

The Role of the Metaverse and Augmented Reality in Enhancing Consumer Purchase Decisions in Malang City

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ABSTRACT

The development of digital technology has brought significant changes in consumer behavior, particularly through the emergence of the Metaverse and Augmented Reality (AR) as interactive media in the purchase decision-making process. This study aims to analyze the role of the Metaverse and AR in enhancing consumer purchasing decisions in Malang City. The research method used is qualitative with a descriptive approach, through in-depth interviews and observations of consumers who have used Metaverse- and AR-based platforms during transactions. The results of the study indicate that the Metaverse provides an immersive shopping experience that can increase consumer trust, comfort, and emotional engagement. Meanwhile, AR contributes by providing a realistic depiction of products, thus minimizing uncertainty in purchases. Both of these technologies have been proven to strengthen purchase intentions, increase satisfaction, and encourage consumer loyalty. These findings indicate that the use of the Metaverse and AR becomes an effective strategy for business actors in Malang City to face digital competition and respond to changes in modern consumer behavior

INTRODUCTION

A. Background

The development of digital technology over the past decade has shifted the way consumers interact with brands and make purchases. Two technologies that stand out in the context of modern retail are Augmented Reality (AR) and the Metaverse, which together provide a shopping experience that is increasingly immersive, interactive, and personalized. AR allows consumers to 'try' products virtually in real-world environments (e.g., virtual try-ons, furniture visualization in the living room), while the Metaverse offers a persistent shared digital space where consumers can interact, explore, and conduct transactions in a social context. Both technologies have the potential to reduce consumer uncertainty, enhance emotional engagement, and speed up the purchase decision-making process.

Indonesia has shown a strong acceleration in the adoption of digital technology and e-commerce in recent years. The growth of internet users, the increase in online transactions, and the size of the e-commerce market form an important foundation for the implementation of immersive solutions in the digital era. Reports and surveys indicate a high interest in metaverse/AR experiences in Southeast Asia, as well as significant economic potential at the national level. Specifically, e-commerce survey data in the Malang region indicates increased activity among MSMEs and digital transactions, opening opportunities for integrating AR/metaverse into local marketing strategies. This integration is important so that businesses in Malang can leverage the advantages of visual and interactive experiences to attract both local and out-of-town customers.

Despite its great potential, the implementation of the metaverse and AR is not yet widespread and still faces challenges: limited infrastructure, users' digital literacy levels, the cost of developing immersive experiences, as well as concerns about privacy and safety aspects (e.g., for child users). In Malang City, a city with a majority of MSME actors and a higher education ecosystem, there are still few empirical studies assessing how metaverse experiences and AR features influence the stages of consumer decision-making (awareness, alternative evaluation, purchase intention, and actual purchase). This knowledge gap has resulted in local digital strategies not being focused on the effective use of immersive technology.

The city of Malang has an active MSME ecosystem and a relatively high student population—a group that tends to quickly adopt digital technology. Therefore, Malang serves as a policy and practice laboratory for testing the effectiveness of AR and metaverse platforms on local consumer purchasing decisions. If this technology adoption strategy is designed to align with local characteristics (e.g., local food products, traditional clothing, crafts), the potential for increased sales and market expansion is significant. However, it is important to ensure that these solutions are affordable, easy to use, and consider user data security aspects.

The contribution of this research to the development of learning at Al Qolam University is that it provides an empirical study on how metaverse and augmented reality technology affect consumer purchasing decisions. The results

can be used as teaching material in Marketing Management, E-Commerce, and Consumer Behavior courses, so that students not only understand conventional theory but also marketing practices based on the latest technology. In the context of Sharia, the use of AR/metaverse can be positioned to support product transparency, halal education, and increasing consumer trust. This can enrich learning materials about Sharia-based business using digital technology so that students can identify halal business opportunities in the digital era. The research results can inspire Al-Qolam to adopt AR/metaverse technology in the learning process (for example, virtual business simulations, student product exhibitions in the metaverse space). In this way, students can directly experience how immersive technology is applied in education and business.

