

Designing for Experience-Based Tourism: A Virtual Tour in Tehran

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Abstract—As one of the most significant phenomena of industrialized societies, tourism plays a key role in encouraging regional developments and enhancing higher standards of living for local communities in particular. Traveling is a formative experience endowed with lessons on various aspects of life. It allows us learning how to enhance the social position as well as the social relationships. However, people forget the need to travel and gain first-hand experiences as they have to cope with the ever-increasing rate of stress created by the disorders and routines of the urban dwelling style. In this paper, various spaces of such experiences were explored through a virtual tour with two underlying aims: 1) encouraging, informing, and educating the community in terms of tourism development, and 2) introducing a temporary release from the routines. This study enjoyed a practical-qualitative research methodology, and the required data were collected through observation and using a multiple-response questionnaire. The participants (19-48 years old) included 41 citizens of both genders (63.4% male and 36.6% female) from two regions in Tehran, selected by cluster-probability sampling. The results led to development of a spatial design for a virtual tour experience in Tehran where different areas are explored to both raise people's awareness and educate them on their cultural heritage.

Keywords—Ecotourism, education, gamification, social interaction, urban design, virtual tour.

I. INTRODUCTION

TOURISM is known as the third largest economic industry in the world. It has led to the sustainable development of tourism-oriented cities and has been highly influential in encouraging regional development and improving living standards [1]. According to Bhandari and Abe, learning/teaching sustainable development is an essence for environmental education. They described the evolution of this stability as a transition from the emphasis on behavioral change, understanding, knowledge, awareness, and skills to a broader concept focusing on the quality of life, human rights, and ecological quality. Given local time, financial, cultural and environmental limitations, there is a growing demand for recently-established technological ways to virtual experience tourism [2]. Designing a cooperative game called Futura, Antle et al. made efforts to minimize the environmental damages by controlling the population explosion [3].

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However, very few experimental studies are available in the literature that both address the issue of virtual tourism and aim at encouraging education and increasing interactions. Regarding the aforementioned problems along with the poor quality of urban life in Tehran, the study was an attempt to investigate the need for an evaluation of different potential spaces for virtual tourism in Tehran. The findings resulted in development of a virtual space that possesses the technologies required to induce a pleasant experience of tourism as a prerequisite for raising citizens' awareness and educating them in terms of natural tourism. The purpose of this article is to describe such spaces and suggest ways of how to implement them.

II. TOURISM AND ITS SOCIO-PSYCHOLOGICAL PERSPECTIVES

In his research entitled "Toward a Sociology of International Tourism", Cohen has introduced the term of traveling as a social phenomenon. He believes that human beings enjoy a unique worldview with roots in their values. He holds that such a worldview can change along with the individuals' values when travelers come across other people and cultures [4]. People who live in poor social conditions suffer from personal abnormality and tend to rely on travelling as an escape from the routine of life and loneliness, and is a gate way to enhanced social interactions. Another factor influencing the desire to travel is ego-enhancement. This refers to a person's need for being renowned and treated with considerable dignity. Travelling and engaging in activities that are considered valuable to others, individuals tend to improve their social status in the eyes of their friends and peers.

A. Tourism Experience and the Experience of Being Present in a Place

Although intangible, tourism spatial experience is unquestionably a chance to see, hear, touch, feel, and become absorbed to a destination. McCarthy delineates the experience as a type of magic that embraces all over the place; an especial feeling that occupies our point of view, background and personal bonds, and stands above all of them. One might reflect on their tourism experiences a month or two or even years later. In this regard, not only is a tourist's experience unforgettable, but it is reinforced with subsequent information and visits as well. Therefore, tourists' responsibility is to abandon their isolation and observe the invaluable destinations and become familiar with the local culture. Visiting the destinations with their treasure of landscapes, tourists, as residents of the global village, could realize the importance of cultural heritage. McConnell claims that the concepts of

tourists and landscapes are intertwined in a particular way. Sightseeing serves an esthetic purpose, and provides the tourists with a noble insight as a reward offered to the individuals who have taken the burden to travel [5].

