

"TRANSFORMING MARKETING AND TOURISM: HARNESSING VIRTUAL REALITY FOR IMMERSIVE CONSUMER EXPERIENCES IN SWITZERLAND"

Research Paper

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"Abstract"

The following study investigates the impact of virtual reality on the effectiveness of marketing strategies and tourist experience in the Swiss city of Solothurn. A quantitative analysis was conducted on 427 participants to assess their interaction with virtual reality and its impact on brand loyalty and its role in increasing consumer engagement. The study findings indicate that the use of VR technology significantly increases consumer engagement, notably in the context of tourism marketing. The presentation of interactive virtual tours of historic sites in Solothurn has been observed to stimulate greater interest among visitors. The results of the statistical analyses indicate that many participants consider the VR technology to be innovative and effective in increasing trust and brand loyalty. However, the widespread uptake of VR is limited by barriers such as high equipment costs and fatigue. Future research should focus on examining the long-term impact of VR on consumer behaviour and its potential in different cultural contexts, with the aim of optimising its application in marketing and tourism.

Keywords: Swiss Tourism, Immersive Experience, Virtual Reality Tours, Consumer Experience, Marketing

1 Introduction

Virtual reality, originally associated with its use in computer game development, is currently undergoing a period of growth and innovation in other industries. It is currently transforming sectors such as marketing and tourism. As Gaudiosi (2016) notes, there are numerous instances of tourism industry suppliers employing virtual reality for marketing purposes. This evolution has positioned VR as a pivotal factor in redefining these sectors, challenging the conventional boundaries of consumer interaction and brand loyalty (Raji et al., 2024). Virtual reality allows for more in-depth customer engagement than traditional methods (Alcañiz, Bigné and Guixeres, 2019).

VR is an effective medium that engages the senses, facilitating connections between companies and their audiences while creating opportunities in competitive markets. In the field of marketing, virtual reality (VR) technology has demonstrated considerable potential for creating highly engaging and memorable product and market interactions. Asakdiyah, Makarim and Adinugroho (2024) maintain that augmented reality (AR) has a corresponding effect on brand perception. The use of virtual reality (VR) and augmented reality has been shown to significantly improve the immersive user experience, facilitating more explicit intellectual, sensory and behavioural engagement than conventional marketing methods (Gibson and O Rawe 2018; Yung and Khoo-Lattimore and Potter, 2021).

Bogicevic et al., (2019,2024) argues that modern technology improves not only the exchange of information but, more importantly, plays a key role in creating loyal customer relationships by providing engaging and interactive experiences. In their 2019 study, Beck, Rainoldi, and Egger highlight the impact of virtual reality on both the tourism supply chain and tourists.

Zhao et al, (2024) found that marketing strategies that include virtual reality significantly influence

consumer purchase decisions and brand preferences. Scholz and Duffy (2018) posited that augmented reality has the potential to transform the mobile shopping experience and create a more meaningful consumer-brand relationship.

The inherent nature of VR, which is characterised by high levels of engagement and interaction, offers consumers the opportunity to experience contextually relevant services and products in a virtual space, which in turn shapes their purchasing decisions.

As stated by Gibson and O'Rawe (2024), offering virtual tours of destinations to potential travellers can positively impact brand engagement and future visits due to the use of VR. Li Young and Xion Dan (2023) highlight the importance of optimising the user experience using immersive systems. Furthermore, Kim and Hall (2019) posit that the capacity of VR to evoke authentic and immersive experiences has a positive impact on consumer behaviour and brand loyalty, which in turn can result in increased visits.

The present study aims to evaluate the effectiveness of virtual reality (VR) in marketing, with a particular focus on its impact on consumer engagement and brand loyalty. To achieve this, the city of Solothurn in Switzerland was selected as a case study. By exploring these domains and recognising the potential of VR as a transformative instrument in marketing and tourism, this study aims to provide stakeholders with a strategic advantage in building and maintaining relationships with consumers in the digital age.

2 Literature Review

2.1 Historical overview and current trends in virtual reality technology

The concept of virtual reality has its origins in the United States. In 1962, the pioneering design of the first machine offering a multi-sensory experience to humans was completed. The unit could generate and presenting images, sound, vibrations and aromas (Heilig, 1962). The device gained notoriety for its stereo 3D images, vibrations, and aroma generator. Four years later, another American scientist created the device known as Sword of Damocles. This was the first device to enable the viewing of 3D images and the tracking of head movements (Sutherland, 1968).

