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- يتم إعادة تقييم المجلات المحلية المصريه دوريا فى شهر يونيو من كل عام و يكون التقييم الجديد ساريا للسنه التالية للنشر فى هذه المجلات.

Consumers' Attitudes Towards Augmented Reality Advertising as Compared to Traditional Media Advertising

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اتجاهات المستهلكين تجاه إعلانات الواقع المعزز مقارنة بإعلانات الوسائط التقليدية

● د/ نسرين الشربيني

مدرس الإعلان والعلاقات العامة بكلية الإعلام - جامعة أكتوبر للعلوم الحديثة والآداب

Abstract

The introduction of WEB 2.0 brought about an influx of new media, among which is the Augmented Reality. Augmented Reality (AR) is a way of viewing real-world environment live either directly or indirectly through means of computer-generated sensory input. In the field of advertising, (AR) enhances the audience's experience towards the product. It can be considered a competitive advantage or value-added due to the ease and comfort that the consumer receives. This paper explores the attitudes of consumers towards (AR) advertising versus the traditional advertising within the implications of Katz Functional Theory of attitudes. The four attitude functions proposed by Katz act as a framework for the investigation of consumers' attitudes towards such technology using a pretest-posttest Quasi Experiment based on one-group design of 60 participants. Results show a statistical significance between the pretest and posttest in knowledge, value-expressive, and utilitarian functions, and show no significance in the ego-defensive function.

Keywords: Augmented Reality, Katz Functional Theory of Attitudes, Quasi Experiment

ملخص الدراسة

أدى إدخال WEB 2.0 إلى تدفق وسائط جديدة، من بينها الواقع المعزز Augmented Reality؛ فالواقع المعزز (Augmented Reality) AR هو طريقة لمشاهدة بيئة العالم الحقيقي بشكلٍ مباشرٍ أو غيرٍ مباشرٍ من خلال وسائل المدخلات الحسية المستخرة من جهاز الحاسوب. في مجال الإعلان، يعزز (AR) تجربة الجمهور تجاه المنتج. إذ يمكن اعتبارها ميزة تنافسية أو قيمة مضافة بسبب السهولة والراحة التي يحصل عليها المستهلك. وتستكشف هذه الورقة اتجاهات المستهلكين تجاه الإعلان (AR) مقابل الإعلان التقليدي ضمن الآثار المترتبة على نظرية Katz الوظيفية للاتجاهات. تعمل وظائف الاتجاهات الأربع التي اقترحها Katz كإطار عمل للتحقيق في اتجاهات المستهلكين تجاه هذه التكنولوجيا باستخدام تجربة شبه تجريبية ما قبل الاختبار وما بعده على أساس تصميم مجموعة واحدة من 60 مشاركًا. وتظهر النتائج دلالة إحصائية بين الاختبار القبلي والبعدي في وظائف المعرفة والتعبير عن القيمة والوظائف النفعية، ولا تظهر أي أهمية في وظيفة الدفاع عن الذات.

الكلمات المفتاحية: الواقع المعزز، نظرية كاتز الوظيفية للاتجاهات، التجارب شبه تجريبية.

Introduction:

Technological developments have created new channels and the race to adapt to and dominate technological channels early in the competitive environment has begun. The rapid change and personalization of technology, and newly emerging communication technologies have become an important element of the marketing strategies of businesses. It is true that the most important steps that businesses take into account when determining their marketing strategies are understanding the consumer and adapting their marketing activities to the target audience with the right experiences[1]. With the introduction of WEB 2.0, an influx of new media commences. Among these new media is the Augmented Reality technology (AR). Although the Augmented Reality is not something new, but it has become more accessible to people over the past years, and many spheres gained benefit out of it after the introduction of WEB 2.0.

At this point, although augmented reality is one of these technological developments, augmented reality and marketing applications have started to attract the attention of businesses and consumers day by day with the different experiences they offer[1].

Over the past few years, both scholars and managers have shown increasing interest in Augmented Reality (AR). Although studies in the marketing field have looked into various aspects of AR, such as its impact on sales, there hasn't been a comprehensive approach to AR. Jayawardena, et. al. (2023) define "Augmented Reality Marketing" as a new and innovative subfield of marketing that is strategic and disruptive. They define it as the deliberate integration of AR experiences, either alone or in combination with other media or brand-related cues, to achieve overall marketing objectives. This approach aims to create value for the brand, its stakeholders, and society as a whole, while also taking ethical considerations into account[2].