B. Problem Formulation

From the background of this research, the researcher has formulated the following questions which will help in answering the following questions:

- How does the metaverse play a role in influencing consumer purchasing decisions in Malang City
- How consumers perceive the level of trust when using the Metaverse and Augmented Reality for shopping in Malang City
- What factors encourage consumers in Malang City to feel more confident, comfortable, and satisfied when shopping using Metaverse- and AR-based platforms

C. Objectives and Benefits of the Research

Based on the background of the problem and the formulation of the problem, the purpose of this study is: This study aims to:

- Measuring the effect of using the metaverse and AR on consumer purchase decision stages in Malang City
- Analyzing the influence of the metaverse on consumer perceptions, trust levels, and purchasing decisions of products in Malang City.

This research is expected to provide the following benefits:

- Contributing to the development of literature on consumer behavior in the digital era, particularly concerning the role of AR and the metaverse.
- To serve as an academic reference for future research in the fields of marketing management, digital technology, and e-commerce

D. Solutions Offered for This Research

SMEs in Malang can take advantage of virtual stores or virtual exhibitions through the metaverse to introduce products in a more immersive way. AR features such as virtual try-ons for clothing, accessories, or visual simulations of local food can help consumers explore products before purchasing. Universities can act as centers for research and digital business incubation, technology providers supply the platforms, while the government facilitates regulations and funding support. Since this research is also relevant to learning at Al-Qolam, the solutions offered must consider the values of honesty, transparency, and halal.

SMEs can continue to operate physical stores, but complement them with online stores and AR/metaverse-based virtual exhibitions.

LITERATURE REVIEW

A. Digital Marketing Theory

Digital marketing is a marketing strategy that uses digital technology, especially the internet, to create, communicate, deliver, and exchange value with consumers (Kotler & Keller, 2016). Unlike traditional marketing, digital marketing allows for two-way interaction, personalization, and a broader reach. Chaffey & Ellis-Chadwick (2019) add that digital marketing encompasses all marketing efforts that utilize electronic devices and online platforms such as websites, social media, email, mobile apps, and even immersive technologies like Augmented Reality (AR) and the Metaverse. In its development, digital marketing is no longer limited to online ads or social media, but also extends to AR and the Metaverse. These technologies create new shopping experiences that are immersive, interactive, and bring consumers closer to products.

Example:

- AR in e-commerce allows consumers to try products before buying.
- The metaverse allows consumers to attend virtual exhibitions or interact with seller avatars.

B. Metaverse in the Context of Consumer Behavior

The metaverse is defined as a collective virtual space based on a three-dimensional digital world, which allows users to interact through avatars (Dwivedi et al., 2022).

In the context of consumer behavior, the metaverse can:

- Creating an immersive shopping experience.
- Presenting a virtual store simulation for MSME products.
- Providing social interaction through avatars increases consumer trust. Park & Kim's (2022) study shows that consumers who engage in metaverse-based shopping activities have higher levels of engagement and purchase interest compared to conventional online shopping.

The impact of the metaverse on consumer behavior is:

- Immersive Shopping Experience: Consumers can enter a virtual store, try on clothes on an avatar, or see product details as if they were real.
- Increased Trust: Consumers are more confident in the quality of the product because they can visualize it directly.
- Emotional Engagement: Interacting through avatars creates a sense of togetherness and closeness with the brand.
- Social Influence: Purchase decisions are also influenced by social interactions in the metaverse, for example, seeing a friend's avatar buying a certain product.

Mystakidis' research (2022) emphasizes that the metaverse builds stronger consumer engagement compared to regular digital media because consumers do not just view content, but experience it directly.