In the 1990s, consumer-oriented products such as VR goggles and arcade machines emerged, but their functionality was limited (Krueger, 1991). However, as Lanier (2017) notes, significant progress was made in 2010 with the introduction of high-end devices such as the Oculus Rift and HTC Vive. Using Virtual Reality (VR) in marketing is becoming increasingly common and is attracting more and more interest from marketers (Cowan and Ketron, 2019; Griffin et al., 2023). For instance, Audi's virtual reality showrooms permit customers to virtually explore and personalise vehicles, thereby reinforcing consumer connection and purchase decisions (Flavián, Ibáñez-Sánchez and Orús, 2019). Similarly, in the retail sector, companies such as IKEA are utilising virtual reality to assist customers in visualising furniture in their homes, thereby reducing uncertainty and increasing satisfaction (Bogicevic et al., 2019).

According to Griffin et al., (2017) and Jude and Ukekwe (2020) virtual reality is transforming destination promotion in the tourism industry. Through virtual tours, potential travellers can explore different locations remotely, influencing their travel decisions and promoting lesser-known destinations (Guttentag, 2010; Tussyadiah et al., 2018).

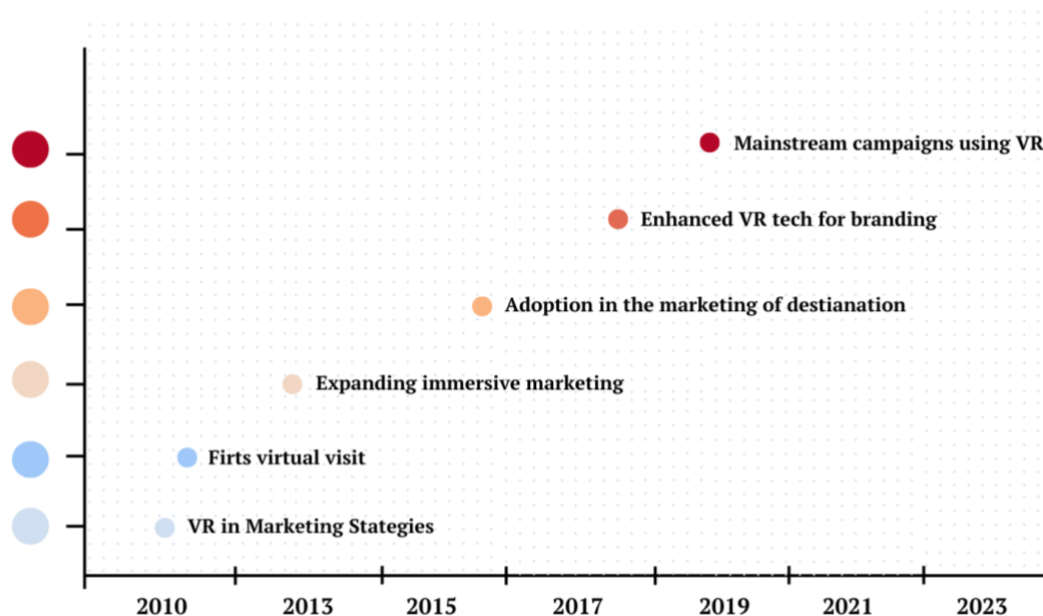
In addition, VR contributes significantly to the preservation and presentation of cultural heritage by providing engaging and educational experiences that increase visitor satisfaction and cultural preservation (Economou and Pujol-Tost, 2007). These technologies facilitate user-centred presentation and facilitate the digitisation of cultural heritage, particularly in instances where physical access is restricted (Bekele et al., 2018). The future of VR includes greater integration with artificial intelligence (AI) and augmented reality (AR), further expanding the possibilities and applications of this technology in marketing and tourism (Pantano and Servidio, 2012). Further developments in VR will have an increasing impact on these industries, driving further innovation in consumer engagement and experiential marketing.

2.2 The integration and effectiveness of virtual reality in marketing

2.2.1 Key research findings

The potential of VR in combining digital performance with immersive experiences was highlighted by Chen et al. (2019). Further research is needed to fully understand this area. There have been reports of increased profitability for companies using VR marketing (Daline and Thomas, 2024). The use of VR in advertising has been shown to increase consumer willingness to purchase, leading to significant user engagement (Wijayanto and Putra, 2021). By contrast, Xiong et al. (2022) discovered that VR marketing eases time savings and decision-making. De Regt et al. (2021) presented a framework for improving VR experiences with the objective of improving customer outcomes. The Evolutions of VR in Marketing and Tourism is presented below (Figure 1).

