THE RELATIONSHIP BETWEEN AUGMENTED REALITY AND CONSUMER DECISION MAKING IN KURDISTAN REGION FOOD INDUSTRY

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THE RELATIONSHIP BETWEEN AUGMENTED REALITY AND CONSUMER DECISION MAKING IN KURDISTAN REGION FOOD INDUSTRY

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A thesis submitted in fulfilment of the
requirements for the award of the degree of Bachelor of Management (Technology)

School Of Management (Technology)
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DEDICATION

I dedicate this study to my family members who were the main support of my achievements in my personal and professional life. Also, I dedicate this thesis to my friends who were the source of my continuous efforts in finishing this study and appreciate their support always.

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ABSTRACT

This study intends to investigate how augmented reality (AR) affects consumer choice in the Kurdistan Region food market. By superimposing digital data on top of the physical world, augmented reality technology improves it. Although AR is being used more often across a range of industries, little research has been done on how it affects consumer choice in the food sector in the Kurdistan Region. By studying the extent of AR usage in the food business, examining the connection between AR and consumer decision-making, and exploring customers' perceptions on AR in their decision-making process, the study aims to close this gap. The results of this study will help stakeholders in the industry understand the impact that augmented reality plays in customer decision-making. The results of this study also showed that augmented reality (AR) technology has a substantial influence on consumers' purchasing decisions in the food sector in the Kurdistan Region. The findings revealed that the adoption and application of AR in the food industry are still at an early stage and have room to grow. The survey also discovered that there were no discernible gender disparities in the positive attitudes that customers in the area had toward AR in their decision-making. These results demonstrate the potential of augmented reality (AR) as a tool to improve consumer experiences, increase product comprehension, and boost sales in the food sector in the Kurdistan Region. For those in the sector looking to effectively integrate AR technology into their marketing strategy, the report offers useful insights.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AR	Augmented Reality
CDM	Consumer Decision Making
SPSS	Statistical Package for Social Science
GDP	Gross Domestics Product
KRI	Kurdistan Region of Iraq
COVID-19	Corona Virus
3D	Three Dimensions

LIST OF APPENDEIX

CHAPTER 1

INTRODUCTION

1.1. Introduction

Augmented reality (AR) is a technology that enhances the real-world environment by superimposing digital information on to it. AR has been increasingly used in various industries to improve customer experiences, such as retail, education, and entertainment. However, little research has been conducted on the relationship between AR and consumer decision making in the Kurdistan Region food industry. This study aims to fill this gap by examining the impact of AR on consumer decision-making in the Kurdistan Region food industry.

The Kurdistan Region, located in northern Iraq, is an emerging market with a rapidly growing food industry. The food industry plays a significant role in the region's economy, providing employment and contributing to the GDP. However, the Kurdistan Region food industry faces various challenges, such as competition from imported products and a lack of consumer awareness about local products. Due to their reliance on importing the majority of their food, Iraq and the Kurdistan Region of Iraq (KRI) have inadequate food security. (Penco et al., 2022) this was demonstrated by the Covid-19 containment efforts and limits. International trade disruptions and supply chain breakdowns might endanger Iraq's access to food. (Penco et al., 2020d) In this context, AR technology could be a useful tool for food industry stakeholders to differentiate their products and improve consumer decision-making. AR technology is projected to become a primary priority for the restaurant industry, not only for food delivery and digitized menus, but also for improving the overall restaurant experience. Restaurants can use augmented reality to virtually display menus, food products, and

their personalization. As a result, guests can have a more immersive meal experience by allowing them to imagine what the products would look like before ordering them. (Batat, 2021) Overall, this study aims to contribute to the understanding of the relationship between AR and consumer decision-making in the Kurdistan Region food industry and provide insights for industry stakeholders on how to effectively use AR to improve customer experiences and increase sales as well as the customers' satisfaction in their decision-making process.

1.2 Problem Background

The Kurdistan Region food industry is an important sector of the region's economy, providing employment and contributing to the Gross Domestic Product (GDP). However, the industry faces various challenges that can impact the success of local food products. One such challenge is competition from imported products. With the increasing globalization of markets, imported food products are becoming more widely available in the Kurdistan Region. This can make it difficult for local food products to compete on price and quality (Nematzadeh, 2018).

Another challenge facing the Kurdistan Region food industry is a lack of consumer awareness about local products. Many consumers may not be aware of the availability or benefits of local food products, leading them to choose imported alternatives (Nematzadeh, 2018). This can be particularly problematic for small and medium-sized enterprises in the industry, which may not have the resources to effectively promote their products (Fakhri, 2012).

In this context, augmented reality (AR) technology could be a useful tool for food industry stakeholders to differentiate their products and improve consumer decision making. AR is a technology that enhances the real-world environment by superimposing digital information onto it. It has been increasingly used in various industries to improve customer experiences; however, little research has been conducted on the relationship between AR and consumer decision-making in the Kurdistan Region food industry. This study aims to fill this gap by examining the impact of AR on consumer decision-making in the Kurdistan Region food industry.

1.3 Problem Statement

AR has undergone a significant technical transformation recently. Additionally, 5G telephones have made it easier for individuals to access the virtual world from any location. Additionally, they are increasing students' potential in terms of improved learning opportunities and experiences. The Kurdistan Region's higher education systems still need reform and advancement of the teaching method. (Salah, 2022) There is a lack of understanding about the relationship between augmented reality (AR) and consumer decision-making in the Kurdistan Region food industry. While AR has the potential to revolutionize the way that consumers make decisions by providing them with additional information and experiences in real-time, it is not clear how this technology is being used in the Kurdistan Region food industry or how it is impacting consumer behavior. Understanding this relationship is important because it can help industry stakeholders, such as producers, retailers, and policymakers, to develop strategies that support informed and confident consumer choices. It can also provide insights into how AR can be used effectively to improve the overall food industry in the region. The research problem, therefore, is to investigate the relationship between AR and consumer decision-making in the Kurdistan Region food industry, and to identify the potential benefits and challenges of using AR in this context. In addition to the lack of understanding about the relationship between AR and consumer decision making in the Kurdistan Region food industry, there are several challenges that make it difficult for consumers to make informed decisions about what to eat and where to buy their food.

These challenges include limited access to market information, a lack of trust in the quality and safety of products, and a lack of consumer education. These challenges are compounded by the fact that the food industry in the Kurdistan Region is facing increasing competition, as well as pressures to meet changing consumer preferences and demands. The use of AR may offer a solution to these challenges by providing consumers with real-time information and experiences that can help them to make more informed and confident decisions. However, it is not clear how AR is being used in the Kurdistan Region food industry, or how it is impacting consumer behavior. This research will aim to address these gaps in knowledge and provide a deeper

understanding of the relationship between AR and consumer decision-making in the Kurdistan Region food industry.

1.4 Research Questions

Based on the research problems that are found in this research, three main research questions are to be answered in this study. The purpose of this research is to examine the relationship between Augmented Reality and its implementations in consumer decision making process by analyzing how AR is currently being used to determine consumers' decision-making and. Therefore, this paper's research question will be:

i. What is the level of AR utilized by in the food industry of Kurdistan Region?
ii. What is the customers' perspective towards AR in decision making among Male and Female in Kurdistan Region?
iii. What is the relationship between Augmented Reality (AR) and consumer decision-making in Food Industry in the Kurdistan Region?

1.5 Research Objectives

Based on the research questions, the developed research objectives are as followed. The overall objective of this study is to make elaborate on the relationship of AR and Consumer decision-making process. To elaborate based on the research questions the structure of the research objectives are as follows:

I. To identify the level AR utilized in the food industry in Kurdistan to enhance consumer decision-making.
II. To explore the mean score of AR in customers' decision-making gender wise in Kurdistan Region.
III. To examine the relationship between AR and consumer decision-making in the food industry in Kurdistan.

1.6 Scope of Study

The purpose of this research is to examine the impact of augmented reality technology on customer decision-making and business outcomes in the food industry in Kurdistan. Using a descriptive research design, data will be collected from a sample of consumers in Kurdistan who are willing to use augmented reality technology for their products. The data will be collected using a survey questionnaire and analyzed using statistical techniques, and the respondents will be collected among married and single consumers who live in Kurdistan have a simple knowledge about AR as well as the survey will be conducted between male and females equally. The findings of this study will provide insights into how augmented reality technology can be used to improve customer experiences and drive business success in the Kurdish food industry. This study aims to contribute to the existing literature on the use of augmented reality technology in the food industry by providing empirical evidence on the impact of this technology on customer decision-making and business outcomes in a specific context. The findings of this study may be of interest to practitioners and policy makers in the food industry, as well as to researchers studying the adoption and impact of emerging technologies.

