



# Understanding Crucial Factors Of Metaverse Acceptance Among Gamers: Evidence From Empirical Studies

Priyanka Sahoo<sup>1\*</sup>, Aditi Saurav<sup>2</sup>, Lalith Kumar Vemali<sup>3</sup>, Rakesh Gandla<sup>4</sup>

<sup>1\*</sup>Research Scholar, Marketing & Strategy College affiliation: ICFAI Business School Hyderabad (IBS Hyd)

Email: priyanka.sahoo21@ibsindia.org Contact number- 7448060609

<sup>2</sup>Research Scholar, Marketing & Strategy College affiliation: ICFAI Business School Hyderabad (IBS Hyd)

Email: aditi.saurav20@ibsindia.org Contact number- 8084084604

<sup>3</sup>Head of Product Innovation at SSK EMart Pvt Ltd, College affiliation: Woxsen University – School of Business

Email: lalithkumar.vemali\_phd.2023@woxsen.edu.in Contact number: 9686999435

<sup>4</sup>Senior Manager of Regional Marketing at HDFC Bank, Department: Marketing College affiliation: Woxsen University – School of Business

Email: rakesh.gandla\_phd.2023@woxsen.edu.in Contact number: 9866857725

**Citation:** Priyanka Sahoo<sup>1</sup>(2024), Understanding Crucial Factors Of Metaverse Acceptance Among Gamers: Evidence From Empirical Studies *Educational Administration: Theory And Practice*, 30(4), 3245-3256  
Doi:10.53555/kuey.v30i4.2008

## ARTICLE INFO

## ABSTRACT

The metaverse intends to provide its users with a virtual platform to engage and virtualize. Metaverse offers a wide range of functions for the end user. Users usually play games with each other, make content, virtualize, and host meetings and shows. Every user of metaverse has a different mindset for using metaverse, which means there is a usage intention for metaverse for various use cases of metaverse. The study aims to identify the aspects that impact metaverse usage intention in the setting of online gaming. The major data-collecting approach is used in the study to identify responses acquired utilizing close-ended questionnaires from those who regularly engage in online gaming. The findings from the purposive sampling method revealed that perceived usefulness, perceived ease of use, and social interaction have a significant impact on users' intentions to use the metaverse, and demographic factors (i.e., gender and age) also have an impact. The study also examined the implications of the study, along with other concepts and suggestions for further investigation.

**Keywords:-** metaverse, perceived ease of use, perceived usefulness, usage intention, social interaction

## I. INTRODUCTION

In the metaverse, people can utilize state-of-the-art technologies like “Virtual Reality”, and “Augmented Reality” to communicate with one another and access digital information in real-time [1]. The metaverse is a new kind of social and economic infrastructure that allows individuals to do things like work, play, socialize, study, and consume material without having to leave the comfort of their own homes in a shared digital world. Companies, organizations, and people all have their ideas about what the metaverse should be like, from a completely independent world to a hybrid of multiple virtual platforms and experiences, but they all agree that the metaverse can change many facets of people's lives. The act of engaging in video games inside a virtual environment that is accessible to a vast number of individuals worldwide is sometimes referred to as "gaming in the metaverse." This includes massively Multiplayer Online Games (MMOs), social games, as well as casual games such as puzzle and card games. The aforementioned games encompass intricately designed and interactive virtual settings that provide players the opportunity to explore and engage with their surroundings.

### 1.1. Metaverse

Until the release of “Neal Stephenson's novel Snow Crash in 1992”, the word “metaverse” was not often used among technology critics and academics. According to Joshua (2017) [2], the narrative positions the metaverse as a “Virtual Reality” (VR) environment in which internet and AR technologies are utilized by avatars and software agents [3]. New technologies such as (VR) headsets, blockchain technology, and avatars” constitute this emerging synthesis of the actual and virtual worlds, which is known as the metaverse [4], [5]. For quite some time, players have had access to (VR) headgear and avatars for use in online games that are both immersive and participatory in the multimedia style. Popular examples of the metaverse include Linden Lab's 2003 release of Second Life, a multimedia platform that permits users to create and regulate avatars and

communicate with one another in a virtual world. Metaverse forerunners include Roblox and Fortnite, two more popular 3D interactive platforms where users may create avatars and engage with other players in their private virtual world [6]. Since the early to mid-2000s, these platforms have amassed a global user base in the hundreds of millions. When applied to the metaverse, however, their platform independence and utility are severely constrained.

“Horizon Worlds by Meta Platforms in 2021” and the idea that the metaverse may affect many aspects of how people work and socialize have sparked widespread analysis and discussion among scholars and professionals about the potential social impacts of these developments [7]. Avatars and holograms would allow people to do business, engage socially, and have fun through simulated shared experiences in Mark Zuckerberg’s future metaverse [8]. However, the definition by Damar (2021) the metaverse is the layer between you and reality and a 3D virtual shared world where all activities can be carried out with the help of augmented and virtual reality services.

Technology like (VR) headsets, haptic gloves, Augmented Reality (AR), and Extended Reality (XR)” are rapidly evolving to the point where users may experience the entire breadth of the metaverse’s interactivity and immersion. Businesses are starting to investigate the metaverse and think about how it may be used. As an example of the growing acceptance and revolutionary potential of metaverse technology, the Italian premier soccer league recently announced that it will broadcast “AC Milan vs. Fiorentina” within the “Nemesis metaverse,” allowing fans to engage within the Serie A virtual room [9]. The human rights, legal, and ethical considerations that arise when avatars are generated and utilized to represent and/or act on behalf of individuals as their digital twins in metaverse contexts have yet to be thoroughly explored. The metaverse may be young, but platforms have already figured out how to profit from the enthusiasm of those who are eager to invest in it [10]. Recently, the Ethereum network crashed after U.S.-based Yuga Labs made \$320 million through the sale of 55,000 virtual plots of land on the opposite side of the metaverse [11].

## 1.2. Metaverse in Online Gaming

The Metaverse doesn’t manifest in its totality. Computer games that provide the most intense emotional experiences have commonalities with a small set of systems. Most gamers choose games set in a 3D virtual world. This creates a far more personal and immersive experience for viewers in the Metaverse. Metaverse games have a lot to offer in terms of functionality and relevance to real life.