Timeline: Evolution of VR in Marketing and Tourism



1. Figure Evolution of Virtual Reality in Marketing and Tourism. Source: Author`s work.

2.2.2 A comparison of metrics and effectiveness between traditional methods and VR

Frechette et al. (2023) posits that VR has a greater impact on attitudes and behavior than traditional methods, which is a crucial factor in social marketing. As stated by Jung, Tom Dieck, Lee and Chung (2016), VR is a pioneering technology that enables users to interact with three-dimensional digital environments. Chang and Chiang (2022) have written down that the use of VR in tourism marketing has a positive impact on destination image. Labti et al. (2023) have indicated that there is a willingness to adopt new experiences and enjoyment in the use of VR in retail. The effectiveness of VR marketing is

enhanced by the provision of immersive, personalized experiences, which can outperform traditional methods in terms of effectiveness, leading to higher engagement and better results.

2.3 Virtual reality in tourism

The tourism industry is becoming increasingly aware of the significant potential of virtual reality as a transformational tool. It is acknowledged as a unique technology that optimizes the efficacy of marketing strategies in improving the user experience.

A review of the literature reveals a limited number of studies on the use of virtual reality in Switzerland. In 2023, Wirth and Racine presented a study on the utilization of virtual reality in the Swiss tourism industry. Their findings indicated a decline in the popularity of traditional 360° videos as a marketing tool, accompanied by a growing interest in more sophisticated, immersive VR experiences. The incorporation of virtual reality into tangible on-site tourism experiences has evinced the greatest enthusiasm. The study offers new insights into the topic of VR integration in tourism and proposes a classification of VR projects in Switzerland.

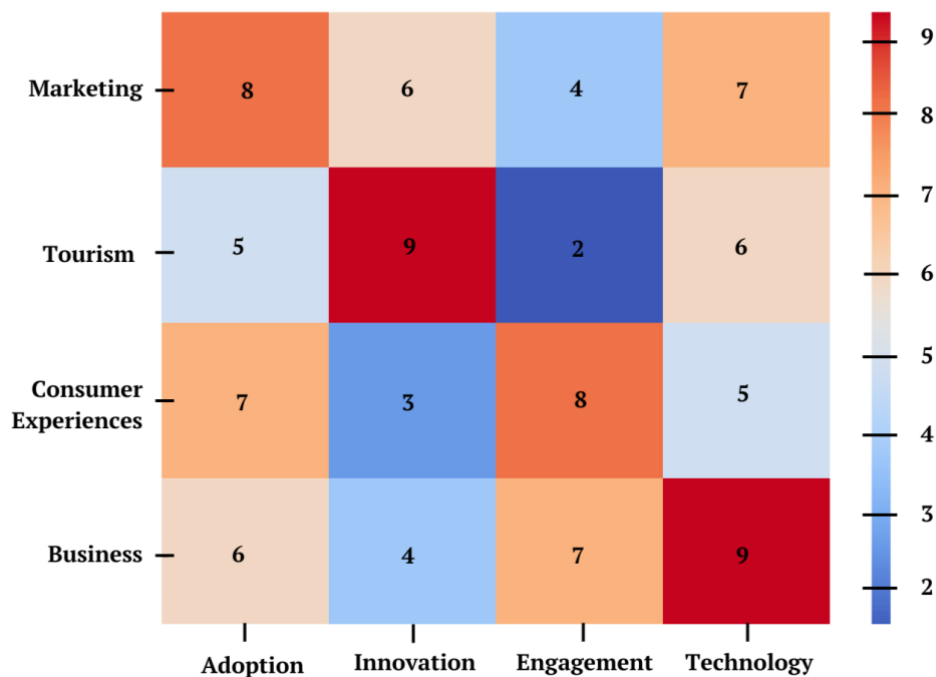
Yengar and Venkatesh (2024), Yung et al. (2020), Wei (2019), and Zhang et al., (2022) highlight that the incorporation of VR into the tourism industry has enabled the creation of immersive virtual tours that can be enjoyed from the comfort of one's own home. VR is an extremely effective tool for brands, but it also helps to create a positive image of a tourist destination, reduce the perceived risk of travel and influence travel behaviour. Research has demonstrated that VR can markedly enhance the visitor experience by offering realism and immersion, which are crucial for influencing tourist attitudes and intentions (Oncioiu and Priescu, 2022). Destination marketing is an area where VR is particularly effective, as it enables marketers to reach specific socio-demographic groups, such as women and people over 25, who are more influenced by these virtual experiences (Prodan and Egresi, 2023).