1.7 Significance of Study

This study aims to investigate the effect of AR on consumer decision-making in the food industry in Kurdistan. Augmented reality (AR) is a technology that overlays digital information on the real world, creating a new level of interaction between people and the environment. In the food industry, AR has the potential to revolutionize the way consumers make purchasing decisions by providing them with new and immersive experiences that can influence their perceptions and preferences.

By studying the impact of AR on consumer decision-making in the food industry in Kurdistan, this research aims to provide valuable insights for businesses in the region on the use of AR in their marketing and sales efforts. These insights can help businesses to develop more targeted and effective strategies that may result in

increased sales and customer satisfaction. In addition, this study aims to explore the preferences and behaviors of consumers in Kurdistan when it comes to the use of AR in the food industry, which can help businesses to tailor their products and services to better meet the needs and expectations of their customers.

Furthermore, this research aims to contribute to the wider body of knowledge on the use of AR in the food industry and its impact on consumer decision-making. By examining the effect of AR on consumer behavior and preferences, this study can inform the development of best practices and guidelines for the effective use of AR in the industry. Ultimately, the findings of this study have the potential to enhance the understanding and utilization of AR in the food industry, leading to improved outcomes for both businesses and consumers in Kurdistan.

1.8 Conclusion

In this research, first an introduction has been showcased about AR, which is the transformation of picture, video, document, and sounds to be shown as it is real, and then the problem background is covered, followed by an explanation of the problem statement. It then outlines the aims of the study and its research questions. Then it illustrates, AR that it enables users to stay in the physical world while interacting with virtual things, blurring the difference between virtual and non-virtual. Augmented reality (AR) can be beneficial for both allergic and dieting customers as it gives a visual depiction of the components, nutritional information, and calories of each food item. AR is not a widely used concept in the Kurdistan Region of Iraq neither acknowledged in the first place which can negatively affect its relationships with the international market. The purpose of research is to find out the relationship between augmented reality (AR) and the customer decision-making, which is the process of choosing or purchasing a product or service through a process of understanding and comparing them before they choose or buy it for them. The food industry in the Kurdistan area will serve as the focus of this research. AR can also be a perfect solution for people who are sick, old people, or people who face physical disadvantages. The term "augmented reality" (AR) refers to a group of technologies that overlay digital data and visuals on the user's actual surroundings. This study will show an important

connection between augmented reality and consumer decision-making. It will elaborate on how we can insert augmented reality into the workforce to make it easier for consumers to be certain in their decisions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of augmented reality (AR) technology and its potential applications in various industries, including retail and the food industry. It also mentions that the market for AR is expected to grow significantly in the coming years. The chapter then introduces the purpose of a research study, which is to examine the effect of AR on customer decision-making and business performance in the food industry in the Kurdistan Region of Iraq More precisely, individuals who patronize ABC, Magma Square, and Khaje Khanm in Sulaymanya City were selected.. (Mourtzis et al., 2022) found that AR improved decision-making accuracy and efficiency in a manufacturing task by providing workers with real-time information and visual aids that enhanced their ability to understand complex processes. Project managers have also utilized AR to improve their presentations and demonstrations of projects, making it easier for decision makers to understand and visualize complex concepts. This leads to more accurate decision-making and helps consumers understand and make informed choices about the products and services they are considering.

2.2 Current Overview of AR in the Food Industry

In Food industry, the presentation of food is as essential as their tastes. With sensors from the Internet of Things, augmented reality is a live technology that can be used with the physical world. Numerous areas of the food sector can be transformed by AR. Augmented reality is being used more and more in the food industry to provide consumers new experiences. Along with outstanding cuisine, technology now allow

for more information, fantastic entertainment, and increased interaction between patrons and businesses. (Anuyut, 2021).

A special tool empowering restaurant, delivery services, and other food service companies is augmented reality technology. AR is used in several situations, including speeding staff training, visualizing food and menus, and improving the by providing customers with a menu that comes to life when scanned with their smartphones, the food service sector may benefit from augmented reality. By providing accurate 3D visual representations of their cuisine, restaurants may utilize augmented reality to display their meals, advertise their menu, and up sell goods. Restaurants and food and beverage businesses may innovate and stand out while giving their customers and consumers a better experience by utilizing AR and the capacity to add more details and graphics to their items (Echo3D, 2022).

In food industry, AR is not only useful for presentation of foods to consumers. It is also vital for giving them information about the food. For instance, there are a lot of people who have allergies on some foods, so it helps better understanding about the food so as they do not have problem eating them. This makes consumers have better decision-making in eating foods.

2.3 Digitalization and Digital Marketing Trends and Role of Augmented Reality

Modern digitalization makes the process of sharing information much faster. Also, Digital marketing trends have become an easy use for consumers where they can easily gain information about the subjects they want of need. Using AR in digital marketing makes understandability of products and services much easier in digital marketing trends and consumer and acquires information much faster through AR's advanced visualization. AR is no longer an imaginary concept in digitalization.

As time goes by people who use digital marketing trends use AR more. "In 2020, 32% of users had already used AR apps for shopping, this is the time you should realize that AR is not just impacting digital marketing, but it is transforming it forever, this new industry is literally on the rise, the net worth of the AR market is $3.5 billion

and according to Citrus Bits, the market is set to grow by $61.4 billion by 2023." (Jerelyn, 2022).

Applications for virtual and augmented reality currently exist. The number of applications is continually growing, and practical, high-performance AR and VR gadgets are becoming usable by the general public as a result of 5G. Additionally, the new apps enable the rapid and easy distribution of vast volumes of information. This indicates that marketing trends in 2022 will unavoidably include AR and VR technology. The expansion of reality through the linking of the physical and digital worlds is known as augmented reality (AR). Technically speaking, the real world is covered with an extra layer. Symbols, objects, or more information can be added to or faded into this additional layer. AR glasses are the essential gear for this. (Gudruntebart, 2022) This shows the interest and demand of consumers in using AR in digital marketing in evidence of higher and higher usage of AR in digital marketing.

2.4 Augmented Reality

One of the most popular technological trends today is augmented reality (AR), and as more smartphones and other devices that support AR become available globally, its popularity will only increase. With a digital augmentation superimposed over it, augmented reality allowed us to view the surroundings directly in front of us, including children playing soccer, dogs chasing balls, and swaying park trees. The youngsters can be seen kicking past an alien spacecraft on their way to scoring a goal, a pterodactyl might be seen landing in the trees, and the dogs might be interacting with their cartoon counterparts. Augmented reality is widely accessible and utilized in a wide range of applications, such as Snap-chat lenses, parking lot navigation apps, and a number of shopping apps that let you try on things without ever leaving the house(Franklin Institute, 2019).