Players in the Metaverse can participate in online video games, where they may meet new people and broaden the scope of their social network. Le investments provided players with portable game resources, linking them to the value of virtual gaming assets like avatars and weaponry [12]. Non-fungible tokens (NFTs) help drive the economy of this hypothetical world. Furthermore, they may be open to Bitcoin, sell assets to several other users, and earn money via gaming.

There has been a meteoric rise in internet users over the last several years, particularly since the onset of the pandemic [13]. According to Champion, virtual legacy blends the abstract with the concrete, with an emphasis on dialogue and participation [14]. Huggett, in his concept of virtual legacy, emphasizes the importance of presence and authenticity in VR [15]. In the metaverse, users may communicate with one another in real-time while maintaining their online personas [16]. Virtual reality technology has a crucial part in broadening the scope of human life [17]. The evolution of virtual reality from arcade games to internet games to the “Metaverse” demonstrates humanity’s capacity for innovation and creativity.

Using advances in the fields of networking, artificial intelligence, computers, blockchain, the Internet of Things, and video games, a virtual community consisting of actual individuals may be built [18]. The virtual realm facilitates innovation; nevertheless, its efficacy is constrained by its detachment from the physical realm [19]. In a virtual setting, individuals have the potential to achieve what they desire [20]. Metaverse features include self, social group, environment, location, variety, latency, economy, and culture [21]. To create a seamless bridge between the digital and real worlds, persistent virtual space is fused with virtual augmented reality [22]. Perhaps people’s lives can be improved thanks to online gaming [23]. Positive results may be seen through campaigns like #PlayApartTogether, which encourage using video games as a means of connecting with others and relieving stress. For the most part, gaming looks adaptive [24], and it may lessen feelings of isolation [25], [26]. When compared to other possible coping activities, such as alcohol and drug usage [27] or overeating, gaming is usually less damaging [28]. For those who already have a gaming setup at home, gaming might potentially work out to be rather cheap. It’s crucial to remember, however, that extreme gaming binges aren’t necessarily healthy, and may put at danger populations like kids and those with gaming disorders [29]. Identifying the adverse consequences associated with excessive gaming, including potential detriments to mental well-being, sleep quality, and physical health, can be a challenging task [30].

Several factors have been linked to problematic gaming, including personality traits [31], “anxiety” [32], [33] “entertainment achievement and escapism” [34], “game genre” [35], [36], and “sensation-seeking behaviors” [37]. It has also been hypothesized that some people may acquire a habit of gaming to reduce psychological discomfort during the COVID-19 pandemic [38], [39]. Recent Indian research [40] found that during the lockdown time, gaming activity among college students rose. Since the lockout has likely disrupted people’s jobs and/or school schedules, they may have a lot of spare time on their hands, making it easy to become sidetracked by things like online gaming instead of getting their work done from home. Therefore, it is crucial to have comprehensive and effective strategies for supporting both physical and mental health.

### 1.3. Application of Metaverse in Online Gaming

The game industry might see significant shifts if the Metaverse is implemented. If looking for a gaming niche to fill, AR and VR won't be able to compete with the accessibility and breadth of the metaverse. Metaverse use cases in gaming seem to have a significant impact on the following features and components:

#### a. Playing Together:

The Metaverse is inherently social, thus users may engage with the universe in ways that encourage friendships and bonds. Multiplayer games would be elevated to a whole new level if players could interact with one another, make real-life connections, build ties, etc.

#### b. Play For Money:

It is one of the most crucial parts of playing games in the Metaverse. Users have the opportunity to earn rewards by doing things like following the rules and progressing through a storyline. Trading in crypto games played in a metaverse setting may include the purchase and sale of virtual goods between players.

#### c. Adaptable Gaming Environment:

It provides a gaming atmosphere that is far more malleable and fantastic. It's easy to include new users, make content for them, create minigames inside a league, and use the gaming environment for additional purposes in the virtual gaming space.

#### d. Portable Game Resources:

The adaptable architecture of Metaverse may allow for the mobility of assets. Persistent ownership of items or avatar improvements gained in one game may be transferred to another, according to NFT laws.

#### e. Multi-sensory Immersion:

The Metaverse can provide a more lifelike experience because of MR and AR. The use of mixed reality in Metaverse video games might enable users to move freely between augmented reality chats with friends, mixed reality video games, and the full virtual reality worlds of the Metaverse.

### 1.4 The development of online gaming

#### a. Gaming before the Metaverse

Even with the emergence of blockchain-enabled games, gamers showed a notable affinity for multiplayer gaming experiences [41]. However, blockchain is making some significant changes to the way digital games are played. Gamers are blown away by its potential applications in NFTs and cryptocurrencies, such as the tokenization of in-game assets that can be sold for cryptocurrency. The decision of gamers to either sell their assets or retain them until they receive rewards from the platform is contingent upon the specific criteria established within the games [42]. The popularity of NFT games has been lauded by those who are most at home in the real money gambling and cryptocurrency markets. The spectacular visuals and realistic depiction of in-game items contributed to the games' success beyond the financial reward they provided.

#### b. Now Gaming in the Metaverse

The development of metaverse games may be attributed to the maturation of the gaming industry. Web3-based games are the next generation of gaming, with firms embracing decentralized projects since the future seems to follow a decentralized approach, as experienced by players who access these games [43]. Elemental Raiders, an upcoming videogame in the metaverse and Web3 genre, recognizes the continued significance of in-game ownership and game economy.

Focusing on the actual gaming experience while incorporating components like the battle pass from Fortnite and Battle Royale into a sustainable, controllable, and long-term economic model inside play-to-earn games remains a basis to work on. Some developers, like G4AL, are bridging the gap between free-to-play and play-to-earn with their game pass features, giving players the option to make money whenever they choose. Gamers may work together, invite their friends, and interact inside the Web3 ecosystem or "metaverse" to play a game together. Because of the metaverse's interoperability, players may take their virtual possessions with them when they switch platforms.

### 1.5 Usage Intention

Usage intention refers to the intent to use any service or product from any company or organization. People have various factors affecting their choice to use a product or service.

#### a. Perceived Usefulness (PU)

A user's view of the usefulness of a new piece of technology is known as "perceived usefulness" [44]. (PU) is broken down into four factors in this analysis. The articles said that using a mobile wallet was advantageous, advantageous, efficient, and made work simpler.

#### b. Perceived Ease of Use (PEU)

An individual's view of the new technology's ease of use is referred to as "Perceived ease of use". Here, PEU is broken down into four subcategories [45]. The mobile wallet was praised for its convenience, readability, efficiency, and simplicity of interaction.

