

## **The Impact of VR Shopping Experience on Consumer Attitudes in Egypt**

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### **Abstract**

Virtual Reality (VR) is a rapidly developing technology that significantly impacts users' attitudes and perceptions. Over the past few years, VR has gained remarkable attention and is increasingly emerging as an influential marketing tool in various sectors. According to forecasts, the VR market will reach an incredible US\$120 billion by 2026 (Fortune Business Insights, 2019). The impact of the VR shopping experience on consumer attitudes in Egypt is a relatively new topic. VR technologies are regarded as a unique instrument that marketers should start focusing on in order to utilize and affect consumer attitudes. Hence, this research aims to explore the impact of the VR shopping experience on consumer attitudes in Egypt by applying an experimental, qualitative research approach. In-depth interviews were conducted using an experimental design with 3D stimuli (VR) and an Oculus Quest device. This research concentrates on the four primary dimensions of VR, including (the virtual world, immersion, sensory feedback, and interactivity) alongside the consumer attitudes, including the

(affective, behavioral, and cognitive components). Moreover, this study revealed that technological literacy substantially affects the relationship between the VR shopping experience and consumer attitudes.

**Keywords:** *Virtual Reality, virtual world, immersion, sensory feedback, interactivity, technological literacy, Consumer Attitude, affective component, behavioral component, cognitive component.*

## المستخلص

الواقع الافتراضي (VR) هو تقنية سريعة التطور تؤثر بشكل كبير على مواقف المستخدمين وتصوراتهم. على مدى السنوات القليلة الماضية، اكتسب الواقع الافتراضي اهتمامًا ملحوظًا وأخذ في الظهور بشكل متزايد كأداة تسويقية مؤثرة في مختلف القطاعات. وفقًا للتوقعات، سيصل سوق الواقع الافتراضي إلى ١٢٠ مليار دولار أمريكي بحلول عام ٢٠٢٦ (Fortune Business Insights، ٢٠١٩). يعد تأثير تجربة التسوق بتقنية الواقع الافتراضي على مواقف واتجاهات المستهلكين في مصر موضوعًا جديدًا نسبيًا. تعتبر تقنيات الواقع الافتراضي أداة فريدة يجب على المسوقين البدء في التركيز عليها من أجل الاستفادة منها في التأثير على مواقف المستهلكين واتجاهاتهم. ومن ثم، يهدف هذا البحث إلى استكشاف تأثير تجربة التسوق في الواقع الافتراضي على مواقف المستهلكين في مصر من خلال تطبيق نهج بحثي نوعي تجريبي. تم إجراء المقابلات المتعمقة باستخدام تصميم تجريبي مع محفزات ثلاثية الأبعاد (VR) وجهاز Oculus Quest. يركز هذا البحث على الأبعاد الأربعة الأساسية للواقع الافتراضي، بما في ذلك (العالم الافتراضي، الانغماس، ردود الفعل الحسية، والتفاعل) جنبًا إلى جنب مع مواقف واتجاهات المستهلكين، بما في ذلك (المكونات العاطفية والسلوكية والمعرفية). علاوة على ذلك، كشفت هذه الدراسة أن

الامية التكنولوجية تؤثر بشكل كبير على العلاقة بين تجربة التسوق في الواقع الافتراضي واتجاهات المستهلكين.

**الكلمات المفتاحية:** الواقع الافتراضي، العالم الافتراضي، الانغماس، ردود الفعل الحسية، التفاعل، الأمية التكنولوجية، اتجاهات المستهلك، المكون العاطفي، المكون السلوكي، المكون المعرفي

## 1 Introduction

Virtual Reality (VR) is one of the recent developments of technology that emerged by the end of the 20th century and has become integrated into all parts of our daily lives (Shi, 2019). VR can be simplified as a computer simulation system that can construct virtual space and employ computer technology to generate simulation environments, including multi-source information fusion, interactive 3D visual scenes, and dynamic behavior system simulation. Users of VR applications can gain a new experience (such as a virtual world, immersion, sensory input, and interactivity) using VR devices and therefore learn more about consumer attitudes (such as their affective, behavioral, and cognitive components) by implementing virtual reality in advertising and producing a realistic three-dimensional environment. VR advertising for businesses and consumers has become an essential topic of discussion in both business and academic communities.