For every organization, deciding whether to employ augmented reality (AR) is a difficult decision. Many businesses have decided against developing AR experiences due to issues including development costs, locating suitable use cases, and technological maintenance. Customer engagement, consumer behavior, and revenue

are all significantly impacted by the use of AR in online environments. Our retail client, one of the early adopters of AR, integrated the technology into their mobile app to enable users to virtually try on cosmetics. They then experimented using this technology in their physical locations to test sampling of particular items and provide customers an easier option. (Hbr, 2022)

2.5 Benefits of Augmented Reality in Food Industry

Augmented Reality (AR) refers to a group of technologies that allow the perspective of a real-world environment to be "augmented" by computer-generated components or objects.(Bottani & Vignali, 2019). The main benefits of AR in food industry are visualization and presentation of information as well as interesting advertisements. To elaborate, restaurants and shops use AR for making interesting presentation about their product and services, and they provide information with them to show its ingredients to customer and consumers to ensure the quality of their product and services as well as giving them information for making better decision making such as if they have a problem with an ingredient, they modify the food package by enhanced Menu Visualization: Augmented reality can be used to provide interactive and immersive menu experiences. Customers can use their smartphones or AR glasses to view dishes in 3D or virtual representations before ordering. This allows them to visualize the presentation, portion size, and even nutritional information, leading to more informed choices also AR can simulate the experience of tasting and sampling food without the need for physical samples. Customers can use AR to see and virtually "taste" different dishes or ingredients, helping them make decisions based on their preferences. This can save costs for restaurants and reduce food waste. Also, Restaurants can use AR to offer interactive cooking demonstrations to their customers. By scanning a QR code or using an AR app, patrons can watch chefs prepare dishes in real-time, follow step-by-step instructions, and learn about cooking techniques. This provides an engaging and educational dining experience.Time series data from seasoned consumers are used to provide the information that customers need to know about the contents, flavors, and rating of items. Customers may see full product details to help them decide whether to order food. Additionally, while AR provides customers with crucial information, it may also result in less product waste. Customers may select

food that has their preferred flavor. For instance, consumers may learn about their preferred tastes and suggested menus from the reviews, which facilitates decision-making. As a result, when customers get what they want, restaurants can lower their problem with product waste. Additionally, AR can increase consumer involvement so that they can use the technology to remark on and rate eateries. (Anuyut, 2021)

2.6 Consumer Decision Making Process

Consumers has become more aware about food and the process of making foods due to internet and social media, so dealing with consumer and costumers has become a more sensitive process which makes companies us AR to show the quality of their product. When consumers intend to buy a product of services, usually, they search about it on Internet beforehand, so it is vital for companies to have high quality of presentation of Internet and social media so as consumers are aware about, they product, services and quality. Then, when they go to marketplace, they usually look at variety of options before buying a product or services, so the evaluation of presentation and information about product and services considered highly is customer and consumers. Also, after they make decisions their behavior toward the product and services are vital to elaborate as they look at other similar product and services to compare it with the quality and pricing of them.

Customer compares and assesses that data in order to make the best decision. The customer reviews all the information gathered throughout the search process at this point, evaluates it, and compares various products and services based on requirements and preferences. The demands of the customers in their everyday lives influence their decision-making in many ways. Depending on how the customer feels about a certain product, evaluates and compares, chooses and purchases among the many product categories, these selections may be complicated. As a result, many businesses now share the belief that it is crucial to comprehend the fundamental problem with the way consumers make decisions and to put the theories into action. (John, 2022).

2.7 Criticism for Industry Lack of Knowledge

Augmented reality (AR) is a relatively new technology that is not yet well known by all consumers, especially in developing countries. This lack of familiarity with AR may discourage companies from using it in the food industry, as they may be concerned that consumers are not aware of its capabilities or how to interact with it. In developing countries education of costumers and consumers is an essential step for them to be able to use the technology for their daily facilitation especially in their decision-making process. Also, another reason of lack of knowledge about AR is because of lack of Internet connection in developing countries. If there is not a stable connection in an area, consumers and costumers probably do not depend on using AR in their decision-making process.

It might be challenging for consumers to explain their purchasing intentions clearly. Consumers' many cognitive biases that obstruct logical decision-making are the most frequently cited cause of this intention-action gap. There is not enough information available to determine consumers' prior assumptions about various market scenarios in terms of their decision-making. The fact that the majority of new items fail on the market is a stark example of this. The brain makes inferences based on past experiences and expectations that include not just the hidden causes of visible goods but also the whole environment. When a customer is presented with more information than they can digest in real-world market circumstances, their brains must employ an efficient method to focus solely on pertinent data. (Suomala, 2020)

The capacity to concentrate on the commercial value of a new technology rather than the technology itself is essential for corporate adoption and success of any new technology. Vendors of augmented reality products must present their products in a way that appeals to senior company buyers and decision makers in order to minimize the uncertainty hurdle that executives frequently encounter. By drawing on the efforts of those who have come before, AR enables businesses create their own path for adopting AR. It is a helpful tool for outlining the procedures needed to properly implement AR inside their companies. (Michael, 2019)

2.8 Prior Studies Pretending Augmented Reality and Decision Studies

There have been various studies conducted on the topic of augmented reality (AR) and decision-making, with a growing body of research showing its potential benefits in various fields. For example, a study published by Mazer (2023) found that with a growing emphasis on healthy eating and ensuring positive effects on the body, consumers are seeking food products that meet these criteria. To address these expectations, the food industry has begun employing Augmented Reality (AR) technology. AR is used to inspect and analyze the manufacturing and distribution processes of food, enabling companies to meet customer demands for transparency and quality assurance. Another study published by Fritz et al,. **(**2022**)** Augmented reality (AR) technology has indeed attracted significant industry investment and attention in recent years. This cutting-edge technology overlays digital content onto the real world, providing an interactive and immersive experience. The food and beverage sector has been quick to adopt AR, leveraging its potential to enhance the customer experience and drive engagement. Ann (2021) published the highlights the growing significance of Augmented Reality (AR) in various aspects of our lives, particularly in the food industry. It suggests that AR technology is increasingly being adopted by businesses in the food industry for various purposes such as operations and marketing. The paragraph asserts that the widespread adoption of AR in the food industry is inevitable and will soon become a prominent feature within the industry. Another study published by Kang et al. (2022) discusses a study published in the Journal of Business Research in 2019. The study focused on the impact of Augmented Reality (AR) on consumer understanding of products and their purchase decisions. According to the study, AR technology was found to enhance consumer comprehension of products by offering interactive and immersive product information. As a result, consumers were able to make more informed decisions when considering a purchase. Lastly, Howard, Sheth (2018) published a brief overview of consumer decision-making. It explains that consumer decision-making is the process through which individuals assess and choose products or services to meet their desires and requirements. The process consists of various stages, such as recognizing a problem or need, conducting an information search, evaluating different options, and assessing the purchase after it's made. It also mentions that consumer decision-making is influenced by personal attributes, situational factors, and marketing strategies employed by companies.Furthermore, AR can be employed in educational initiatives, where it can help teach people about food origins, cooking

techniques, and nutrition. AR applications can overlay educational content onto food packaging or restaurant settings, providing interactive tutorials, information about sourcing and sustainability, or even virtual cooking lessons.

By leveraging augmented reality technology, the food and beverage sector aims to elevate customer engagement, improve decision-making processes, and create memorable experiences. As AR continues to evolve and become more accessible, we can expect even more innovative applications that bridge the gap between the physical and digital realms in the food and beverage industry. Overall, these studies demonstrate that AR can be a valuable tool for improving decision making in various fields by providing users with enhanced visual and information to support their cognitive processes.

Table 2.1 Prior Study

Author(s)	Method	Context	Findings
Mazer (2023)	Qualitative	AR in food industry	It is crucially necessary that the ingredients utilized in the food sector are of a high caliber. Most people nowadays desire to eat healthfully and ensure that the foods we purchase have a favorable impact on the body. The food sector has started utilizing Augmented Reality technology to examine how food is manufactured and distributed in order to meet such client expectations.

Fritz et al,. (2022)	Qualitative	AR and Food industry Desirability	Augmented reality (AR) technology has generated enormous industry investment and buzz, with the food and beverage sector quickly embracing this technology in an effort to enhance the customer experience.
Ann (2021)	Qualitative	AR in Food in Food Industry	Numerous uses that Augmented Reality (AR) offers make our lives simpler every day. With so many businesses in the food industry embracing augmented reality for their operations, marketing, and many other areas every day, there is no doubt that augmented reality will soon be employed in the food industry in full force.
Kang et al. (2022)	Qualitative	Retail, Consumer purchases decisions.	a study published in the Journal of Business Research in 2019 found that AR improved consumer understanding of products and led to more informed purchase decisions by providing them with interactive and immersive product information.
Howard, Sheth (2018)	Qualitative	Consumer Decision Making	Consumer decision-making refers to the process by which individuals evaluate and select products or services to satisfy their needs or wants. This process typically involves several stages, including problem recognition, information search, evaluation of alternatives, and post-purchase evaluation. Factors that can influence consumer decision-making include personal characteristics, situational factors, and marketing efforts by companies.

Based on the information provided in the references, Augmented Reality (AR) has been proven to improve decision-making in various fields such as Manufacturing, Architecture, Surgery, Retail, and food industry by providing real-time information, visualization and immersive product information.