#### c. Perceived Risk (PR)

There is a negative effect on consumer spending due to a factor called perceived risk, which is the mix of uncertainty and severity of consequence involved [46], [47]. (PR) is a four-item scale used in this investigation [45]. Items mentioned that there is a large danger of abusing mobile wallets and that people do not feel comfortable using them with their personal data and financial information.

d. Social Influence (SI)

When customers are persuaded by the opinions of influential people (such as their friends and family), they are said to be under social influence. The (SI) variable in this analysis consists of three factors. Individuals who are significant to the respondent, people who have an impact on the respondent's behavior, and people whose views the respondent places value on all desires that the respondent utilizes the system, according to the items.

e. Price Value (PV)

The value of a technology is defined as its perceived advantages relative to its expenses. Three components make up the variable cost. Items indicated that the system's pricing was fair, that it provided excellent value for the money, and that it was a decent buy at the time.

f. Behavioral Intention (BI)

Behavioral intention refers to how likely a person is to carry out a desired action when presented with a certain technological prompt. Three parts make up the goal of one's behavior. Respondents indicated that they aim to make regular use of mobile wallets in their everyday lives and that they intend to do so when appropriate possibilities present themselves.

On the basis of the above-mentioned background of the study and previous research gap, a few objectives have been created:

**Obj-1.** To discover the factors that influence individual intentions to use and explore metaverse in the context of online gaming.

**Obj-2.** To investigate how demographics influence users' intention to use the Metaverse.

**Obj-3.** To compare the impact of influencing factors of usage intention of the metaverse across online gaming contexts (e.g., MMOs, mobile gaming, eSports).

The remainder of the document is divided into some essential sections. The study includes an in-depth overview of the current literature on Factors of Metaverse Usage Intention Based on Online Gaming Context essential themes, and framework. Next, the previous theories related to the topic are presented. The study further explains the research methodology, including data gathering methods, participant selection, and analysis procedures. Then it displays the results outcome based on the hypothesis. The last sections of the paper include the discussion and conclusions. Finally, we provide a comprehensive list of references.

## II. THEORETICAL FRAMEWORK

Fred D. Davis developed TAM in 1986. Davis's Theory Reasoned Action-based approach claims that the cognitive process decides whether to adopt technology and aims to pleasure users or increase its value [48]. TAM quantifies factors that influence information technology adoption and rejection. Psychological theory asserts that beliefs, attitudes, intentions, and user behavior connections determine computer user behavior, which underpins the TAM model. This model describes the main factors affecting technology adoption behavior [49].

The "Technology Acceptance Model" (TAM) is widely utilized as a framework for assessing the likelihood of individuals adopting and embracing a novel technological innovation. The Metaverse is a simulated 3D universe that attempts to capture the essence of the actual world. First, one's sense of efficiency, interest, and enjoyment all have a favorable impact on their estimation of the simplicity of a given task. Second, one's estimation of a thing's utility is boosted by its agreement with established norms and their experience of pleasure and simplicity of usage. Third, there is a strong and negative association between price and behavioral intention, and attitudes towards the usage of Metaverse technology are influenced favorably by perceptions of its simplicity of use and utility [50]. The metaverse is a fictitious universe filled with more realistic digital environments that may be used to create a more interactive classroom. The metaverse is a platform for people to interact in real-time and express their unique perspectives. It has been demonstrated that Users' Perceived Usefulness (PU) of the Metaverse System (MS) is a significant predictor of their Intention to Use the MS [51]. Healthcare, education, business, and real estate are preparing individuals to utilize metaverse knowledge every day. It's hard to guess the operator's utilization intent when users don't trust the new tech. TR and TAM reflected metaverse effects on trust. TR included optimism, innovativeness, uneasiness, and insecurity. Perceived utility and ease of use comprise the TAM [52]. The expanded technology acceptance paradigm revealed factors influencing Metaverse adoption. The perceived value, perceived simplicity of use, and perceived usefulness of the Advanced Technology Acceptance Model's antecedents influence Metaverse adoption intention. Interoperability, seamlessness, and concurrence improved perceived usefulness, whereas telepresence, interoperability, and economic flow improved perceived ease of use [53].

Utility, IT innovation, and enjoyment impact students' metaverse adoption. The main barrier to kids' metaverse use is cyber risk. Metaverse adoption aspirations are unaffected by the ease of use. Perceived utility and simplicity of use are largely influenced by self-efficacy, personal innovativeness, and perceived cyber threat [54]. Adopting new technology in a way that takes into account people's social and psychological needs, such



as participation, presence, connection, flow, and enjoyment. A user's emotional investment in, and pleasure of, the Metaverse all have a beneficial effect on their perceptions of the M's utility, ease of use, attitude toward its utility, flow, and intention to utilize it. Having a company did not change how helpful people thought they were [55].

### III. MATERIALS AND METHODS

These research questions have been curated properly after studying the numerous studies that have been done by various authors:

**Q-1.** What are the key factors that influence individuals' intentions to use and explore the metaverse in the context of online gaming?

**Q-2.** How do demographic factors such as age and gender impact individuals' intentions to use the metaverse in online gaming?

**Q-3.** Do the influencing factors related to gaming experience show variations in their impact on the usage intention of the metaverse across different online gaming contexts?

The hypothesis has been made to confirm the objectives mentioned above:

