

# **A novel semi-automated approach for detecting and extracting of urban features using object-based aerial image analysis**

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## **Introduction**

Public art has followed a new trend in urban spaces in recent years, so that cities invest highly in the design and implementing of public works of art and improving the visual quality of urban spaces, since it is effective in creating good urban spaces and making the city attractive and memorable. It also encourages people to communicate with works of art and each other. Although public art as an art integrated with the public space of cities is not a new concept, many changes have been created in public art and it caused the creation of various types of public art in most cases from a purely static art to a dynamic and interactive art. This article aims to investigate the effect of public art in urban spaces on promoting the perceived vitality of young people. Despite the importance and role of public art in the quality of urban public spaces, studies conducted in the area of public art have not paid much attention to the effect of different types of public arts in public spaces on vitality of people, especially young people. Thus, this study was conducted with the aim of answering the question of “which type of public art has a greater impact on promoting the perceived vitality of young people in urban spaces?”

## **Data and Methods**

The present study is a qualitative-quantitative (mixed) study conducted as a survey. In the present study, visual approach and image reading were used to collect information. Visual research is a term that includes methods based on data collection and analysis of them through designing, painting, photography, film, or video images. In this article, public arts and interactive arts were divided into different types based on theoretical foundations and research literature and an image was selected from each type of art and through an online questionnaire was submitted to the participants and they were asked to express their level of vitality from watching that work of art in urban spaces on a 5-point Likert scales. This questionnaire was designed and sent to the target population through cyberspace applications. Since the target population of the present article was young people, the sample was selected among the students of Tabriz University and the students of Nabi Akram Institute of Higher Education in Tabriz in the second semester of 2020-2021. To determine the sample size, Cochran's formula with an error level of 5% was used. According to the number of students in these two universities (27000 people), the sample size of 379 was selected. After sending the questionnaire to nearly 380 people, 144 people completed the questionnaire. In this research, both art and architecture students and non-art and architecture students in both bachelor and master levels were surveyed.

## **Discussion and Conclusion**

The research results revealed that among different types of public arts in urban spaces, sound and digital arts such as musical fountain, and the integrated art embedded in the elements available in space such as wall relief in the body of the building and the art appropriate to the site, such as

plants formed in parks, regardless of the three criteria of gender, age, education and field of study, are accepted by all young people and increase vitality, but abstract static art is less welcomed by young people. Among the interactive arts, dynamic-passive interactive art and static interactive art obtained the highest score in terms of creating a sense of vitality among young people, and in contrast, dynamic-dynamic interactive art obtained the lowest score. Art related to public and local culture caused the highest vitality among male young people and young non-art and architecture master students, and digital art caused the highest vitality among females and bachelor art and architecture students. In addition, among non-art and architecture bachelor students, two-dimensional applied art obtained a relatively high score.

## Results

The results show that creating static works of art is not effective in designing cities and using public art to create a sense of vitality in urban space and young people show higher tendency to dynamic work of arts. Also, interactive works of art are more acceptable than non-interactive types, and urban planners should pay attention to this issue in embedding works of art in urban spaces and take right decisions and actions to increase presence, interaction, and vitality among young people in urban spaces. Also, the use of modern technologies and creativity in the artistic design of cities is one of the requirements for adapting the urban space to spirits of young people.

**Key Words:** Urban buildings extraction, Object-based image analysis, accuracy assessment,

Varzaghan city

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