2.9 Research framework and hypothesis development

2.9.1 The relationship between augmented reality and consumer decision making.

Augmented reality (AR) has become an increasingly influential factor in shaping consumer decision making. By blending the virtual and physical worlds, AR technology provides consumers with interactive and immersive experiences that can significantly impact their purchasing choices (Romano et al., 2022). In this regard, Lavoye et al. (2021) pointed out that augmented reality-branded apps might be utilized in a multi-channel strategy to deliver value to consumers that goes beyond information search and addresses consumers' experiential demands.AR allows consumers to visualize products in real-world contexts, enabling them to assess how a particular item would fit into their lives before making a decision. This technology has revolutionized the way consumers explore and evaluate products, offering a more engaging and personalized shopping experience. Previous studies indicated that.

AR apps on smart devices, for example, enable a consumer to see a virtual product placed in the real world (for example, virtual furniture in a physical room) or to access additional digital content by scanning a product's logo or a related image (for example, a scanned magazine ad which transforms into a video on the screen of a tablet). (Javornik, 2016). By enhancing the understanding of product features, functionality, and aesthetics, AR empowers consumers to make informed choices, leading to increased satisfaction and reduced post-purchase regrets (Pantano, 2017). As AR continues to advance, its integration into consumer decision-making processes is set to become even more profound, revolutionizing the way individuals interact with

brands and make purchase decisions in the digital age (Hilken et al., 2019). Therefore, this study postulates the following:

H1. There is a positive relationship between augmented reality and consumer decision making.

The following framework illustrates how the structure of the research was developed by describing augmented reality (AR) and consumer decision-making, as well as the connections between them that served as instructions by expanding on their benefits. The study is quantitative, and the critique of the AR, the marketing approach, and earlier studies and research are all described in its elaboration, and analyzed to make a conclusion about the relationship between AR and consumer decision-making process which is visualized in the following figure 2.1

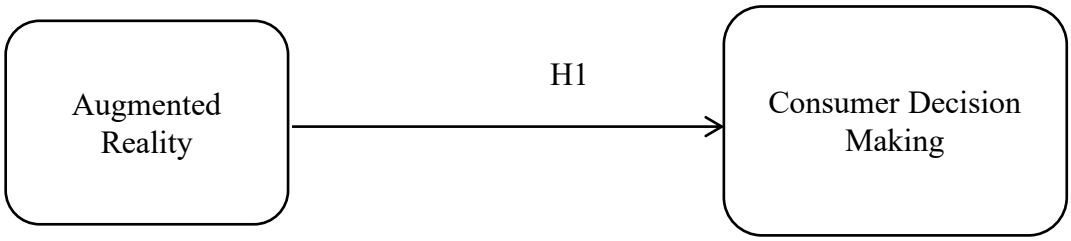

Figure 2.1: Research Framework

The conceptual framework that has been developed to show case the relationship between the consumers and the food industry on augmented reality, Figure 2.1 shows the conceptual framework for this study. This study is based on the theory of consumer decision-making, which suggests that consumers use various sources of information and evaluation criteria to make purchasing decisions.

2.10 Conclusion

In this research, a literature review has been conducted to gather data on the specified title, followed by an explanation on Augmented Reality The it illustrates, augmented reality (AR) that is rapidly evolving technology that is being utilized in a variety of industries, including the food industry, to enhance the presentation and marketing of products and services. AR allows businesses to create engaging and interactive experiences for consumers, which can help to increase their knowledge

about the products and services being offered and ultimately improve their decision-making process. However, there is still a lack of knowledge about AR in some underdeveloped nations, which can hinder its adoption and use in these areas. It is important for businesses and consumers in these countries to educate themselves about AR and its potential benefits in order to fully take advantage of this technology and its ability to improve the quality of life and increase economic growth. This chapter provides an overview of the various applications and developments in the field of augmented reality (AR). It covers the definition of AR and its benefits for the food industry, as well as how it fits into current marketing and digitalization trends. The chapter also examines consumer decision-making processes and the criticism the industry has received for its lack of understanding of AR, which is a rapidly evolving technology that has undergone continuous development in recent years. Earlier research on AR is also discussed. The chapter concludes with a summary of the research framework and a chapter summary.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The approach of this chapter is to explain and elaborate on how the primary research gets developed throw stating the questionnaires and focusing on how they affect the development of the overall research as in chapter two the secondary research analysis took its place. This chapter describes and analyzes the core concept of the connection between augmented reality and consumer decision-making process. Also, this chapter focuses on research design, population, and sampling. moreover, it focuses on the Data Collection Method, from the unity of the analysis, it concludes the analysis of the research to make statements, and then the research questions will be developed to later on use in the primary research that is conducted by analyzing its sample size and population. From the data collection, the questionnaires of primary are analyzed, and the measurement and questionnaires are stated and elaborated. Furthermore, the pilot test and data analysis procedure are explained as well as its descriptive analysis. Finally, the summary of the overall research up to the point will be stated.

3.2 Research Design

Research design is a collection of facts data that has been studied by formulating a hypothesis and then coming up with significant observation in an organized manner. The purpose of this study's research design is to make sure the data acquired can be used answer research questions; quantitative method research study will be conducted. Based on this research question, correlation used for this study is tried to explore the relationship between augmented reality and consumer decision-making in the food industry in Kurdistan. A quantitative method will be used via questionnaires to examine the relationships between the variables measured in the

survey. The questionnaires will be handed out among consumer in the food industry in Kurdistan. However, for this study, ABC, Magma Square, and Khaje Khanm in Sulaymanya City were chosen. There will be three components to the questionnaires, which are demographic, Augmented Reality and consumer decision-making. Moreover, the research progresses by setting the population of the industry as well as determining a sufficient sample size and the way sampling distribution that makes the research reliable. furthermore, the questionnaire will be distributed between male and females equally as well as the population will be divided into clusters of separating the people who do not have a knowledge about Augmented Reality, people who heard about Augmented Reality, and people who knows Augmented Reality well. The questions will be built based on the 5 like-rt scale to show the level extend of people who have knowledge about Augmented Reality, and the survey will be distributed among individuals. Finally, the research is designed to be analyzed with statistical methods. There are various types of study for research design. descriptive was decided as the research design for this study. The research flowchart showed clearly in figure 3.1

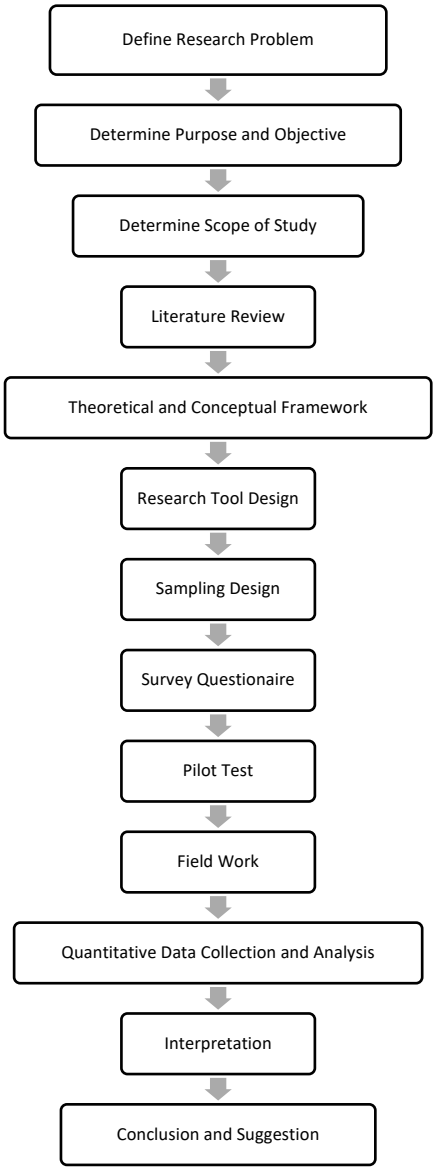

Figure 3.1: Research Flowchart of This Study

3.2.1 Descriptive Research

Descriptive statistics are used to summarize a group of observations in order to present as much information as possible in the simplest way feasible. Descriptive statistics are information that is offered in a few words to characterize the main properties of data in a study, such as the mean and standard deviation. (Mishra et al., 2019) Mean, percentage, and frequency will be used in this study's descriptive analysis. For each item, descriptive analysis will be performed to analyze data obtained in Sections A, B, and C. Section A will discuss the demographics of the respondents, such as their ages, gender, educational level, and work state, using only percentages and frequencies. On the other hand, section B will be discussing about the Augmented Reality while section C, it will discuss about Consumer Decision Making among consumers.