B. Tourism, an Experience of Multiple Senses

Tourism experience of visiting depends highly upon human senses, not just the visual, but all five senses [6]. In his research, Luecke defined three types of tourist styles including: visual, auditory, and kinesthetic. However, Ashley Montagu's theory, based on medical observations, was to approve the superiority of the sense of touch [7]. Therefore, tourism experience is a multi-sensory experience and a successful tourism product is one which attracts the tourist by something more than intuitive (visual) sense and engages all the senses in an integrative way.

C. Motivation in Tourism and Tourism Products

According to Sharpley, motivation is regarded as the major source of demand for tourism; that is, without motivation, tourism will be devoid of any demand for. Identifying psychological motivations is a difficult task. However, researchers think of travelling and tourism as effective tools for improving self-esteem as a human innate need. Sharpley outlined some of the psychological motivations for travelling as keeping away from the usual living atmosphere, engaging in self-examination and self-awareness, attaining regression and freedom, taking a vacation, and improving social relationships [8]. Tourists, willing to augment knowledge and develop new skills, tend to in pursuit of personal development. Travelling is occasionally an opportunity for individuals to experience self-expression and uniqueness. Some products of tourism are closely associated with consumers' motivations. Some of these products include theme parks and museums that involve motivations such as keeping distance from realities of life, preserving dignity and learning new things.

III. TOURISM AND EDUCATION IN ECOTOURISM

Education, a key institution, could be of a great importance in various areas: a) promoting sustainable development, b) rising people's capacity to address environmental issues, c) encouraging individuals to gain an environmental moral awareness of values, attitudes, skills, and the behaviors consistent with sustainable development, and d) praising effective public participation in decision-making on education [9]. Ecotourism is experiential approaches for the tourists motivated enough to take interest in original and pristine environments and promote environmental sensitivities, and respect/protect the visited areas. Ecotourism is also closely related to environmental education. Ecotourism deals with environmental education and fosters attitudes and behaviors required to practice the environmental protection and empower the host communities. With ecotourism comes the chance to promote a sustainable industry. Besides, virtual tourism can be regarded as an instrument in promoting environmental education and a kind of tourism consistent with information technology, which has emerged in less than two decades. The use of virtualization techniques in tourism development has created a new attitude in virtual tourism education, and it has developed virtual visitors. With this possibility, one can virtually visit various locations such as museums, landscapes, and inaccessible ancient monuments. This has allowed more complex social interactions, designed many learning experiences, and encouraged learner empowerment through greater engagement and interaction [10]. Today, tourism experience is showing much more tendencies towards mediated technology and information as well as communication technologies (ICT) than ever before. This is an aid to enhance the tourist's experience. Johnson said: "... the more organized tourism gets, the more mediated it becomes" [11]. Fig. 1 shows the different mediators of tourist experiences.

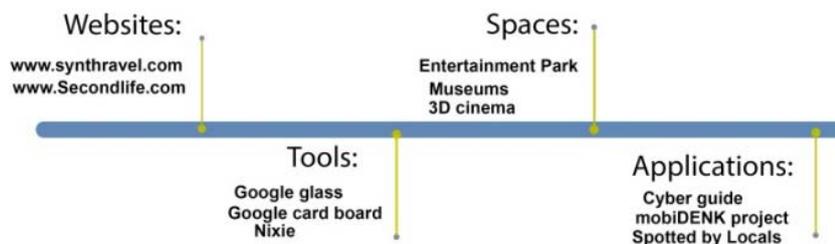


Fig. 1 Mediators of tourist experiences

In 2001, Hall et al. used Augmented Reality Technology in the concept of Situating Hybrid Assemblies in Public Environments (SHAPE) to enhance social experiences of users, and educate them about historical artifacts and their background. The items were on a virtual display in public places such as galleries and museums, [12]. In another study, using game-based feedback (GBF) and designing a virtual learning landscape (VLL), students gained insights into their own knowledge and level of awareness by using their avatars in a multi-user virtual environment [13].

IV. SOCIAL TECHNOLOGY AND GAMIFICATION

Social aspects, people's behavior and the cultural roots of Iranian, as a case, are shortly explained [14]. Meanwhile, some evidence is brought from governing the commons theory [15] to support the social behaviors of the society faced in the travelling concept. Persuasive method was applied in the design process to find out the users' essential needs and requirements, approach the problem and extract the proper solution based on the local observation. Moreover, the system

benefits from Gamification rules and principles at the implementation phase [16]; hence, they are described briefly. Every invention represents a novel functionality rather than only a new artifact. There is no invention which would not be considered to be a novel pattern of human action at the same time. Every invention is an intervention, an intervention into nature and society. That is the reason behind the fact that technical development is equivalent to social change [17].