Virtual reality has the potential to revolutionize the tourism industry by providing consumers with immersive experiences that can enhance tourism marketing (Adachi and Cramer and Song, 2020). While the short-term effects of VR on travel intentions and destination image have been well-documented, there is still much to learn about its long-term impact. One area for further research is the long-term sustainability of the effects of VR on consumer behaviour and brand loyalty. Understanding this will help optimize the application of VR in different tourism sectors, such as cultural or adventure tourism (Chang and Chiang, 2022). Additionally, more research is needed to gain a deeper understanding of the impact of VR in different tourism contexts. By conducting further research, the tourism industry can effectively adapt VR applications and fully grasp its potential for transforming the way tourism is experienced and marketed.

2.4 Application of VR intensity in different sectors

Following the completion of the literature review, a heat map (Figure 2) was created to provide an in-depth analysis of the tourism, consumer experience and business marketing sectors in the context of VR technology use. As Tussyadiah et al. (2018) and Kask (2018) have noted, headset VR is becoming an increasingly powerful tool for business and marketing tourism. It allows companies and holiday destinations to demonstrate their products in a compelling and immersive way, giving them a valuable competitive advantage. The use of colour coding indicates the level of intensity of VR technology in each area. In the marketing sector, VR is employed in promotional strategies, although consumer involvement may be limited. The tourism sector is characterised by rapid development of new applications, but consumer engagement remains low. Consumer experiences in retail and entertainment demonstrate high levels of engagement with VR, although innovation levels remain low. In the business sector, VR is moderately adopted but is used to the greatest extent of any technology. Tourism stands out for innovation but low engagement, while marketing and consumer experiences show a balanced approach, and business is investing heavily in VR technology. The heat map is a tool to analyse the impact of VR in these sectors and identify areas for further development.

Heat map: Application of VR intensity in different sectors



2. Figure Heat Map: Application of VR intensity in different sectors. Source: Author`s work.

3 Research Methodology

The objective of this study is to evaluate the impact of virtual reality on marketing strategies, consumer behaviour, advertising and brand loyalty, with a specific emphasis on the utilisation of VR technology in the city of Solothurn, Switzerland. A key aspect is the integration of virtual reality and its potential to transform traditional marketing and revolutionise distribution. This could facilitate the development of long-term consumer loyalty in brand relationships and increase engagement with tourism.

The research project included an analysis of quantitative methods, integrating a case study, to provide data on respondents' preferences and experiences with VR in experiential and tourism environments. Data was collected in the city of Solothurn, with input from individuals with direct experience of local tourist attractions and brands using virtual reality. A total of 427 people participated in the survey, conducted between April and August 2024.

3.1 Quantitative analysis

The questionnaires were designed to measure the level of visitor engagement, brand loyalty and interest in tourism after experiencing virtual reality (VR). A five-point Likert scale was employed to facilitate an accurate analysis of the participants' perceptions. A statistical analysis was employed to evaluate the efficacy of VR in enhancing consumer engagement, brand loyalty, and interest in tourism. The statistical analyses were conducted using Python Software. The analytical techniques employed included frequency, distribution, pre-distribution, frequency with multiple responses, preference analysis and descriptive statistics.

3.2 Case studies

Furthermore, case studies were examined to gain insight into the characteristics of successful marketing campaigns and virtual reality applications. The case studies revealed that campaigns contributed to

increased consumer engagement, brand loyalty and interest in tourism. The following criteria were used to select the studies for analysis: The potential applications of this technology in the field of tourism are manifold. The objective of this study is to identify and analyse successful campaigns that utilise virtual reality in the context of tourism.

The degree of innovation of the selected case studies is as follows: The implementation and optimisation of VR technologies that have been well received by consumers. The extent to which the application of virtual reality in tourism is effective. Campaigns that yielded a quantifiable increase in brand loyalty and engagement. The studies were evaluated in terms of the strategy employed, the consumer response, and the long-term impact on the brand and tourism.

The methodology was meticulously devised to assess the influence of virtual reality on marketing and tourism. The integration of quantitative techniques, coupled with the examination of authentic instances, facilitates comprehensive insights that can benefit business and technology scholars in marketing and tourism. The data and its analysis will elucidate how VR can revolutionise the consumer experience and bolster the growth of local tourism in cities like Solothurn.

4 Analysis and Discussion

The analysis demonstrated that most respondents aged 25-44, both male and female, are residents of the canton of Solothurn or other regions of Switzerland and express a preference for the German language (Tab.1). The survey was conducted in four languages (German, French, Italian and English) to accommodate the multilingualism of both residents and tourists.

