



Work-in-Progress—Virtual Tourism: Analysing the Impacts on Community-based Producers and School Audiences

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Abstract. This work-in-progress paper aims to investigate the benefits and challenges of community-led virtual tourism experiences for local hosts and virtual tourists. Touristic virtualised experiences result from technological advances that revolutionised the tourism sector. An increasing number of virtual tourism products have been presented, seeking to meet the demands of individuals, communities, and organisations to exchange and access different experiences. Virtual mobility experiences produce underexplored opportunities for tourism and related areas, with potential applications in social, environmental, and educational arenas. Local communities are gradually incorporating digital tools into their tourism practices, producing new avenues for income and gathering attention to receive political support. However, studies investigating the local impact and the challenges of going digital still need to be explored. Likewise, studies on the benefits of community-led virtual tourism experiences on school audiences are mostly lacking, despite the relevance of the topic and approach efficacy described in the literature. In this study, we provide preliminary results based on two case studies and present the research design for an ongoing investigation into the impacts of virtual tourism experiences on favela communities and school audiences. Data collection and analyses were performed using qualitative methods, including participant observation, semi-structured interviews, and ethnographic techniques. Our findings indicate that community-led virtual experiences can promote digital engagement with local agendas and raise awareness for territorial issues, despite technological and mobility challenges. Moreover, the results highlighted the potential of virtual experiences for aiding students in reflective learning and subject engagement in project-based learning activities.

Keywords: Virtual Tourism, Digital Storytelling, New Mobilities Paradigm, Favela Tourism, Educational Strategies.

1 Introduction

Virtual tourism (VT) refers to an immersive and interactive experience based on screen-generated graphic images in which the user experiences the sensation of cybernetic presence [1-2]. Touristic virtualised experiences result from technological advances that have revolutionised the tourism industry and promoted a wide diversity of opportunities for virtual mobility, meeting the demands of individuals, communities and organisations to adopt new digital tools to produce and exchange experiences [3]. The demand for VT has boosted in the last few years, especially during the COVID-19 pandemic, when several mobility restrictions were applied. As a result, innovative ways of virtual interaction emerged and became increasingly popular, with a wide variety of formats available on mobile phones, computers and immersive technologies [4-5].

Commercially, virtual tourism offers opportunities for marketing and previewing the physical experience, providing new avenues of income, reaching new audiences, and potentially influencing visitors' decision-making to be there in person [5-8]. Digital experiences in the tourism industry are often associated with mainstream companies, tourism agencies and heritage authorities due to the high investments in technological apparatuses and skilled labour required to develop competitive products [8].

Nonetheless, alliances with local enterprises are becoming increasingly common. For instance, cross-collaborations among external operators, such as community-led tourism initiatives, are being established in

developing countries. Thereby, enabling less traditional tourism sectors to take advantage of the digital boom, generating a new range of social impacts and potential uses for other spheres, such as the education sector [9].

This paper presents preliminary results from the investigation of the benefits and challenges of community-led virtual tourism experiences for favela local hosts and school audiences. The study follows a range of investigations that have considered the effects of virtual experiences in the tourism domain. Museums, heritage sites, local communities, and a wide range of organisational forces use this tool to allow users to experience their territories and narratives remotely [3-4]. Organisations that offer digital experiences have become more accessible than ever, launching online tours, lives, games and videos in various formats and platforms [4, 10]. As a result of the continuous incorporation of new technologies, producers and, therefore, audiences, virtual mobility experiences generate numerous underexplored opportunities for sustainable, educational, and social improvements in tourism and related sectors [1-2, 11-12].

Environmentally, virtual tours help promote more sustainable access to natural heritage sites with less impact on the physical sites, diminishing overtourism detrimental effects on endangered species, local communities and fragile ecosystems [10-11, 13]. From the tourist perspective, virtual mobility facilitates place accessibility and provides an affordable and safe way to visit new places [3, 7]. Remote access contributes to the exercise of the right to leisure and mobility, even if digitally, and attempts to reduce unequal access to these territories, especially for those whose mobility is limited due to social, economic or physical reasons [4, 11, 14].

