Investigating the impact of augmented reality on customer experience

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Abstract:

Augmented reality (AR) has emerged as a disruptive technology in retail, providing novel ways to improve customer experience. AR allows buyers to interact with products and services in novel, immersive ways, disrupting traditional purchasing methods. This study investigates the impact of AR on consumer experience by looking at how AR attributes—interactivity, vividness, and novelty—influence important dimensions of customer experience, such as informativeness, social presence, and sensory appeal. The findings demonstrate that AR features have a significant and direct impact on the customer experience. Interactivity, vividness, and novelty considerably improve informativeness, allowing customers to

make more informed choices. Similarly, these characteristics enhance social presence by facilitating immersive interactions and increasing sensory appeal through engaging and vivid experiences. The findings underscore the role of augmented reality in transforming the retail industry, allowing firms to differentiate themselves and provide a better shopping experience. This study adds to the expanding body of knowledge about AR's ability to create value in the retail business and gives actionable recommendations for exploiting AR technology to satisfy evolving customer expectations.

Keywords: augmented reality, interactivity, vividness, novelty, customer experience , informativeness ,social presence, sensory appeal

دراسة تأثير الواقع المعزز على تجربة العملاء

الملخص :

تُعَدّ تقنية الواقع المعزز إحدى التقنيات الثورية في قطاع البيع بالتجزئة، حيث توفر طرقًا مبتكرة لتحسين تجربة العملاء. تتيح هذه التقنية للمستهلكين التفاعل مع المنتجات والخدمات بطرق جديدة وغامرة، مما يُحدث تغييرًا جذريًا في أساليب الشراء التقليدية. تدرس هذه الدراسة تأثير الواقع المعزز على تجربة المستهلك من خلال استكشاف كيفية تأثير خصائص الواقع المعزز - مثل التفاعلية والحيوية والجِدَّة - على أبعاد مهمة من تجربة العميل، مثل المعلوماتية، والحضور الاجتماعي، والجاذبية الحسية.

تُظهر النتائج أن ميزات الواقع المعزز لها تأثير كبير ومباشر على تجربة العميل. حيث تُحسّن التفاعلية والحيوية والجدة بشكل كبير الجانب المعلوماتي، مما يتيح للمستهلكين اتخاذ قرارات أكثر وعيًا. وبالمثل، تُعزز هذه الخصائص الحضور

الاجتماعي من خلال تسهيل التفاعلات الغامرة، وتزيد من الجاذبية الحسية عبر توفير تجارب مشوقة وحيوية.

تُبرز النتائج دور الواقع المعزز في تحويل صناعة البيع بالتجزئة، مما يتيح للشركات التميز وتقديم تجربة تسوق أفضل. تُسهم هذه الدراسة في توسيع المعرفة المتعلقة بقدرة الواقع المعزز على خلق قيمة في قطاع البيع بالتجزئة، وتقدم توصيات عملية لاستغلال تقنيات الواقع المعزز لتلبية تطلعات العملاء المتغيرة

الكلمات الرئيسية: الواقع المعزز، التفاعلية،الوضوح، الحداثة، تجربة العملاء، المعلوماتية، الحضور الاجتماعي، الجاذبية الحسية .

1. Introduction

Technology for augmented reality (AR) was first introduced in 1990. Most consumers could only learn about augmented reality until hardware and technology caught up. Up until recently, technology was developing quickly, and nearly every smartphone can now use augmented reality (AR), which has sped up the adoption of AR technology and attracted the attention of many brands and stores. (Chen & Chou, June 2022)

The creation of virtual worlds or the enhancement of existing real-world items and scenarios through numerous sensory modes are just examples of the many things that have become possible thanks to significant technological breakthroughs in recent years. Virtual reality (VR) and augmented reality (AR) have the power to change how activities like commerce, recreation, and health care are seen. Although it is frequently believed that VR and AR are the same, they are very distinct. Mixed reality, another name for augmented reality (AR), is the mapping of virtual items onto the physical world with

the addition of additional sensory information. VR refers to total immersion in a computer-generated environment. The user is shown these surroundings and accepts it as real. (Pranav Parekh, 2020)

The term "customer experience" refers to the emotions of the customers. One remembers the experience for a very long time. Additionally, others close to the individual are more likely to benefit from the experience they have obtained. Therefore, despite claims from certain company employees that customer experience (CX) is solely about selling and marketing, "high-league players" in the business world should keep the idea of CX's significance in mind. (Lukina, 2019)