In recent years, VR technology has made it feasible to experience things such as making a loop on a roller coaster or being at a beach resort while sitting on a sofa at home. Users of VR can explore three-dimensional worlds that simulate artificially constructed spaces (Lanier & Biocca, 1992). These computer-generated virtual environments can have interactive features experienced from a first-person perspective, giving users a chance to feel as though they are physically in a different setting (Jason, 2016; Lanier & Biocca, 1992). The early years of VR had very few consumer applications as it was expensive to produce and utilize, leading to small-scale, highly professional applications. For instance, in more formal applications, virtual Reality (VR) has been used as a methodological or intervention tool in training programs for social skills (Howard & Gutworth, 2020), treatment for anxiety and related disorders (Carl et al., 2019), and physical rehabilitation (Howard & Gutworth, 2020) (Howard, 2017). As VR technology advanced, it has become less expensive, more accessible, and more usable for a broader range of applications.

Technology-wise, VR technologies are experiencing exponential growth and are becoming increasingly successful in providing their users with seemingly realistic virtual surroundings at a relatively affordable price (Castelvecchi, 2016; Siegrist et al., 2019). With the introduction of head-mounted displays (HMD), VR has transitioned from being used primarily by professionals to being widely adopted by consumers (Desai,

Desai, Ajmera, & Mehta, 2014; Fox, Arena, & Bailenson, 2009; Lanier et al., 2019). Additionally, these advancements broaden the scientific fields in which VR could be used. As a result, VR research applications have grown recently in the social sciences, including consumer research.

## **2 Literature Review and Research Objectives**

### **2.1 Defining Virtual Reality**

The term "Virtual Reality" (VR) refers to an artificial, immersive environment facilitated through computer technology and sensory input (such as sight and audio). In simpler terms, it allows its users to interact with a synthetic three-dimensional world or a sensory environment in which the user's bodily movements and motions reflect or excite the environment on the screen or other device they are using. According to another definition, virtual reality is a type of computer-based technology that enables the reproduction of a natural setting so that the user can feel as though they are there (Serrano, Baos, & Botella, 2016; Serrano, Botella, Baos, & Alcaiz, 2001). 3). VR is described by Steuer (1992, pp. 76–77) as "a virtual world in which a perceiver experiences telepresence." Interactivity affects telepresence. The degree to which users can alter the structure and content of a mediated environment in real-time is referred to as interaction (Walsh & Pawlowski, 2002).

The essential VR features are interactivity, immersion, and connectivity is immersion (Bhatt, 2004). Immersion, which is defined as "an optimal state of experience in which one is so completely absorbed and engaged in an activity that nothing else seems to matter," is closely related to the concept of immersion because it describes the psychological state in which one feels isolated from the real world utilizing the virtual environment (Nah, Eschenbrenner, & DeWester, 2011). As a result, immersion fosters presence by creating the perception that one is genuinely "there" (Mikropoulos, 2006).

Through three main approaches, VR has been incorporated into social sciences research, notably consumer research (Fox et al., 2009). First and primarily, VR has been examined as a subject of consumer research. This line of research has looked into how closely specific consumer experiences in VR correspond to similar experiences in the real world (e.g., Siegrist et al., 2019). These studies' primary goal is to determine how similar, valid, or trustworthy the use of VR is and how much behavioral research can be conducted in VR with results that can be generalized to real world contexts. Secondly, VR has been utilized to examine consumer behavior and relevant contextual mechanisms or alterations that may impact this behavior, giving researchers a more prosperous and deeper understanding of how people reasonably make decisions. VR enables consumer trials that are not feasible owing to contextual constraints and allows for the testing of many future scenarios with a

real-life sensation owing to the apparent sensation of realism of the perceived virtual environment. VR, for instance, enables the analysis of how variations in the information or product presentation may influence consumers' purchase propensity (Goe- degebure, van Herpen, & van Trijp, 2020). Alternatively, when attempting to increase donation behavior experimentally, VR can be used to show a potential natural disaster area (such as locations where a tsunami or hurricane occurred or a refugee camp that provides shelter for people who have lost their home due to a disaster) in a much more cost-effective manner than producing a similarly realistic experience otherwise (Breves, 2020), especially when considering that the only similar option is actually to fly the people to the disaster area. Thirdly, researchers exploring methods to test behavioral treatments in a consumer context outside of what is possible in the lab and real life have shown interest in VR.

