

Interactive Technology Techniques as One of the Contemporary Design Elements

Prof. Neveen Farghaly

Professor and Head of the Department of Decoration, Faculty of Applied Arts, Helwan University

nevine_farghaly@yahoo.com

Prof. Abdel Moneam Mohamed Moawad

Professor - Helwan University

prof_moawad47@yahoo.com

Researcher. Mariam Ashraf Ahmed

Master's student, Department of Decoration, College of Applied Arts

marimashraf0@gmail.com

Abstract:-

On the basis of theoretical approaches, case studies, this research examines interactive techniques and its applications in the elements of environmental design and architectural spaces in order to stimulate human interactions and activities in public spaces.

The research is focused on the concept of visual realization and its relationship with the elements of environmental design and architectural spaces. It explores how to effectively integrate and blend between different disciplines in the arts, especially between interactive techniques and the aesthetic relationships of architectural elements. It sheds light on the study of interaction and its impact on art installations to influence human social behavior, and reviews examples of these art installations as well as how to apply interactive art in public spaces by inspiring people to become more active.

Research problem: -

The rigid design in architectural units and the elements of architectural spaces in Egypt and the failure to keep pace with the continuous technological development does not take into account human needs and the surrounding environment, as well as does not provide a continuous interaction between the artist and the recipient through the continuous changes of design elements.

For example, museums usually rely on tours that don't communicate the cultural purpose and the desired enjoyment of artifacts and antiquities adequately, instead of relying on stimulating interactive elements.

The research aims to: -

- Utilize the contemporary structural systems for the elements of architectural spaces to provide some utilitarian functions, taking into account the differences between the groups of society in terms of experiences, cultural awareness, the different ways of acquiring knowledge for them, the assimilation of information and methods of displaying, disseminating and interacting with it.
- Study design relationships affecting individuals to reach solutions and mechanisms of standards design elements of architectural spaces required to attract and influence the recipient.

- Applying interactive techniques, both aesthetically and profitably, to an example, as it shows how to benefit from them in the future.
- Apply interactive techniques to suit the personality of a specified museum in a contemporary artistic style that can create effective interactions between the recipient and the artwork to achieve the aesthetic values of design and informative function.

The importance of research: -

It highlights how to employ the combination of interactive techniques and design strategies in architectural spaces, allowing individuals to be active participants in the set scenario for programming the components of environmental design.

It also refers to how to achieve the maximum possible effectiveness of interaction in light of its impact on the external and internal design elements, as well as its impact on the social behavior, and the development of mechanisms to activate the techniques of movement, interaction and transformation of sending and receiving with the recipient.

The research is focused on finding a language of communication between the works of modern media arts and the recipient, and how to effectively utilize its functions and aesthetics in the elements of environmental design.

Research hypothesis: -

It is possible to employ interactive technologies in design in a way that leads to realizing a new and innovative dimension in designing interactive systems and using them optimally to achieve their functional and aesthetic value.

Research limits: -

The research uses the description method in studying the techniques of interactive art in modern technologies, and analyzing different contemporary art works which are related to different forms of cultural heritage, and helped in applying the same concepts to the applied work of research.

It also uses the experimental approach which tests the study hypotheses of how interactive technologies impact the psychological element of the community, and explores the standards which the designer must follow to influence the recipient in order to achieve the research hypotheses and to move from the theoretical framework to the applied practical framework.

Research methodology: -**Introduction: -**

On the basis of theoretical approaches, case studies, this research examines interactive techniques and its applications in the elements of environmental design and architectural spaces in order to stimulate human interactions and activities in public spaces.

Interactive design:

It's the design that responds to human interaction and specific commands in technological devices as a result of human interaction with the used applications. This has been helped by the recent emergence of the internet of things, which is a network of physical devices and various applications embedded in electronics, software and applications.

Interaction design principles: -

Among the most important principles that must be followed in interactive design as one of the environmental design elements are the following:

MOTION: It is a basic element and a prime principle that there is no interaction without a movement or reaction from the recipient.

SPACE: It is the space required to be available and taken into account in light of the environment, and the area in which the interaction will take place, whether it is an open or closed space.

TIME: It is one of the principles that the recipient can participate in estimating in terms of interacting or whether to continue the interaction or not by estimating the amount of time appropriate for the user in the interactive process.

SOUND: It is one of the most commonly used aspects of educational and infographic interactive design.