3.2.2 Quantitative Research

Quantitative research examines the link between variables to test objective ideas. In an experiment, a variable is a factor that may be controlled or modified. Quantity or numbers are implied by the word quantitative. The data gathered during the investigation is quantifiable or numerical in nature. Descriptive research's major goal is to accurately portray the features of persons, circumstances, or groups, as well as the frequency with which particular phenomena occur, using statistics to characterize and summarize the data. (Ingham-Broomfield, 2014).

3.3 Population and Sampling

Sampling is the selection of a subset of individuals from a population in order to estimate the characteristics of the entire population. The two primary benefits of sampling are faster data collecting and cheaper costs. (Singh et al., 2014).

3.3.1 Target Population and sample size

Consumers of food industry in the Kurdistan region were chosen as a sample for this study. More specifically consumers of ABC, Magma Square, and Khaje Khanm in Sulaymanya City were chosen. This helps the equality of perspectives in the survey. In addition, because the number of consumers in the food industry is large, the sampling units are chosen at random and around more than 300 respondents will be chosen to ensure that each sampling unit has an equal chance of being included in this sample. Also, individuals in the similar financial and relationship situation are assumed to have similar response, so the small percentage of the sample will determine the overall population in the industry and leads to be accepted in an acceptable margin of error.

3.3.2 Sampling technique

This study has opted for a probability sampling technique called simple random sampling, which involves the implementation of a random sampling approach to select the sample. The term "simple random sample" signifies that every individual within the population has an equal opportunity to be included in the sample (Taherdoost, 2016). For the purpose of this study, the target demographic consists of consumers within the food industry in the Kurdistan area of Iraq. In order to assemble the sample for this investigation, the method of probability sampling, specifically simple random sampling, will be employed. This sampling technique ensures that each member of the population has an equal probability of being chosen as a subject (Sharma, G. 2017).

3.4 Data Collection Method

Data collection is the process of acquiring and processing reliable data from various relevant sources to address research problems, answer questions, assess outcomes, and predict trends and probabilities. The complete dataset for this investigation was collected over a period of approximately two months, starting from the 3rd of March and ending on the 5th of May, through an online survey. The research distributed questionnaires to consumers in the food industry of the Kurdistan region, specifically targeting ABC, Magma Square, and Khaje Khanm in Sulaymanya City for this study. The method employed for data collection in this research is quantitative in nature, relying on survey distribution to gather quantitative data. The online survey used in this study includes elements aimed at investigating means and standard deviations, such as augmented reality and consumer decision-making.

3.4.1 Questionnaire Design

In this study, the questionnaire is tailored to the research topic and study aims. The researcher divided this questionnaire into three sections: section A, which is about the respondent's demographic profile, section B contains 8 questions related to Augmented Reality which is independent variable while section C includes 7 questions related to Consumer Decision Making, dependent variables. The questionnaire's questions and assertions are all created in the form of multiple choice and Likert scale.

Table 3.1: Construct of Questions in the Questionnaire

Section	Aspects	Construct of the Questions
A	Demographic Profile	Multiple Choice
B	Augmented Reality	Likert Scale
C	Consumer Decision Making	Likert Scale

3.5 Research Instrument

The researcher used questionnaires for collecting data. The questionnaire is a set of questions carefully designed for a group of people to answer to gather information and data. The survey conducted by sending it via email to make the responses to be accurately calculated. The survey calculated based on statistical methods and demographic that shown in charts and tables. The questionnaire was created to gather information and details about the relationship between augmented reality and consumer decision-making in the Kurdistan region's food industry. To collect data, the rating system for this study is a five-point scale. The five-point Likert scale: 1=Strongly Disagree (SD), 2=Disagree (D), 3=Neutral (N), 4=Agree (A), 5=Strongly Agree (SA). A nominal scale is used to categorize the respondents' demographic attributes, For the remaining questions, an interval scale will be utilized. Table 3.2 illustrate the measurement of 5-likert scale.

Table 3.2: Measurement Scale of Likert Scale

Likert Scale	**The level of Augmented Reality**
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

3.5.1 Section 'A': Demographic

A demographic is a particular segment of a population defined by certain characteristics such as age the rate starts (18 – 25, 25 – 30, 30 – 35, 40 or above 40) years old, the gender consists of (Male and Female), the rate of work states consists of (employed, unemployed, student, part time) and education level. Starts from (High School, Bachelor's Degree, Master's Degree or Ph.D. or higher). The purpose of demographics is to collect data about the respondent's background information. Table 3.3 illustrate the details about section A.

	NO	**Variables**	**Scale of Measurement**
Section A: Respondent's Demographic Profile	1	Age	Nominal
	2	Gender	Nominal
	3	Work State	Nominal
	4	Educational Level	Nominal

Table 3.3: Measurement Scale of Likert Scale

3.5.2 Section 'B': Augmented reality

In this questionnaire section B measures the augmented reality among respondents. the items section established by (Ehab et al., 2020). The augmented reality consists of eight items, categorized into one dimension. also, in this section, the use of augmented reality by individuals in the food industry sector is graded on a five-point scale ranging from 1 to 5. And Table 3.4 shows the dimension and items on augmented reality and consumer decision-making.

Table 3.4: The Scale Measurement for the Variables in section B. The dimensions and Item in augmented reality (Ehab et al., 2020)

		Questions	**Scale of Measurement**	
Section B Augmented Reality	1	Augmented reality provides an easy and clear virtual experience in purchasing process.	Interval	5-point
	2	Using augmented reality apps help me save time in the purchasing process.	Interval	5-point
	3	Augmented reality provides effective and efficient Virtual experience in purchasing process.	Interval	5-point
	4	Interaction with Augmented Reality application allows getting tailored products information while purchasing	Interval	5-point
	5	Augmented reality makes the purchasing process interesting and exciting.	Interval	5-point
	6	Compared to traditional apps, an augmented reality app is easier to use.	Interval	5-point
	8	The perceived usef ulness improves the app's attitude.	Interval	5-point
	9	Augmented reality helps the purchasing process to be more successful.	Interval	5-point

3.5.3 Section 'C': Augmented reality

In this questionnaire section B measures the augmented reality among respondents. the items section established by (Ehab et al., 2020). The augmented reality consists of eight items, categorized into one dimension. also, in this section, the use of augmented reality by individuals in the food industry sector is graded on a five-point scale ranging from 1 to 5. And Table 3.5 shows the dimension and items on augmented reality and consumer decision-making.

3.6 Data analysis Method

Table 3.5: The Scale Measurement for the Variables in section C. The dimensions and Item in consumer decision-making (Dudovskiy, 2022) (Rezaei, 2015)

		Questions	**Scale of Measurement**	
Section C: Consumer Decision Making	1	While I buy a product, I feel connected to the story behind the reason of selling the product.	Interval	5-point
	2	I need sufficient information about the product before I buy it.	Interval	5-point
	3	In general, I try to purchase items of the highest overall quality.	Interval	5-point
	4	I make a special effort to choose high quality product.	Interval	5-point
	5	I search carefully for the best value for money.	Interval	5-point
	6	When it comes to purchasing a product, I always try to get the best or perfect option.	Interval	5-point
	7	Most of the products I buy nowadays are high quality.	Interval	5-point

The Statistical Package for Social Science (SPSS) software will be used to analyze the collected data. SPSS is used to organize and analyze raw data collected in order to answer the research questions that were previously proposed. From SPSS the materials will be demonstrated as a basic sheet that later on it will be shown in obvious charts and table so the survey is easy to be interpreted. The relationship between Augmented reality and consumer decision-making will be studied and analyzed using both descriptive and inferential analysis.

3.6.1 Descriptive Analysis

The descriptive analysis that will be used in this study is mean percentage and frequency. Descriptive analysis will be used to analyze data collected in Section A, Section B, and Section C for every item. Section A will discuss the demographics of the respondents such as their age, gender, and education level only percentages and frequency are used. And, Section B will be discussing the user acceptance and usage of augmented reality while Section C; will discuss the consumer's decision-making. The data will be shown in percentages of mean and frequency tables as well as in interquartile range. Also, the ratios will be demonstrated to measure the comparisons among the data. The mean score of the distribution is calculated based on this equation below: By computing the mean score as stated in the Table 3.6, the level of the study's items will be determined (Parasuraman et al,. 2005).