The value of the customer experience is emphasized in activities related to luxury consumption as well (Atwal & Wiliams, 2017). Customer Experience Management (CEM) is now regarded by practitioners as one of the most promising management strategies for addressing marketing difficulties. Because it contributes significantly to business success and competitive advantage. Academics and industry professionals are generally in agreement when it comes to the importance of focusing on the customer experience because it may give any business a distinct and long-lasting advantage. (Chandra Sahu, 2022)

The customer experience has been redefined in recent years by reality-virtual technologies, which take into account the fact that various technologies can either directly or indirectly support "core experiences" by enhancing the stages of the customer

journey. (Adel, December 2021), this study tries to examine the chain of effects from AR attributes on customer experience

2. Augmented Reality History

The first example of augmented reality (AR) dates to the 1950s, when cinematographer Morton Heilig believed that by effectively engaging all five senses, cinema might draw viewers into the action taking place onscreen. Heilig created a Sensorama prototype in 1962 that was an early kind of digital computing that was based on his ideas from "The Cinema of the Future," which he published in 1955. (Furht, 2011)

In VR, users completely lose contact with the outside world as they immerse themselves in a world that is entirely generated by virtual things. They are also placed into a space-time simulation that shows as one of the main capabilities of 3D visualizations, where they are completely submerged. While this is happening, augmented reality (AR) enables users to observe the physical environment with virtual items that dwell alongside actual objects. Texts, drawings, photos, and sounds give an additional layer of information to the physical world. However, VR serves as a replacement in terms of interacting with the real space-time concept, whereas AR has a supplementary use. (Azuma, 1997)

Research on and the use of augmented reality (AR) has been done in a variety of fields, including gaming and retail. (Dieck & tom, 2018)

3. A Customer Experience Perspective on Augmented Reality in Retail

Augmented Reality (AR) technology is gaining popularity in the retail industry to improve consumer experiences. Studies have demonstrated that interacting clients with AR elements through mobile applications results in favorable customer experiences. (McLean & Wilson, 2019)

This great experience is critical for developing client loyalty, because customer pleasure plays a big part in fostering loyalty in the retail sector. (Kaura, Prasad, & Sharma, 2015)

AR not just alters client interaction but also influences their behavioral intentions to adapt, acquire, and improves the whole digital customer experience. (Khashan, Elsotouhy, Alasker, & Ghonim, 2023)

Retailers are using augmented reality components such as video try-ons to engage customers and improve their impression of fairness in online services. (Christ-Brendemühl & Schaarschmidt, 2021)

The interaction between the organization producing an offer and the intended consumer of that offering is the primary element of customer experience. (Archibald, Lohse, Vaidyanathan, & Henningsson, 2020)

Retailers hope to deliver better consumer experiences and interactions by utilizing augmented reality technologies. (Vaidyanathan & Henningsson, 2022)

4. AR Attributes – The Stimuli and Customer Benefits

AR interactivity is the capacity to control what the user sees by integrating the real and virtual worlds. AR Vividness is the clear, detailed depiction of an image (typically layered in 3-D) that combines the real and virtual worlds. AR novelty - the unique and user-specific information that combines the real and virtual worlds each time an individual utilizes the AR feature (Yim, Chu, & Sauer, 2017)

Interactivity is seen as one of the key constructs relating to the impact of digital/smart technology on consumer experience Interactivity has been proposed as a distinguishing feature of AR due to its implied ability to influence attitudinal and behavioral outcomes (McLean and Wilson, 2019; Yim et (Mclean & Wilson, 2019)which leads to a favorable purchase intention.(Nikhashemi, Knight, Nusair, & Liat, January 2021)

According to (Hopp & Gangadharbatla, 2016)novelty reappears in people's perceptions of a stimulus as being new, strange, or otherwise distinguishable from other stimuli they have already encountered.

