African Journal of Hospitality, Tourism and Leisure. ISSN: 2223-814X

December 2022, Vol 11, 6, pp. 1860-1877

Virtual Leisure and Recreation Reality and Well-Being During COVID-19 Pandemic - The Future of Ghana Tourism: Does Technological Self-Efficacy Matter?

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How to cite this article: Asimah, V.K., Hurriyati, R., Gaffar, V. & Wibowo, L.A. (2022). Virtual Leisure and Recreation Reality and Well-Being During COVID-19 Pandemic - The future of Ghana Tourism: Does Technological Self-Efficacy Matter?. African Journal of Hospitality, Tourism and Leisure, 11(6):1860-1877. DOI: **https://doi.org/10.46222/ajhtl.19770720.329**

Abstract

This study examined (i) the impact of COVID-19 on practice of virtual participation in leisure and recreation activities in Ghana; (ii) the challenges in the use of virtual approaches as well as the future successes of Ghana Tourism considering the new paradigm of participating in leisure virtually; and (iii) the moderating role of technological self-efficacy on virtual leisure and recreation reality and psychological well-being nexus. Mixed method approach was employed. Data analysis included thematic content analysis and PLS-SEM. Most people explored virtual leisure because of COVID-19. Ghana's inadequate or unreliable internet, high data costs, lack of technical skills, and regular power outages prevented access to actual virtual tools. Technological self-efficacy boosted the virtual leisure and recreation reality experience and tempered its effect on well-being. The findings of this research have imperative implications for virtual leisure and recreation reality and the role of technological self-efficacy. Empirically, this study has validated the significant role of technological self-efficacy in promoting virtual leisure and recreation reality and psychological well-being. Indeed, the use of virtual reality for leisure and recreation is crucial during pandemics. This study provides a deeper understanding of virtual leisure and recreation reality and its effect on psychological well-being in a developing country. Thus, the findings of this pioneering study contributed to self-efficacy and Bandura's social cognitive theory.

Keywords: Virtual leisure; recreation; COVID-19; tourism; technological self-efficacy

Introduction

Amid the pandemic, COVID-19 has changed leisure habits and sparked creativity among advocates to encourage wellness (León et al., 2020). In light of these extraordinary circumstances, countries in North America, Europe, Asia, and Africa have enacted social distancing policies to contain the spread of COVID-19. The conventional method of being

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physically present at events is challenged by the social conditions of COVID-19, as this usually happens with individuals performing their tasks in person. Government regulation and social distancing, as well as the postponement or cancellation of events or activities, are both leading to this danger (Lachance, 2020). Leisure activities such as exercise, sport, parks, travel, and tourism have all suffered as a result of these social distancing steps (Lachance, 2020). Various levels of events have been cancelled and or postponed on one hand whereas some sports, leisure, and recreation activities are mandated not to operate with the physical appearance of attendees which has caused most organizations to transition their operations to virtual to satisfy their participants and attendees rather than suspend operations (Lachance, 2020). Participating or being part physically in leisure and recreational activity is an integral part of every civic right to meet attendee objectives (Hoye et al., 2020). Individuals, however, have been restricted from partaking in person freely in their chosen leisure and recreation activity as a result of event postponement and cancellation (Carlos, 2020).

In a few words, leisure can be defined as "un-coerced, contextually framed activity engaged in during free time, which people want to do and, using their abilities and resources, actually do in either a satisfying or a fulfilling way (or both)" (Stebbins, 2015: 106). Recreation however involves a variety of wide activities that tourists undertake, therefore being seen as leisure and recreation in a broader perspective (Inkson & Minnaert, 2018).

The importance of leisure and recreation in the growth and development of tourism is key in contributing to the economies of developed countries with little attention paid to developing countries such as Ghana. Lack of technology and unstable network, the ability to cope with the emerging trends of using virtual means to participate or attend leisure and recreational activities and leisure segmented groups with its relation to technology knowledge gap is of great concern when meeting the emerging trend of going virtual in developing the future of Ghana tourism. Despite the introduction of technology to meet the demand of leisure and recreational activity operations globally, most developing countries encounter a scarcity of technology and knowledge skills among participant groups (Hawash & Lang, 2020; James, 2021). It is, therefore, imperative to identify the leisure and recreational technological knowledge gap in participant groups and its impact on the growth of leisure and recreation and the development of the future Ghana tourism industry. Leisure, recreation, and tourism have been argued as highly interconnected hence the need to strategize to keep or improve its patronage to boost tourism growth and contribute to the economic growth of Ghana (Mgonja, 2020).