Jenkins, in his recently published white paper looked into the science behind driving engagement, and how marketers can leverage gamification, insight, proximity marketing and social media to generate exceptional engagement and influence behavior [16]. He has summarized gamified marketing to just six critical strategies, and explained the six C's of gamified marketing and the practical steps to gain the highest levels of customer engagement and participation. The 6C Framework [18] must be:

1) Captivate – with a story, epic or legend theme and a

strong long term aim, with lots of short-term activities that progress towards that.

- 2) Challenge – users, to learn new things and master new skills. Provide feedback and reward success.
- 3) Cherish – by learning more about customers through quizzes and competitions. Deploy the subsequent data to increase relevance of communications software.
- 4) Connect – customers together and help them socialize and join teams to conquer challenges and achieve rewards.
- 5) Create – an atmosphere for people to create and develop their own content and rewards.
- 6) Champion – the most engaged users or customers, open opportunities for them. Give them power to do more of your marketing for you.

These six steps could be interpreted in the virtual tourism experience as well. Through fair Gamification rules and plan, the rules of the system could be implemented by encouraging stakeholders themselves as real visitors.

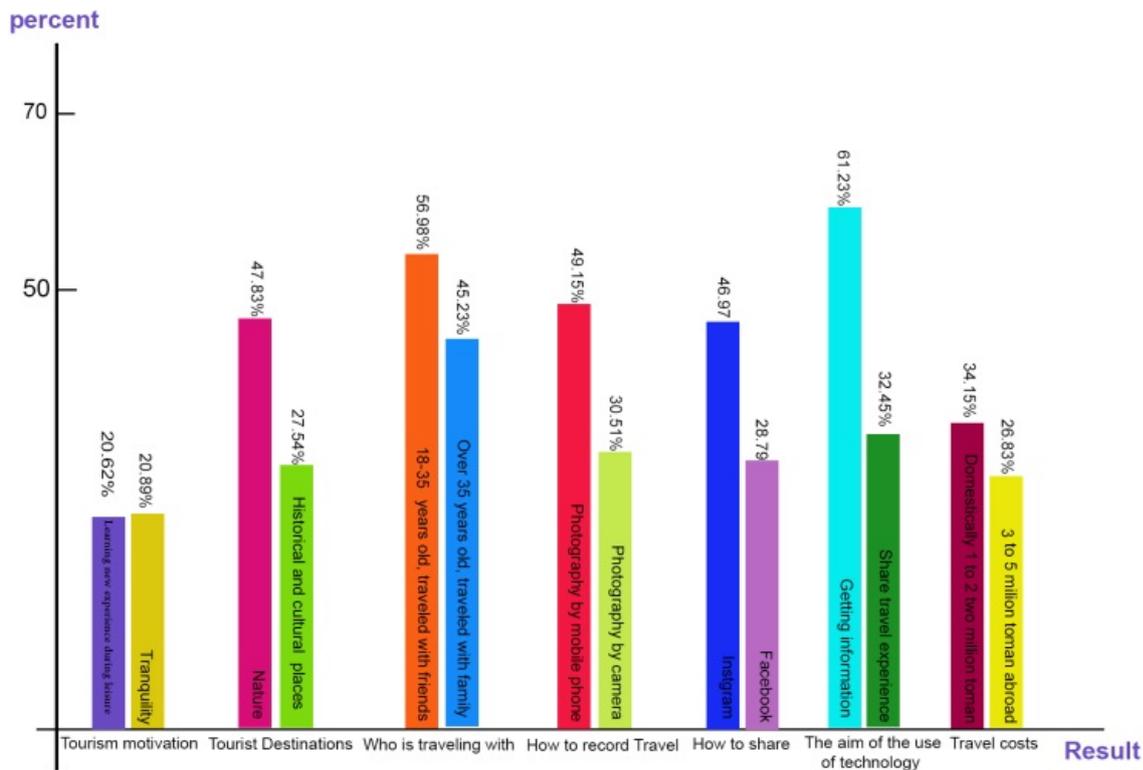


Fig. 2 Questionnaire results

V. RESEARCH METHODOLOGY

Tehran, in a case study, was examined in terms of population density, quality of life and living style in different areas, distribution of major work centers, public open spaces, and major recreational activities. This city, like other metropolises, possesses an urban living style with a number of difficulties. The routine monotonous passage of time along with fundamental problems such as pollution, overcrowdedness, and traffic leads to a feeling of desperation and boredom triggered by urban life in Tehran. There is a highly