(Mclean & Wilson, 2019)describe AR novelty as "the new, unique, personalized, novel content (stimuli) experienced each time through the AR display" (p. 213), rather than its 'newness' in online retail. Customers are intrigued by personalized creative functions, which inspire them to seek out fresh information and explore deeper. For example, anthropomorphism, or endowing AR with

human features and qualities, influences users' opinions of an AR app's innovativeness/novelty. Furthermore, AR apps with distinctive properties, such as novelty, vividness, quality, etc., can increase its users' functional and enjoyment experiences, and, thus, it accelerates the utilitarian and hedonic benefit perception process. (Nikhashemi, Knight, Nusair, & Liat, January 2021)

Subjects who engaged with computer-generated images of themselves reported higher levels of enjoyment than those who simply engaged with their shadow in the vividness and enjoyment tests, underscoring the significant impact of vividness on satisfaction. Similarly, compared to standard 2-D television advertising, stereoscopic 3-D advertising that creates more vivid images leads to more satisfaction. (Yim, Chu, & Sauer, 2017)

"The ability of a technology to produce a sensorially rich mediated environment" is what is meant by vividness. It blends "hallucination," which is the "nonsensory experience of imaginary objects," with "the sensory experience of actual objects." Vibrantness has frequently been interpreted as the quality of product presentations in the context of e-commerce. Customers' cognitive elaboration processes are more likely to be stimulated by more vivid product representations. (Yim, Chu, & Sauer, 2017)

5. Customer Experience

CE is "the internal and subjective response that customers have to any direct or indirect contact with a company," according to Meyer and Schwager (2007) (p. 118). CE is viewed as a

psychological construct that is a comprehensive, subjective reaction that arises from a customer's interaction with a store and may involve varying degrees of consumer involvement. . (Rose, Clark, Samouel, & Hair, 2012)

Customer experience, or CX, is the term used to describe the relationship between a business and its clients. They go on to say that it is a combination of the company's outward performance and the customer's emotional and sensory engagement, mapped against his or her expectations throughout all of the points or moments of encounter with the company or its products. (Gupta & Vajic, 2000)

The outcome of people's interpretations is the customer experience. It is an experience heavily influenced by movements and subconscious interpretation rather than a logical choice. The total experience of the company's operations is also known as the customer experience This explains why it is difficult to predict the type of experience a consumer will have. Businesses may still be able to influence the experiences they are developing and providing. (OLENIUS, 2013)

Instead of being driven by technology, augmented reality projects should be led by the consumer experience. Consumer insights regarding the distinctive, engaging, and worthwhile experiences made possible by AR technologies could serve as guidance for marketers. The location of such an event, the optimum way to activate it, and the material it should contain

should all be influenced by these insights. Utilizing the newest platform or technology may be exciting, but projects that commit too soon to a certain strategy run the risk of failing to connect with customers and coming off as gimmicky. In addition to wasting money and harming business image, AR experiences that fall short of or fall short of customer expectations could jeopardize future initiatives utilizing AR or other cutting-edge marketing technology. (Scholz & Smith, 2016)

6. AR And the Customer Experience

Because augmented reality (AR) offers immersive marketing opportunities that traditional shopping methods do not, it is becoming increasingly popular in retail. Customers may see how items will seem on them without trying them on thanks to AR applications, which, for example, create virtual fitting rooms. Because it satisfies the need for individualized purchasing experiences, this capacity has been demonstrated to boost customer engagement and pleasure. (Liu, 2024)

Furthermore, studies indicate that AR can enhance sensory perceptions, making the shopping experience more enjoyable and memorable (Watson, Alexander, & Salavati, 2018)Customers may be more likely to make a purchase as a result of AR applications' immersive qualities, which make them feel more linked to the goods they are contemplating. (Akash & Tajamul, 2022)

Furthermore, the adoption of augmented reality technology calls for a reconsideration of conventional retail tactics. Retailers

are using augmented reality more and more to provide omnichannel experiences that smoothly combine online and offline communication. Brands like L'Oreal and IKEA, for instance, have effectively used augmented reality (AR) into their marketing tactics, enabling buyers to see products in their own settings prior to making a purchase Customers can engage with products in a way that feels more real and applicable to their life, which not only improves customer convenience but also cultivates a stronger emotional bond with the brand (Cuomo, Tortora, Festa, Ceruti, & Metallo, 2020)

According to (Lavoye, Mero, & Tarkiainen, 2021) research, augmented reality (AR) can greatly improve customer experiences, but its efficacy depends on its careful application that considers the expectations and preferences of the user.

7. Research Objectives

The study aims to achieve the following:

- To explore how can augmented reality enhance the customer experience.