Due to the World Health Organization protocol, a social distancing that could help curb the spread of the deadly virus has been keenly practiced globally resulting in the opportunity of participating in leisure and recreation events virtually or remotely from home (Lachance, 2020). The use of technology in tourism operations and development is being sparingly practiced before the COVID-19 pandemic. However, its intensity increased tremendously when the restrictions and protocols were introduced. The practice of attending or participating in virtual leisure and recreation activities is the order of the day especially in developed countries (Elhamid et al., 2020; O'g'li, 2021). The relevance of virtual leisure and recreation is ever-increasing within the intersection of the COVID-19 pandemic with technology prominence in contemporary times (Liu et al., 2016). The vulnerability and fragility of the African continent have left it more susceptible to technology regression than any other continent on the planet (Chirisa, 2020). Some other scholars have also justified the technology challenge in developing countries (Bakibinga-Gaswaga et al., 2020; Nyoni, 2020; Rogerson & Rogerson, 2020; UNCTAD, 2019). These leisure participants have not been grouped to ascertain their technological knowledge and skill base to segregate the leisure event themes to meet the varying group and increase attendance. Segmenting the leisure and recreation

participants or attendees' groups with their technical knowledge and skills is completely absent but worth exploring to ascertain their readiness to access virtual activities in COVID-19 or post-COVID era.

While there is widespread agreement on the positive effects that engaging in leisure and recreation may have on one's wellbeing, little is known about the mechanisms behind this link (Chen, 2021; Han & Patterson, 2007; Van Houwelingen-Snippe et al., 2021; Zins & Ponocny, 2022). Further, literature suggests that less focus has been placed on comprehensive qualitative investigations or mixed method approaches, and transdisciplinary frameworks for comprehending the intricate relationships between leisure and wellbeing (Mansfield et al., 2020). Consequently, through a mixed method approach, this study contributes to the virtual leisure and recreation reality scholarship by examining (i) the impact of COVID-19 on practice of virtual participation in leisure and recreation activities in Ghana; (ii) the challenges in the use of virtual approaches as well as the future successes of Ghana Tourism considering the new paradigm of participating in leisure virtually; and (iii) the moderating role of technological self-efficacy on virtual leisure and recreation reality and psychological well-being nexus.

Literature review

Leisure, recreation and wellbeing

Leisure interpretations have been subjected in numerous and diverse ways by scholars in the past (Beville, 2010; Cordes, 2013; Hemingway & Parr, 2000; Suleiman, 2016). Leisure is said to require the right state of mind (Cordes, 2013; Suleiman, 2016). There should not be any level of compulsion but rather a sense of freedom (Mowatt, 2021). Recreation has followed the route of leisure with no further universal definition (Cordes, 2013; Suleiman, 2016). Recreation consists of all activities that a group of persons or individuals engage in a quest to have pleasure during leisure which could be indoor or outdoor based on its suitability. In the earlier study of Giddens (1964), adults see recreation as unstructured non-economic pleasurable exercise. A list of eight criteria that needed to be fulfilled to confirm an activity as recreational was pointed out in Suleiman (2016) but some acceptable conditions were debated to it. First, recreation is a voluntary action and not to be compelled externally. Recreation on the second hand involves leisure time and activity. Cordes (2013) posits that the subset of leisure is a recreation with active participation. Social cohesion has also been identified as a very relevant motivation for recreation. Thirdly, being aware of one's involvement in leisure activity have the capability of meeting very high enjoyment and satisfaction. In the fourth instance, with the activity of recreation, positive health (physical, psychological, social, or a combination of either two) is promoted. Partners on the other hand are oftentimes found in recreational activity. Bird et al. (2018) however advise communities of improving their recreational facility and environment to increase and promote pleasurable activity. Recreation also promotes culture and practice that is capable of breeding healthy social interactions in a community. These factors make recreation and pleasure a reality (Bird et al., 2018; Xu et al., 2019).

The phrase "wellbeing" is often used interchangeably with many other terms, such as "self-esteem," "self-efficacy," "self-determination," "resilience," "quality of life," "mood enhancement," "positive mental health," "life satisfaction," and "worthwhileness" (Huppert, 2017). In this study, psychological well-being is characterised as positive psychological functioning and human flourishing. Literature suggest engaging in leisure and recreation may have a positive influence on one's wellbeing (Chen, 2021; Han & Patterson, 2007; Mansfield et al., 2020; Van Houwelingen-Snippe et al., 2021; Zins & Ponocny, 2022).

Global COVID-19 pandemic and its effect on tourism

The global COVID-19 pandemic has taken so many lives across the globe spread and has affected lots of operations with negative impacts on the world's social, economic, and political structures (Boldog et al., 2020; Null & Smith, 2020). The high rate of globalization around the world in the past decade has led to substantial changes in the way the world is viewed by society and this has heightened the pace at which the world has embraced the information age with digital technology emergence being its primary trend (Angelo, 2017; Voronkova, 2018). Digital technology has therefore brought divergent views of tourism roles with its introduction as a marketing tool in quest of attracting tourists to visit places (Rainoldi et al., 2018).

There is a need to sustain the tourism sector in Africa within the global pandemic era hence the solution has therefore become very difficult due to the COVID protocols and restrictions on travel (Muronzi, 2020; Ncube, 2020; RTG, 2020). Due to this, sub-Saharan African countries as part of their precautions, have stopped the arrival of international visitors in curbing the spread of COVID-19 (Dube, 2020). With such interventions, the best way to make tourists fulfill their visual desires and not physically contact each other to promote the spread of the Corona Virus is to adopt the virtual approach. This practice will however help sustain tourism.