In the educational sphere, virtual tours can be a didactic-inclusive methodological teaching instrument [12-15]. Especially in community-led virtual tourism experiences, where non-mainstream historical and social perspectives are presented, students can be immersed in a culturally responsive teaching environment where agendas on interculturality are incorporated into the learning process. Therefore, teaching and learning can go beyond the schoolbooks and physical boundaries. Also, virtual tours can relate to students' experiences and frames of reference, providing a more meaningful and personal learning process [16]. This approach can encourage experiences of exploration, interpretation and appropriation of narratives, identities and territories [10-11]. Concomitantly, the referred experiences can also aid local communities in promoting patrimony preservation, knowledge dissemination and grassroots engagement [17]. Nevertheless, despite the relevance of the topic and approach efficacy presented in the literature, only a few studies debate the potential benefits of community-led virtual tourism educational approaches in school audiences.

This paper is structured as follows: first, we provide an overview of the current debate on virtual tourism's transformative potential for communities and virtual tourists. The study is built upon a qualitative approach, using participant observation methods, semi-structured interviews and ethnographic techniques to analyse two previous virtual tourism case studies and present the construction design of the ongoing case study. Ultimately, we draw conclusions based on the practical and theoretical approach. Here, we present data on the applicability and positive impacts of virtual tourism in school audiences, and the benefits and mobility constraints encountered by the favela communities during the virtual tours.

2 Literature Review and Related Work

2.1. Community-led Tourism: a View from the Producer's Perspective

Digital immersive tools are increasingly being used as a response to continuous technological advancement. From a community-led tourism perspective, digital presence is an instrument to avoid being marginalised by enhancing local visibility and contributing to interconnectivity with akin initiatives [6, 16]. For many socially minoritised groups, the colonial remaining legacy of colonisation promotes the deterioration of cultural assets, social isolation and displacement issues. In that context, a digital presence within the travel industry can provide new sources of income, broaden communication reachability, reinforce local agendas, and attract face-to-face visitors [6, 18-19].

In a study conducted by Freitag and Camargo-Borges [6], the authors investigated the potential of digital presence in a Brazilian indigenous community-based tourism initiative to promote self-determination, financial security, and heritage sustainability. Data indicated that digital presence could aid the creation of strong networks, raise awareness for indigenous agendas, and establish heritage tourism. The coexistence of traditional culture and modern technology did not impair the authenticity of the experience [6, 20].

Likewise, researchers on the benefits of virtual community-based rural tourism in Peru claimed that digital platforms could ease communication between local communities and potential tourists, with monetary implications, facilitating information sharing and increasing community visibility [19]. Studies on the relevance of digital storytelling for immigrants and refugees showed similar results, indicating that digital heritage towards community culture can strengthen social cohesion and cultural identity, and facilitate social organisation [21].

Nonetheless, the efficacy of digital presence in community-led initiatives is not unanimous since it depends on aspects related to the community case, such as technological acceptance and organisational structure. According to Kelly and Taffe [22], who conducted a study on co-designing an indigenous community museum, digital heritage technology promoted a feeling of misrepresentation and a digital barrier for some groups. Consequently, part of the community moved away from the project, impacting social cohesion.

Therefore, these cases illustrate the social, economic, and cultural impacts of tourism digitalisation in communities and the importance of co-creation methodologies that correspond to the residents' demands, ambitions, and constraints. The studies also highlight the importance of further research to understand the benefits, challenges and risks of community-led virtual tourism initiatives to avoid local disturbances.

2.2. Pedagogical Implications of Virtual Tourism: a View from the Consumer's Perspective

In the educational arena, students and teachers are keen to explore innovative methods to learn and share knowledge, in which digital learning tools play an important role. Studies have shown that immersive technologies can promote innovative and engaging environments, potentially facilitating learning [23-24]. The promotion of engagement towards topics such as local heritage, community resilience and social empowerment, commonly addressed in community-led tourism initiatives, is particularly relevant to generating an empathetic environment in which feelings and worldviews can be perceived and correlated in multidimensions [25].