**H1.1:** Perceived usefulness influences users' intention to use the metaverse in the online gaming context.

**H1.2:** Perceived ease of use influences users' intention to use the metaverse in the online gaming context.

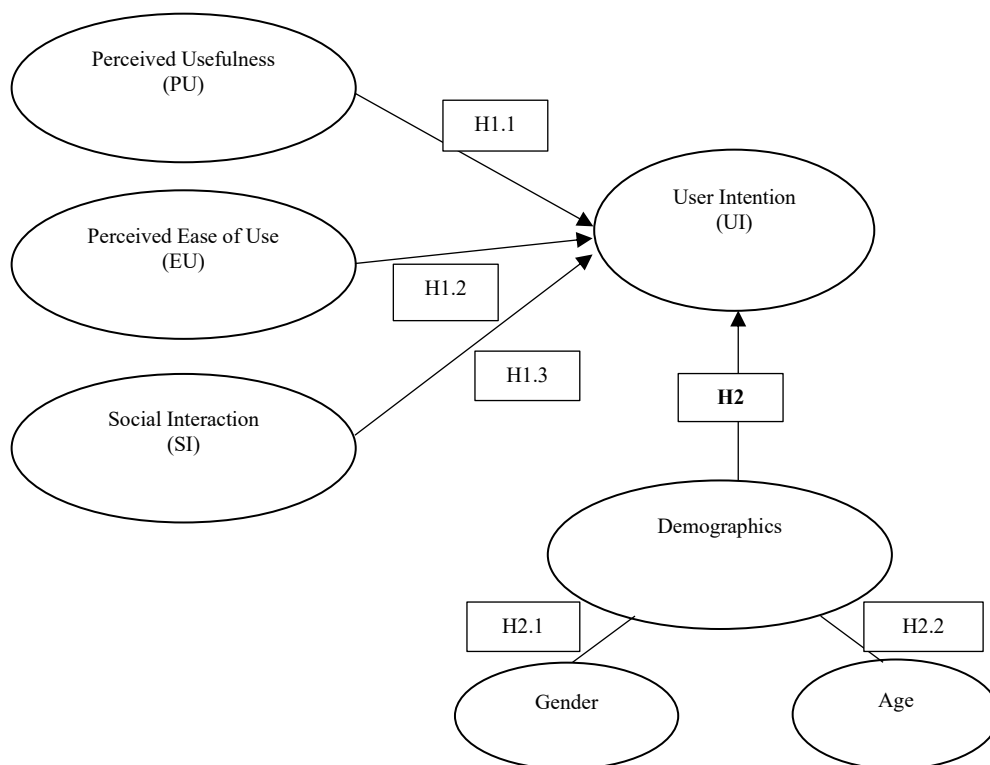
**H1.3:** Social interaction influences users' intention to use the metaverse in the online gaming context.

**H2.1:** Gender influences the users' intention to use the metaverse.

**H2.2:** Age influences the users' intention to use the metaverse.

**H3:** Perceived usefulness, Perceived ease of use, and social interaction significant differences in the impact on usage intention of the metaverse across online gaming contexts.

On the basis of above presented hypothesis a research model is created:



**Figure 1: Research Model**

Figure 1 represents how (PU), (EU), (PEU), (SI), and demographics (gender and age) impact the intention to use the metaverse in accordance with online gaming.

#### a. Data Collection and Analysis

The study is set to look at the factors influencing the usage intention of a metaverse in the online gaming context. Online responses need to be taken into account by people who do online gaming regularly. The responses are gathered using the primary data-gathering method. Close-ended questionnaires are used to gather the responses from 384 online gamers who live in India. The sample of 384 respondents was based on the purposive sampling method. The questionnaire has been made using 5 point Likert scale where a question has 5 options, in which 5 points are given for choosing Strongly Agree, 4 points are given for the option Agree, 3 points are given for opting for Neutral (Neither agree nor disagree), 2 points are given for ticking Disagree, and 1 point is given for selecting Strongly Disagree. The collected responses are then analyzed using statistical

tools namely MS Excel and SPSS from IBM. The statistical tools used various statistical techniques to test the Hypothesis like Mean, Standard Deviation, Regression, and ANOVA.

#### IV. RESULT

##### 4.1 Demographics profile of the Respondents

As shown in Table 1, the Demographic Characteristics of the respondents include information about the respondents' genders, ages, levels of education, professions, and annual household incomes. Table 1 shows that out of 384 respondents, 56.30 percent are male, and 43.80 percent are female and that their ages range from 16-30, with the largest share (34.90%) being in the younger bracket. Respondents' incomes varied from 0 to over 40,000, and the majority of them were interested in Action games. Respondents' education levels were broken down into "five categories (i.e., Higher School, Secondary School, bachelor's degree, master's degree, and Others)," with the majority having completed a Higher School (35.40%).

**Table 1: Demographics profile of the Respondents**

S No.	Demographic Characteristics	Category	N	Percentage
1.	Gender	Male	216	56.30%
		Female	168	43.80%
2.	Age	16-20 years	134	34.90%
		21-25 years	107	27.90%
		26-30 years	92	24.00%
		More than 30 years	51	13.30%
3.	Occupation	Students	170	44.30%
		Serviceman	114	29.70%
		Businessmen	67	17.40%
		Others	33	8.60%
4.	Educational Background	Higher School	136	35.40%
		Secondary School	104	27.10%
		Bachelor's Degree	79	20.60%
		Master's degree	44	11.50%
		Others	21	5.50%
5.	Income	Nil	92	24.00%
		10-000-20,000	101	26.30%
		20,001-30,000	100	26.00%
		30,001-40,000	69	18.00%
		More than 40,000	22	5.7%
6.	Favorite gaming genres	Action	162	42.20%
		Adventure	117	30.50%
		Sports	67	17.40%
		Other	38	9.90%

## 4.2 Findings Based on Hypothesis Testing

### H1.1: Perceived usefulness influences users' intention to use the metaverse in the online gaming context.

**Table 2: Regression Analysis**

Hypothesis	Regression Weights	Beta Coefficient	R	R <sup>2</sup>	F	t-value	p-value	Hypotheses Result
<b>H1</b>	Perceived Usefulness -> User Intention	.815	.815	.664	754.396	27.466	.000	<b>Supported</b>

The above Table 2 represents the hypothesis analyses if Users' intentions are directly affected by perceived usefulness. The dependent variable user intention based on the predictor variable the hypothesis's perceived usefulness in testing.  $F = 754.396$ ,  $p < 0.05$ , demonstrates that Perceived Usefulness significantly influences the Users Intention, ( $b = .806$ , and  $p < 0.05$ ). Additionally, the  $R^2 = .664$  indicates that the model clarifies 66.4% of the deviation in Users' Intentions. According to the findings, Perceived usefulness increases users' inclination to use the virtual world in the context of online gaming, so the alternative hypothesis is accepted.

### H1.2: Perceived ease of use influences users' intention to use the metaverse in the online gaming context.

**Table 3: Regression Analysis**

Hypothesis	Regression Weights	Beta Coefficient	R	R <sup>2</sup>	F	t-value	p-value	Hypotheses Result
<b>H1</b>	Perceived ease of use -> User Intention	.314	.314	.098	41.727	6.460	.000	<b>Supported</b>

The above table 3 Regression Analysis represents the hypothesis analyses if Perceived ease of use influences Users' Intentions. The dependent variable Users Intention was regressed on the predictive variable Perceived ease of use to test the hypothesis.  $F = 41.727$ ,  $p < 0.05$ , demonstrates that Perceived ease of use significantly influences the Users Intention, ( $b = .314$ , and  $p < 0.05$ ). Additionally, the  $R^2 = .098$  suggests that the framework explains 9.8% of the variation in Users' Intentions. According to the findings, the perceived simplicity of usage increases users' propensity to make use of the virtual world in the context of online gaming, so the alternative hypothesis is accepted.