COVID-19 management and its impact on tourism cities

The hit on the tourism industry with the pandemic calls for rapid disaster management in sustaining the industry. There is therefore a call to effectively find solutions to the declining tourism industry which is wiped by the COVID-19 disaster causing travel restrictions (Chirisa, 2020; Mutambisi et al., 2020). The tourism sector has inherited a stronger Information Communication Technology (ICT) based on the COVID-19 pandemic era (Chirisa, 2020). The most innovative way of marketing and operating the tourism market, therefore, is by the use of virtual technology (Jung et al., 2017). In quest of giving good quality image to a destination, Jayendran and Rejikumar (2018) outline accommodation, amenities, attractiveness, and accessibility as the core attributes. It is however strongly proposed that virtual application should be a prominent attribute to foster the growth of tourism over accommodation, amenities, attractiveness, and accessibility in the era of the COVID-19 pandemic (Chirisa, 2020). This is due to the inability of the tourists physically visit their choice of destination. More income can be generated by tourist destinations through the promotion of virtual tours. This strongly implies that the surest way of engaging leisure and recreational activity participants and or attendees are via virtual participation. Due to the virtual concept of tourism promotion, a virtual tourism Expo 2020 Zimbabwe pavilion in Dubai hosted a walk-through online video package where the viewer uses goggles and virtual reality earphones with the feeling of the experience of walking through the Amazon forest in the comfort of their home (Voronkova, 2018).

Virtual Leisure and Recreation (tourism) even have great opportunities, but there are a few challenges. One main challenge that is faced by less economically advanced countries is the low access to advance technologies as compared to advanced economic countries (Rainoldi et al., 2018; Voronkova, 2018). These advanced economic countries are capable of developing and packaging local attractions to lure tourists. This in the future will serve as an entry point with the aid of boosting confidence in tourists visiting physically (Jenny, 2017; Jung et al., 2017).

ICT Challenge to facilitate virtual tourism in Ghana

The world has seen the internet for some time now which has had a positive impact on businesses across the globe. There has also been a tremendous effort of the African continent

in buying into internet services in the transformation of the tourism sector recently. This effort will do a great deal for the leisure and recreation industry in championing its operations in this COVID-19 pandemic era (Chirisa, 2020). The ICT revolution and its growth in the sector of Tourism is a contemporary organizational strategy that is highly capable of pivoting business success. There is therefore no area in tourism that cannot be touched when information technology is properly used. (Buhalis, 2019). Internet use for tourism products is positively on the rise among ordinary people around the world. This is achieved by the use of indispensable components such as computers, smartphones, etc. (Shah, 2017; Wok & Mohamed, 2017). Among these, mobile phones have become the most commonly used platform for digital tourism in Africa with its challenges of inability to absorb their full potential as macroeconomic and institutional factors are absent (Alenoghena & Evans, 2015; Evans, 2018; Evans & Kelikume, 2018). The very bad economies, debilitating institutions, low infrastructure, and investment, and bad policies are the factors that affect the implementation of good networks

The effective application of ICT is dependent on a constant flow of electrical power. The unstable nature of the National grid and the inability of power in some of the communities are some of the challenges in Ghana. Individuals are therefore compelled to provide such services to sustain their business. Ghana tourism products do not belong to private persons but professional groups and workers or dwellers of a location of common interest. Stakeholder management is therefore difficult hence the need to strategically consider the indigenous peoples' wishes. This strategy will however help to realize the future tourism prospects in Ghana. Concerning the technology gaps, users can be novices or experienced. These may be based on various parameters such as age, education, location, accessibility, etc. (Bagozzi & Dholakia, 2006).

Methodology

The paper focuses on the use of a mixed study approach which used a qualitative method in investigating virtual leisure applicability and practicability by all participant groups in determining the virtual leisure operations in Ghana and analysing the future of Ghana's tourism industry (Creswell & Creswell, 2018). Subsequently, based on the findings from the qualitative study, a quantitative approach was employed to determine and confirm the relationships among virtual leisure and recreation reality, technological self-efficacy, and psychological well-being.

For the qualitative aspect of the study, a structured interview with open-ended questions was used in the conduct of the study. Documentary analysis of journals, websites, books, reports, and newspaper articles assists in the reliability enhancement of the paper (Falco et al., 2019). Reports from these documents on the pre, during, and post-COVID-19 situational analysis is worthy of note. The statistics on the effect on travel, the effect on physical presence, and participation in leisure and recreational activity with the merits and demerits of alternatives such as going virtual have enriched the base of knowledge. Thematic Content Analysis was employed in analysing the data after processing it into information. Thematic Content Analysis (TCA) is however used in reducing textual materials in research to more manageable relevant data mainly text of social investigation among a set of empirical methods (Kumar et al., 2020). Repeated or common themes (topics, patterns, and ideas) are therefore put together for concise data use. Literature was furthermore summarized, assembled, and thematically structured into a very important concept usable by the paper. This however made it practicable for the paper to outdoor the right themes on virtual leisure and recreation participant groups and their uses amidst the COVID-19 pandemic in the promotion of Ghana Tourism in the future.