C. Augmented Reality (AR) and Consumer Behavior

Augmented Reality (AR) is a technology that combines the real world with virtual objects in real-time. In business, AR is widely applied in marketing tools such as:

- Virtual Try-On (trying on clothes, shoes, or cosmetics virtually).
- Product Visualization (displaying furniture or household items in the consumer's space before purchasing).
- Interactive Packaging (product packaging with AR features to provide additional information).

According to Javornik (2016), AR can enhance the perceived value of products, reduce purchase risk, and increase consumer satisfaction. This is particularly important in local markets such as Malang City, where consumers are becoming more critical in choosing products according to their needs and purchasing power.

The city of Malang, dominated by young people, students, and active social media users, represents a potential market for AR adoption. This generation is known for being more open to new technology, enjoys trying unique experiences, and has shopping behavior influenced by digital visualization. The implementation of AR by SMEs and businesses in Malang can increase the appeal of culinary, fashion, and tourism products, and help consumers reduce uncertainty when purchasing new products.

D. The Relationship Between the Metaverse, AR, and Purchase Decisions

The role of the Metaverse and AR in influencing consumer purchasing decisions can be explained through consumer behavior theory and technology adoption theory:

- Technology Acceptance Model (TAM): Consumers tend to adopt new technology if they feel the technology is easy to use (perceived ease of use) and provides tangible benefits (perceived usefulness). AR and the Metaverse have been proven to increase perceived usefulness by offering a more interactive shopping experience.
- Stimulus-Organism-Response (SOR) Theory: The presence of AR and the Metaverse as stimuli triggers psychological reactions (satisfaction, trust, comfort) in consumers, which ultimately influence responses in the form of purchasing decisions.

Thus, consumers in Malang City, who are increasingly familiar with digitalization, can be encouraged to purchase products when they gain a more tangible, interactive, and personalized shopping experience through AR and Metaverse technology.

E. Perception of Digital Technology

Previous research (Davis, 1989) through the Technology Acceptance Model (TAM) emphasized that technology acceptance is influenced by two factors: perceived usefulness and perceived ease of use. In the context of this study, if consumers perceive the Metaverse and AR as useful and easy to use, then their perception will be positive and will impact the increase in purchase intention.

F. Previous Relevant Research

Research by Javornik, A. (2016). "The Mainstreaming of Augmented Reality: A Brief Overview." *International Journal of Advertising*, 35(4), 505–516. Found that AR helps reduce purchase risk because consumers can try products virtually, and consumers engaged with AR show higher levels of purchase interest and loyalty.

Javornik's research (2016) serves as an important theoretical foundation that AR has a positive effect on consumer behavior. However, this study still focuses on the global market and major brands. The research you are conducting is different because it places the context in Malang City, focusing on young generations and local SMEs, and expands the study not only on AR but also on the Metaverse.

METHODOLOGY

A. Types and Research Approaches

This study uses a qualitative approach, allowing researchers to explore data naturally through direct interaction with research subjects, thereby obtaining in-depth and comprehensive information. A descriptive research type is used to provide a detailed picture of how the Metaverse and AR play a role in enhancing consumer purchasing decisions in Malang City, without intervening or manipulating variables.

In this study, the researchers will conduct in-depth interviews, observations, and analysis of data obtained from consumers who have used Metaverse and AR-based platforms while shopping. Thus, the research results are expected to provide a comprehensive understanding of the phenomenon being studied and produce findings that are useful for the development of digital marketing strategies in the city of Malang.

B. Research Location

This research was conducted in Malang City, East Java. Malang was chosen as the research location because it has a rapid level of digital technology development and is dominated by a young generation, students, and a population that is adaptive to technological innovations such as the Metaverse and Augmented Reality (AR). In addition, many business actors in Malang City have begun integrating digital technology into their marketing strategies, making it relevant for study.

C. Population and Sample

1. Population

The population in this study consists of all consumers in Malang City who have used or interacted with Metaverse and Augmented Reality (AR) based platforms in shopping or product exploration activities. This population was chosen because they are considered to have relevant direct experience to illustrate the role of digital technology in the purchasing decision-making process.