8. Research Hypothesis:

The empirical study consists of main hypothesis stated as the following.

$\boldsymbol{H_1}$: The augmented reality attributes (interactivity, vividness, novelty) have a significant impact on customer experience.

9. Research Methodology

Research methodology used in this study can be summarized as follows:

9.1 Research Purpose:

The type of this research is explanatory as the researcher defines and formulates the research problem, establishes the research hypotheses, and conducts the research. Identifying the augmented reality and its attributes and how it affects the customer experience It is also descriptive as the researcher used questionnaire to examine the hypothesis variable.

9.2 Research strategy

The strategy applied on this research is the questionnaire, Is one of the methods that can be applied in descriptive research to collect information .the descriptive survey majorly deals with investigating the degree at which a condition can be on the subjects .as it served our quantitative approach that dealt within the framework of using statistical data to describe and analyze the research and this reduces time and effort instead of describing the results that take longer. Also, in this approach, the data (numbers, percentages, and measurable numbers) will be calculated and managed by the computer through the use of the Statistical Package for Social Sciences (SPSS). This approach is faster in dealing with data as data collection methods are suitable for large numbers and their results are numerical, such as closed questionnaires, and pre-made measures.

9.3 research philosophy

The findings of positive research must be subjected to natural laws and principles to be valid. Positivism takes a quantitative approach to research that is much more data driven. The emphasis is on gathering numerical data that can be studied, categorized, and described in percentages and other descriptive statistical methods such as mode and mean charts and graphs. The conclusion then draws conclusions based on the data. This study is supported by the Positivism philosophy as the researcher will use quantitative approach.

10. Population and Sample Size

The researcher used population unknown size of the population size to get the highest value for sample size to be presentable to the study population, and the methodology of selecting the sample size is the random sampling technique which is defined as the following:

$$n_o = \frac{Z^2 * p * q}{e^2}$$

Where:

- $\boldsymbol{n_o}$: Is the sample size for unlimited population.
- $\boldsymbol{Z}$: Is the area under the normal distribution curve for confidence interval ***95%*** and it has a standardized value of ***1.96.***

- $\boldsymbol{P}$: Is the estimated proportion of an attribute that is present in the population in order to obtain the maximum sample size ***(p)*** value has to be ***0.5.***
- $\boldsymbol{q}$: Is the complement of ***(p)*** which equal $(\mathbf{1} - \boldsymbol{p}) = \mathbf{0.5}$.
- $\boldsymbol{e}$: Is the margin of error for the confidence interval by which if the confidence interval is 95% then the margin of error ***(e)*** will be ***5%.***

By substituting in the above formula, the adjusted sample size (n) will be:

$$n_o = \frac{1.96^2 * 0.5 * 0.5}{0.05^2} = 385$$

The researcher succeeded to collect 395 responses for the study questionnaire, but she emanates one invalid response, and the final sample size that will be analyzed to obtain the statistical results and used for testing the study hypotheses are 394responses.

11. The Descriptive Analysis

The dimensions of the independent variables, and the dependent variable will be analyzed to determine measures of central tendency which presented by (weighted average mean, maximum and minimum values), then measures of dispersion which presented by (standard deviation and coefficient of variation) for each variable.

Table (1): The descriptive analysis of Dimensions study variables.

Variable	Minimum	Maximum	W. A. Mean	Standard Deviation	Coefficient of Variation
Interactivity	1.00	5.00	3.73	1.2151	0.3259
Vividness	1.00	5.00	3.73	1.2163	0.3265
Novelty	1.00	5.00	3.73	1.2170	0.3260
Consumer experience	1.00	5.00	3.74	1.2109	0.3237

Source: prepared by the researcher from SPSS output.

From table(1) it is concluded that:

- The independent dimension "Interactivity" has a minimum value of 1.00 and maximum value of 5.00 with an arithmetic mean of 3.73, and its standard deviation is 1.2151 and this value is less than 1 which led to a low coefficient of variation of 32.59% which means that there is a low level of dispersion of values around the arithmetic mean.
- The independent dimension "Vividness" has a minimum value of 1.00 and maximum value of 5.00 with an arithmetic mean of 3.73, and its standard deviation is 1.2163 and this value is less than 1 which led to a low coefficient of variation of 32.65% which means that there is a low level of dispersion of values around the arithmetic mean.
- The independent dimension "Novelty" has a minimum value of 1.00 and maximum value of 5.00 with an arithmetic mean of 3.73, and its standard deviation is 1.2170 and this value is

less than 1 which led to a low coefficient of variation of 32.60% which means that there is a low level of dispersion of values around the arithmetic mean.