Table 3.6: 5-level Mean Score Scale (Parasuraman et al,. 2005)

Mean Score	**Level**
1.0 – 2.19	Very low
2.20 – 3.39	Low
3.40 – 4.59	Moderate
4.60 – 5.79	High
5.80 – 7.0	Very High

3.6.2 Inferential Statistic

Inferential statistics helps to develop a thorough understanding of population data by evaluating samples drawn from it. It assists in making demographic generalizations by employing a variety of analytical tests and instruments. To select random samples that accurately represent the population, many sampling strategies are used. Also, the correlation and coefficient of variation will be demonstrated to understand the level of the relationship between AR and consumers' decision-making process. The following table shows the methods that is used to approach the objective of the research. Table 3.7 illustrate the objective approaches.

Table 3.7: Objective Approach

Objectives	Tools	Methods
1. To identify the level AR utilized in the food industry in Kurdistan to enhance consumer decision-making.	5 Likert Scale Questionnaire	Mean, Standard deviation, and Their Percentages
2. To explore the mean score of AR in customers' decision-making gender wise in Kurdistan Region.	5 Likert Scale Questionnaire	Correlation, Coefficient of Variation in percentage
3. To examine the relationship between AR and consumer decision-making in the food industry in Kurdistan.	5 Likert Scale Questionnaire	Mean, Standard deviation, and Their Percentages

3.7 Pilot Test

A pilot test is a small-scale version of a larger study or experiment that is conducted to see if the methodology used is feasible and to identify any problems that may arise. Pilot testing has been conducted to evaluate the validity and reliability of their measures, and to assess whether the sample recruited is representative of the population of interest. Additionally, pilot tests can also be used to test the logistics of the study or experiment, such as the distribution and collection of materials or the scheduling of participants. It can also be used to evaluate the level of participant engagement and satisfaction, to test out any technology or equipment used in the study, and to estimate the necessary sample size for the larger study. The results of a pilot test can be used to make necessary adjustments or revisions to the study before it is fully implemented, which can save time and resources in the long run. Furthermore, in the field of medical

research, pilot testing is important for safety reasons, to make sure that the procedure is safe and that any adverse events can be identified early. Conducting a pilot test is a common practice in research to increase the chances of success in the main study. The reliability of this study was determined by measuring the items using Cronbach's Alpha, which was obtained using SPSS. Cronbach's Alpha values can range from 0 to 1. If the Cronbach's Alpha value is near to one, it is regarded extremely dependable. Cronbach's Alpha tables for internal consistency are provided in Table 3.8 below (Siswaningsih et al,.2017)

Table3.8: Scale of Cronbach's Alpha (Siswaningsih et al,.2017)

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8\ \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

3.8 Pilot Test result

A pilot test is being carried out in this study. The goal of the pilot test is to examine and determine the questionnaire's validity and reliability. Once the data's Cronbach's Alpha value is greater than 0.5, the data can be analyzed. The overall Cronbach's alpha rating is 1.895, indicating that the questionnaire is good and reliable. Table 3.9 clearly displays the pilot test results for each element as well as the total Cronbach's alpha value.

Table 3.9: Validity and Reliability test

Validity and Reliability tests			
Variables	**Items**	**Factor Loadings**	**Cronbach's Alpha**

Augmented Reality	AR1	0.799	0.963
	AR 2	0.910	
	AR 3	0.867	
	AR 4	0.907	
	AR 5	0.893	
	AR 6	0.917	
	AR 7	0.919	
	AR 8	0.938	
Consumer Decision Making	CDM1	0.687	0.932
	CDM2	0.911	
	CDM3	0.880	
	CDM4	0.955	
	CDM5	0.867	
	CDM6	0.949	
	CDM7	0.673	

3.9 Research Ethic

One of the most important aspects of conducting research is research ethics. When distributing the questionnaire, the respondents will first be given information about the research by showing them a letter of approval from the university. however apart from that, the researcher must ensure that no harm comes to the respondents who will be involved in this study. Aside from that, the researcher must protect the respondents' confidentiality based on the information provided. Also, the researcher is not allowed to modify their response of individuals who responded the questionnaires as well as the researcher makes sure the responses to not get stolen or used in another research for different purposes.

3.10 Conclusion

This stage is essential to turn the idea of the research to its implementation by analyzing the results of research to enable statistic methods that lead the research to

be based on valid analysis. In this stage the research design is set in a way that elaborates on population and sample size of the research as well as demonstrating the research instruments alongside with the data method analysis, which includes its descriptive method as well as inferential statistics. Also, the research ethics is demonstrated to ensure the protocol and originality of the approach for conducting the survey. From this research in this stage, the important outcomes of the data will be connected to the main idea and the overall development of the research will be connected together. This also chapter has discussed the research design, population, and sampling that will be used, along questionnaire developed in three section, section A is about demographic, section B augmented reality, and finally section C is about consumer decision making. Also, pilot test, inferential statistic and research ethic are highlighted. This chapter is the building block of conducting the survey and with having efficient tools and methods to make it valid as well as dependable. It is important the fully implement of this chapter's materials, so the survey responses reach its purpose and the objective of the overall research.

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

The approach of this chapter is to explain the demographic and deals with the outcomes resulting from the statistical tests for Science Social (SPSS). As it was previously described, the questionnaires from consumers in Kurdistan Region are analyzed. The researcher analyzed the demographic using descriptive analysis, the use of Augmented Reality and the Consumer Decision Making by using mean and the relationship of the use of Augmented Reality and the Consumer Decision Making using Spearman correlation. This chapter divides into four parts. The first part is concluded with respondent's feedback. The second part concerned respondent's demographic analysis, which include gender, age, work state, educational level of consumers. The chapter discusses about the level of Augmented Reality utilized in the food industry in Kurdistan. And the mean scire of Augmented Reality in consumer decision making gender wise. Also, lastly the chapter shows the relationship between Augmented Reality and Consumer decision making in food industry. By organizing the chapter in this way, the researcher provides a systematic and thorough investigation of the demographic traits, use of augmented reality, and its link with consumer decision-making in the food business of the Kurdistan Region.

4.2 Respondents' Feedback

The research has distributed questionnaires to consumers in food industry of Kurdistan region. A total of 249 questionnaires are being answered however only certain questionnaires can be accepted. Table 4.1 shows the number of questionnaires answered and how many questionnaires accepted for this research.

Table 4.1: Summary of Respondents' Feedback

Number of distributed questionnaires.	Number of answered questionnaires.	Number of questionnaires accepted.	Percentage (%)
300	249	249	%83

As it's shown in the table, 249 respondents completed and submitted their replies to the 300 questionnaires that were issued. This demonstrates a high degree of interest and involvement in the survey subject. Additionally, the analysis of all 249 duly filled surveys was approved as legitimate. The sample size is increased and the dataset for analysis is more complete when all surveys with answers are included. Calculating the overall percentage involves multiplying by 100 and dividing the total number of approved questionnaires (249) by the total number of distributed questionnaires (300). In this instance, the outcome was 83%. This statistic shows what % of the total number of sent surveys were successfully completed and approved. It gives a measure of the response rate and shows how well the target population is represented in the data that was collected.

4.4 Respondents' Demographic Analysis

This research includes data about Kurdistan's food industry, such as restaurants, grocery, bakery, and cafeterias such as consumers of ABC, Magma Square, and Khaje Khanm in Sulaymanya City were chosen. 249 questionnaires were suitable for statistical analysis in the section on statistical analysis. Based on part A in questionnaire, the demographic analysis consists of age, gender, work state, and educational level. The survey gathered information regarding Kurdistan's food business, concentrating on eateries and supermarkets. 249 respondents completed and submitted their responses to the 300 questionnaires that were sent out. This high response rate suggests that the target group is very interested in and engaged with the survey's topic. The validity of all 249 completed questionnaires was determined, and analysis was authorized. This indicates that none of the surveys were disqualified because of typos, omissions, or other problems. By include all completed surveys, the

sample size is increased and a more complete dataset is provided for analysis. This improves the precision and dependability of the study findings. The questionnaire has a portion (Part A) for demographic analysis that gathered data on the respondents' age, gender, work state, and educational level. Understanding how many elements may affect the interaction between augmented reality and consumer decision-making in the food business of the Kurdistan Region is made possible by analyzing these demographic parameters. Based on factors like age, gender, work state, and educational level, the demographic analysis offers insights into probable variances, trends, or patterns in customer behavior. The research gains a more thorough knowledge of the link between augmented reality and consumer choice making in the food business in the Kurdistan Region by taking into account the high response rate, the inclusion of all completed surveys, and the demographic analysis. These elements support the validity and dependability of the study findings and enable insightful deductions and conclusions.