## **2.2 Components of Virtual Reality**

VR consists of four primary elements: virtual world, immersion, sensory feedback, and interactivity.

### **2.2.1 Virtual World**

With the use of computer technology, VR may create a virtual environment that closely resembles the stimulus of the natural world and enables real-time user interaction. They can get a sensation of being teleported into or a part of this virtual world

due to this simulation. A virtual world, also known as a virtual space, is a computer-simulated environment that contains many people. Each user can develop their avatar, explore the virtual world, take part in its activities, and communicate with other users (Girvan C., 2018).

### **2.2.2 Immersion**

The immersion element revolves around using immersive graphics, imagery, and sounds to make the VR experience more realistic for the users. Users can fully immerse themselves in the virtual environment while playing a game or viewing a movie with a VR headset and spatial audio. Another definition of immersion is the state of consciousness in which the awareness of one's physical self is altered while surrounded by an artificial environment. This definition describes the partial or total suspension of disbelief necessary to take action or respond to stimuli in a virtual or artistic environment. The degree of presence attained increases with the suspension of disbelief (Radianti et al., 2020). Immersive virtual reality aims to fully immerse the viewer in the artificial world, offering them the sense that they have "stepped inside" it. Numerous projections or the Head Mounted Display (HMD) technology are used to accomplish this. VR can be displayed directly in front of the user's eyes with an HMD, allowing them to concentrate without interruption. Early studies witnessed the first attempts at creating

immersive technology. The world of immersive technology would not have grown to the point where it is today if not for these early experiments. Different forms of immersive technology, such as virtual reality and universal gaming, are created by integrating the many components surrounding the immersive technology field. Even while immersive technology has already significantly impacted our environment, it will continue to have a long-lasting influence on our technological culture as it continues to evolve and grow (Freeman et al., 2014).

### **2.2.3 Sensory Feedback**

VR creates a space where a user can walk around, follow their motion on the screen, and change positions with VR equipment by imitating the principle of human perception. During the creation of an immersive experience, VR sometimes goes beyond only using audio and video. It also experiments with other sensations, including taste, smell, and force. (Kim et al., 2019). Additionally, The word "sensory feedback" refers to all the stimuli that enter our bodies and cause our brains to become aware of them. So that our brains can recognize and perceive our bodies, we use and require these stimuli. In order to use and navigate our bodies, we need sensory feedback. (Sensinger et al.,2020).

### **2.2.4 Interactivity**

With the aid of sensor-enabled technology, the real-time interaction on screen creates a sense of inclusion and immersion between the user and the VR system. In the virtual environment, a user can, for instance, fight a monster, shoot, kick, or pick something up on the screen. (Wang and others, 2021). When discussing virtual reality, "interactivity" refers to the connections between the users and the digital model. The user might participate in the computer's information transfer process. Therefore, a medium is interactive if it enables the user to modify the form or content of the communication.

There are different degrees of interaction: at the lowest, the user can only select information; at the medium, the user can add content; at the highest, the user can influence how the virtual environment reacts to their input (Brey P., 2014). From the above literature review, this paper aims to achieve the following objective

- Exploring the relationship between virtual reality and consumer attitude

### **2.3 Technological Literacy**

Technology Literacy is the capacity for a person to utilize technology ethically, appropriately, and successfully to access,

manage, integrate, assess, produce, and share information independently and in collaboration with others. (Weitze et al., 2020).

Virtual reality is a brand-new and fast-evolving technology. VR is a medium or means of communication as a technological advancement of computer graphics and the computer. VR requires learning to utilize or "read," like any other medium. In other words, the user acquires literacy through the medium. We frequently assume that being literate means being able to read and write words on a page. Nevertheless, that only demonstrates literacy in one medium (the written word). There are numerous ways to communicate, and each has unique literacy and generic problems that affect all media.