The study used a purposive sampling method to select the participants population to participate in the study due to the nature of the questions and the right information that is needed and to ascertain the virtual leisure involvement of the participants. This sampling

technique also known as judgment, selective or subjective sampling however relies on the researcher's judgment when choosing participants. With the qualitative nature of the research design, responses were coded where necessary. Studies (Dale, 2007; Forrester & Beggs, 2001; Haeussl et al., 2021; Nouri, 2019; Weiss & Schiele, 2013) completely show virtual leisure qualitative approaches with twenty (3 focus groups), two, twenty, eighteen and ten participants respectively. A good average number, however, was considered for the study.

In the qualitative study, which is about exploring issues, understanding phenomena, and answering questions, a total of thirteen (13) interviewees from the general public participated among three segregated age groups (young, youth and adults). Specifically, 10 males (77%) were male participants compared to 3 (23%) females. Non-probability sampling was employed in selecting the respondents which were based on their availability and willingness to take part in this research. Regarding the respondents' age group, the code revealed that the lower age ranges of below 25 years and 26-30 years of 23% each represented the highest whilst 31-35 years, 36-40 years, and 41-45 years of 15% each and 46 years and above of 8% being the least. This result indicates that the study has a considerable representation in almost all age groups with substantial experiences in the use of virtual leisure and recreation in Ghana. The study also sought to look for the change in the body since the start of the lockdown. This has become necessary since the inability to physically engage in leisure and recreational activities could result in some body changes. All indications from the research proved some changes in their body system. 42% of the participants have experience weight gain whiles 17% experienced slight weight loss. This is no surprise since the lockdown doesn't permit any physical activities that can help individuals control their weight, more of the physical training centers were locked down.

Regarding the quantitative aspect, a survey was conducted using a cross-section of Ghanaians who experienced virtual leisure and recreation reality. Table 1 shows the respondents' profile.

Table 1: Respondents' profile

Characteristics		**Frequency**	**%**
Gender	Male	310	60.5%
	Female	202	39.5%
Age	Under 25 years	10	2.0%
	25–34 years	444	86.7%
	35–44 years	44	8.6%
	45–54 years	12	2.3%
	55 years and above	2	0.4%
Marital Status	Married	186	36.3%
	Single	326	63.7%
Education	Diploma	34	6.6%
	Bachelor's degree	380	74.2%
	Master's degree	98	19.1%
Monthly income	GH¢1 – GH¢499	77	15.0%
	GH¢500 - GH¢999	102	19.9%
	GH¢1,000 - GH¢2,999	150	29.3%
	GH¢3,000 - GH¢4,999	136	26.6%
	GH¢5,000 - GH¢9,999	39	7.6%
	GH¢10,000 - GH¢15,000	5	1.0%
	Above GH¢15,000	3	0.6%
Ever attended virtual leisure	Yes	512	100.0%
Rate of attending VLR	Sometimes	229	44.7%
	Often	76	14.8%
	Very often	46	9.0%
	Always	161	31.4%

Thus, a self-administered questionnaire involving respondents' profiles, virtual leisure and recreation reality experience, technological self-efficacy, and psychological well-being was administered to a purposive and convenient sample of 512. As illustrated in Table 1, 512 participants with most being males (60.5%) and aged 25 to 34 years participated in the quantitative study. Most (63.7%) of the sample were single and held bachelor's degrees (74.2%). Moreover, most of the respondents had monthly incomes ranging from GH¢ 1,000 to GH¢ 2,999 (72%). Finally, all (100%) of the respondents experience virtual leisure and recreation reality with 31.4% always involved in virtual leisure and recreation reality during COVID-19, though most of them (44.7%) did so infrequently.

Existing validated scales were adapted and/or adopted to measure virtual leisure and recreation reality experience [six items from Kim and Hall (2019) and Nejad et al. (2022)], technological self-efficacy [six items from McDonald and Siegall (1992, 1996)] and psychological well-being [five items from Hamilton Skurak et al. (2021) and Kim and Hall (2019)]. All the items were assessed through a five-point Likert scale.

The analysis was done using IBM SPSS 25.0 and SmartPLS. To provide a concise overview of the sample's demographic characteristics, descriptive statistics were used. After that, partial least squares structural equation modelling, also known as PLS-SEM, which has a better degree of statistical power for concurrently predicting the correlations between all latent components, was used to investigate the research framework (Hair et al., 2019; Henseler et al., 2016).

Results and discussions

Impact of Covid-19 on leisure and recreation activities

The study examined the impact of COVID-19 on leisure and recreation activities in developing countries like Ghana. The participants' experiences with the use of virtual tools were analysed and the study sought to find out the past time activities of the respondents before the COVID-19 pandemic. The participants indicated social activities (hangout out with friends, beach partying, clubbing, weddings ad parties) with a considerable number with outdoor games (walking, swimming, cycling, and playing football) as their favourite pastime activities. The results however showed some of the activities as outdoor. Some indoor activities such as watching movies and playing video games were indicated in some instances. Regarding their present activities, indoor activities (cooking, watching movies, playing games, reading, surfing the internet, and social media interactions) represented their favourites. Playing video games, watching movies, and social media activities were some of the high-rated activities whilst household chores, reading, and cooking remains the least. The choice of some activities is in line with the leisure activities outlined in the conduct of the African survey (Rogerson & Baum, 2020).