The Augmented Reality (AR) is a way of viewing real-world environment live either directly or indirectly through means of computer-generated sensory input[3]. It has been used in different fields like education,

medicine, manufacturing, maintenance, and repair, entertainment, marketing/advertising, robotics, military training, …etc.[4]

Marketers have focused on how Augmented Reality (AR) would change the audience's perception towards the product or the service. Rejeb, A., Rejeb, K., & Treiblmaier, H. (2021)[5] concluded that the use of AR in marketing and advertising has four main enablers which are: marketing competitiveness promotion, consumer experience enhancement, marketing activities support, and customer-brand relationship improvement.

Research Problem:

Katz's functional theory of attitudes proposes that attitudes serve a functional purpose in people's lives, such as providing knowledge, expressing values, or facilitating social interactions. Understanding how consumers' attitudes towards augmented reality (AR) advertising and traditional advertising differ in terms of these functional purposes can provide insights into the effectiveness of these advertising methods.

Aim of Study:

The purpose of this study is to apply Katz's functional theory of attitudes to compare the attitudes of consumers towards augmented reality advertising versus traditional advertising and determine whether AR advertising is perceived as more useful, valuable, or socially acceptable than traditional advertising, and whether these functional differences affect consumers' behavioral intentions towards the advertised products or services.

Understanding Augmented Reality:

Augmented Reality (AR) is a newly introduced technology that encompasses the connection of computer graphics over the real world[3]. It is a combined technology which allows the complement of images in real-world with other objects in a virtual setting. Different to virtual reality (VR) which is a fully synthesized and artificial world, the AR integrates both natural scenes into virtual objects[6].

The term "Augmented Reality" first appeared and was proposed during 1992 by Tom Caudell and David Mizell. Two years later, in 1994, its definition was refined and clarified by Paul Milgram and Fumio Kishino when they defined the boundaries of different sub-parts of "Mixed Reality." Then, they placed the "Augmented reality" in "Mixed Reality" with "Augmented Virtuality." However, "Augmented Reality" comes from a "real environment" unlike "Augmented Virtuality" which would come from a "virtual environment"[7].
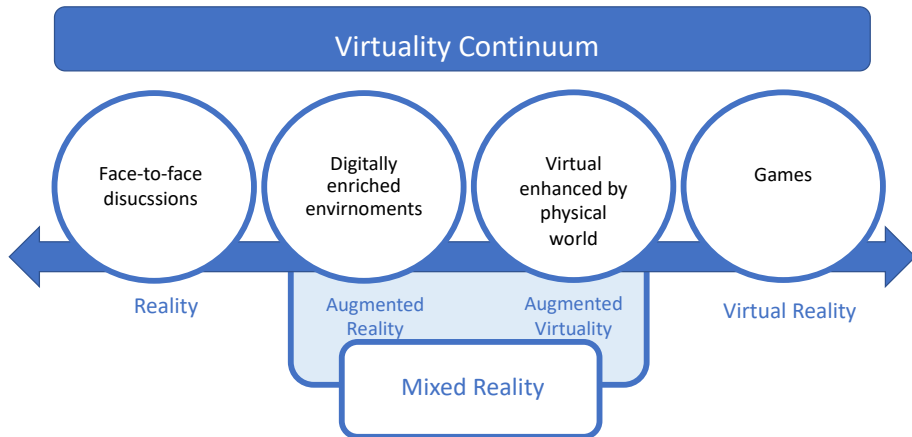
Figure 1: Paul Milgram & Fumio Kishino Scheme of Augmented Reality Environment (1994)

Milgram &Kishino (1994)[8] defined AR as "technology that allows to combine layer of virtual reality with physical environment. This technology is necessary for visualization of objects or visual supplement of printed products – newspapers, booklets, magazines, maps, etc. Supplementary information can be in the form of text, images, videos, sound, three-dimensional objects. Labels are scanned using tablets or smartphones for browsing, and then content is added." AR is already utilized in many fields such as: games, trade, military development, advertising, tourism, entertainment, etc.[8]

In 1997, the first out-of-door augmented reality application was introduced. It included a vision helmet and a computer in a backpack. In 2003, this is where augmented reality as we know it began with the game "Mozzies" related to a mosquito hunt. It was a mobile game where mosquitoes were projected into the image received by a smartphone in the real space of the person. The goal of the game is to eradicate mosquitoes from the room. For this purpose, the mobile phone agencies had to produce devices compatible with this new technology. Siemens company was the first to release a mobile phone having these capabilities with its SX1 model[7].