### H1.3: Social interaction influences users' intention to use the metaverse in the online gaming context.

**Table 4: Regression Analysis**

Hypothesis	Regression Weights	Beta Coefficient	R	R <sup>2</sup>	F	t-value	p-value	Hypotheses Result
<b>H1</b>	Social Interaction -> User Intention	.371	.371 <sup>a</sup>	.138	61.067	7.815	.000	<b>Supported</b>

Table 4 represents the hypothesis analyses if Social Interaction has a direct impact on Users' Intentions. To test the hypothesis, the variable that was dependent on user intent was tracked by regression on the predictor variable Social Interaction.  $F = 61.067$ ,  $p < 0.05$ , it demonstrates that Social Interaction significantly influences the User's Intention, ( $b = .371$ , and  $p < 0.05$ ). Furthermore, the  $R^2 = .138$  implies that the model explains 13.8% of the variation in Users' Intentions. According to the verdicts, Social Interaction raises users' intention to use the metaverse in the online gaming context, alternative hypothesis is accepted.

### H2.1: Gender influences the users' intention to use the metaverse.

**Table 5: ANOVA Analysis**

Hypothesis	Variables	Factor			ANOVA		Hypotheses Result
		Gender	Mean	SD	F	Sig value	
<b>H2</b>	Users' Intention	Male	17.6065	3.22890	4.402	.037	<b>Supported</b>
		Female	18.2798	2.97278			

The above Table 5 ANOVA analysis represents the hypothesis tests if the "User's Intention to use the metaverse" in online gaming differs across different genders. People were divided into two groups (Group 1: Male; and Group 2: Female). The ANOVA results suggest that the "User's Intention to use the metaverse" in the online gaming scores of the groups differ significantly ( $F = 4.402$ ,  $p > .05$ ). According to the findings, the "User's

Intention to use the metaverse” in online gaming differs across different genders, so the alternative hypothesis is accepted.

## H2.2: Age influences the users’ intention to use the metaverse.

**Table 6: ANOVA Analysis**

Hypothesis	Variables	Factor			ANOVA		Hypotheses Result
		Age	Mean	SD	F	Sig value	
<b>H2</b>	Users’ Intention	16-20 years	17.9701	3.16926	2.834	0.038	<b>Supported</b>
		21-25 years	17.2991	3.20146			
		26-30 years	18.5761	2.93981			
		More than 30 years	17.7647	3.06325			

The above table 6 shows the hypothesis tests if the “User’s Intention to use the metaverse” in online gaming differs across different ages. People were divided into “four groups (Group 1: 16-20 years; Group 2: 21-25 years; Group 3: 26-30 years; Group 4: More than 30 years).” The ANOVA results suggest that the “User’s Intention to use the metaverse” in the online gaming scores of the groups differ significantly ( $F = 2.834, p > .05$ ). According to the findings, the “User’s Intention to use the metaverse” in online gaming differs across different ages, the alternative hypothesis is accepted.

## H3: Perceived usefulness, Perceived ease of use, and social interaction significant differences in the impact on usage intention of the metaverse across online gaming contexts.

**Table 7: Paired Sample T-Test**

Hypothesis	Variables	Paired Differences					t	df	Sig. (2-tailed)	Hypotheses Result
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
H3	Perceived Usefulness -> Users' Intention	-.19792	1.91800	.09788	-.39036	-.00547	-2.022	383	.044	Supported
	Perceived Ease of Use -> Users' Intention	-1.17708	3.65052	.18629	-1.54336	-.81081	-6.319	383	.000	Supported
	Social Interaction -> Users' Intention	.45573	3.56339	.18184	.09819	.81327	2.506	383	.013	Supported

The above Table 7 Paired sample T-test shows the hypothesis tests if the “User’s Intention to use the metaverse” in online gaming differs across (PU), (PEU), and (SI). The paired sample t-test result suggested that the “User’s Intention to use the metaverse” in the online gaming scores of the groups differ significantly in “Perceived Usefulness, Perceived Ease of Use, and Social Interaction” ( $p > .05$ ). According to the findings, “User’s Intention to use the metaverse” in the online gaming differs across different “Perceived Usefulness, Perceived Ease of Use, and Social Interaction,” the alternative hypothesis is accepted.

## V. DISCUSSION

### 4.3 Intention and Use of Metaverse

The market for the metaverse is expanding fast as science and technology advance and non-face-to-face contact becomes more commonplace. Education, event planning, entertainment, arts, culture, medicine, PR, manufacturing, and more are all seeing the metaverse’s impact and reach expand. In the study [56] students mostly enjoyed meeting friends, shopping, traveling, acquiring work experience, visiting job fairs, beautifying their houses, and playing games in virtual worlds. The majority of field students said the virtual world increased communication. Personalized acquiring knowledge, contextualized teaching, perceived value, perceived simplicity of use, social demands, and societal effect all had a substantial impact on people’s willingness to use the metaverse education platform [57]. The result from the study of Park, & Kim, (2023) [58] showed that the avatar-self congruence and flow completely mediated the association between the avatar’s physical likeness and the desire to buy a virtual object. This research also showed that online product research influenced actual product purchases.



#### 4.4 Key Factors that Influence Individuals' Intentions to Use and Explore the Metaverse

"Perceived ease of use (PEU), perceived utility (PU), perceived pleasure (PE) [59], and frequency of experience (FE)" were shown to predict a learner's intention to use (IU) a metaverse-based environment [60]. Results showed that in the "metaverse-based learning environment, PU, PE, and PEU" were all reliable predictors of IU. Salloum, et al. [61] found that originality has a significant role in determining the success of the metaverse system. However, it seems that the role of perceived ubiquity in encouraging the usage of the metaverse system is less successful than first thought. Adoption of the metaverse system is significantly influenced by aspects like context awareness, perceived complexity, and perceived fun. Lee and Jung [54] found that perceived complexity is important to the online game experience.