The "language" of Virtual Reality (VR) is still in its youth as a new medium. Hence, the study of VR literacy must consider both the content provider and the creator. Similar to film, virtual reality is a medium that only requires a viewer's everyday life experiences. As we do in daily life, we can see and hear the content. As a result, it might be assumed that the viewers are familiar with the medium. He or she might be able to follow the activity, but they might miss the content's underlying message and hints. Gaining literacy in this new medium needs work and effort from the receiver, like learning to read and write. (William R. & Alan B., 2010).

From the above literature review, this paper aims to achieve the following objective

- Investigating the relationship between virtual reality and technological literacy

## **2.4 Consumer Attitudes**

For a long time, attitudes and their effects on behavior have captivated academics and professionals. Significant research on this topic was already being done in the early 20th century (e.g., Thurstone & Chave., 1929; La Piere., 1934). Because it plays a predictive function in consumer behavior and has roots in social psychology, the idea has been examined in psychological and marketing contexts.

The nature of attitudes and their implications have been the subject of much research in fields like knowledge structures and memory, level of elaboration, behavior prediction, and attitude transformation. "An attitude is a permanent, general appraisal of people (including oneself), products, advertisements, or events," according to Solomon (2013). The idea of "lasting, universal evaluation" requires special consideration. This aspect is essential because it identifies attitudes as broad mental constructs that frequently survive for extended periods.

This evaluation has two consequences: (1) attitudes are hard to change; and (2) once formed, they are frequently stable. While certain mindsets may fit this description, not all do. According to research, attitudes have a hierarchy of levels of commitment, with some being more significant and firmly held than others (Eagly & Chaiken, 2007; Solomon, 2013). It is essential to reject the notion that attitude is a constant construct. Evaluation encompasses all categories of evaluative responses, such as intentions and overt behavior, feelings, emotions, beliefs, and thoughts (Eagly & Chaiken, 2007). These categories are based on the popular multidimensional construct of attitudes, which divides attitude reactions into affective, behavioral, and cognitive categories (Solomon, 2013).

### **2.4.1 Affective**

The consumer's feelings or emotions make up the affective part of an attitude. These emotions and feelings are typically treated as evaluative in research. Emotionally charged experiences result from affective events (such as happiness or sadness). These conditions might improve a customer's pleasant or unfavorable experiences. Such experiences may influence what comes to mind and how a person behaves later. According to recent research, positive and negative effects operate differently, and brand familiarity may influence their direct and indirect effects on attitudes.

Researchers can create a picture of customers' overall feelings about a product, service, or advertisement utilizing a battery of affective response scales in addition to direct or global evaluative measures of an attitude object. (Schiffman G., 2010).

### **2.4.2 Behavioral**

The final element of the three-part attitude model, behavioral, is concerned with the propensity or likelihood that a person will perform a particular action or behave in a particular way concerning the attitude object. The actual behavior itself may be a part of the conative component. The conative component is usually viewed as a reflection of the consumer's intention to purchase in marketing and consumer research. Intention-to-purchase scales determine how likely a buyer is to buy a product or act in a particular way. (Schiffman G., 2010).

### **2.4.3 Cognitive**

Knowledge and perceptions are acquired through cognitions, first-hand experience with the attitude object, and relevant information from various sources. Those prior views and information frequently emerge as beliefs. The consumer assumes that the attitude item has a variety of qualities and that a particular course of action will produce a particular result. (Schiffman G., 2010).

From the above literature, this paper aims to achieve the following objective

- Exploring the relationship between technological literacy and consumer attitude
- Investigating the role of technological literacy in the relationship between virtual reality and consumer attitude.



*Figure (1) Proposed Research Framework*

*Developed by the Researcher*

### 3 Research Methodology

#### 3.1 Research Approach

To saturate current theory with qualitative data, it is becoming increasingly necessary to investigate the consumer's experience and undertake a qualitative study. Utilizing a qualitative method enables a more thorough and fuller analysis of a phenomenon, according to Bryman and Bell (2011; 2015). The purpose of qualitative research is to comprehend the context and behavior of users (Unger & Chandler, 2012). Compared to quantitative research methods, it also

offers results more closely related to the users' subjective experiences (Anderson et al., 2010).