Therefore, the definition of AR can be summarized into the following points: (1) a direct or indirect vision; (2) that combines elements from the real world with elements from the virtual world, such as images, texts or 3D figures; (3) with the aim of creating a mixed reality; (4) in real time; (5) with the aim of creating interaction with this new world[9].

Application of Augmented Reality in Advertising:

The means of promoting products and services have evolved a lot since their beginnings. Indeed, advertisers had to adapt to society to reach the widest possible audience. Initially, there was the paper posters displayed on walls or integrated into magazines. Afterwards came the electronic media which allowed the ads to enter homes through radio and television, and then the internet. But in order to keep the viewer attentive, the marketers constantly try to make the ads attractive even if it means surprising. Thanks to technology, today it is possible to do this through several new media. Among these new emerging media is the Augmented Reality (AR)[10].

The technique of Augmented Reality has created a whole new turn in the field of advertising. Indeed, the brand has the possibility to create a fictional universe that blends with reality in which the audience lives. In this fictional world, the brand can illustrate its values, its goals, its products, etc. Then, the audience is totally immersed in the "fascinating" world of a brand or a product. Even before buying the product, the audience is allowed to have a connection with the object without even having touched or seen it with his/her own eyes[11].

Through AR, advertising is no longer introduced only through the audience's home, but almost into his/her head and thus creates an intimate sphere between the consumer and the product.
When first used in "video games", AR made it possible to have more playful, interesting, and surprising content. Advertising can then take a new turn since it has now the possibility of making use of a new technique to which the audience is not very well acquainted yet. Accordingly, it will induce him/her to try to understand it. So, this new form of advertising content introduces a new context where games as well as fun are present and dominate in order to captivate the audience and entertain him/her. This method also allows the brands to standout in the audience's mind who is drowned in advertising everywhere around; in the city and also at home[12]. Otegui Castillo (2017)[9] contended that according to Mónica Deza, CEO of Universal McCann, ads that use AR as a marketing tool perfectly meet the four basic requirements for effective advertising, since they allow consumer interaction; personalization of content; measurable results in real time; surprising the consumer which in turn encourages the recall of the advertisement[9].

The current health crisis caused by the COVID-19 increased the interest in this technology. AR can go from being a complement to becoming an essential ally in situations where physical testing of products is not possible. This is especially true when it comes to product categories characterized by high involvement in their purchase, as is the case of motor vehicles, furniture, makeup, real estates, and others[13]. Clothing can be projected onto a virtual image of oneself, or pieces of furniture can be placed virtually in the home. The overarching goal of using augmented reality is therefore to improve customer satisfaction with the shopping experience[14].

Sung, Han & Choi (2022)[11] conducted a study on 130 respondents in the US to test effect of AR advertising through mobile app on escapism experiences, social media sharing, purchase intention, attitudes, and brand engagement. Respondents first experienced a mobile AR advertisement for Heineken brand, then were asked to rate several statements related to the mentioned variables on a 7-point Likert scale. Results have revealed that AR mobile app advertisements facilitate experiences of escapism as hypnotic because they include a group of stimuli including emotional, sensory, and cognitive ones[11]. The positive effect of AR advertisement on consumers was confirmed also through the study of Rauschnabel, Felix & Hinsch (2019)[15]. The study discovered that consumer inspiration is a mediator between the benefits consumers get from augmented reality apps and changes in brand attitude[15]. The study of Scholz & Duffy (2018)[16] also examined how consumer-brand relationships can be facilitated using AR. The research used a multi-method qualitive approach including content analysis of 3,701 reviews of iOS app, 16 intensive interviews and 58 mini-interviews, instore and in-app observation of participants, as well as 10 video dairies. Results have revealed that due to the incorporations of branded AR app into the intimate space of consumers and their self-sense, an intimate relationship (rather than transactional) emerges[16]. The success of AR application in marketing was confirmed also through another study by (Provecho Palacio, 2020)[17]. The study compared through an experiment the online shopping experience of customers on both the website and the mobile application (AR incorporated App) of Gucci. Results have shown the advantages of augmented reality in terms of perceived usefulness of the product, brand value and increased purchase intention[17]. Harren, Seiler, & Müller, (2019)[18] conducted a study in which they examined fields of AR application, and customer expectations using the example of premium and luxury retail