Even though the emergence of COVID-19 seems to bring and enlighten more people, virtual leisure and recreation are known to most of the participants, but due to the physical means that were readily available, prevented them to access it before the emergence of COVID 19. This assertion of the study of inaccessibility to virtual means of operations before COVID-19 confirms that most of participants accessed it at least once before the pandemic. Participants also revealed that they own or at least have access to a virtual means to access leisure and recreation. Laptops, mobile phones, interactive apps, and game consoles are among the top virtual tool owned by participants or have access to as a means of leisure and recreation. The use of virtual tools by the participants has increased during the quarantine and the favourite virtual apps or activities during the COVID-19 pandemic include video apps, gaming apps, and social media platforms. Voronkova (2018) acknowledged the contribution of these tools to virtual reality realization, especially during the COVID-19 pandemic. This implies that the

virtual activities were serving more to make up for the physical leisure and recreation activity during the pandemic. Due to the lockdown and the restrictions during the inception of the COVID-19 pandemic, considerable time has been spent on virtual means of catching up with leisure. More physical activities were halted making way for substitute approaches. At least, two hours a day on averagely is spent on a virtual activity. This shows that during the pandemic, the participants don't go a day without the use of virtual activity.

Challenges in the use of virtual approaches

In the new digital age where ICT plays a major role, development and growth in the field of computers and communications are changing dynamically (Elhamid et al., 2020; López-Sintas et al., 2017; Wood et al., 2019). COVID-19 has brought the opportunity to technologically take part in leisure and recreation activities. This medium of participation demands good technology skills and efficient tool performance to practically. Internet connectivity strength and its cost are of great interest to developing countries like Ghana. The challenges in the use of virtual approaches in sustaining the operations of leisure and recreation activities are worth investigating. All the study participants confirmed the need for internet connectivity to their virtual tool. This result supports the notion of Chirisa (2020) who acknowledged the effort of the African continent on their effort on internet connectivity indicating that it will do a great deal to the leisure and recreation industry in championing its operations in the covid-19 pandemic era. The internet connectivity in Ghana is confirmed as poor, super annoying, and frustrating by the participants. There is therefore a need to strengthen the internet connectivity to ais the virtual means of operations.

The study also sought to find out if it is expensive to use virtual tools for participating in leisure activities. All the participants acknowledged the high cost of the use of virtual tools due to the high cost of data. It is however indicated that the cost of these gadgets is on the rise, especially during the pandemic era since the demand has increased for the use of these tools. Most of the participants confirmed having some level of technology knowledge base that could assist them to operate the tool for basic virtual participation. They are however aware of technology and its importance but are not comfortable with its virtual applicability. This finding supports the notion of Bagozzi and Dholakia (2006) who indicated that with technology gaps, users can be novices or experienced, and these may be based on various parameters such as age, education, location, accessibility, etc. The participants have also admitted to the fact that having a good technical knowledge base can make easy access to virtual leisure by making the individual understand and know his or her way around the tool, which aids time-saving. It is also believed that good technology knowledge will aid the effective operation of some cumbersome features in the virtual tools.

Challenges in the use of these technologies are a hindrance identified by the participants. Most challenges were attributed to bad internet connectivity, high cost of internet bundles, and power failure. As most of these virtual tools use power (electricity) to access them, the intermittent power outage in Ghana has a great negative effect on the smooth operations of these tools. The challenges of digital illiteracy, limited electricity supply, the high cost of installing ICT infrastructure, poor infrastructure, and the volatile political environment hinders the progress of the technological environment (Bakibinga-Gaswaga et al., 2020).

Internet accessibility including internet data has a great setback on the use of the virtual tools which shows that most of the virtual tools use internet connectivity which makes the connectivity inaccessible due to its bad connectivity nature. Comparing virtual versus physical leisure and recreation, all participants confirmed that having physical leisure activity is more fulfilling than virtual means. Therefore, in high anticipation to have physical leisure activities to have the best feel of pastime activities by hanging out with friends, visiting tourist sites,

going for social activities, and many more. There is however more fulfilment in being part of the activity than reading about it.

The study believes in encouraging more people to participate in virtual leisure and recreational activity to have a feel of the difference. Engaging in virtual for some time makes one understand the need to participate if there is no need and opportunity for physical visits (Chirisa, 2020). Another school of thought (Simmonds, 2019), said people should not be encouraged to participate in a virtual activity due to its underlining factors (internet, data, cost, etc.) that hinder effective virtual operations.