Contrary to what a qualitative technique would allow, quantitative studies need to accurately reflect the perception and opinions of the interviewee accurately. Given these justifications, the researcher concludes that a qualitative research methodology is the most appropriate for our objectives and has been used in this study.

### **3.2 Research Design**

This paper used an experimental research design with an experiment following the research aims and qualitative approach. According to Saunders, Lewis, and Thornhill (2016), experimental research designs are appropriate for investigations that aim to gain a more profound knowledge of a topic or phenomenon whose specific nature has yet to be fully clarified.

We designed our data collection to revolve around in-depth interviews to gather comprehensive insights. An unstructured interview format distinguishes these with a planned list of questions encouraging honest and comprehensive answers (Bryman & Bell, 2011). We aimed to fill in the knowledge gaps in our understanding of the impact of VR shopping experiences on customer attitudes by allowing our respondents to talk honestly about their VR experiences, thoughts, feelings, and intentions.

### 3.3 Selection of Respondents

According to the nature of the research, our interview methodology rested on visual stimuli using the Oculus Quest device. The researcher depended on a convenience sampling method. All respondents were allowed to be part of the sample drawn for the experiment's aim. The research's primary aim is to assess virtual reality's shopping experience on consumer attitudes, considering the significant role of technological literacy. The researcher selected 42 respondents (28 females and 14 males); their ages ranged from (25-45). The researcher stopped conducting further interviews when it was noticed that the findings were repeated and highly similar to the previous results. Additionally, a sample group was excluded as they felt dizzy during the experiment. This is considered one of the common symptoms when using VR devices, representing one of the most critical research limitations.

The experiment took place in the Shooting Club in Cairo, Egypt, to ensure that there is a vast place that offers the freedom of movement while using the VR device and that there are no obstacles that hinder the participants' movement during the experiment.

## **4 Data Collection**

### **4.1 Pilot Study**

We tested the structure and flow of our interview guide in a pilot study that involved three interviews. The goal of the pilot study was to determine whether any questions needed to be clarified or failed to prompt the responder to articulate their evaluative views adequately. We concluded from the first three interviews that several of the questions needed adjustment because they either needed to allow for adequate respondent clarification or were written in a way that needed to be more complex. Since feedback suggested that some questions were better asked while wearing the VR headset, the researcher modified the interview structure. These questions focused on particular elements of the virtual shopping experience (size, layout, light, colors, etc.) and perceived attitudes during the VR exhibit.

### **4.2 Interviews**

Before and during the interview, the researcher informed the participants of the interview's outline. We went into detail about the practical components of the interviews, such as the approximate time required and how crucial a VR headset would be. All respondents were also informed that the data collection would be confidential and that they might interrupt or end the interview at any time. The users' prior VR experience and expertise were discussed throughout the

first section of the interview. Then, questions about their behavior, objectives, viewpoints, and attitudes toward VR were asked. For instance, one question asked, "How do you feel about the VR shopping experience?".

Finally, questions addressed to the respondents after the experiment asked about their VR experience and using the head or eyes to interface with systems. Other questions were, "Was there anything that surprised you?" and 'Did you believe that the user interface allowed you to control anything you wanted to control?'

### **4.3 Technological Tools Selection**

The portrayal of an attitude in a virtual reality shopping experience served as the framework for the experiment's operationalization in the research. The researcher selected an Oculus Quest device for the VR HMD (Head-mounted display). While the Oculus Quest similarly stimulates kinaesthetic senses with the previously mentioned head tracking, allowing the user to move their head to gaze around actively. As a result, we only considered material appropriate for this technological characteristic. The second criterion dealt with the level of user control. Virtual shopping experience exhibits typically offer general control, allowing users to freely navigate the projected world without encountering barriers.

#### 4.4 The VR Headset Visualization Experiment

Through a VR headset, the respondents were shown the virtual shopping hypermarket. The researcher did not set a time limit for observing the object. To avoid confusion, the researcher explained that the questions would be repeated because it was asked twice. The respondents should, however, identify any changes occurred during the experiment (if any such changes existed). During the VR experience, questions were posed regarding specific elements of the virtual shopping hypermarket and the respondents' reported emotions and attitudes. Afterward, the headset was taken off, and the interview went as planned.