through expert interviews and an online survey of 399 customers. Findings revealed that there is a great interest in the AR and VR applications[18]. Another study by Hoffmann, Mai, & Pagel, (2022)[19] examined the factors influence the perceived value and the assessment of consumers with regard to Mobile Augmented Reality (MAR). For this purpose, 100 MAR apps are analyzed based on the categories: information layer, entertainment, education, virtual product samples and other aids, and assessed regarding their utilitarian and hedonic benefits. While the hedonic use is in the foreground for MAR apps in the entertainment category, MAR apps in the helpful tools and information layer categories mainly aim at functional category. For MAR apps in the education and virtual product sampling categories, hedonic and utilitarian components are equally important. The study proves that the ratings of MAR apps given by consumers on app stores are driven by these hedonic and utilitarian components. However, an important finding emerges. Hedonic utility impacts user ratings especially when utilitarian utility is low[19]. A study by Jayawardena et. al. (2023)[2] introduces a way for future researchers to use the social psychology theory of Elaboration Likelihood Model (ELM) to analyze how consumers are persuaded by virtual reality and augmented reality commercials. Decision-making is a major theme in AR-related research in the retailing industry, which includes studying AR as an immersive experience, as well as related subthemes such as local presence, flow, and mental imagery that aid in decision-making[2]. Another study by Saleem, Asim, & Chandio, (2022)[20] showed that advertisements based on augmented reality are more informative and entertaining compared to other types of advertising. The study also found that factors such as how informative, entertaining, credible, and irritating an advertisement is have a significant influence on a person's intention to make a purchase[20].

The reviewed literature reflected that the many of the available studies focused on the app-centric approach to know the consumers' reactions towards AR application, but none focused on the consumers motivations to prefer the AR advertising adopted by companies over the traditional Advertising. Therefore, this study aims at revealing the consumers' attitudes towards the AR advertising as a marketing technique as compared to the traditional media advertising.

Theoretical Framework:

Katz Functional Theory of Attitudes:

Daniel Katz (1960)[21] asserted that the attitudes for each personality perform major functions can be classified in accordance with their motivational foundation as follows: (1) The utilitarian, instrumental, or adjustive function upon which the utilitarians and Jeremy Bentham built their model of man. The behavioristic learning theory can be a foundation for a modern expression for such approach. (2) The ego-defensive function where the individual defends his/her ego from admitting truths in him/herself or other tough realities in his/her external world. This kind of motivation has been preoccupied the thinking of Freudian and Neo-Freudian psychology. (3) The value-expressive function where individual satisfaction is derived from the expression of his/her attitudes that reflect his/her personal values. This function rests in the principles of ego psychology which focus on the significance of self-realization, self-development, and self-expression. (4) The knowledge function is centered in the need of the individual to have a structured universe. This can be found in searching for information, and meaning, trying to understand, and organizing of beliefs and perceptions to create a clear and consistent paradigm for the individual. Gestalt psychology contributed to the development of such principles of structured perception and cognition[21].

The functional approach tries to apprehend the reasons behind people's attitudes. However, the reasons are on the psychological motivations level and not on the level of external circumstances or events. It is important to know the psychological need behind an attitude, otherwise it will be difficult to predict how and when this attitude will change. Furthermore, the same attitude conveyed may not postulate the same function for others who conveyed it. And whereas many attitudes serve only one mode of motivational process, other attitudes are in the service of multiple purposes for an individual[21].

The Functional Theory of Attitudes can also describe consumer attitudes. Shavitt (1989)[22] explained that Katz (1960)[21] indicated that the knowledge function that attitudes serve, helps the individual to organize and configure his/her surrounding to create a sense of uniformity and understanding within his/her frame of reference. And this is probably the most important function that attitudes may serve, and to an extent mostly all attitudes try to contribute to this function. When this is applied to consumer behavior, it is obvious that having attitudes towards products,

services, or ideas, provides a sense of reassurance of understanding and thus facilitates the decision-making process. The utilitarian function provides a way for maximizing rewards and minimalizing punishments by holding attitudes towards objects on individual's environment. This is applied in product attitude in which the individual synopsizes the positives and negatives associated with the product. For example, the product spoils quickly, or has a pleasant taste. Accordingly, this will guide the individual to gain or avoid those outcomes. For example, deciding to buy or eat the product[22].