Through a survey of 536 users who had participated in a metaverse exhibition, Wang, et al. [62] found that both fun and learning experiences had a significant impact on users' intent to utilize the technology. There is a moderating effect of the presence of entertainment and learning on intent to use. The primary findings by Alfaisal, et [63] indicated that the "Technology Acceptance Model (TAM)" is the most popular model for estimating people's propensity to maintain the "metaverse system".

## VI. CONCLUSION

Several important elements, such as "perceived utility, perceived ease of use, social interaction, gender, and age", have been illuminated via research into the factors affecting users' intentions to utilize the metaverse in the context of online gaming. This research study has shed light on the multifaceted nature of metaverse adoption, illuminating the aspects that influence users' desire to use this new technology for gaming.

Users' perceptions of the metaverse's utility were shown to be a major factor in whether or not they planned to embrace it for usage in online gaming. Enhanced gaming experiences, social connectivity, and immersive gameplay are all factors that have been shown to increase users' propensity to participate in metaverse platforms. In addition, metaverse creators and service providers should highlight the usefulness and utility of their products to attract customers.

Perceived ease of use was also a crucial factor in determining how widely the metaverse was used. According to research, when people see technology as straightforward, they are more likely to experiment with and utilize metaverse platforms for gaming. Users' impressions of how easy something is to use, and their propensity to use it, may be greatly influenced by the quality of the interface and the simplicity of the interactions. Users' interest in using these platforms for gaming is heavily influenced by their ability to engage with others in the metaverse ecosystem. One study revealed that users were more likely to embrace metaverses if they could communicate with others, make relationships, and share their experiences. The metaverse's gaming communities and social networks have the potential to be strong sources of motivation for players, especially when it comes to enriching players' gaming experiences and giving them a feeling of community.

Intriguing trends emerged between age and gender as predictors of metaverse use intent when it came to MMOGs. It has been shown that men are more likely to utilize metaverse platforms than women, suggesting that gender differences may contribute to the widespread popularity of this technology. However, further research is required to comprehend the complexities behind these differences. Metaverse adoption was also shown to be significantly different based on age, with younger people being more likely to embrace technology for gaming than their older counterparts. This may be due to the younger generations' greater exposure to technology, their position as "digital natives," and the cultures of online gaming.

This literature analysis has shown how important it is to look at a wide range of issues that may affect consumers' decisions to use the metaverse for online gaming. Users' perspectives and actions about metaverse technology are influenced by several factors, including the perceived utility and simplicity of use, social interaction, gender, and age. Such knowledge may help players in the metaverse ecosystem create more user-friendly platforms, more interesting social experiences, and more targeted marketing campaigns. To stay up with the ever-changing dynamics of virtual worlds and online gaming, future studies should continue to investigate these impacting elements as the metaverse develops.

#### a. Implications

Creators should put themselves in the shoes of their users and focus on making their metaverse platforms and games as enjoyable and intuitive as possible. Adoption and intent to use may be increased with the help of simple interfaces and socially focused features. Marketers may improve their chances of success by targeting certain demographic groups via targeted techniques like targeted promotional campaigns based on criteria like gender. Adding social functions to metaverse platforms may significantly increase their popularity. It's important to emphasize sociable play and the formation of gaming communities.

#### b. Suggestions and Recommendation

Foresight into the long-term consequences and shifting influencing elements of metaverse adoption may be gained via longitudinal studies, which future academics should do. Researchers may learn more about users' perspectives, motives, and experiences with metaverse adoption in the gaming setting if they combine quantitative and qualitative investigations. To better understand the unique aspects that influence user intention across different virtual settings, it may be helpful to conduct comparison research across different

metaverse platforms and games. The adoption rate of the metaverse might be increased by user education, which emphasizes the advantages and usability of the platform. Use inclusive design principles to make metaverse platforms and games available to a wide range of users, regardless of their age, gender, or level of technical knowledge. Developers from both the metaverse and the gaming industry may work together to create games that are more immersive and interactive for players. User happiness and intent to use may be improved by the continuous collecting of input and iterative enhancements to metaverse platforms and games.

## VII. ACKNOWLEDGMENTS

At the opening of my research paper, I would like to express my profound gratitude to everyone who has assisted me in this quest. I would like to express my heartfelt gratitude to my research supervisor/guide for providing us with the opportunity to create this research paper on the topic 'Influencing factors of metaverse usage intention based on online gaming context- an empirical study' which allowed me to conduct extensive study and learn about many new things. I also express my heartfelt thanks to my parents and family members who have always morally and financially supported me. Last but not least, my thanks go to all of my friends who provided excellent advice and direction for the completion of my research paper. Cooperation and constructive criticism were beneficial to them. Finally, I Would like to thank everyone who has already been recognized.