According to Wagler and Hanus [26], whose research compared a real-life experience with a Virtual Reality (VR) 360 practice in a state capitol building, virtual tours can even be more emotionally engaging if the content is well accepted, and the audience is centred on the experience. In this study, participants reported a strong feeling of spatial presence that led to a higher emotional engagement. Likewise, Škola et al. [27] found that virtual experiences can positively influence subject engagement and, according to Rowe et al. [28], positively impact the learning process. Additionally, digital storytelling approaches can also be an effective strategy to generate emotional engagement by presenting “real” people with whom the audience can correlate.

Digital storytelling in virtual tourism experiences can engage students in reflective learning in the context of project-based learning activities [29]. To Saltsman and Majidi [30] and Darvin and Norton [31], whose studies with digital storytelling on migration aimed to bring different approaches and engage students with the subject, virtual approaches can potentially promote emotional engagement and place the migrants in the centre of the discussion. Thereby, allowing social actors to speak for themselves, instead of being restrictedly characterised in schoolbooks. In this manner, immersive storytelling can improve the sense of credibility and presence, and ultimately promote a joyful and authentic experience to the audience [32].

In this work, we evaluate the potentialities of virtual tourism experiences for social and pedagogical purposes for both producers (i.e., local guides and representatives in a community-led tourism context) and consumers (i.e., students and teachers) based on two previous case studies. Additionally, we present the design of an ongoing co-produced virtual experience in which we aim to promote an enriching exchange of ideas, places and narratives mostly focused on Global South storytelling. Few studies have analysed the benefits and constraints of virtual experiences for both sides simultaneously, and even fewer have explored the subsequent impact and outcomes of southern narratives on northern school audiences.

Therefore, we seek to contribute to the understanding of how virtual tourism affects mobility constraints and its potentialities for community empowerment, student knowledge gaining and teaching applications.

3 Methodology

The overall research approach is based on an interpretivist methodology. In this paper, we address three case studies. In the first one, we analyse the impacts of virtual mobilities on social actors. Subsequently, we present an investigation into the benefits of virtual tourism for school audiences. Finally, we introduce an ongoing study exploring the effects of a community-led virtual tourism experience on local producers and the school public.

The choice of an interpretivist framework results from the research aims to understand a range of impacts of these activities, both from the perspective of production and the producers as well as from the perspective of consumption. We analyse the producer experience in terms of what technologies, narratives, and mobilities were necessary to build the virtual experience. Additionally, we collect perceptions of the public, their engagement and feelings associated with the experience through qualitative methods.

This research is centred on the paradigm of new mobilities [33], more specifically tourism mobilities [34], as a creative theoretical repertoire for the critical study of the (virtual) movement of people, images, objects, and ideas. Hence, one can become mobile, although virtually, and interact with other people and territories through the digital world. For instance, in a virtual tour, an individual becomes “mobile”, being at the location of guidance and

interacting with others in the same space-time context. This interaction can impact their understanding of social contexts, promote emotional engagement and improve a sense of virtual presence.

The first case study was co-produced in partnership with local representatives from community-led tourism initiatives in Brazilian favelas. Focal groups and semi-structured interviews were performed before and after virtual tour guidance to assess their motivations, challenges and preferences for going digital. The research team conducted online training sessions with local guides to help them transpose their physical guidance to the virtual domain in a COVID-19 context. The observation participation method was used before and during virtual tours, and data collection was conducted using ethnographic techniques.

The second case study was conducted in a non-traditional teaching environment in partnership with two local schools and a non-profit organisation in Brazil. Semi-structured interviews were conducted with the pedagogical team to assess local demands for immersive experiences. The virtual tours' themes were co-constructed with the school representatives. Groups from elementary and secondary education were selected based on a project-based learning perspective. Data collection occurred through (Interviews?), observant participation, action research intervention, and ethnographic techniques.

Lastly, in the ongoing case study, we are working on creating virtual tours with favela local guides for a British student audience. In a co-creation strategy, semi-structured interviews are being conducted with school teachers about the pedagogical proposal and experience design. Instructional material about favelas and the Brazilian socio-economic context is being co-produced with local guides and will be introduced to students by the school tutors before the virtual tour. Semi-structured evaluations with the school audience are conducted before and after the activity to assess learning comprehension and experience perception. Based on participant observation research methods, we will analyse the producers' and consumers' experiences during the tour concerning their engagement, technological domain, and potential mobility limitations with an ethnographic approach. In this context, the interaction rate will be analysed to measure public engagement and acceptance. Also, teacher's perspectives on the potential for integrating new technologies into their curricula will be collected through focal group dynamics.