significant level of general dissatisfaction (85.58%) with the quality of time spent in Tehran (either during work or leisure time). This denotes the fact that the majority of Tehran residents do not prefer spending time in their own hometown. An area of great concern was the 6th district as it suffers from inappropriate conditions in terms of environmental issues and quality of life. The district was reported to have the highest level of dissatisfaction with the time spent there, despite hosting the most important academic centers (e.g. the most famous universities), cultural centers (e.g. the largest city theater hall)

and a wide range of official and civil centers, Hence, actions must be urgently taken to enhance the quality of life in this district. The structured multiple response questionnaire was distributed among citizens in order to extract the design criteria. The population included 41 citizens, aged between 19 and 48 (with an average of 27 years) from two districts of Tehran. The study enjoyed a cluster sampling method with unequal size of clusters (46.3% male and 63.6% female).

As could be seen in Fig. 2, all the questionnaire topics including Tourism Motivation, Tourist Destination, Who is traveling with, How to record Travel, How to share travel experience, The aim of the use of technology and Travel costs are positioned on the horizontal axis and their results including two factors from each topic with the highest percentage of plentitude, are positioned on the vertical axis. Generally, the most-commonly reported motivations are related to physical ones like relaxation, learning skills, and increasing personal knowledge during leisure. In terms of destinations for tourism, natural historical and cultural places have the largest quota, respectively. In terms of travel companions, most participants chose groups of friends followed by family members. Mobile phone and camera had the highest share in terms of instruments to record the moments. Most participants share their pictures on social networks like Instagram and Facebook. Some 61.23% of participants use technology and mediators of tourist experiences to gather information and 32.45% use these tools to share travel experiences.

A. Field Observations and Interviews

According to the field observations, citizens of Tehran spend their spare time in shopping malls, theaters and cinema, parks and natural outdoors, coffee shops, and restaurants. They also spent time commuting (mostly in the subway), roaming the streets, surfing the Internet, playing sports, and having friendly gatherings (Fig. 3).



Fig. 3 Image board of Tehran citizens

B. Social Interactions and Corporation

According to the interviews, participants showed so much interest in having a different experience of traveling atmosphere, where they could joy and relaxation come together with technology and entertainment to improve the public interactions and participation. These cases were used to form image boards tending to include all keywords the participants were willing to experience in relation to travel

(Fig. 3).

Finally, the criteria, extracted from questionnaire and field research, were analyzed (through AHP evaluation method) in terms of significance and were used for designing a tourism virtual space. Based on their significance, the results included:

- 1) encouraging person-to-person and person-to-environment interactions along with gaining skills (26.7%)
- 2) creating a positive and enjoyable experience (46.6%)
- 3) using new technologies in the structure (19.4%)
- 4) the possibility of upgrading and matching with urban environment (7.3%).

Tourism experience promotes and improves the mediators for increasing user's participation, which, in return, may lead to training individuals to maintain and interact with the environment in a better way. One of these mediators is the interactive space that uses technology for virtual tourism. According to the field observations and interviews with citizens to realize their interests in how the travel experience would be, the designing criteria and their importance were represented in a perceptual map. These concepts were located in different points of this map, according to its axis i.e. Fun & Awareness /Serious & Awareness/High-tech base/ Nostalgic.

VI. TOURISM PAVILION AREA (SPACE) AND SYSTEM IMPLEMENTATION

In this research, different virtual tourism systems had been firstly examined and the participants' needs were considered in parallel with the lack of spaces and locations with a different experience in the field of virtual tourism in urban life. Next, a scheme (design) was obtained in order to provide a travelling experience through a creative and multi-sensory space that could affect human relationships and increases the participants' knowledge of tourism and natural environment. Located in Vali-Asr intersection area in 6th district, this space is the most frequent destination for urban trips. Given that the majority of population (statistical community) also chooses natural environments as their trip destination, the concepts of the final scheme were designed, inspired by the nature and climates of Iran (Fig. 4).