## VIII. REFERENCE

- [1] S. Tariq et al., 2023, "Deepfake in the metaverse: Security implications for virtual gaming, meetings, and offices," arXiv Preprint ArXiv:2303.14612 [doi:10.1145/3595353-3595880].
- [2] J. Joshua, "Information bodies: Computational anxiety in Neal Stephenson's snow crash," *Interdiscip. Literary Stud.*, vol. 19, no. 1, pp. 17-47, 2017 [doi:10.5325/intelitestud.19.1.0017].
- [3] K. H. Kim et al., "Digital service innovation, customer engagement, and customer equity in AR marketing," *J. Glob. Scholars Mark. Sci.*, vol. 31, no. 3, pp. 453-466, 2021 [doi:10.1080/21639159.2021.1923054].
- [4] J. Lee, "A study on the intention and experience of using the metaverse," *Jahr Europski Cas.*, vol. 13, no. 1, pp. 177-192, 2022 [doi:10.21860/j.13.1.10].
- [5] C. Newton, 2021, Jul. 22, "Mark Zuckerberg is betting Facebook's future on the metaverse. The verge". Available at: <https://www.theverge.com/22588022/mark-zuckerberg-facebook-ceo-metaverse-interview>.
- [6] M. Damar, "Metaverse shape of your life for future: A bibliometric snapshot," *J. Metaverse*, vol. 1, no. 1, pp. 1-8, 2021.
- [7] C. B. Fernandez and P. Hui, "Life, the metaverse and everything: An overview of privacy, ethics, and governance in the metaverse" in 42nd International Conference on Distributed Computing Systems Workshops (ICDCSW), vol. 2022. IEEE, 2022, Jul., pp. 272-277.
- [8] Meta, 2023, Meta. Available at: <https://about.meta.com/>.
- [9] Reuters, 2022, May 2, "Italy's Serie A enters the Metaverse to showcase a new way to watch soccer". Available at: <https://www.reuters.com/lifestyle/sports/italys-serie-enters-metaverse-showcase-new-way-watch-soccer-2022-04-30/>.
- [10] I. Cheah and A. S. Shimul, "Marketing in the metaverse: Moving forward—What's next?," *J. Glob. Scholars Mark. Sci.*, vol. 33, no. 1, pp. 1-10, 2023 [doi:10.1080/21639159.2022.2163908].
- [11] M. V. Romburgh and Crunchbase, 2022, "'Bored Ape' unicorn raises \$320M by selling virtual land in its metaverse," Nasdaq. Available at: <https://www.nasdaq.com/articles/bored-ape-unicorn-raises-%24320m-by-selling-virtual-land-in-its-metaverse>.
- [12] N. Le, How to Create a Successful Video Game [Case]: The Last Of Us Series, 2022.
- [13] T. Sweeney, 2019, "Foundational principles & technologies for the metaverse" in ACM SIGGRAPH, (pp. 1-1) [doi:10.1145/3306307.3339844].
- [14] E. Champion, *Critical Gaming: Interactive History and Virtual Heritage*. Routledge, 2016.
- [15] J. Huggett, "Virtually real or virtual: Towards a heritage metaverse," *Stud. Digit. Herit.*, vol. 4, no. 1, pp. 1-15, 2020 [doi:10.14434/sdh.v4i1.26218].
- [16] W. C. Ng et al., "Unified resource allocation framework for the edge intelligence-enabled metaverse" in, ICC 2022 – IEEE International Conference on Communications. ICC. IEEE, 2022, May, pp. 5214-5219 [doi:10.1109/ICC45855.2022.9838492].
- [17] S. Jian et al., "From online games to 'metaverse': The expanding impact of virtual reality in daily life" in International Conference on Human-Computer Interaction. Cham: Springer International Publishing, 2022, Jun., pp. 34-43.
- [18] K. Gokmi and J. H. Jeon, "A study on the copyright survey for design protection in Metaverse period," *The Int. J. Adv. Smart Converg.*, vol. 10, no. 3, pp. 181-186, 2021.
- [19] L. H. Lee et al., 2021, "All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda," arXiv Preprint ArXiv:2110.05352.

- [20] C. Kwon, "Smart city-based metaverse is a study on the solution of urban problems," *J. Chosun Nat. Sci.*, vol. 14, no. 1, pp. 21-26, 2021.
- [21] H. Ning et al., "A survey on the metaverse: The state-of-the-art, technologies, applications, and challenges," *IEEE Internet Things J.*, 2023.
- [22] R. K. Bolger, "Finding wholes in the metaverse: Posthuman mystics as agents of evolutionary contextualization," *Religions*, vol. 12, no. 9, p. 768, 2021 [doi:10.3390/rel12090768].
- [23] I. Granic et al., "The benefits of playing video games," *Am. Psychol.*, vol. 69, no. 1, p. 66-78, 2014 [doi:10.1037/a0034857].
- [24] J. Billieux et al., "High involvement versus pathological involvement in video games: A crucial distinction for ensuring the validity and utility of gaming disorder," *Curr. Addict. Rep.*, vol. 6, no. 3, pp. 323-330, 2019 [doi:10.1007/s40429-019-00259-x].
- [25] O. Király et al., "Intense video gaming is not essentially problematic," *Psychol. Addict. Behav.*, vol. 31, no. 7, p. 807-817, 2017 [doi:10.1037/adbo000316].
- [26] M. C. Colder Carras et al., "Video gaming in a hyperconnected world: A cross-sectional study of heavy gaming, problematic gaming symptoms, and online socializing in adolescents," *Comput. Hum. Behav.*, vol. 68, pp. 472-479, 2017 [doi:10.1016/j.chb.2016.11.060].
- [27] W. R. Corbin et al., "Relations among stress, coping strategies, coping motives, alcohol consumption, and related problems: A mediated moderation model," *Addict. Behav.*, vol. 38, no. 4, pp. 1912-1919, 2013 [doi:10.1016/j.addbeh.2012.12.005].
- [28] M. Razzoli et al., "Stress, overeating, and obesity: Insights from human studies and preclinical models," *Neurosci. Biobehav. Rev.*, vol. 76, no. A, pp. 154-162, 2017 [doi:10.1016/j.neubiorev.2017.01.026].
- [29] D. King et al., "Study what makes games addictive," *Nature*, vol. 573, no. 7774, p. 346, 2019 [doi:10.1038/d41586-019-02776-1].
- [30] J. B. Saunders et al., "Gaming disorder: Its delineation as an important condition for diagnosis, management, and prevention," *J. Behav. Addict.*, vol. 6, no. 3, pp. 271-279, 2017 [doi:10.1556/2006.6.2017.039].
- [31] Ş. İ. Şalvarlı and M. D. Griffiths, "Internet gaming disorder and its associated personality traits: A systematic review using PRISMA guidelines," *Int. J. Ment. Health Addict.*, vol. 19, no. 5, pp. 1420-1442, 2021 [doi:10.1007/s11469-019-00081-6].
- [32] B. L. M. Adams et al., "Internet gaming disorder behaviors in emergent adulthood: A pilot study examining the interplay between anxiety and family cohesion," *Int. J. Ment. Health Addict.*, vol. 17, no. 4, pp. 828-844, 2019 [doi:10.1007/s11469-018-9873-0].
- [33] N. Männikkö et al., "Problematic gaming behavior and health-related outcomes: A systematic review and meta-analysis," *J. Health Psychol.*, vol. 25, no. 1, pp. 67-81, 2020 [doi:10.1177/1359105317740414].
- [34] N. Männikkö et al., "Problematic gaming behavior in Finnish adolescents and young adults: Relation to game genres, gaming motives and self-awareness of problematic use," *Int. J. Ment. Health Addict.*, vol. 15, no. 2, pp. 324-338, 2017 [doi:10.1007/s11469-016-9726-7].
- [35] S. Mihara and S. Higuchi, "Cross-sectional and longitudinal epidemiological studies of Internet gaming disorder: A systematic review of the literature," *Psychiatry Clin. Neurosci.*, vol. 71, no. 7, pp. 425-444, 2017 [doi:10.1111/pcn.12532].
- [36] E. Na et al., "The influence of game genre on Internet gaming disorder," *J. Behav. Addict.*, vol. 6, no. 2, pp. 1-8, 2017 [doi:10.1556/2006.6.2017.033].
- [37] J. Hu et al., "Sensation seeking and online gaming addiction in adolescents: A moderated mediation model of positive affective associations and impulsivity," *Front. Psychol.*, vol. 8, p. 699, 2017 [doi:10.3389/fpsyg.2017.00699].
- [38] D. L. King et al., "Problematic online gaming and the COVID-19 pandemic," *J. Behav. Addict.*, vol. 9, no. 2, pp. 184-186, 2020 [doi:10.1556/2006.2020.00016].
- [39] R. A. Rather et al., "Does gamification affect customer brand engagement and co-creation during pandemic? A moderated-mediation analysis," *J. Glob. Scholars Mark. Sci.*, vol. 33, no. 2, pp. 285-311, 2023 [doi:10.1080/21639159.2022.2083000].
- [40] Y. P. S. Balhara et al., "Impact of lockdown following COVID-19 on the gaming behavior of college students," *Indian J. Public Health*, vol. 64, no. 6 suppl., pp. S172-S176, 2020 [doi:10.4103/ijph.IJPH\_465\_20].
- [41] Y. Jiang et al., "Towards understanding player behavior in blockchain games: A case study of aavegotchi" in *Proc. 17th International Conference on the Foundations of Digital Games*, 2022, Sept., pp. 1-12 [doi:10.1145/3555858.3555883].
- [42] C. Hackl et al., *Navigating the Metaverse: A Guide to Limitless Possibilities in a Web 3.0 World*. John Wiley & Sons, 2022.
- [43] K. Shalender, "Digital solution for gaming: How the entertainment is evolving with new interactive games" in *Digital Entertainment as Next Evolution in Service Sector: Emerging Digital Solutions in Reshaping Different Industries*. Singapore: Springer Nature Singapore, 2023, pp. 81-89.