A considerable proportion of respondents had prior experience with virtual reality, while others had minimal or no contact with it (Table 2). The respondents concur that VR enhances engagement and affinity with brands, albeit with a moderate impact on interest in tourist locations (Tab. 3). The most attractive attractions are historical reconstructions and immersive virtual reality experiences, namely St Ursus Cathedral and the old town of Solothurn (Tab. 4). The analysis demonstrates that VR has a positive impact on brand perception, increases trust, is perceived as innovative and increases brand loyalty among those who have experienced it (Tab. 5). This comprehensive review of the survey data provides valuable information that can assist in further research or visitor decision-making

Table 1 Demographic information. Source: Author`s work.

Category	Largest Group	Smallest Group
Gender	Female (221)	Other (4) / Prefer not to answer (13)
Age	35-44 years old (110)	< 18 years old (15)
Place of Residence	Solothurn (123)	Outside Switzerland (65)
Preferred Language	German (283)	Italian (33)
Purpose of Visit to Solothurn	Tourist (285)	Other (19)

Table 2 Experience with Virtual Reality Source: Author`s work.

Question	Responses
Have you had previous experience with virtual reality (VR)?	Yes: 297, No: 130
How often do you use VR?	Daily: 12, Several times a week: 58, Several times a month: 104, Less often: 123, Never: 130
What types of VR experiences have you had?	VR Games: 224, Virtual tourism: 172, Educational VR programs: 87, Cultural VR events: 112, Other: 36
What VR devices do you own?	Oculus: 147, HTC Vive: 96, PlayStation VR: 73, Other: 38, No VR devices: 173

Table 3: Evaluation of the VR experience. Question: "Please indicate your rating of the VR experience to date on the provided Likert-type scale, where 1 represents a strong disagreement and 5 represents a strong agreement".

Table 3 Evaluation of VR Experiences Source: Author`s work.

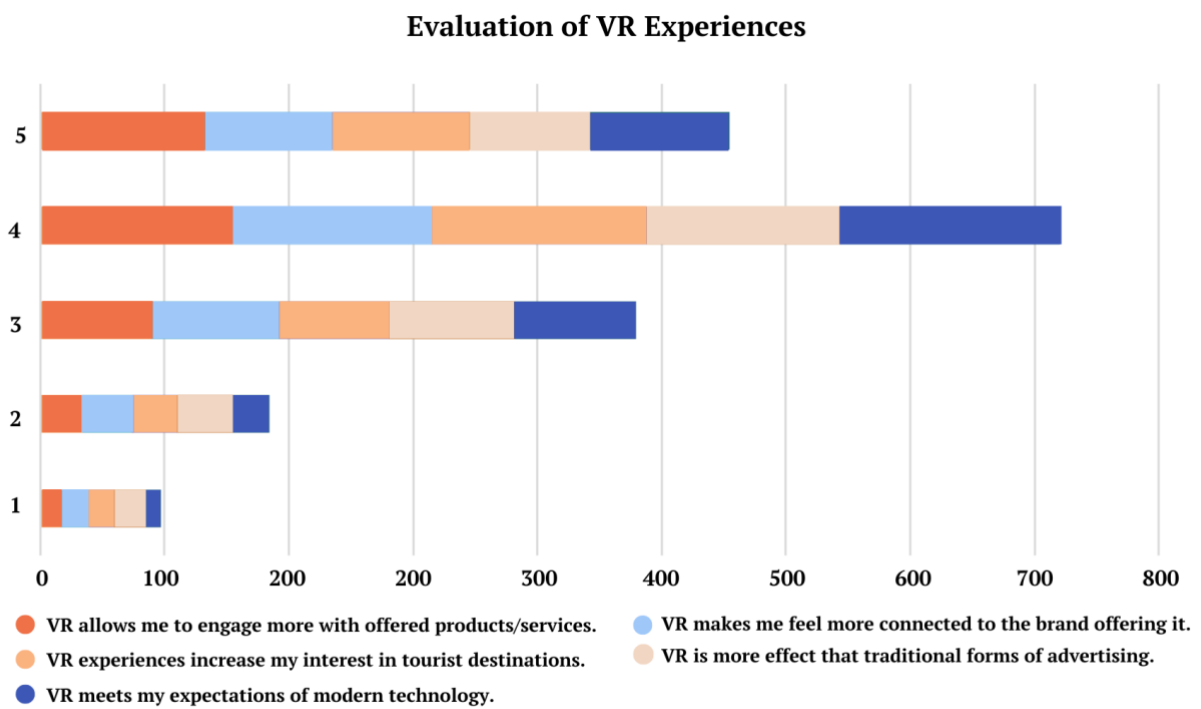


Table 4 Interest in Local Tourist Attractions in Solothurn. Author`s work.

