

# Chapter 7

## Augmented Reality Games

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### **ABSTRACT**

*Augmented reality strengthens its ties with the gaming world every day. The fact that smartphones can be used as an augmented reality tool, in particular, shows this interest as a remarkable phenomenon for both gamers and game producers. The development of augmented reality applications is of great importance for the future of the gaming world, as it is not only limited to mobile phones but also covers more sophisticated devices. This research intends to evaluate how augmented reality games interpret gaming concepts and principles, through field research methods, new applications, and studies that deal with gamification, presence, immersion, and game transfer phenomena. It is also aimed to make inferences about how our daily life can be gamified in the near future thanks to augmented reality.*

### **INTRODUCTION**

One of the fastest-growing areas of digital technologies is undoubtedly the gaming industry. In addition to hardware and software developments, subjects such as digital storytelling, character design, realistic simulations, artificial intelligence, and user experience increase the connection of technology with the concept of gaming day by day.

The relationship between gaming technologies and the concept of reality has been one of the most challenged areas throughout history. Computer visualization is one of the most essential parts of the gaming experience and has become competitive with cinematic visual effects thanks to software and hardware advancements that require high processing power. In addition, the ability of computer games to make this visualization simultaneously within the experience itself has made it more effective and persuasive than the cinema.

Video games often prefer to separate the user from the real world. This isolated world, where imagination and actions are limitless, is one of the main motivations for most players to play the game, even if they are not aware of it. Because this virtual world is more exciting, fun, passionate, and competitive than the ordinary lives of the gamers.

DOI: 10.4018/978-1-6684-7589-8.ch007

Augmented Reality technology offers never-before-seen experiences in terms of matching the immersive gaming world with real life. Removing the boundaries between the virtual and real world means making these unique experiences a reality, not just for gaming, but for gamification as well.

## **AUGMENTED REALITY GAMES**

Augmented Reality, under the umbrella of Extended Reality (XR), is an interdisciplinary subject of artificial intelligence and human-computer interaction. Augmented Reality is a technology that organically integrates physical (visual and auditory) information between the real and virtual world through computer simulation, which is difficult or impossible to experience in a certain time and place in the real world. Augmented Reality devices instantly calculate the user's position and angle framed by the camera and superimpose the digital images by matching them with the real objects in the three-dimensional environment.

Virtual and Augmented Reality games, which have become increasingly popular in recent years, have led to the need to look at the concept of reality from a different perspective. In virtual reality games, the user is fully surrounded by an artificial image, while in Augmented Reality real world is still visible. In Augmented Reality games, players can only partially disconnect from the real world. At this point, the player's presence is challenged not only mentally but also physically.

Augmented Reality uses three-dimensional motion graphics to blend digital images with the user's point of view. Unlike Virtual Reality, which creates a completely artificial environment, Augmented Reality aims to keep the user inside by creating add-ons to the real world. Because of this feature, Augmented Reality is a subset of virtual reality that is rapidly gaining ground among app developers, businesses, and gamers alike.

Augmented Reality applications have been able to overcome many technological obstacles in recent years, thanks to mobile phones that can integrate face and voice recognition technologies. Also factors such as artificial intelligence and machine learning, the Internet of Things, 5G, and cloud computing are driving the growth of Augmented Reality in coming years, making those technologies an indispensable part of the gaming industry of the future.

## **Augmented Reality and Gamification**

Gamification refers to the use of game design elements in non-game contexts (Deterding et al., 2011). Gamification can be easily applied to almost any industry, such as entertainment and media, gaming, aerospace, defense, manufacturing, retail, education, and healthcare.

According to Alsawaier (2018), gamification is the adoption of game mechanics and dynamics to engage people, solve problems and improve the learning process. Gamification involves the use of elements traditionally found in games such as narrative, feedback, reward system, conflict, cooperation, competition, clear goals and rules, levels, trial and error, fun, interaction, interaction.

Education, which is one of the most widely used areas of gamification, contains very concrete methods both in terms of approach and goals. These concrete approaches are one of the main reasons why Augmented Reality applications have become widespread in the field of education. The relative readiness of educational content allows them to be prioritized in Augmented Reality and digital transformation.

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