- The dependent variable "consumer experience" has a minimum value of 1.00 and maximum value of 5.00 with an arithmetic mean of 3.74, and its standard deviation is 1.2109 and this value is less than 1 which lead to a low coefficient of variation of 32.37% which means that there is a low level of dispersion of values around the arithmetic mean.

12. Test of Normality

The researcher applied Shapiro-Wilk test to determine whether the main variables of study follow the normal distribution or not, Shapiro-Wilk test is a Chi-squared test of normality which its null hypothesis states that variables are not normally distributed if the test *p-value* is less than or equal 0.05, while its alternative hypothesis states that variables are normally distributed if the test *p-value* is more than 0.05.

Table (2): Shapiro-Wilk test of normality.

Variable	Statistic	DF	*P-value*
Interactivity	0.868	384	0.000
Vividness	0.867	384	0.000
Novelty	0.867	384	0.000
Consumer experience	0.866	384	0.000

Source: prepared by the researcher from SPSS output.

From table (2) it is concluded that all the independent variable dimensions, and dependent the variable dimensions are not normally distributed as their *p-value* of Chi-square statistic is less than 0.05, so the alternative hypothesis will be accepted that the dimensions are not follow the normal distribution.

13. Test of Responses Reliability

The term reliability generally refers to the consistency of a measure. The statistical approach to estimating reliability varies depending upon the purpose of the measure.

Cronbach's Alpha test to measure the degree of study variables stability and the following table presents that the stability factor for the sample responsiveness is 99.8% which means that the responses were very high and stable in that questionnaire.

Table (3): Cronbach's Alpha Reliability test for variables of study.

Dimension	Number of statements	Cronbach's Alpha	$\sqrt{Alpha}$
Interactivity	6	0.995	0.997
Vividness	5	0.995	0.997
Novelty	4	0.994	0.996
Consumer experience	9	0.992	0.995

Source: prepared by the researcher from SPSS output.

From table (3) it is concluded that there is a high level of reliability for the responses for each variable as the Cronbach's Alpha test

show high level of stability as it values for each variable is more than 60% and also for the trust factor which calculated by square root of Alpha factor showed a trust level of more than 80%.

14. Test of Responses Validity

Validity is the extent to which a concept, conclusion or measurement is well-founded and likely corresponds accurately to the real world based on probability. The validity of a measurement tool is considered to be the degree of probability to which the tool measures what it claims to measure, in this case, the validity is an equivalent to a percent of how accurately the claim corresponds to reality.

Table (4): Validity t-test for study variables

Dimensions and variables	t-test	*df*	*P-value*
Interactivity	60.133	383	0.000
Vividness	60.012	383	0.000
Novelty	60.109	383	0.000
Consumer experience	60.111	383	0.000

Source: prepared by the researcher from SPSS output

The validation t-test used to measure the extent of statements consistent with the responses in the questionnaire, and from the following table it found that t-test values are all positive and significant as its all *p-value* is equal to 0.000 and this presents a high level of consistency.

15. Correlation Matrix

After applying test of normality for the main dimensions of the independent, and the dependent variables of study and founding the study variables don't follow the normal distribution, So Spearman correlation coefficient will be the most appropriate coefficient for determining the relation strength and direction between each two variables, then the correlation coefficient is tested by a t-test which its null hypothesis states that correlation does not exist if the test p-value is greater than 0.05.

Table (5): Spearman correlation coefficient for the study variables.

Variable	Interactivity	Vividness	Novelty	Consumer experience
Interactivity	**1.00**			
P-value	-			
Vividness	0.979**	**1.00**		
P-value	0.000	-		
Novelty	0.984**	0.970**	**1.00**	
P-value	0.000	0.000	-	
Consumer experience	0.982**	0.924**	0.961**	**1.00**
P-value	0.000	0.000	0.000	-

Source: prepared by the researcher from SPSS output

From table (5) it is concluded that:

- There is a direct, strong, and significant relation between the independent dimension Interactivity and dependent variable

Consumer experience with correlation coefficient value 0.982 and *p-value* 0.000.