*Captured pictures from the VR shopping experience*

### 5 Research Findings

The interviews aimed to learn more about the participants' prior VR experiences, behaviors, and attitudes. The first part of

the interviews was to find out if the participants had any prior experience using their eyes or heads to control a system and if they had any expectations about how that would function. This increased the significance of technological literacy as a factor, as the researcher noticed that respondents with lower technological literacy levels could also not use the VR device.

The second part of the interview revealed data about the participants' previous experiences, opinions, and expectations of VR. First, the interviews revealed that 18 out of 42 participants had previously tried VR with a smartphone but only very shortly. 5 out of 42 had tried the Oculus Quest device. The remaining respondents were trying VR for the first time. Those who tried it before, either through intelligent phones or Oculus Quest, stated that it was exciting, calm, and fun. The participants' opinions on how they felt about the shopping tour taken in VR were collected. Most respondents had a positive attitude towards it and thought it could be an excellent and incredible experience. When asked to imagine where and if they could shop using the VR, 38 out of 42 claimed they would do it at home and save much more time than traditional shopping. Thirty-five participants thought that shopping in VR would add to the experience by making them feel more immersed and easier disconnected from their surroundings. Other advantages mentioned were that it would be highly efficient to shop using the VR as it gives you more

freedom to move around and shows simulated feelings that could not be differentiated from real feelings while shopping.

On the contrary, there were negative aspects of shopping in VR. For example, there was no chance for socializing when the person was wearing the VR device, so the feeling of isolation is considered a crucial disadvantage. Some participants agreed that wearing a VR device would be somehow uncomfortable. Another crucial negative aspect was that for those wearing glasses, it was an incredibly uncomfortable proposition for plenty of people. This problem could be solved by using a particular type of glasses designed with a specific shape and enabling those wearing glasses to use the VR device without any problem. When asked what they expected a shopping experience to look like in VR, they mentioned that it probably looks like regular shopping but floating in the air with more bright colors.

## **5.1 Analysis of the Interviews**

### **5.1.1 Analysis of Virtual Reality Components**

The findings of the interview with the respondents regarding the many facets of VR and attitude are examined in detail in the following sections. Through VR, several interactions were made feasible, such as moving around, getting a 360-degree view of the shopping hypermarket, and selecting the exact item you want to buy.

*R 13: "I could look about and see many aspects of the location, including looking at the shelves."*

*R 25: "I could look about and see a lot of the hypermarket, also the corridors between the different products."*

When discussing virtual reality, "interactivity" refers to the relationships developed between the virtual representation and its users.

*R11: "You had the flexibility to roam about and select your areas of interest."*

Although some interactions were made feasible in the virtual setting, several respondents felt very constrained compared to a real-world one.

*R8: "I believe it was able to do the majority of things. However, I could not touch anything or feel the countertops to determine whether the material felt plastic. I might like to open them and examine how everything functions."*

In conclusion, virtual reality does offer some user experiences that mirror real life. However, the range of characteristics offered by this media could be more constrained for most responders to sense a fully engaged experience. When

this pattern of "excitement from attempting VR" should be expected, it should be no surprise.

*R2: "Attending a viewing is fun. Virtual reality gave me the same sentiments as watching a movie".*

Since it tends to inspire a sense of interest in many people when in VR, the feeling of exploration is crucial. The responders clearly showed a strong interest in exploring the virtual environment. They comment on what they see, how they are moving about the hypermarket, and where they want to go next.

*R4: "Nice! What is this, then? Oh, there are so many products and options, prices are listed, and everything is neatly organized.*

Participants' nonverbal reactions inside the virtual exhibit are another fascinating aspect of these spontaneous displays. The researcher saw many smiles, gasps, and even a few chuckles throughout the interviews. However, as mentioned in the theoretical framework, these have been excluded from the research since the researcher needs to accurately evaluate the range of non-verbal responses across the three dimensions of attitude. Instead, the researcher incorporated these in the recommendations for future studies.