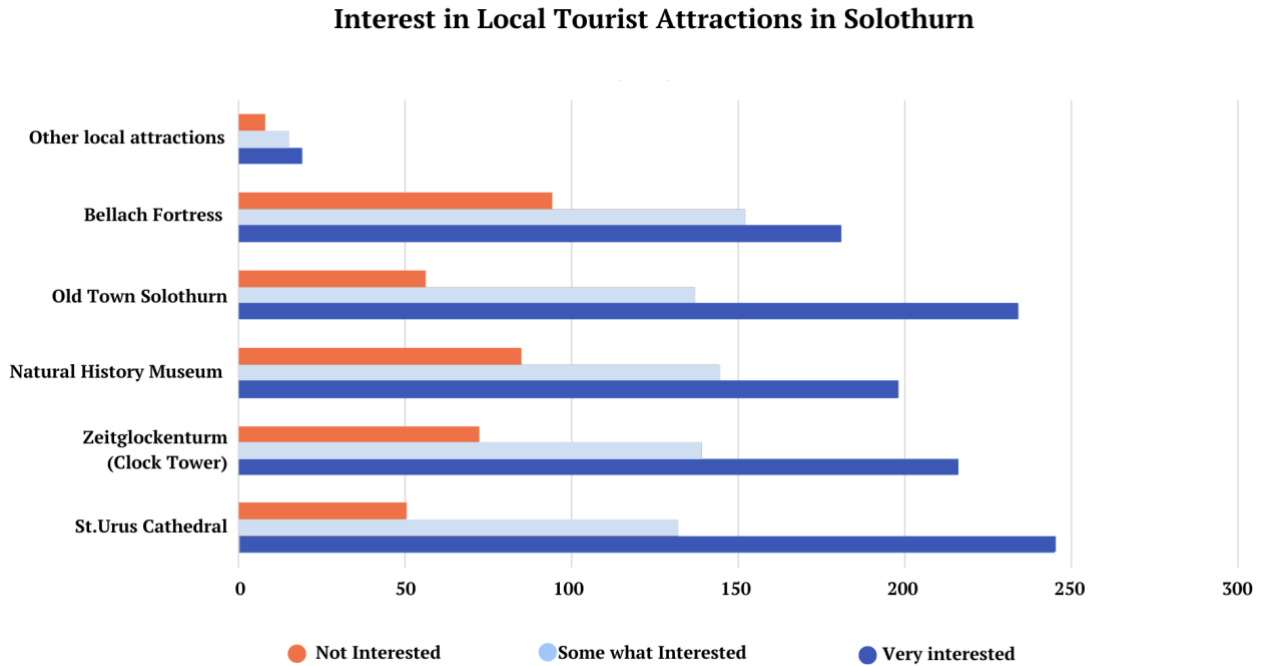


Table 5 presents the question, "How would you rate the impact of VR on your perception of the brand offering VR experiences in Solothurn?". The respondents were asked to indicate their level of agreement with the statement on a 5-point Likert scale, where 1 indicated strong disagreement and 5 indicated strong agreement.

Table 5 Download VR Brand Loyalty Analysis. Author`s work.