Lama Halwani (2020)[23] used the Functional Theory of Attitudes to examine respondents' attitudes towards online luxury products consumption behavior. Semi-structured one-to-one interviews were conducted with 60 participants to detect their attitudes towards the online luxury products shopping. Results have shown that as reflected in the theory, the motives towards the purchase of online luxury products were noteworthy bases for intentions and attitudes and verified the effect of the hedonic and utilitarian functions on the online luxury products purchasing experience[23].

Significance of Katz' Functional Theory of Attitudes in relation to the reviewed literature:

Katz's functional theory of attitudes proposes that attitudes serve several functions, including the utilitarian function (instrumental benefits), the value-expressive function (self-expression), and the ego-defensive function (coping with internal conflicts). The findings of the studies mentioned in the question are related to the utilitarian and hedonic functions of attitudes.

Specifically, the study by Sung, Han, and Choi (2022)[11] suggests that the use of AR in advertising can facilitate experiences of escapism, which can be seen as a hedonic benefit. The study by Rauschnabel, Felix, and Hinsch (2019)[15] found that consumer inspiration, a hedonic benefit, mediates the relationship between benefits from augmented reality apps and changes in brand attitude. Additionally, the study by Hoffmann, Mai, and Pagel (2022)[19] showed that both hedonic and utilitarian components are important in influencing consumer ratings of MAR apps.

Thus, Katz's functional theory of attitudes helps in understanding that attitudes serve multiple functions, including hedonic and utilitarian benefits, which can both influence consumer behavior and brand attitudes. The findings of these studies suggest that AR applications in marketing can

provide both hedonic and utilitarian benefits to consumers, which can positively influence their attitudes and purchase intentions towards a brand.

Research Hypotheses:

As the research employs Katz Functional theory of attitudes, it seeks to find out the attitudes that consumers hold towards the augmented reality advertising serve which functions and compare it to the consumers attitudes towards traditional media advertising of the same brands. Accordingly, the research hypotheses are formulated as follows:

RH1: Attitudes serving knowledge functions towards augmented reality advertising are more favorable than those held towards traditional advertising.

RH2: Attitudes serving value-expressive functions towards augmented reality advertising are more favorable than those held towards traditional advertising.

RH3: Attitudes serving utilitarian functions towards augmented reality advertising are more favorable than those held towards traditional advertising.

RH4: Attitudes serving ego-defensive functions towards augmented reality advertising are more favorable than those held towards traditional advertising.

RH5: There is a relationship between the socio-economic status and the held attitude.

Research Methodology:

Sample and Procedure

A pretest – posttest quasi experiment based on one-group design was conducted, as there was no randomization of the treatment to the subjects. The experiment was conducted virtually in which the participants had to use a smart device to get exposed to the videos and answer the questions. The ads were combined in two videos: a video for AR ads (1:48 mins), and a video for traditional ads (2:20 mins), using Windows Movie Maker software. They were then put together with corresponding questions in a google form that was sent to the participants. The participants were first exposed to a video containing the traditional media adverts for Ikea, Amazon, L'Oréal make up, and Audi car, followed by a set of questions to measure their attitudes (pretest). And then, they were exposed to the other video of AR adverts of the same brands, followed by the same set of questions (posttest). The selected brands represent different industries and product categories, providing a diverse range of perspectives on how AR

advertising may be perceived. A purposive sample was used as it was based on two criteria for participant selection; the first criterion is the participant's awareness of the selected brands, and the second criterion is the number of participants. Therefore, once the required number of participants was obtained, the form was closed. The sample was composed of 75% females, and 25% males. 46.67% of the sample aged from 18 to 24, 30% aged from 18 to 24, 18.33% aged from 35 to 44, and 5% aged from 45 to 54. The data collection period for the experiment was one week, during which the total number of participants was obtained.

Design

The adverts were combined in two videos, and the questions were then developed which were both shown to a group of academic professors to confirm their external validity in measuring the determined variables[*]. The questions were closed ended single choice questions and were divided into six parts. The first part included questions to measure attitudes serving the knowledge function to indicate person's beliefs about the usefulness or efficacy of the AR concept. Statements used to reflect knowledge attitudes, indicating that the person believes that augmented reality technology can provide useful and informative product information.; the second part included questions to measure attitudes serving the value-expressive function which is represented in the person values of adventure, excitement, and credibility that can be connected to AR advertising; the third part included questions to measure attitudes serving the ego-defensive function in which the person's self-concept is linked to being an early adopter of new technologies; the fourth part included questions to measure the utilitarian function indicating that the person sees the entertainment and interest value of augmented reality ads and believes that the technology could facilitate making purchase decisions.; the fifth part included questions to measure demographic variables; and the sixth part included questions regarding the socio-economic status.