Future successes and setbacks of Ghana tourism

In analysing the future successes and setbacks of tourism in Ghana by considering the new paradigm of participating in leisure virtually, the study indicated a bright future for Ghana Tourism if the challenges attributed to making virtual means effective and efficient. The future of Ghana Tourism is believed to be bright as far as there is the full involvement of investment and commitment on the part of regulatory bodies and entities. The adoption of ICT however results in higher growth of productivity hence the need to boost the ICT education base in Ghana (Hawash & Lang, 2020). Ghana's Tourism industry is therefore believed by all participants in the study to see growth with the new paradigm of virtual leisure due to the new norm of watching or participating in most events on virtual tools which can generate more revenue in boosting the economy of Ghana. However, good public education is needed to sensitize and conscientize the mind of the local people (Haldorai et al., 2021). It therefore strongly posed that strong investment in good internet will help boost the Tourism industry. One concern the study pointed out is the need, therefore, to train the public by equipping them with technological skills to aid the swift use of virtual tools with ease.

In advising to make leisure and recreation activities fulfilling in the future, all participants centered on technology, education, internet reliability, and the use of social media platforms. strongly believed that improving technology will make leisure and recreation more fulfilling. Responses were not different from their advice to make leisure and recreation activities fulfilling when asked the advice for the tourism sector. Partnership with the private sector, easy access to the internet, and training of personnel to promote the sector was some advice given to the Ghana Tourism industry.

The participants' general advice supports the notions of Shah (2017) and Wok and Mohamed (2017) who indicated that the use of the Internet for tourism products is positively on the rise among ordinary people around the world, and this is achieved by the use of indispensable components such as computers, smartphones, etc. The participants believe that this advice when taken into account will push Ghana's tourism sector to the next level.

Quantitative aspect

This qualitative phase was followed by a quantitative one involving structural equation modelling analyses to determine and confirm the relationships among virtual leisure and recreation reality, technological self-efficacy, and psychological well-being.

Measurement model assessment

We follow Hair et al. (2022) and Hair et al. (2019) to assess the measurement model which includes indicator reliability, construct reliability, and validity (i.e., convergent and discriminant validities). The results in Table 2 and Figure 1 show that all the indicator loadings exceed the critical value of 0.708 and that all the latent constructs demonstrate satisfactory construct reliability as the reliability coefficients (i.e., Cronbach's alpha, and composite reliability values) are greater than 0.70. Furthermore, convergent validity was established as

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the AVE values surpass the 0.50 minimum threshold (Hair et al., 2019; Shmueli et al., 2019). Finally, Table 3's results, which show that the HTMT values fall below the 0.85 thresholds as advised, supported the constructs' discriminant validity (Henseler et al., 2015; Roemer et al., 2021; Sarstedt et al., 2019).

Table 2: Reliability and convergent validity results

Construct	Items	Loading	*t*-statistics
Technological Self-Efficacy (TSE)	TSE1	0.930	127.575
CA = 0.964; CR = 0.971; AVE = 0.849	TSE2	0.920	99.282
	TSE3	0.927	135.362
	TSE4	0.901	99.544
	TSE5	0.926	98.561
	TSE6	0.925	121.100
Virtual Leisure and Recreation Reality (VLR)	VLR1	0.894	90.189
CA = 0.879; CR = 0.913; AVE = 0.678	VLR2	0.728	27.826
	VLR3	0.756	31.512
	VLR4	0.839	66.865
	VLR5	0.887	67.212
Well-Being (WB)	WB1	0.831	41.803
CA = 0.904; CR = 0.928; AVE = 0.721	WB2	0.844	47.366
	WB3	0.861	55.139
	WB4	0.878	64.984
	WB5	0.831	41.914

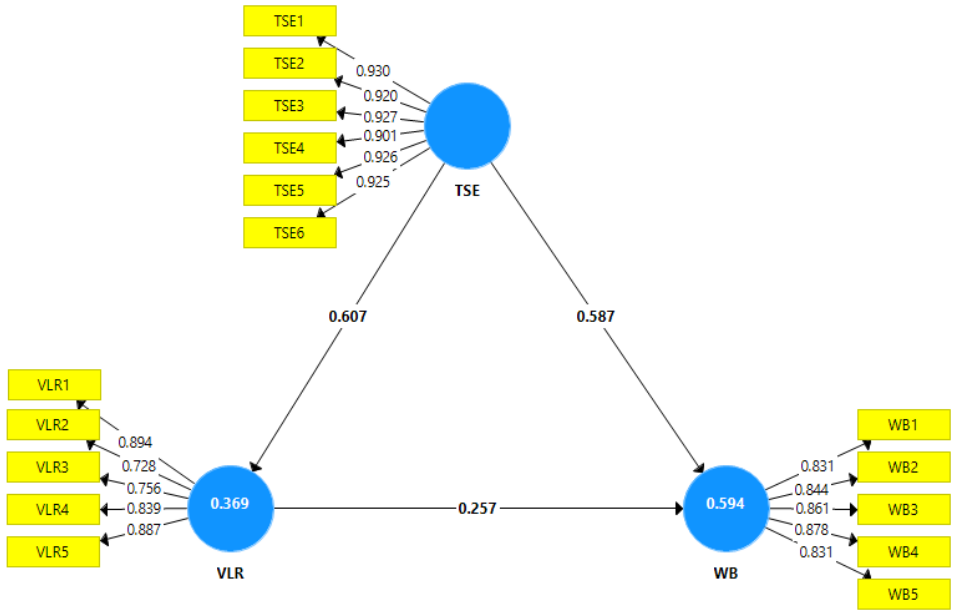


Figure 1: Measurement model results

Table 3: Discriminant validity using $HTMT_{0.85}$

Paths	Estimate	Confidence Interval	
		2.5%	97.5%
VLR => TSE	0.656	0.582	0.724
WB => TSE	0.791	0.753	0.831
WB => VLR	0.683	0.609	0.752