4.4.1 Age

Table of 4.2 shows the result of respondent’s age in the region. In terms of age, the majority of respondents were 25- 30 (27.3%) and 30-35 (26.9%), young 18-25 (25.7%), and other remaining respondents were between 40 and above 40 (20.1%).

Table 4.2: Age

Age	Frequency	Percent
18-25	64	25.7
25-30	68	27.3
30-35	67	26.9
40 or above 40	50	20.1
total	249	100.0

This age group appears to be particularly interested in the subject of augmented reality and its effects on consumer decision making, according to the results above, which show a considerable presence of respondents in their late 20s and early 30s. Additionally, this suggests that a sizable proportion of young individuals participated in the poll and provided their thoughts on the connection between augmented reality and purchasing behavior. Their involvement offers priceless perceptions into the viewpoints of the younger generation as well as their prospective adoption and understanding of augmented reality technology in the food sector. On the other hand, it shows that there is also representation from older age groups in the poll, indicating that augmented reality may be relevant and interesting across a range of age demographics, including middle-aged and older customers in the food business in the Kurdistan Region. This study of the survey's age distribution shows that different age groups showed differing degrees of interest in and engagement. After a substantial presence of young people, respondents were predominately in their late 20s and early 30s. The poll also succeeded in capturing elder age groups' viewpoints.

4.4.2 Gender

Table 4.3 shows respondent’s gender. The majority of respondents were male (38.6%), followed by female (61.4%) in Kurdistan region’s food industry.

Table 4.3: Gender

Gender	Frequency	Percentage
Male	96	38.6
Female	153	61.4
Total	249	100.0

In the interpretation of the survey data, it's crucial to take into account the consequences of this gender distribution. A thorough knowledge of the link between augmented reality and consumer choice making in the food business may be aided by the different viewpoints and preferences of male and female respondents. It is possible to spot any potential differences, trends, or preferences in the adoption and perception of augmented reality technology across various genders by analyzing the gender-specific replies. In the food business of the Kurdistan Region, there were more female respondents than male respondents in the poll. This gender distribution offers a chance to investigate the particular perspectives and experiences of female customers with regard to augmented reality and consumer choice.

4.4.3 Work State

Table 4.4 shows work state of respondents in Kurdistan food industry. Regarding work state the majority of respondents (44.8%) were employed, followed by students (18.5%), unemployed (16.9%), and part-time (16.5%).

Table 4.4: Work State

Work State	Frequency	Percentage
Part Time	42	16.9
Employed	119	47.8
Unemployed	42	16.9
Student	46	18.5
Total	249	100.0

4.4.4 Educational Level

Table 4.5 shows the result of respondent's educational level in Kurdistan's food industry. The research shows that the majority were respondents with bachelor's degree with a percentage of (46.6%), master degree (22.1%), respondents with high school degree (19.7%), lastly respondents with Ph.D. degree or higher 11.6%.

Table 4.5: Educational Level

Educational Level	Frequency	Percentage
High School	49	19.7
Bachelor's Degree	116	46.6
Master's Degree	55	22.1
Ph.D. or Higher	29	11.6
Total	249	100.0

According to the poll, bachelor's degree holders made up 46.6% of the total respondents, making up the majority. This suggests that a sizable portion of the respondents in the sampled population had college degrees. With 22.1% of the total respondents having a master's degree, the poll also included a sizable percentage of those people. This shows that respondents with postgraduate degrees actively participated in the survey and actively contributed their ideas from a more advanced educational background. 19.7% of the overall respondents to the poll had at least a high school diploma. As a result, the poll included those with secondary education, demonstrating the wide diversity of educational backgrounds among the respondents. On the other side, it recorded the opinions of those with the greatest level of education, such as those who have a Ph.D. or more. 11.6% of the entire sample was made up of these respondents. Their inclusion contributes important views to the survey findings and offers insights from a highly educated segment of the population. The wide range of educational backgrounds makes it possible to thoroughly explore the connection between augmented reality and consumer choice in the food business of the Kurdistan Region. It makes it possible to find probable connections or differences between consumer behavior, preferences, and perceptions depending on different degrees of educational attainment. Researchers can better understand how education affects augmented reality uptake and effect by taking into account certain educational elements.

4.5 Objective 1: To identify the level AR utilized in the food industry in Kurdistan to enhance consumer decision-making.

In this study, descriptive analysis is used to demonstrate the level of Augmented Reality in food industry. The mean score and standard deviation are used in this study to determine the level of Augmented Reality. Table 4.6 shows the descriptive analysis for Augmented Reality among consumers in Kurdistan region. The overall findings of the study revealed that the level of Augmented Reality among the consumers is moderate with a mean of 3.67 and overall standard deviation of 1.26.

Table 4.6: Descriptive Statistics for Augmented reality among consumers.

Item	SD f (%)	D f (%)	N f (%)	A f (%)	SA f (%)	Mean f (%)	SD f (%)	Level f (%)
Augmented reality provides an easy and clear virtual experience in the purchasing process.	23 (9.2)	20 (8.0)	63 (25.3)	74 (29.7)	69 (27.7)	3.59	1.232	Moderate
Using augmented reality apps help me save time in the purchasing process.	20 (8.0)	34 (13.7)	51 (20.5)	66 (26.5)	78 (31.3)	3.59	1.276	Moderate
Augmented reality provides effective and efficient Virtual experience in purchasing process.	21 (8.4)	27 (10.8)	47 (18.9)	76 (30.5)	78 (31.3)	3.65	1.258	Moderate
Interaction with Augmented	21 (8.4)	17 (6.8)	64 (25.7)	63 (25.3)	84 (33.7)	3.69	1.240	Moderate

reality application allows getting tailored products information while purchasing.								
Augmented reality makes the purchasing process interesting and exciting.	22 (8.8)	13 (5.2)	53 (21.3)	67 (26.9)	94 (37.8)	3.80	1.248	Moderate
Compared to traditional apps, an augmented reality app is easier to use.	27 (10.8)	14 (5.6)	51 (20.5)	67 (26.9)	90 (36.1)	3.72	1.302	Moderate
The perceived usefulness improves the app's attitude.	23 (9.2)	22 (8.8)	45 (18.1)	64 (25.7)	95 (38.2)	3.75	1.300	Moderate
Augmented reality helps the purchasing process to be more successful.	23 (9.2)	30 (12.0)	44 (17.7)	70 (28.1)	82 (32.9)	3.63	1.301	Moderate
Total						3.67	1.26	Moderate

The table 4.7 shows descriptive analysis of consumer decision-making among consumers in Kurdistan region. The overall mean score of consumer decision making process in this study is 3.75 with the standard deviation of 1.29 which considered as moderate level. The highest mean score is 3.92 with a standard deviation of 1.223. and the lowest mean score is 3.25 with a standard deviation of 1.557.

Table 4.7: Descriptive Statistics For Consumer Decision-Making.