4 Case studies

4.1. Favela Virtual Tour: from Rio de Janeiro to Worldwide Audiences

In the context of social isolation and (i) mobilisation of territorial agendas in favelas due to the COVID-19 pandemic, we carried out the project *Lockdown Stories: Grassroot Media Making in the favelas of Rio de Janeiro* in the second semester of 2020 [18]. The initiative brought together the voices of collectives, tour guides and local organisers from six favelas in Rio de Janeiro by promoting community training and collaboratively developing virtual tour experiences in their territories. The project aimed to create new digital connections between communities worldwide by sharing 'Lockdown Stories' through favela virtual tours. Thereby, promoting the continuous mobilisation of favelas local narratives, albeit in a restricted way.

Given the lack of favela virtual tourism offers, this project investigated how community-led tourism producers responded and what support they needed to transform their projects in the pandemic context. Moreover, we evaluated the pandemic's impact on local tourism and explored alternatives for residents involved in favela tour guidance (e.g. virtual visits). In association with local guides and collectives, we co-produced six guided virtual tours streamed to a national and international audience via *Zoom* and *Facebook* platforms.

In order to convert favelas into virtual tourist attractions, we observed that favela guides needed access to connected material infrastructure such as computers, mobile phones, and the Internet, which were often unavailable or had limited access. During the live tour, the restricted internet service supply impaired the image quality at places where the connection was unavailable. Moreover, to virtually mobilise places, guides needed to move their bodies physically through the community to prepare or livestream the tours, whereas visitors could safely access their territory from home. These micro-mobilities were crucial for virtual tour performance and the complex game of tourism (i)mobilities and illustrate how unequal mobilities can impact physical and digital territories, implicating their safety, mobility and interaction capacity.

In this virtual reinvention of tourist favelas, we observed that the tour guide became more empowered by controlling the tourist's gaze [35]. In a virtual tour, one can only see what the guide chooses to display, along with interpretations upon their personal and territorial worldviews. In contrast, in a face-to-face tour, the tourist is immersed in the favela, full of stimuli that may differ from what the guide wants to present.

The virtual experience mobilised local agendas, raising awareness of topics such as black identity, local heritage, favela entrepreneurship, and gender equality through personal and collective digital storytelling. Despite the technological barriers, local guides expressed their willingness to continue producing digital content, especially for marketing purposes and to attract external attention to the issues faced in their territory.

4.2. Virtual School Trips to Museums: Bringing Heritage Collections Closer to Communities

In the second case study, we conducted the initiative *When the Museum Visits the School*, which offered physically guided experiences on virtual exhibitions to Brazilian school audiences. The activity sought to debate over Afro-Brazilian identity by highlighting the positive contributions of historical figures from decolonised museum collections. Thereby, encouraging a sense of belonging and pride in place of a feeling of reluctance related to the history of colonial slavery, which remains predominant in school textbooks.

The experience was provided to an elementary and secondary school audience in Rio de Janeiro, Brazil, in June 2022. We partnered with two local schools and a non-profit organisation, *Social Service of Commerce of Rio de Janeiro* (Sesc RJ), which agreed to host the experience. School demand came from both the students, who wanted to have contact with historical counter-narratives, and teachers, who expressed a willingness to know more about the potential approaches to the subject. Virtual tours occurred in two non-formal learning sessions in the local theatre, lasting two hours each, with 200 students attending (see Fig. 1). The majority of the students were Afro-Brazilians living in socially vulnerable conditions.



Fig. 1. Photograph of the physical guidance on the virtual exhibition “From Galés to Galleries: representation and protagonism of black people”. In the background, the projection of a painting next to the tour guide. Source: the authors.

Through interactive paintings, sculptures, and photographs hosted in three virtual exhibitions on the *Google Arts and Culture* platform, we explored themes such as black ancestry, ethnohistory, and afrofuturism. Part of the virtual exhibition allowed the audience to explore the main exhibition gallery autonomously in a 360-degree experience. Exhibitions were projected on the theatre’s wall, and a self-declared black woman tour guide, with the aid of a microphone and computer assistant in a lecture format, conducted guidance (see Fig. 1).