Measured Variables

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[*] Arbitrators: Prof. Salwa Soliman, Department of PR and Advertising, Faculty of Digital Media, Ain Shams University; Assoc. Prof. Iman Zahra, Department of Advertising and PR, Faculty of Mass communication, MSA University; Assoc. Prof. Reham Sami, Department of Broadcasting, Faculty of Mass Communication, MSA University; Dr. Abeer Salem, Department of Advertising and PR, Faculty of Mass Communication, MSA University; Dr. Heba El-Shahed, Department of Mass communication, School of Global and Public Policy, AUC.

Measures include the four functions of attitudes proposed by Katz towards both Augmented Reality and traditional advertising, basic demographic variables, and the socio-economic status.

Scoring System

In order to measure the variables which, include the four functions of attitudes proposed by Katz (Knowledge; Value-expressive; Ego-defensive; and Utilitarian), and the socio-economic status, a scoring system is formulated to enable variable level measuring. The scoring system is as follows:

For the *Knowledge Function*, three items are used to measure the *Knowledge* variable. Items are calculated by giving a score to each answer; where Strongly Agree is given a score of (5), Agree is given a score of (4), Neutral is given a score of (3), Disagree is given a score of (2), and Strongly Disagree is given a score of (1), with a total score of 15.

For the *Value-Expressive Function*, four items are used to measure the *Value-Expressive* variable. Items are calculated by giving a score to each answer; where Strongly Agree is given a score of (5), Agree is given a score of (4), Neutral is given a score of (3), Disagree is given a score of (2), and Strongly Disagree is given a score of (1), with a total score of 20.

For the *Ego-Defensive Function*, three items are used to measure the *Ego-Defensive* variable. Items are calculated by giving a score to each answer; where Strongly Agree is given a score of (5), Agree is given a score of (4), Neutral is given a score of (3), Disagree is given a score of (2), and Strongly Disagree is given a score of (1), with a total score of 15.

For the *Utilitarian Function*, three items are used to measure the *Utilitarian* variable. Items are calculated by giving a score to each answer; where Strongly Agree is given a score of (5), Agree is given a score of (4), Neutral is given a score of (3), Disagree is given a score of (2), and Strongly Disagree is given a score of (1), with a total score of 15.

Each variable is calculated separately in which the scores of the items are added and multiplied, and the total score values of each variable are identified on a continuum where they are classified into three categories: Poor; Fair; Good.

In *Knowledge*, *Ego-Defensive*, and *Utilitarian* variables, the categories are classified based on Cronbach α Coefficient, as follows: score from 3 to 7 is Poor; score from 8 to 11 is Fair, and score from 12 to 15 is good.

In *Value-Expressive* variable, the categories are calculated based on Cronbach α Coefficient, as follows: score from 4 to 9 is Poor; score from 10 to 14 is Fair, and score from 15 to 20 is good.

In the socioeconomic status, the categories are calculated on Cronbach α Coefficient, as follows: score ≤ 24 is low socioeconomic status; score from 25 to 31 is average socioeconomic status; and score ≥ 31 is high socioeconomic status.

Results:

The current study explores the attitudes of consumers towards the Augmented Reality advertising versus the traditional media advertising through a Pretest-Posttest Quasi Experiment. All data are collected, statistically analyzed, and tabulated using Compare Mean, ANOVA, and Pearson Correlation tests through SPSS 23 software.

Table 1: Compare Means between Pretest and Posttest in Quasi Experiment

Status		Total Knowledge	Total Value-Expressive	Total Utilitarian	Total Ego-Defensive
Pretest	Mean	10.3500	13.5167	10.4000	10.8333
	N	60	60	60	60
	Std. Deviation	0.36374	1.38737	0.39491	1.52558
Posttest	Mean	12.2333	16.4167	12.6833	10.8333
	N	60	60	60	60
	Std. Deviation	0.68107	1.43764	0.84567	1.52558

The results in Table 1 show statistical significance in *Knowledge function* with a mean 10.350 in pretest and 12.233 in posttest, *Value-Expressive function* with a mean 13.5167 in pretest and 16.4167 in posttest, and *Utilitarian function* with a mean 10.40 in pretest and 12.6833 in posttest, but do not show statistical significance in *Ego-Defensive function* between the pretest and posttest where both means are the same 10.8333.