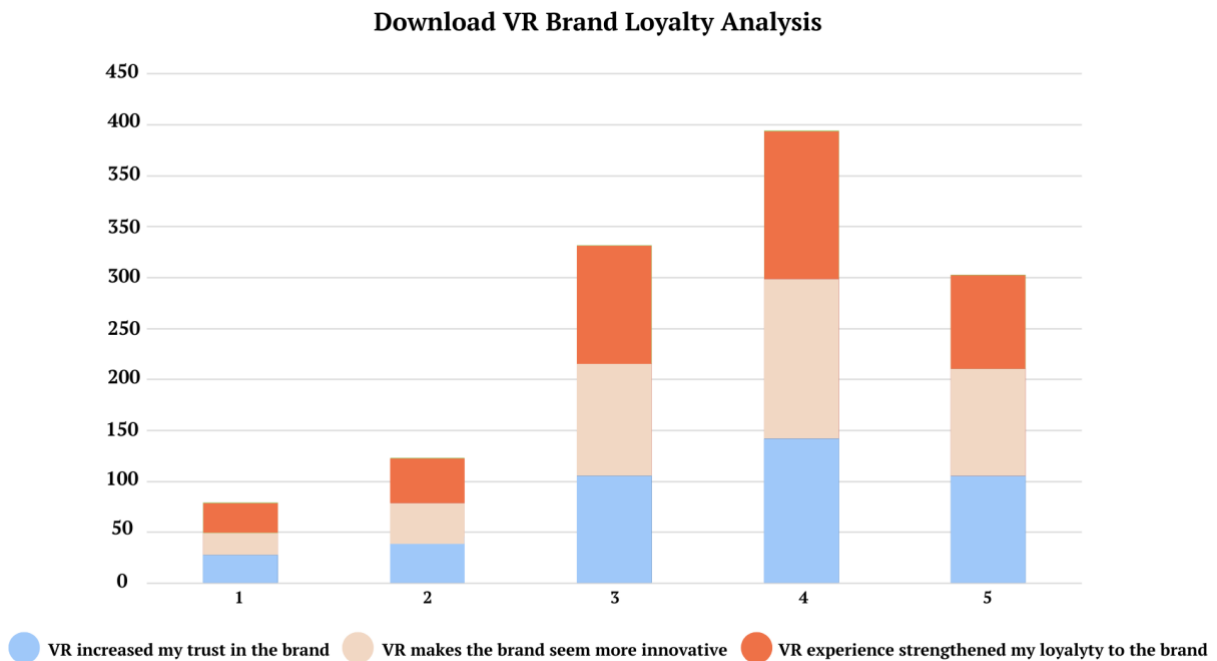


Table 6 presents the case studies, which provide practical evidence that virtual reality (VR) has a tangible impact on consumer behaviour and can be an effective tool to increase tourism in Solothurn. It demonstrates how VR can engage potential tourists on a deeper, emotional level, thereby increasing the likelihood of them choosing to visit the area.

Table 6 Case studies. Author`s work.

Case Study	Innovations in VR applications	Influencing how consumers behave	Relevance to the tourism sector
Marriott hotels' VR postcards	A virtual reality experience, 'VR Postcards', allows guests to travel to exotic locations in countries such as Chile, Rwanda and China from their hotel rooms.	VR postcards increased customer engagement and bookings, especially for destinations they had never visited before.	VR can improve travel marketing by showing potential travellers what they can expect.
Thomas Cook's 'Try Before You Fly' Virtual Reality Campaign	Try Before You Fly campaign: experience holiday destinations through VR headsets in select stores.	VR tours led to a 190% growth in New York City bookings. Customers who used VR were more likely to purchase trips and excursions.	VR is an effective tool for transforming interest into bookings by offering an immersive preview of travel destinations, thereby enhancing the shopping and planning experience.
Destination British Columbia Virtual Reality	Destination British Columbia created a series of VR experiences showcasing the province's beauty and attractions. Users could experience activities like kayaking, skiing, or hiking via VR headsets or mobile apps.	This resulted in a notable increase in online interaction, tourist enquiries and bookings. Those consumers who engaged with the VR content were more willing to visit British Columbia.	Highlights the role of VR in destination marketing by demonstrating the potential of this technology to create immersive previews of attractions and to foster emotional connections with potential travellers.

4.1 The effectiveness of VR in marketing and consumer engagement in virtual reality

The implementation of virtual reality has the potential to significantly enhance traditional marketing strategies. The results of the statistical analysis indicated that the use of virtual reality (VR) increases engagement, as evidenced by the responses of 287 individuals who indicated that VR enables them to interact more profoundly with the products and services they are considering. Additionally, 263 respondents indicated that the use of VR makes a brand appear more innovative, thereby underscoring the potential of VR in influencing brand perceptions. As evidenced by case studies such as those of Marriott Hotels' VR postcards, the use of VR can enhance customer engagement by providing access to new locations. This approach has resulted in increased bookings, demonstrating that VR has the potential to transform interest into tangible action. Situmorang and Aruan (2021) also suggest that sensory experiences have a positive impact on customer engagement with hotel operators' virtual brands. The uniqueness of consumer engagement is based on factors such as immersion and interactivity. Quantitative data indicates that 274 respondents experienced a greater connection with the brand, while qualitative data shows positive emotional and psychological responses in virtual spaces. The example also includes a case study of Thomas Cook's 'Try Before You Fly' campaign, which highlights how VR transformed consumer engagement into action, resulting in a 190% increase in multi-year bookings. Purchase decisions were influenced by the interactive experience.