Structural model assessment

Here, we assessed the structural model which includes checking collinearity issues, the significance and relevance of the path coefficients, and the model's explanatory power and predictive relevance, as suggested by Hair et al. (2022) and Hair et al. (2019). As shown in Table 4, the highest inner VIF is 1.862, hence collinearity is not an issue. We used SRMR and NFI to assess the model fit. The SRMR values for both saturated (0.050) and estimated (0.052) models are less than 0.08 and the NFI values for both saturated (0.917) and estimated (0.914) models are greater than 0.90, suggesting acceptable model fit (Hair et al., 2019; Hu & Bentler, 1999). Furthermore, our model exhibited adequate in-sample predictive relevance as the Q2 values are above 0 (Hair et al., 2019; Usakli & Kucukergin, 2018). As revealed in Table 4 and Figure 2, technological self-efficacy explains 36.9% of the variance in virtual leisure and recreation reality. Likewise, both technological self-efficacy and virtual leisure and recreation reality account for 65.8% of the variance in well-being.

Regarding the paths, the results as presented in Table 4 and Figure 2 revealed that virtual leisure and recreation reality significantly improved well-being ($\beta = 0.284$; $t = 6.562$; $p = 0.000$; $f^2 = 0.148$ [*small effect size*]). Equally, technological self-efficacy positively enhanced virtual leisure and recreation reality ($\beta = 0.607$; $t = 18.352$; $p = 0.000$; $f^2 = 0.584$ [*large effect size*]) and well-being ($\beta = 0.720$; $t = 11.478$; $p = 0.000$; $f^2 = 0.815$ [*large effect size*]). Further, technological self-efficacy significantly positively moderated the influence of virtual leisure and recreation reality on well-being ($\beta = 0.282$; $t = 5.189$; $p = 0.000$; $f^2 = 0.187$ [*medium effect size*]). These results lead to the acceptance of all four hypotheses.

These findings suggest that virtual leisure and recreation reality as well as technological self-efficacy significantly enhanced well-being. Thus, virtual leisure and recreation reality experiences during COVID-19 boosted the well-being of the patrons. In other words, the higher the virtual leisure and recreation reality experienced during the COVID, the better the well-being of the patrons. Thus, employing virtual leisure and recreation reality during pandemics to promote well-being is essential. This finding supports the existing literature that suggest a positive linkage between leisure and well-being (Chen, 2021; Han & Patterson, 2007; Mansfield et al., 2020; Van Houwelingen-Snippe et al., 2021; Zins & Ponocny, 2022). Further, the result suggests that technological self-efficacy improved virtual leisure and recreation reality experience and moderated the effect of virtual and recreation reality experience on well-being. Consistent with the literature (Çetin & Aşkun, 2018; Kappagoda, 2018; Simmonds, 2019), this result demonstrates that technological self-efficacy, defined as "the belief in one's ability to perform successfully a technologically sophisticated new task" (McDonald & Siegall, 1996), is a strong and favourable predictor of virtual leisure and recreation reality experience and well-being.

Table 4: Structural model results

Relationship	**Path Coefficient**	**VIF**	***t*-value**	***p*-value**	f^2	**Confidence Intervals Bias Corrected**	
						2.5%	**97.5%**
VLR=>WB	0.284	1.595	6.562	0.000	0.148	0.200	0.369
TSE=>VLR	0.607	1.000	18.352	0.000	0.584	0.539	0.668
TSE=>WB	0.720	1.862	11.478	0.000	0.815	0.612	0.851
VLR*TSE=>WB	0.282	1.357	5.189	0.000	0.187	0.184	0.397
Fit Summary							
Criteria	**Saturated Model**	**Estimated Model**		**Construct**	**R^2**	**R^2 Adj.**	**Q^2**
SRMR	0.050	0.052		VLR	0.369	0.367	0.247
NFI	0.917	0.914		WB	0.658	0.656	0.451

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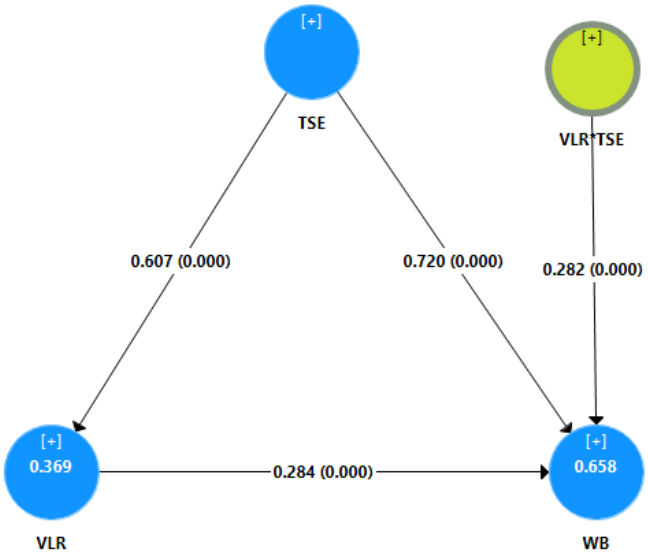