AESTHETICS: It is the aesthetic form based on the foundations of design and its principles to achieve attraction through visuals and other effects that give beauty to the elements in the architectural spaces.

Before the advent of digital advancements, there were many attempts by some artists to apply the interaction between the machine and the user, so most of the interactive works at that time were mechanical, such as the work of (Marcel Duchamp) of the Rotary Demi sphere in 1920 in Paris, which is an optical illusion that requires the viewer to stand in front of it. The disc moves in a circular motion creating an optical illusion of movement.

References: -

- Adriaansens, A., & Brouwer, J. (2002). Alien Relationships from Public Space. In *Trans urbanism* (pp. 138-143). Rotterdam: V2_Publishing/NAI Publishers. Retrieved from <http://www.lozano-hemmer.com/publications.php>
- Briones, C., Fatah gen. Schieck, A., & Mottram, C. (2007). A Socializing Interactive Installation for the Urban Environments. *IADIS Applied Computing 2007*. Retrieved from <http://eprints.ucl.ac.uk/7459/1/7459.pdf>
- Bullivant, L. (2006). *Responsive Environments*. London: V&A Publications.
- Cianchetta, A. (2009). *City by Night: The Illuminated City*. In M. Armengaud, M. Armengaud, & A. Cianchetta (Eds.), *Nightsapes: Nocturnal Landscapes* (pp. 105-164). Barcelona: Gustavo Gili SL
- Cosgrove, D. E. (1998). *Social Formation and Symbolic Language*. Wisconsin: University of Wisconsin Press.
- Fatah gen. Schieck, A., Briones, C., & Mottram, C. (2007). A Sense of Place and Pervasive Computing within the Urban Landscape. *Space Syntax 6th International Symposium*. Retrieved from <http://discovery.ucl.ac.uk/7450/>
- Fatah gen Schieck, A., Kostakos, V., & Penn, A. (2010). Exploring Digital Encounters in Public Arena. In K. S. Willis, G. Roussos, K. Chorianopoulos, M., & Struppek, M. (Eds.), *Shared Encounters* (pp. 179-196). London: Springer.

- Fisher, P. T., & Gehring, S. (2012) URBAN HCI: Interactive Media Architecture and Disproportionate Scale [Workshop description]. Retrieved from <http://mab12.mediaarchitecture.org/workshops/>
- Fischer, P. T., & Hornecker, E. (2012). Urban HCI: spatial aspects in the design of shared encounters for media facades. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, Austin, Texas, USA. Retrieved from: doi>10.1145/2207676.2207719
- Gehl, J. (2010). Cities for People. Washington, DC: Island Press.
- Gehl, J. (2011). Life Between Buildings: Using Public Space. Washington, DC: Island Press.
- Haque, U. (2006). Architecture, Interaction, Systems. [Extended version of a paper written for *Arquitetura & Urbanismo*, AU 149]. Retrieved from www.haque.co.uk
- Lacy, S. (1994). Cultural Pilgrimages and Methaphoric Journeys. In S. Lacy (Ed.), *Mapping the Terrain: New Genre Public Art*, Seattle-Washington: Bay Press.
- McQuire, S. (2008). *The Media City: Media, Architecture and Urban Space*. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage Publications.
- Nyka, L. (2006). *From Architecture of Circulations to Urban Landscapes*. Gdansk: Gdansk University of Technology Press.
- Roosegaard, D. (2010). *Interactive Landscapes*. Rotterdam: Nai Publishers.
- Sennett, R. (1994). *Flesh and Stone: The Body and the City in Western Civilization*. New York: Norton.
- Simanowski, R. (2011). *Digital Art and Meaning: Reading Kinetic Poetry, Text Machines, Mapping Art, and Interactive Installations*. Minneapolis, London: University of Minnesota Press.
- Urbanowicz, K., & Nyka, L. (2012). Media Architecture: Participation through the Senses. In MAB '12: Proceedings of the 4th Media Architecture Biennale Conference: Participation. New York, NY, USA: ACM, 51-54. <http://doi.acm.org/10.1145/2421076.2421085>
- Willis, K. S., Roussos, G., Chorianopoulos, K., & Struppek, M. (2010). Shared Encounters. In K. S. Willis, G. Roussos, K. Chorianopoulos, & M. Struppek (Eds.), *Shared Encounters* (pp. 1-15). London: Springer.
- Whyte, W. H. (2001). *The Social Life of Small Urban Spaces*. New York: Project for Public Spaces. (Original work published 1980)