- There is a direct, strong, and significant relation between the independent dimension Vividness and dependent variable Consumer experience with correlation coefficient value 0.924 and *p-value* 0.000.
- There is a direct, strong, and significant relation between the independent dimension Novelty and dependent variable Consumer experience with correlation coefficient value 0.961 and *p-value* 0.000.

16. The Multiple Regression model:

The main hypothesis of study states that " The augmented reality attributes (interactivity, vividness, novelty) have a significant impact on customer experience", so the researcher will develop multiple linear ordinary least squares (OLS) regression model to test the impact of the for dimensions of the augmented reality attributes (independent variables) on customer experience (dependent variable).

For the following table (6) presents multiple linear regression models the researcher had accepted the coefficients of independent variables significance at 5% level of significance.

Table (6): Multiple regression model for the main hypothesis H_1

Model	*OLS Multiple*	Dependent variable	**Customer Experience**
Variables	*Coefficient*	*p-value*	Significance
Constant	0.00531632	0.7414	**Insignificant**
Interactivity	0.245058	<0.0001	**Significant**
Vividness	0.520981	<0.0001	**Significant**
Novelty	0.231352	<0.0001	**Significant**
Adjusted R-squared		99.3554%	
F-test *P-value*		<0.0001	

Source: prepared by the researcher from SPSS output

From table (6) it is concluded that:

- The overall multiple (OLS) regression model is significant as the overall F-test of significance has a *p-value* of <0.0001, with and adjusted R-squared value 99.3554% which means that the dependent variable Customer Experience changes by 99.3554% due to the changes in the independent dimensions: (interactivity, vividness, novelty).
- Constant has an insignificant impact on Customer Experience.
- Interactivity, Vividness, Novelty have a positive significant impact on Customer Experience.

The (OLS) regression model forecasting equation will be:

$$\widehat{Customer\ Experience} = 0.245058\ Interactivity + 0.520981\ Vividness + 0.231352\ \text{Novelty}$$

17. Heteroscedasticity Test of error stability:

The regression models and the OLS method are based on several assumptions, including the constancy of homoscedasticity by which the mean should be equal to zero, and if the Heteroscedasticity variation is used, some methods are used to overcome this problem, such as the White test. The null hypothesis is that the model has a problem of random error instability (exogeneity) if *p-value* is less than 0.05.

Table (7): Heteroscedasticity test for Homogeneity.

Overall test of Heteroscedasticity	Chi-square	*P - value*
	14.989066	0.091237

Source: prepared by the researcher from AMOS output.

The above table shows that the chi-squared test of value 14.989066 has a *p-value* of 0.091237 which means accepting the alternative hypothesis which means that the study model does not suffer from the problem of random error instability and the study variables are endogenous to each other's.

18. Variance Inflation Factor (VIF) test

The test has a minimum possible value equals to 1.0 and the values greater than 10.0 indicate a collinearity problem.

Table (5): VIF of the independent variable dimensions

Variable	VIF
Interactivity	6.423
Vividness	5.844
Novelty	8.120

Source: prepared by the researcher from AMOS output.

From the previous table (5) it is concluded that there is no dimension suffers from multi-collinearity as the VIF values don't exceed 10.

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20. conclusions

The study concludes that all three attributes of augmented reality—interactivity, vividness, and novelty—have a major and advantageous effect on the retail customer experience. Together, these attributes attributes improve the consumer experience by fostering more engaging, innovative, and interactive shopping environments. Diagnostic tests verify the accuracy and dependability of the results and assess the robustness of the model.

This study highlights the revolutionary potential of augmented reality in retail and offers practical advice on how to use AR technology to boost consumer satisfaction and set companies apart in a crowded industry.

21. Research Limitations

This research has inherent limitations and constraints, as every study does. Some of the major limitations of this study are listed below:

- The research encountered challenges related to the accessibility of AR technology, as some participants faced device incompatibility issues. This limited the ability to deliver a consistent AR experience across all platforms, potentially affecting the accuracy of the results.
- A small number of participants in the surrounding environment made it difficult to conduct in-depth interviews, which was the main reason the researcher had trouble getting the required sample size for the qualitative portion of the study.
- Based on the researcher's knowledge, there were no previous models or hypotheses that included all of the variables examined in this stud

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