4.2 The impact of virtual reality on brand loyalty and applications in the tourism sector

The results of the statistical analysis indicated that 247 respondents reported an increase in brand trust following the application of virtual reality (VR) technology. Consequently, 222 respondents indicated a preference for utilising the designated services. These findings are consistent with those of the Destination British Columbia campaign, which demonstrated a notable surge in online interactions, bookings and reservations after the introduction of VR. Those who engaged with VR content were more likely to visit the site, underscoring the potential of emotional engagement and immersive experiences to enhance brand loyalty. Moreover, the findings of Lee and Kim (2019) indicate that satisfaction with virtual reality tourism has a positive impact on behavioural intentions. Additionally, evidence suggests that the behavioural intention to physically visit a destination is influenced by satisfaction with virtual reality tourism (Manchanda and Deb, 2021). The immersive quality of VR contributes to a positive brand perception and the development of long-term loyalty.

The results of the data analysis showed a high level of interest in using virtual reality to explore local attractions. In the city of Solothurn, Switzerland, 377 respondents specifically expressed a desire to experience monuments and historical sites in VR. The implementation of VR, as observed in the Destination British Columbia campaign, illustrates the potential of this technology as an effective marketing tool, resulting in increased interest and bookings. This is an example of how VR can be used to market destinations, allowing tourists to form an emotional connection with a place before they visit, which significantly increases satisfaction and interest. Virtual reality has proven an effective tool in the tourism industry.

5 Expected Results and Implications

5.1 Revolutionising marketing and tourism strategies and experiences

The potential of virtual reality to revolutionise marketing and tourism strategies is well-documented in academic research. Cowan and Ketron (2019) discovered that distinctive VR environments encourage consumer engagement with purchased products. This is advantageous for businesses, as it enables them to cultivate stronger customer relationships and establish a contemporary brand image. The Marriott VR Postcards and the Thomas Cook campaign present compelling evidence that the utilisation of VR can enhance the booking rates of travel-related businesses by showcasing destinations in a virtual environment. A crucial aspect of incorporating VR into marketing and tourism will be customising content to align with audience preferences and providing emotionally resonating experiences. In an article published in 2021, Talafubieke and Mai and Xialifuhan argue that emotions play a pivotal role in modern marketing. VR presents the potential to create distinctive experiences that can captivate and engage consumers, enhancing the efficacy of marketing strategies. The advancement of VR in marketing and tourism strategies holds the promise of transforming the way we connect with customers and showcase our offerings. Recent research has shown that virtual reality has a significant impact on tourists' perceptions of tourist destinations. Being able to take virtual tours and preview tourist sites before a physical visit enables tourists to make a deeper emotional connection with a place. Studies have shown that tourists who have had the opportunity to experience VR are more likely to visit these places in the real world. The use of VR has been shown to be an effective tool for increasing interest in tourism, influencing booking decisions and improving overall tourist satisfaction. Virtual reality offers a range of opportunities that can transform traditional marketing and tourism strategies, leading to greater consumer engagement, brand loyalty and interest in tourism.

5.2 Increased consumer engagement and brand loyalty

The extant literature indicates that virtual reality is an efficient instrument for developing increased consumer engagement and brand loyalty (Hudson et al., 2019). The creation of more complex and engaging experiences using VR technology facilitates a greater sense of connection between consumers

and a brand, which in turn leads to the formation of long-term relationships. A significant factor contributing to this level of engagement is the immersive nature of virtual reality technology itself, which evokes powerful emotional and psychological responses. This, in turn, contributes to increased credibility and consumer loyalty to the brand. An illustrative example that confirms the effectiveness of VR in building a connection with consumers is Destination British Columbia, which has experienced an increase in bookings and a positive brand perception thanks to the technology. The conclusion of this research is clear: virtual reality is a powerful tool that can revolutionise the brand-consumer relationship, leading to greater loyalty and engagement.

6 Limitations and Future Research

The implementation of virtual reality technology is effectively transforming the practices of marketing and tourism. The technology has the potential to facilitate customer engagement with a brand and its associated positive perceptions. The study illustrates the practical applications of VR in marketing and the way it affects consumer perceptions of brands and purchasing decisions. Additionally, the study offers novel insights into the application of VR in the contexts of tourism and marketing. However, the survey results also highlight some limitations. The cost and complexity of VR technology may inhibit its wider use (Harz et al., 2021). Furthermore, companies should consider VR fatigue when developing long-term engagement strategies. Future research should investigate the long-term impact of VR on consumers and brands. Additionally, it is crucial to examine how new VR technology can optimise marketing and tourism. Research in diverse countries is essential to understand how VR affects consumers in different markets and cultures.

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