Fig. 4 Facade of Pavilion

The two-storey pavilion space includes four parts. In the entrance section, there is a conveyor belt that, like a train, guides tourists up a space along which monitors display images of the attractions on either side. Combined, these simulate a train-like movement; moving forward and leaving behind the images shown in the monitors, can make the visitor feel like a journey as begun. Here, the first thing that engages people's mind is their visual learning from dynamic pictures. Standing or moving along of these displays simulates the landscapes which are beyond the windows (Fig. 5).



Fig. 5 Entrance section



Fig. 6 Second floor of Pavilion

The train moves to the second floor, which is the longest building of pavilion. This difference in the surface levels is based on geographical features of Iran and represents the experience of different geographic locations in Iran. Passing the course to the second floor creates the feeling of a travelling to the Northern Provinces and experiencing the relevant

climates, as well, it engages the five senses with the features the provinces including damp, rainy sceneries, indirect light of the sun, smell of the soil, and dense woods. Along with the olfactory sensors for distributing the smell of the humidity, moisture and dirt, the rain simulated at the back of the pictures gives a feeling of presence in the forests to the individual (Fig. 6).

In a downward journey towards the lower floor, a sense of presence in the lower regions of Iran (like Iranian desert) is evoked. In the central section, the individual experiences an interactive group-based game with sand, in which, the sound system is activated by the hand movements and fingerprints make in the sand. Each individual's hand movements are identified by a number of motion sensors, and based on these movements, the sound producer system produces a rhythmic music. Producing adequate and harmonious music requires this activity to be done in collaborations and in groups, since the goal of this game is to obtain a concept of peak experience in tourism i.e. an experience in which the tourist stands at a high level of social interactions and participation. The produced sound is the result of individuals' interaction and participation in playing with the sand (Fig. 7).

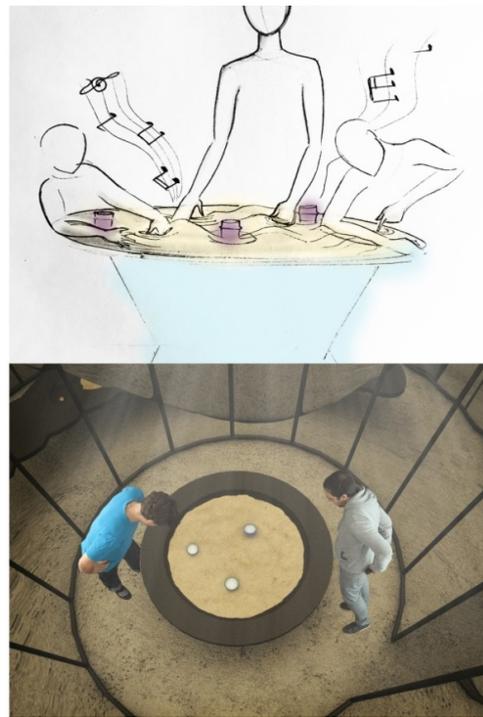


Fig. 7 Interactive group-based game using sand

At the end of the pavilion, individuals encounter this experience for themselves. An extensive interactive wall with a camera embedded on the top of it allows taking pictures of different landscapes shown on the monitors; therefore, giving individuals the opportunity to share their group photos on social network pages. Photos taken in groups are given priority by the camera sensors, compared to personal photos (Fig. 8).



Fig. 8 An extensive interactive wall with a camera

VII. CONCLUSION

The use of virtualization techniques has introduced a new attitude in tourism virtual training. Based on the results of a design-based study, we obtained an interactive space concept that could represent an enjoyable experience of natural tourism virtual space through a creative multi-sensory space in urban life. It also represents a space for collaboration and learning in the form of observational findings and games. There are several key design features identified such as the use of time difference in broadcasting videos for simulating train's movement space, the use of olfactory, motion sensors and sound generators to engage five senses in the experience, the preferred participation in games instead of single-person game, users familiarity with natural pristine environments of Iran, the use of intelligent systems for integrating user and natural landscape photos and the ability to share experience with others on social networks. The results suggested that tourism multi-sensory pavilion is an effective and joyful experience for half of the people who live in areas with low environmental and urban qualities of life. It is suggested this space can be used to educate people and help them learn through virtual tourism technologies.

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