## 5.1.2 Analysis of Consumer Attitudes Components

### 5.1.2.1 Affective

Affective reactions are characterized as feelings and emotions toward attitude objects in the attitude framework. These statements, such as "I feel comfy" or "I'm angry," are verbal descriptions of perceived subjective feelings. They can also be emotional demonstrations of affection or distaste for something, such as "That's disgusting." Meanwhile, affective reactions are rather noticeable of their lack of the VR experience. Several respondents displayed signs of uncertainty and had difficulty explaining themselves when asked to expound on emotions they had experienced while viewing the virtual exhibit:

*R9: It simply has the vibe of a wonderful location. It feels good, I believe. There is nothing else I can say.*

*R12: "I'm excited. The vibrant colors and the space is enormous, like a true hypermarket."*

Some respondents, like Respondent 8, resorted to discussing affective features, saying things such as, "The setting "feels good" or "Seems vast," focused on how they interpreted the VR experience rather than how they felt. Despite this, there is a definite emphasis on emotive responses with VR. The expressions of excitement and enjoyment revealed a trend. Sometimes, this hedonic quality comes

directly from the VR experience. Few respondents had used VR before. Therefore the researcher suspected that there would be an extraordinary impact on data

*R2: "Yeah, I'm a little happy. Maybe mainly because I'm experimenting with VR".*

*R5: "Using VR is amazing and undoubtedly feels more realistic. Similar to being in a real hypermarket.*

Along with verbally expressed pleasure and curiosities, affective responses directly related to the location and the experience of "being there" include feelings of comfort and general satisfaction.

For instance, R10 claimed that she had happiness and excitement due to "moving the shopping cart, selecting the products, and placing them in the cart." R1 emphasized how the experience of being at the market served as the main actions taken for her affective reaction and how it improved her ability to envision pleasurable scenarios:

*R1: "pleased and at ease. I practically have everything I need; I can quickly exchange products for others and examine the item before I pay".*

Additionally, while wearing VR, there was an increase in spontaneous emotive reactivity toward the hypermarket. Five of the 42 respondents to our survey expressed different emotive and impulsive reactions while using VR technology.

*R2: "It's so lovely and clean here!"*

*R8: Oh, this is excellent; the location is nicely and well arranged.*

Moreover, it is clear from the affective reactions shown during the interviews that they are related to virtual reality. This holds for all kinds of emotional displays, including complex evaluations of subjective emotions (such as "I feel comfortable") and unannounced affective reactions (such as "Wow, look at that view!"). Along with the exciting novelty of VR, the virtual hypermarket also encourages emotive reactions that frequently have a sensual quality by making shopping more joyful.

### **5.1.2.2 Behavioral**

Beliefs and accurate declarations regarding particular aspects of the attitude object under consideration are the different behavioral or conative responses. These features may relate to the space's dimensions, design, or lighting levels. A sign of a generally pleasant attitude is frequently linked to favorable beliefs about an object and

vice versa. In conclusion, people generally responded favorably to the virtual hypermarket and its features.

*R2: "So THIS is the entryway," The product shelf is seen here. Nice!"*

However, other participants claimed that while the hypermarket was less bright in VR, the lighting appeared more realistic. The final VR responses reaffirmed the positive impressions that had been previously expressed. In essence, the respondents' perceptions of the location are influenced by several diverse effects of VR.

Conative verbal responses express intents, dispositions, and commitments to action concerning attitude objects. For instance, a good attitude about the virtual hypermarket can manifest as a desire to visit and the ability to see carrying out helpful activities there.

These conative attitude displays were far less noticeable during the VR experience. Concerning "change," practically all behavior intents were reevaluated. R5 asserted that he would make the corridor larger; R1 stated that she desired to reorganize the products.

*R5: "Actually, there are some things I would like to change. But once I arrive here, it felt really good."*

### 5.1.2.3 Cognitive

Cognitive reactions to the hypermarket's surroundings have a less pleasant tone. Most respondents affirmed that the products seemed closer than in real life. 20 of the 42 interviewers made this observation, which had a powerfully negative view:

*R 11: "The products seemed to be quite close."*

*R 23: "I can see the products closer than in real life."*

*R 35: "I would say that I have been confirmed that the items are fairly close,"*

In other words, unfavorable elements can sometimes appear to be confirmed due to the more significant product knowledge gained through VR.