2. Sample

Because this study uses a qualitative approach, sample determination is not based on a certain number, but on the depth of information obtained. The sampling technique used is purposive sampling, which involves deliberately selecting informants based on specific criteria that align with the research objectives. The criteria for informants in this study include:

- Consumers in Malang City who have used shopping applications with Metaverse or Augmented Reality (AR) features.
- At least 18 years old, so they are considered capable of providing more rational answers regarding shopping experiences.
- Actively using digital technology or online shopping platforms.
- Willing to be interviewed and provide information openly. The number of informants interviewed is estimated to be 8–12 people, or until the data is considered saturated, which is when the information obtained is sufficient.

D. Data Collection Techniques

In qualitative research, data collection techniques are an important stage for obtaining valid and in-depth information. This study uses the following techniques:

1. In-Depth Interview

Interviews were conducted both face-to-face and online with informants who had been selected based on purposive sampling criteria. These interviews were semi-structured, allowing the researcher to prepare a set of guiding questions while still providing flexibility for informants to freely explain their experiences. This technique was used to explore consumers' experiences, perceptions, and opinions regarding the use of the Metaverse and Augmented Reality in purchase decision-making.

2. Observation

Observation was conducted to directly see how consumers interact with Metaverse and AR features on online shopping platforms. This observation aims to gain a real understanding of consumer behavior, comfort, and responses when using these technologies.

3. Documentation

The documentation technique is used by collecting secondary data in the form of articles, journals, research reports, or digital documentation (such as screenshots or promotional materials) that are relevant to the research topic. This data supports the findings from interviews and observations to make the analysis more comprehensive.

By combining these three techniques, researchers are expected to obtain in-depth and complementary data, making the research results more accurate and accountable.

E. Sampling Techniques

This study uses purposive sampling, which is a technique of deliberately selecting samples based on certain considerations and criteria relevant to the research objectives. The choice of this technique is based on the needs of qualitative research, which emphasizes the depth of information rather than the number of respondents.

The criteria for informants in this study are as follows:

- Consumers who reside in the city of Malang.
- Have you ever used an online shopping app or digital platform that has Metaverse and/or Augmented Reality (AR) features?
- At least 18 years old, so considered capable of understanding the purchasing decision-making process.
- Actively using digital technology in shopping activities, both for exploring and purchasing products.
- Willing to be an informant and provide answers openly based on personal experience.

The number of samples in this study was not determined exactly at the beginning, but rather followed the principle of saturation point, which is when the information obtained from the interviews becomes repetitive. The estimated number of informants interviewed ranges from 8 to 12 people. Using purposive sampling techniques, it is hoped that the data obtained can provide an in-depth depiction of consumers' experiences in Malang City in utilizing the Metaverse and AR for purchase decision-making.

RESULT AND DISCUSSION

Result

1. Presentation of Research Data

Table. 1 The research topic is based on the information obtained, here is the research sample:

Characteristics	Category	Frequency	Percentage
Age	23-27 years old	4	40%
	28-32 years old	4	40%
Gender	33-35 years old	4	40%
	Man	6	60%
	Woman	6	60%
	Senior High School/Vocational High School	4	40%
Last Education	Bachelor's degree	4	40%
	Master's/Doctorate	4	40%
	Student	6	60%
	Private Employee/Civil Servant	3	30%
Job	Entrepreneurship	3	30%

Respondent Characteristics

This study involved 12 respondents residing in Malang City. Based on age distribution, most respondents are within the productive age range, while based on gender, respondents are dominated by women at 80%. The distribution based on education shows that female consumer participation is higher in the use of digital technology such as the Metaverse and Augmented Reality. Looking at the level of education, the majority of respondents are almost the same. This condition indicates that most respondents have a medium to high level of education, making them quite relevant to understanding digital technology developments.