Table 2: ANOVA Test to Compare Pretest and Posttest in Quasi Experiment

Attitude Function	Sum of Squares	df	Mean Square	F	Sig.
Total_Knowledge	8.008	1	8.008	25.011	.000
Total Value Expressive	9.075	1	9.075	29.165	.000
Total Utilitarian	6.533	1	6.533	23.059	.000
Total Ego Defensive	.000	1	.000	.000	1.000

The results of ANOVA test in Table 2 reveal a statistical significance between groups in Knowledge, Value-Expressive, and Utilitarian functions at p≤0.01, therefore, **RH1** *Attitudes serving knowledge functions towards augmented reality advertising are more favorable than those held towards traditional advertising*; **RH2** *Attitudes serving value-expressive functions towards augmented reality advertising are more favorable than those held towards traditional advertising;* and **RH3** *Attitudes serving utilitarian functions towards augmented reality advertising are more favorable than those held towards traditional advertising,* are accepted. On the other hand, the results do not show statistical significance between groups in Ego-Defensive function (1.000), therefore, **RH4** *Attitudes serving ego-defensive functions towards augmented reality advertising are more favorable than those held towards traditional advertising* is rejected.

Based on the results of Compare Means test in Table 1, and ANOVA test in Table 2, it can be concluded that there are statistically significant differences in Knowledge, Value-Expressive, Utilitarian from pretest to posttest. However, there was no significant change in Ego-Defensive.

Table 3: Correlation Between Socio-economic Status and Katz Four Functions of Attitudes

Attitude Function		Socio-economic Status
Knowledge Functions	Pearson Correlation	-.083
	Sig. (2-tailed)	.367
	N	60
Value-Expressive Functions	Pearson Correlation	-.041
	Sig. (2-tailed)	.653
	N	60
Utilitarian Functions	Pearson Correlation	-.024
	Sig. (2-tailed)	.793
	N	60
Ego-Defensive Functions	Pearson Correlation	-.281[**]
	Sig. (2-tailed)	.002
	N	60

Pearson Correlation test is done to examine **RH5** *There is a relationship between the socio-economic status and the held attitude* to determine whether there is a relationship between the socio-economic status of the participants and their attitudes. The results shown in Table 3 reveal that there is no statistical significance in Knowledge, Value-Expressive, and

Utilitarian functions, but show statistically significant negative relationship (-0.281) between the socio-economic status and the Ego-Defensive functions (P≤0.01). Therefore, RH5 is partially rejected.

The results indicate that there is a negative correlation between ego-defensive functions and socio-economic status, with a correlation coefficient of -0.281 and a significant p-value of 0.002. This means that individuals with higher socio-economic status tend to have less ego-defensive attitudes.

On the other hand, there is no significant correlation between knowledge, value-expressive, and utilitarian functions with socio-economic status. The correlation coefficients for these three attitude functions are negative, indicating that higher socio-economic status is associated with a lower tendency to use these functions, but the p-values are greater than 0.05, indicating that these relationships are not statistically significant.

Overall, the results suggest that socio-economic status is only weakly related to attitude functions, with ego-defensive functions being the only significant predictor of socio-economic status among the attitude functions examined.

Discussion:

The current research has conducted a pretest-posttest quasi-experiment based on one group design of 60 participants to explore their attitudes towards augmented reality advertising versus traditional media advertising within the framework of Katz Functional Theory of Attitudes. The collected data is analyzed using Compare Means, ANOVA, and Pearson Correlation. Results have revealed that there is a difference between the pretest and posttest. Attitudes are generally more favorable towards the augmented reality advertising as opposed to the traditional media advertising. This is expressed clearly in the participants' attitudes that serve Knowledge, Value-Expressive, and Utilitarian functions, but there is no difference in attitudes that serve the Ego-Defensive function.

Participants acknowledge that AR advertising provides detailed information about the product. It demonstrates with great clarity how the product is used or the different features of the product. Various studies reviewed in the literature support the information layer that is provided through the AR advertising (e.g., Hoffmann, Mai, & Pagel, 2022[19]; Scholz & Duffy, 2018[15]; Sung, Han, & Choi, 2022[11]; Yaoyuneyong et al. 2016[24]), as well

as (Roces García, 2020)[18] who asserted that the introduction of augmented reality has provided the perfect tool to develop innovative campaigns and strategies. With this technology, customers can not only receive a visual stimulus, but can be immersed within it. It also allows the personalization of experiences to a greater degree, since with a simple mobile device different personalized elements can be displayed, allowing companies to know a little more about the customers they are targeting while offering them a completely innovative experience.