Figure 2: Structural model

Conclusions and implications

This mixed study examined the virtual leisure and recreation reality in the COVID-19 pandemic era and the future of Ghana Tourism. The purpose of this study is to critically discuss the possibility of the practice of virtual participation in leisure and recreation activity, its feasibility concerning technological challenges in Ghana, and its contribution to Ghana's tourism development and economic growth. Further, the quantitative aspect of the study considered the interactions among virtual reality leisure and recreation and psychological well-being including the moderating effect of technological self-efficacy. Consequently, this study presents a distinctive and better grasp of virtual leisure and recreation reality and its effect on psychological well-being, including the roles of technological self-efficacy in a developing country.

The study has shown that lower age grouping has better technological understanding and virtual tool manipulation skills than higher age groupings. Due to the COVID restrictions, there were few changes in their body. There were some levels of outdoor/public activities during the pre-COVID era which include swimming, clubbing, and social events (parties, weddings, funerals, etc.) but these activities were restricted to indoors during the COVID era which includes reading, watching movies, playing video games, surfing the internet and social media interactions. There was therefore very little virtual knowledge of having leisure and recreational acuities until the emergence of COVID-19. Laptops, mobile phones, interactive apps, and game consoles were the basic tools mostly used to access virtual leisure due to technological challenges, economic situations, and the poor internet infrastructure of going digital. The use of these virtual tools increases in Ghana during the quarantine and an average time of two hours daily was spent on a virtual activity.

For the development of Ghana Tourism, internet connectivity strength and its cost of data are of much interest. There is poor or bad internet connectivity coupled with the high cost of data which retards the speed of internet use or hinders virtual activity operations in Ghana. One major challenge is the unstable power (electricity) supply to aid the use of these virtual tools. Due to the economic conditions in Ghana, it is believed that the cost of accessing real virtual tools is high. There is a very high concern of no or low technology knowledge to effectively and efficiently operate the internet. Thus, the challenges of digital illiteracy, limited

electricity supply, the high cost of installing ICT infrastructure, poor infrastructure, and the volatile political environment hinders the progress of the technological environment.

Theoretical and managerial/practical implications

The findings of this research have imperative implications for virtual leisure and recreation reality and the role of technological self-efficacy. Empirically, this study has validated the significant role of technological self-efficacy in promoting virtual leisure and recreation reality and psychological well-being. Thus, the findings of this pioneering study contributed to self-efficacy and Bandura's social cognitive theory.

Further, these research findings have momentous inferences for leisure and tourism managers and promoters. Indeed, the use of virtual reality for leisure and recreation is crucial during pandemics. This suggests the critical role of virtual participation in leisure and recreational activity in enhancing tourism development and economic growth in Ghana during the COVID-19 pandemic. Thus, despite the limitations imposed by the pandemic, leisure and tourism patrons continued to experience leisure and recreation by virtue of virtual participation in leisure and recreational activities, hence, the leisure and recreation sector was still active. This suggests leisure and tourism managers and promoters must appreciate and advocate for virtual leisure and recreation. It is highly believed and recommended therefore that physical activity is more fulfilling than virtual, but more people should be educated and encouraged to use virtual leisure to boost tourism during this pandemic. The future successes and or setbacks of Ghana Tourism rely on the effective and efficient use of the new paradigm. It is advised that Ghana should embrace the use of ICT in increasing the growth of productivity. Good public education for local people is highly needed and more investment from the private sector in the areas of internet accessibility should be of much concern. Encouraging more people to participate in virtual leisure and recreational activity to have a feel of the difference as well as understand the need to participate if there is no need and opportunity for physical visits is paramount (Chirisa, 2020).

Moreover, leisure and tourism managers and promoters including the government can immediately improve the state of tourism and leisure in Ghana and provide visitors with a more memorable experience by commissioning the development of native mobile apps that reflect the country's unique culture and traditions. To promote Ghana's many attractions, the country's natives may, for instance, create a locally produced electronic mobile app. If this is accomplished, travellers will go beyond social media and globally recognized brands to utilize apps designed specifically for their location, which may give them a more personalized experience.

Limitations and future research directions

Although the substantial contributions made by this research, it is nevertheless constrained by a few constraints, which may provide possibilities and paths for more study. In acknowledging the limitation of this study, the interviewee or participants' perceptions in answering the research questions can be biased, depending on one's experience, knowledge involvement, or understanding. Further research in the future can draw the relationship between international visitors' or tourists' virtual participation whilst in Ghana and their home country. This approach will drive home the core facts of virtual leisure challenge levels and attributes in the home country and abroad.

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