- [44] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Q.*, vol. 13, no. 3, pp. 319-340, 1989 [doi:10.2307/249008].
- [45] J. Singh et al., "Sales profession and professionals in the age of digitization and artificial intelligence technologies: Concepts, priorities, and questions," *J. Personal Selling Sales Manag.*, vol. 39, no. 1, pp. 2-22, 2019 [doi:10.1080/08853134.2018.1557525].
- [46] R. A. Bauer, "Consumer behavior as risk-taking," *Mark. Crit. Perspect. Bus. Manag.*, pp. 13-21, 1967.
- [47] J. P. Peter and M. J. Ryan, "An investigation of perceived risk at the brand level," *J. Mark. Res.*, vol. 13, no. 2, pp. 184-188, 1976 [doi:10.1177/002224377601300210].
- [48] F. D. Davis, A technology acceptance model for empirically testing new end-user information systems: Theory and results, 1985 ([Doctoral dissertation]. Massachusetts Institute of Technology).
- [49] M. Muchran and A. S. Ahmar, 2019, Application of TAM model to the use of information technology. arXiv preprint arXiv:1901.11358.
- [50] A. M. Aburbeian et al., "A technology acceptance model survey of the metaverse prospects," *AI*, vol. 3, no. 2, pp. 285-302, 2022 [doi:10.3390/ai3020018].
- [51] I. A. Akour et al., "A conceptual framework for determining metaverse adoption in higher institutions of gulf area: An empirical study using hybrid SEM-ANN approach. *Computers and education*," *Artif. Intell.*, vol. 3, p. 100052, 2022.
- [52] S. H. Jeong and H. K. Kim, "Effect of trust in metaverse on usage intention through technology readiness and technology acceptance model," *Tehn. Vjesn.*, vol. 30, no. 3, pp. 837-845, 2023.
- [53] S. B. Kim and H. Y. Lee, "A study of the impact of Metaverse attributes on intention to use based on the Extended Technology Acceptance Model". *지능정보연구*, vol. 29, no. 2, pp. 149-170, 2023.
- [54] A. S. Al-Adwan et al., "Extending the technology acceptance model (TAM) to Predict University Students' Intentions to use metaverse-based learning platforms," *Educ. Inf. Technol.*, pp. 1-33, 2023.
- [55] R. Wu and Z. Yu, "Investigating users' acceptance of the metaverse with an extended technology acceptance model," *Int. J. Hum. Comput. Interact.*, pp. 1-17, 2023 [doi:10.1080/10447318.2023.2241295].
- [56] J. H. Lee and Y. H. Jung, "The research on online game hedonic experience- focusing on the moderate effect of perceived complexity," *J. Glob. Scholars Mark. Sci.*, vol. 18, no. 2, pp. 147-187, 2008.
- [57] G. Wang and C. Shin, "Influencing factors of usage intention of metaverse education application platform: Empirical evidence based on PPM and TAM models," *Sustainability*, vol. 14, no. 24, p. 17037, 2022 [doi:10.3390/su142417037].
- [58] J. Park and N. Kim, "Examining self-congruence between user and avatar in purchasing behavior from the metaverse to the real world," *J. Glob. Fashion Mark.*, pp. 1-16, 2023 [doi:10.1080/20932685.2023.2180768].
- [59] J. Bae et al., "Affective motives to play online games," *J. Glob. Scholars Mark. Sci.*, vol. 26, no. 2, pp. 174-184, 2016 [doi:10.1080/21639159.2016.1143153].
- [60] K. Kim et al., "Work-in-progress—The effect of students' perceptions on intention to use metaverse learning environment in higher education" in 8th international conference of the immersive learning research network (ilrn), vol. 2022. IEEE, 2022, May, pp. 1-3 [doi:10.23919/iLRN55037.2022.9815996].
- [61] S. Salloum, et al., "Sustainability Model for the Continuous Intention to Use Metaverse Technology in Higher Education: A Case Study from Oman" *Sustainability*, vol. 15, no. 6, p. 5257, 2023 [doi:10.3390/su15065257].
- [62] M. Wang et al., "A study of metaverse exhibition sustainability on the perspective of the experience economy," *Sustainability*, vol. 15, no. 12, p. 9153, 2023 [doi:10.3390/su15129153].
- [63] R. Alfaisal et al., "Metaverse system adoption in education: A systematic literature review," *J. Comput. Educ.*, pp. 1-45, 2022 [doi:10.1007/s40692-022-00256-6].