Attitudes that serve the Value-Expressive functions are demonstrated through the participants' confirmation that AR advertising support their values related to being a high-tech user, and innovators, being adventurous, and their valuing of credibility. This finding supports (Rauschnabel, Felix & Hinsch, 2019)[15] who indicated that AR advertising contributed to changing attitudes of consumers favorably towards the brand, and (Roces García, 2020)[18] who believes that AR advertising offers a different innovative experience. Also, this coincides with (Yaoyuneyong et al. 2016)[24] whose research showed how consumers react positively to advertisements in which augmented reality techniques are used, considering them more informative and innovative. While, on the other hand, traditional ads require more effort and are associated with a certain feeling of irritation.

The Utilitarian function of attitudes are expressed through the participants' belief that AR advertising helps in the decision-making process due to its high-tech demonstrative capabilities that allow the consumer to try the product, and due to the interesting experience, they find in this kind of advertising. In addition to the entertainment that the consumer enjoys while watching or dealing with such technology. This confirms that findings of (Harren, Seiler, & Müller, 2019[18]; Provecho Palacio, 2020[17]; Jayawardena, et. al. 2023[2]) who contended that AR advertising helps in perceiving the usefulness of the brand and thus increasing the purchasing intentions.

Not surprising to find that the Ego-Defensive function do not change in the pretest and posttest, as individuals will always try to defend their ego in some way or another regardless of the circumstances they are confronting. Knight Lapinski & Boster (2001)[25] asserted that among the four

functions of attitudes, one function is always consistent which the Ego-defensive function.

The study also examines the relationship between the socio-economic status of the participants and their attitude functions. The results reveal that there is no relationship between the socio-economic status and the knowledge, the utilitarian, or the value-expressive functions of attitudes, whereas they indicate a negative relationship between the socio-economic status and the ego-defensive function of attitudes. This means that the higher the socio-economic status is, the lower the attitudes supporting the ego-defensive functions, and vice versa. Achieving a higher socio-economic status is a common sought for ego satisfaction. Individuals who fail to achieve a real high socio-economic status tend to exert more effort to defend their self-image. Eagly & Chaiken (1993)[26] quoted in Sharma & Chan (2017)[27] contented that according to Smith et al. (1956) this is called externalization in which the individual uses the psychoanalytic Freudian defense mechanisms like projection, repression, and denial to defend the one self-image against internal and external threats in one's surrounding environment[26].

Conclusion:

The study suggests that consumers generally have a positive attitude towards augmented reality advertising in relation to the functions it serves for the individual. That was clearly apparent in the knowledge, value expressive, and utilitarian functions, but have not change in the ego-defensive functions. The literature has shown that AR advertising can enhance consumers' emotional engagement with the brand, improve their attitudes towards the brand, and increase their purchase intention. AR advertising also provides a more immersive and interactive experience for consumers, which can be more engaging than traditional advertising methods.

This technology has numerous applications in a wide variety of sectors, including marketing and, in particular, communication. Augmented reality techniques allow generating the necessary change to attract the attention of consumers in an environment in which advertising

aggressiveness is high. It allows consumers to be immersed in campaigns and avoid the rejection effect that advertising actions often cause. This technology is also a great ally for companies when it comes to marketing at the point of sale. This is due to the amount of information it can offer, providing customers with a totally different shopping experience. Companies obtain a better positioning, since allowing customers to be part of these experiences will generate a positive memory and increase engagement or involvement with the company and its products. Through all these effects, augmented reality can bring rewards in the form of preference and loyalty to the companies that apply it. Even if it does not have a positive impact, it is important to have a variety of advertising techniques to present to defend the current customers and outstand among competitors.

However, it is important to note that developing effective AR advertising campaigns requires careful planning and execution. Challenges such as technological barriers, high production costs, and lack of consumer awareness and education about AR can hinder the success of AR advertising campaigns. Therefore, further research is needed to explore the potential of AR in advertising and to develop best practices for creating effective AR ads that can overcome these challenges and maximize their impact on consumer attitudes and behavior.

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