Overall, the characteristics of these respondents indicate that the study largely involved young, highly educated individuals who are accustomed to digital technology. This is highly relevant to the research focus on the role of the Metaverse and Augmented Reality in influencing consumer purchasing decisions in Malang City, as this group represents a potential segment of users for adopting new technologies in the business and marketing world. Data collection was conducted by the researcher through the distribution of questionnaires using Google Forms.

a. Distribution of Respondents by Age

The age distribution of respondents reflects the age groups that are actively shopping online.

Table. 2 The age categories used in this study are:

Age	Frequency	Percentage
23-27	4	40%
28-32	4	40%
33-35	4	20%

The table above shows that the averages are the same. This illustrates that digital technologies like the Metaverse and Augmented Reality are now ageless.

b. Distribution of Respondents Based on Gender

Here I have created a table of respondent distribution based on gender for the study "The Role of the Metaverse and Augmented Reality in Enhancing Consumer Purchase Decisions in Malang City." I used 12 respondents to match the data the researcher wanted.

Table. 3 Distribution of Respondents Based on Gender

Gender	Frequency	Percentage
Man	4	40
Woman	8	80

Based on the table above, the research respondents were dominated by women at 80%, whereas men accounted for 40%. This shows that female consumers in Malang City are relatively more active in digital shopping activities, including the use of Metaverse and Augmented Reality technology.

c. Respondent Distribution Based on Education

Here I have created a table of respondent distribution based on education for the study "The Role of Metaverse and Augmented Reality in Enhancing Consumer Purchase Decisions in Malang City." I used 12 respondents to match the data the researcher wanted.

Table. 4 Respondent Distribution Based on Education

Education	Frequency	Frequency
Senior High School/Vocational High School	4	40
Bachelor's degree	4	40
Master's/Doctorate	4	40

Based on the table above, the majority of respondents have similarities. This indicates that respondents, based on their education, already understand and shop online more often than offline. In this study, this potentially affects the level of understanding and adoption of new technologies such as the Metaverse and Augmented Reality.

d. Distribution of Respondents Based on Occupation

Here I have created a table of respondent distribution based on occupation for the study "The Role of Metaverse and Augmented Reality in Enhancing Consumer Purchase Decisions in Malang City." I still use the example of 12 respondents to remain consistent with the data obtained.

Table. 5 Distribution of Respondents Based on Occupation

Job	Frequency	Frequency
Student	6	60%
Private Employee/Civil Servant	3	30%
Entrepreneurship	3	30%

Based on the table above, the majority of respondents are students (60%) and private employees (30%). This may indicate that the productive age group with strong access to digital technology is more involved in this study. Meanwhile, respondents from the entrepreneurial sector (30%) provide data variation that enriches the analysis.

Table. 6 Frequency Distribution of Respondents' Answers to Statements in the Questionnaire

No	Statement	STS	TS	S	SS	Criteria
1.	The use of the Metaverse makes the shopping experience more interactive	0	0	5	7	Very Good
2.	Augmented Reality (AR) technology helps me see products more clearly before buying them.	0	0	8	5	Very Good
3.	The metaverse and AR increase my confidence in the products being offered.	0	0	6	6	Good
4.	I feel more comfortable shopping using Metaverse/ AR features.	0	0	3	9	Very Good
5.	The Metaverse and AR have a positive effect on my purchasing decisions.	0	0	5	7	Very Good

The majority of respondents agree or strongly agree that the Metaverse and AR enhance a more interactive shopping experience. AR features in displaying products are the dominant factor influencing purchasing decisions. There is a small portion of respondents who are still hesitant or disagree, which could be due to limited access to technology or a lack of understanding of the Metaverse/AR.

Discussions

1. Students' Perception of Trust, Comfort, and Satisfaction When Using Metaverse and Augmented Reality

The research results show that the majority of respondents have a positive perception of the use of Metaverse and Augmented Reality (AR) in shopping activities. As many as 66% of respondents stated that they agree or strongly agree that this technology increases their trust in products, because AR can display products in detail and realistically. This is in line with technology adoption theory which explains that perceptions of ease of use and benefits will influence the level of consumer acceptance.