We can also identify a pattern in how the evaluation process is organized from the respondent's responses. Cognitive reactions appear based on conative or affective assessments of the virtual hypermarket. When we look at R5 as an example, we can see that VR starts to think about reconsidering the corridor, which then affects a change in his response. For R1 and R8, the evaluation response structure is the same. There is a noticeable increase in the intention to think favourably toward the end of each interview portion. VR supports the preexisting conative attitude.

We can observe an instance of VR changing a previously unfavorable attitude into a favorable one.

*R8: "I could think about whether there is a place that resembles it in real life. Because I acquired a better sense of the hypermarket's layout, how everything feels, and how it moves".*

As a result of improved product knowledge and a more in-depth presentation of positive product qualities, the VR exhibit strengthens the cognitive attitude. The expression of behavioral intents to engage in festive activities in the place is another constructive component of VR. Respondents typically discuss actions like picking up items and placing them in the cart among the answers. This trend further supports our data's finding that virtual reality influences consumer attitudes in all components.

## **6 Conclusion**

This study discovered that giving customers a Virtual Reality experience in a virtual setting can be a clever retail application. Given the results of the current research, retailers or shopping centers that occasionally experience highly perceived crowding can offer a Virtual Reality experience to customers as a corrective option to lessen the adverse effects of crowding in consumers, such as stress (Breneman et al., 2012) and

subsequently alleviate the negative consequences for the retailers. (Eroglu et al., 2000).

As a result, this study's contributed to the literature. First, the researcher demonstrated that staging an entertaining VR experience at a shopping mall can induce positive influences among customers, especially in crowding, adding to the literature on retail atmospherics through technology. Second, the researcher improved consumer attitudes by showcasing the efficiency of a digital and adaptable solution to reduce adverse effects like crowded environments. Also, saving time is an essential element. On the other hand, more than one advantage has been discovered, such as enjoying the shopping experience through the virtual reality device and the feeling of privacy.

In addition to being specially tailored to customers who perceive a sense of crowding, the VR experience's content and duration might also be modified per the customers' emotional state. Third, this study contributes to the literature on the virtual reality concept in the Egyptian market as it is still considered a new concept in the Egyptian market. The paper revealed the importance of technological literacy as some respondents were unable to use the device after trying it more than once, thus apologizing for being part of our sample. The results from the previous analysis indicated that consumer attitudes had been

positively affected regarding affective, behavioral, and conative components.

## **7 Limitations and Suggestions for Future Research**

First, not all essential aspects influencing VR consumer attitudes have been thoroughly discussed. This research solely addresses the aspects influencing VR consumer attitudes through affective, behavioral, and cognitive components out of the many factors impacting VR consumer attitudes.

The topic of this paper is new, and the existing literature needs to be more comprehensive. With the advancement of VR technology, increased e-commerce use, and a wealth of associated study resources, we can obtain more significant theoretical backing. In the future, more reasonable variable measuring techniques can be used to improve the research's conclusion's accuracy, precision, and persuasion. The study has been done based on experimental design through in-depth user interviews. Further research might apply a different research method to enhance the results of the current paper.

While this study sheds light on the advantages of using a VR experience at a hypermarket, some restrictions must be considered. Since the respondents were approached for the experiment at the place where the VR experience was being

presented, this study's first limitation is that the data collection for the experimental group of respondents may be biased due to self-selection. As a result, the sample does not accurately reflect the target audience as a whole because it only comprises those selected to participate in the virtual reality experience. Another limitation was that a group of the sample was excluded because they felt dizzy during the experiment, which is considered a common symptom when using virtual reality devices.

The researcher observed several smiles, gasps, and even a few chuckles during the interviews. However, these have yet to be included in the study, as specified in the theoretical framework, because the researcher needs help to fully assess the range of non-verbal behaviors across the three dimensions of attitude.

Finally, just 15 to 20 minutes of the study's participants were exposed to the virtual reality experience. The ideal practicable exposure period to achieve positive results could be determined through further research. Retailers might employ a tailored strategy to draw people who need to relax to this pleasant Virtual Reality experience. However, another study may look at the effects of an exciting experience, which is predicted to be more beneficial for adventure seekers, and look into its impact during different times and circumstances. Also, marketers should study how to benefit from VR devices by releasing applications that allow users to save time while shopping at home.

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