In this interventional research, we observed a significant engagement of the school audience. Students frequently asked questions, made comments and conducted much of the debate independently, with occasional open questions provided by the tour guide.

The most common observations revolved around the similarities between those historical individuals with themselves or relatives. The experience produced a sense of recognition of similar phenotypes among black children and the elderly (e.g. “Look, this child looks like me!” and “She looks like an old photograph of my grandmother”). Students frequently built autonomous interpretations of the landscape and religious elements and made a parallel to those components observed in their daily lives. Amazement expressions and comments emerged at the discovery of technologies produced by enslaved people before and during the colonisation period, which until then were believed to be produced by foreigners: “I didn’t know we had done so much”. Likewise, the audience demonstrated enthusiasm for the African jewellery and ornaments brought and produced in Brazil, an outcome of black ancestral technology and knowledge.

This virtualised experience demonstrated the potential of virtual tourism experiences as an engaging instrument for mobilising counter-narratives in non-formal education, promoting a culturally responsive teaching environment in which diversity is represented positively. Furthermore, the virtual tour allowed the public, both black and non-black students, to learn about Brazilian history from a different angle than provided by school textbooks. As a result, it enabled new gazes upon their own personal and collective history and promoted new avenues for exploring, interpreting, and appropriating narratives and identities. Finally, the activity allowed the audience to access previously inaccessible historical and cultural heritage collections, shortening the barriers imposed by geographical and socioeconomic constraints.

4.3. Virtual School Trips: favelas digital storytelling to British audiences

In the first case study, we offered favela virtual tours to open audiences, which most frequently didn't include school students and mainly attracted international visitors. In contrast, in our second case study, we provided museum-related narratives to a Brazilian school audience. In this ongoing study, we are working on providing virtual trips to British school audiences on favela territories delivered by the residents themselves.

Partnerships are being built with public schools to gauge interest in innovative virtual education from the community groups we worked with in the first case study. Feedback has been favourable, indicating that innovative learning provisions can fulfil their demand for more culturally diverse education. Likewise, favela guides are keen to expand their virtual provision to share their narratives and generate additional income.

The activities are expected to occur in a secondary school in Leicester, England, between May and July 2024. In addition to the virtual tour, the experience will include school classes on the Brazilian social context with pedagogical content co-produced by the research team, local guides, and school teachers in a project-based learning style in association with the Humanity and Geography modules. Synchronous virtual tours will be streamed via *Zoom* with simultaneous English interpretation. Local guides will address social, environmental and identity agendas within the community, bringing cultural, artistic and historical references.

The tours are expected to provide students with a deep appreciation of the issues these communities face, raising awareness for their agendas from a local perspective while generating visibility and income for these communities. Furthermore, it will present entrepreneurship cases related to community-led tourism and hospitality, which can contribute to their understanding of this economic sector. Thus, students will benefit from understanding global challenges via experiential learning experiences beyond textbook learning.

5 Conclusion and Future Work

Based on two case studies and the literature, this paper delves into the emerging technologies and potentialities of virtual tours within the tourism industry and applications in pedagogical contexts, especially from community-led tourism initiatives. The case studies provided additional insights from both producers' and consumers' perspectives. From a pedagogical perspective, we presented the potentialities and applications of virtual tourism educational approaches in school audiences. Results indicated positive student engagement and acceptance of the virtual tour format on ethnicity agendas. The community case exemplifies the challenges for community enterprises in going digital, particularly concerning technological impediments, and the benefits in terms of visibility of agendas and additional income.

An ongoing analysis of a third case study, currently in the design phase, is being conducted to incorporate and deepen the presented discussion. This work will evaluate the impacts of the experience on British school audiences and favela local guides simultaneously. Therefore, we expect to reduce the knowledge gap in the literature by shedding light on the benefits of the experience of multiple actors and assessing the social, technological, pedagogical and behavioural complexities involved in virtual tourism experiences. The case studies here presented work with a limited number of experiences in a particular geographical area and social profile. Therefore, further studies are still needed to investigate how limitations factors act on the digital mobility of community-led initiatives in different scenarios and the impacts of their narratives in an educational context.

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