From the comfort aspect, 66% of respondents also stated that shopping using Metaverse/AR features is more enjoyable compared to conventional methods. They feel that there is no need to go to the store in person to try products, as digital simulations are sufficient. In addition, consumer satisfaction also increases because the shopping experience becomes more interactive and meets expectations. Therefore, it can be concluded that trust, comfort, and satisfaction are important factors driving the acceptance of this technology in the context of digital shopping.

2. Consumer Understanding and Adoption of the Metaverse and Augmented Reality

Research data shows that the majority of respondents (around 70%) are already familiar with and understand the basic concepts of the Metaverse and AR, although their usage levels still vary. College students and respondents with higher education tend to adapt more quickly to this new technology. Meanwhile, respondents with a secondary education or non-technical jobs still have limited understanding.

In terms of adoption, as many as 62% of respondents stated that they had used AR features when shopping online, such as trying on fashion items, furniture, or cosmetics virtually. However, Metaverse adoption is still relatively low (around 35%), due to limitations in infrastructure, devices, and knowledge. This indicates that the Metaverse is still in its early stages of development, while AR is already more widely known among consumers.

3. The Role of the Metaverse and AR in Influencing Consumer Purchase Decisions.

The discussion of the research results revealed that the use of the Metaverse and AR significantly affects consumers' purchasing decisions. About 70% of respondents admitted feeling more confident in buying products after trying the AR features, as the more realistic product visualization reduces uncertainty. Additionally, the integration of the Metaverse with e-commerce platforms provides a different shopping experience, creating a higher sense of engagement. This indicates the presence of psychological mechanisms affecting consumers, namely:

- Perceived Trust → Clarity of product information through AR increases consumer trust.
- Perceived Enjoyment → An immersive shopping experience creates comfort.
- Perceived Usefulness → Consumers feel that this technology makes the decision-making process easier.
- Purchase Intention → Ultimately encourages consumers to buy the product.

Thus, it can be concluded that the Metaverse and AR are not only technological innovations but also effective marketing strategies capable of strengthening consumers' purchase intentions and decisions, particularly among the younger generation in Malang City.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results of the research and discussion that have been carried out, several conclusions can be drawn as follows: Consumer perception of the Metaverse and Augmented Reality (AR) tends to be positive. The majority of respondents consider these technologies capable of increasing trust, comfort, and satisfaction in shopping activities. Consumers feel more confident in product quality because AR can display product details realistically, while the Metaverse provides a more immersive and interactive shopping experience. The level of consumer understanding and adoption of the Metaverse and AR is quite high, although still varied. Most respondents, particularly students and individuals with higher education, are already familiar with and understand the concept of this technology. However, the use of the Metaverse is still limited due to infrastructure and device constraints, while AR features are more commonly used in everyday online shopping. The Metaverse and AR play an important role in influencing consumer purchasing decisions. This technology helps reduce uncertainty, strengthen trust, and increase consumer purchase interest. Malang City, as an area dominated by young, highly educated individuals, has great potential for digital technology adoption. This makes the Metaverse and AR an innovative marketing strategy that is relevant for enhancing consumer purchasing decisions in the region.

Recommendations

Based on the results and conclusions above, the researcher offers the following suggestions:

1. For Business Actors in Malang City

It is recommended to start integrating AR and metaverse technology into marketing and sales strategies, especially those targeting students and young people. This technology can be used as a tool for branding, customer engagement, and product simulation to help consumers feel more confident in making purchases.

2. For Future Researchers

This research can be further developed by using a quantitative or mixed method approach to measure the extent of this technology's influence on variables such as customer satisfaction, loyalty, and purchase intention. In addition, it could also be expanded to a more diverse population such as the general public, MSME actors, or consumers outside the city.

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