the astro-tourism.

Equally, in Tanzania, Jiwaji (2010a, 2016) has consistently urged for promotion of astro-tourism in Tanzania. In addition, efforts to strengthen astronomy interests through the Space Club project are underway as confirmed by OAD (2023). Moreover, both studies by Jiwaji (2016) and Owen (2023) emphasized on the use of quality telescopes and Owen even recommended for portable telescopes for Kenya and Tanzania for purposes of promoting science and technology as well as encouraging the value of dark skies for night time star gazing and viewing. This implies that there is a need to expand the training on the use of portable telescopes to lodges in both countries.

Therefore, from a behaviorist learning theory, it is clear that the involvement of education institutions such as OUT as the leading university in astro-tourism and also teams like the Sayari Team is a welcome initiative that can assist in the learning of the astronomical phenomena from a professional point of view. This supports the recommendations by Fayos-Solé et al. (2014) and Mohammed (2022) towards professional involvement in astro-tourism knowledge dissemination. Additionally, OUT (2020) stated that investment in astronomical attractions is beneficial to the tourism sector for purposes of increasing tourist numbers and income. Thus, the existing forms of astro-tourism (star gazing, ethnoastronomy, solar eclipse and meteorite) in relation to training programs (astro tour guide courses) in the context of

Kenya and Tanzania can be guided by the behaviorist learning theory and, contribute towards the promotion of astro-tourism.

5. CONCLUSION

The aim of this paper is to explore the forms of astro-tourism and training programs from the perspective of Kenya and Tanzania. Both countries have the potential of astro-tourism only that it has not been fully explored. This form of tourism can complement well with the existing tourism products in Kenya and Tanzania. Astro- tourism is friendly to the environment since it only utilizes the sky as the only resource and if well-developed can improve the local economy and the living standards of the communities where it is practiced. Therefore, the findings reveal that the forms of astro-tourism being (star gazing, ethnoastronomy, solar eclipse and meteorite) exist in relation to training programs being astro-tour guide courses in Kenya and Tanzania. Importantly, astronomy as a subject should be implemented in tourism curriculum. This will enable trainers acquire the right skills and competencies in astro-tourism, so as to deliver quality service.

Implications

This paper provides a practical implication on the astro-tourism and training programs from the perspective of Kenya and Tanzania. Astro-tourism should be implemented as a form of tourism to supplement other attractions and as the main attraction in some areas that has nothing to offer in tourism. The forms of astro-tourism such as star gazing and ethnoastronomy can benefit the three pillars of sustainability, that is, environmentally, socially and economically. In addition, the education managerial implication to education practitioners is to consider education in tourism that incorporate training programs which align with emerging forms of astro-tourism. From a theoretical implication perspective, the behaviorist learning theory may guide in exploring forms of astro-tourism and training programs due to the involvement of professional institutions and teams like OUT and Sayari Teams in the context of Kenya and Tanzania.

Study Contributions

This study contributes to the forms of astro-tourism in relation to training programs in a single study by including Kenya and Tanzania hence a contextual contribution. In the contextual contribution perspective, this study found that the existing forms of astro-tourism in Kenya and Tanzania are “star gazing”, “ethnoastronomy”, “solar eclipse” and “meteorite” while the training programs are initially focusing on astro tour guide courses. This paper also contributes to methodological approach in studying astro-tourism and education using

systematic literature review supplemented by integrative literature review. The mixed literature reviews approach is ideally due to limitations of the systematic literature review which is objective and excludes grey literature. This study also provides education managerial and theoretical implications as practical and theoretical contributions.

Recommendations, Limitations and Future Research

This paper has the following recommendations: a) Tanzania and Kenya should ensure that astro-tourism is implemented in the tourism curriculum so that the right skills and competencies to deliver quality service in astronomy is attained, b) Tourism institutions and practitioners should collaborate so that astro-tourism is successfully embraced in both Kenya and Tanzania. This study had limitations in the use of systematic literature review as a research methodology by attempting to provide literature review on astro-tourism and training programs from the perspective of Kenya and Tanzania. There was scant literature from the two countries on the topic of astro-tourism. Future studies can use mixed method to advance the understanding of astro-tourism and training programs from the perspective of Kenya and Tanzania.

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