Item	**SD f (%)**	**D f (%)**	**N f (%)**	**A f (%)**	**SA f (%)**	**Mean f (%)**	**SD f (%)**	**Level f (%)**
While I buy a product, I feel connected to the story behind the reason for selling the product.	13 (5.2)	34 (13.7)	45 (18.1)	81 (32.5)	76 (30.5)	3.69	1.189	Moderate
I need sufficient information about the product before I buy it.	23 (9.2)	18 (7.2)	34 (13.7)	71 (28.5)	103 (41.4)	3.86	1.287	Moderate
In general, I try to purchase items of the highest overall quality.	15 (6.0)	22 (8.8)	41 (16.5)	62 (24.9)	109 (43.8)	3.92	1.223	Moderate
I make a special effort to choose high-quality product.	21 (8.4)	18 (7.2)	39 (15.7)	67 (26.9)	104 (41.8)	3.86	1.269	Moderate
I search carefully for the best value for money.	18 (7.2)	24 (9.6)	42 (16.9)	60 (24.1)	105 (42.2)	3.84	1.268	Moderate
When it comes to purchasing a product, I always try to get the best or perfect option.	19 (7.6)	18 (7.2)	44 (17.7)	62 (24.9)	106 (42.6)	3.88	1.253	Moderate

Most of the products I buy nowadays are high quality.	57 (22.9)	28 (11.2)	37 (14.9)	49 (19.7)	78 (31.3)	3.25	1.55 7	Low
Total						3.75	1.29	Moderat e

4.6 Objective 2: To explore the mean score of AR in customers' decision-making gender wise in Kurdistan Region.

As shown in Table 4.8, T-test has been used to compare the primary score of consumers in Kurdistan Food Industry. To compare the primary scores of consumers of food industry, a t-test was used. T-test for unrelated samples an inferential statistical test known as the independent t test, also known as the unpaired t test, examines if there is a statistically significant difference among the means among two unconnected (independent) groups (Mishra et al., 2019). In this procedure mean and number of observations of the group 1 and group 2 are used to compute significant level. Group 1 is male and group 2 is female. The findings indicate that female utilize augmented reality (AR) at a higher rate than their male counterparts, with a mean of 31.1 compared to 26.6. Moreover, female users of new technology are more prevalent in the Kurdistan area than male users. The lower confidence interval is -6.7, and the upper interval is -2.3. The data demonstrates the significance of the results, as the obtained result significance level of Levane's test is 0.2 which is greater than (P>0.05). Therefore, based on these findings, it can be concluded that there is a difference in the usage of AR between male and female employees.

Table 4.8: T Test.

			Male			**Female**		%95 confidence interval of the difference
Item	Sig.	t	N	Mean	N	Mean	Lower	Upper
Augmented Reality	0.20	-4.047	96	26.6	153	31.1	-6.7	-2.3

4.7 Objective 3: To examine the relationship between AR and consumer decision-making in the food industry in Kurdistan.

In this study Pearson rank correlation coefficient is applied in order to examine the relationship between Augmented Reality and Consumer Decision Making among consumers of Kurdistan region. The table 4.9 illustrate the correlation analysis between augmented reality among consumers in Kurdistan region.

To analyze the collected data, SPSS version 3.2.9 utilized. The descriptive statistics and correlation matrix of research variables and the correlation coefficients between the independent variable Augmented Reality (AR) and the dependent variable Consumer Decision Making (CDM) are shown in Table1. The results Show that AR is positively and significantly correlated with CDM ($r = 0.908$, $^{**}p < 0.01$).

In addition, this research investigates path coefficients and their significance. First, this research calculates t-values for the hypnotized path. As illustrated in Table 4.10, the findings demonstrate that the proposed path in the model has significant values. The findings indicate the positive and significant influence of AR on CDM ($\beta = 0.891$, $t = 34.122$, $p < 0.000$). These values support H1 in the current study.

Table 4.9: Descriptive Statistics And Correlations

Variables	**Mean**	**SD**	**AR**	**CDM**
Augmented Reality	3.679	1.107	1	0.908**
Consumer Decision Making	3.756	1.086		1

Notes: **p<0.01

Table 4.10: Hypothesis Test

Hypothesis test					
Hyp. No.	**Hypothesis Statement**	**Beta Coefficient**	**Standard Error**	**T-Value**	**P-Value**
H1	AR → CDM	0.891	0.026	34.122	0.000
Notes: ***p<0.000					

4.8 Conclusion

This chapter is to examine the findings obtained from conducting this study among Kurdistan region's food industry consumers. The survey and its analysis offer useful insights into the interaction between augmented reality and consumer choice in the food sector in the Kurdistan Region. Researchers may better understand how these variables affect customer behavior, preferences, and perceptions by taking demographic parameters like age, gender, and educational attainment into account. These results help to advance knowledge of the subject and assist in the Kurdistan Region's food industry's decision-making. Additionally, a significant part of knowing the characteristics of the responders was demographic research. In order to acquire a greater understanding of the link between augmented reality and consumer decision-making, the study took into account variables including age, gender, employment situation, and educational level. The survey results provided insight into the link between augmented reality and customer choice in the food sector in the Kurdistan Region. A thorough knowledge of consumer behavior is made possible by the high degree of participation from respondents as well as the demographic analysis of age, gender, employment state, and educational level. These insights can help firms in the food sector make effective use of augmented reality technology and customize their strategies to the unique requirements and tastes of various customer segments in the area.

CHAPTER FIVE

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Introduction

This chapter will examine the overall result of this research as well as a summary of the findings discussed in Chapter 4. Furthermore, recommendations for future research will be discussed. The results are discussed in section 5.2, and the research accomplishments are discussed in sections 5.3 in three subsections: 5.3.1 First Research Objective, 5.3.2 Second Research Objective, and 5.3.3 Third Research Objective. The limitations of this study are explained in section 5.3 after that. The study's recommendations are discussed in section 5.5. The conclusion of chapter 5 is covered in section 5.6.

5.2 Statistical Analysis

This survey had already distributed 300 questionnaires to the respondents and all data collected is primary data. The responders are chosen from consumers of food industry in Kurdistan region. For age section which is 249 respondents from different ages, 25-30 with frequency of 68 (27.3 percent), 30-35 with frequency 67 (26.9 percent), 18-25 with a frequency of 64 (25.7 percent), and 40 or above 40 with a frequency of 50 (20.1 percent). The survey consists of 153 female respondents which is (61.4 percent) 96 male respondents (38.6 percent) and another section that is work state section consists of Employed with a highest frequency of 119 (47.8 percent), Student with a frequency 46 (18.5 percent), lastly Part time and Unemployed with frequencies of 42 (16.9 percent). For education level section 116 with (46.6 percent) has Bachelor’s Degree, 55 (22.1 percent) has Master’s Degree and 49 (19.7 percent) has High School degree. The dependent variable of this research is Consumer Decision Making. While independent variable is Augmented Reality.

5.3 Discussion

In this research, the discussion of data analysis is divided into three research objectives, which are as follows: To identify the level AR utilized in the food industry in Kurdistan to enhance consumer decision-making by using of mean score. After that, to explore the mean score of AR in customers' decision-making gender wise in Kurdistan Region with using T-test. Next, to examine the relationship between AR and consumer decision-making in the food industry in Kurdistan, the relationship between the independent and dependent variables are also determined by using Correlation Coefficients in order to understand whether both variables are related to. Furthermore, this research investigates path coefficients and their significance. Also, this research calculates t-values for the hypnotized path. The outcomes of the results indicate the positive and significant influence of AR on CDM (β=0.891, t= 34.122, p<0.000). These values support H1 in the current study.

5.3.1 Objective 1: To identify the level AR utilized by customer in the food industry in Kurdistan to enhance consumer decision-making.

The study's goal is to find out how much augmented reality (AR) is being used in Kurdistan's food business to help consumers make better choices. AR is a technology that superimposes digital data over the physical environment Although AR is used in a variety of industries, including medicine, education, manufacturing, robotics, and entertainment. Augmented reality is a subset of mixed reality (Aggarwal & Singhal, 2019), its use and the effects it has on customer choice in the food sector in the Kurdistan Region have not yet been thoroughly investigated. By investigating how AR influences consumer decision-making in the region's food market, this study seeks to close this knowledge gap. The study seeks to give insights into the usage of augmented reality (AR) to improve customer experiences and contribute to current knowledge on AR in the food sector by evaluating data gathered from customers using surveys and using statistical methods. Additionally, based on the results, the level of AR received the highest mean score from the ffifthth question, which is (3.80). and 3.67 is the overall average score for augmented reality. furthermore, the level of consumer decision making received the highest mean score from the third question, which is (3.92) and 3.75 is the overall average score for consumer decision making.

The outcome demonstrates that consumer decision making has a higher overall mean score than augmented reality.

5.3.2 **Objective 2:** To explore the mean score of AR in customers' decision-making gender wise in Kurdistan Region.

An investigation was done in the Kurdistan Region to look at the average score of augmented reality (AR) and how it affected customers' choices, broken down by gender. Consumer motives are not isolated entities. Multiple motive aspects are simultaneously triggered throughout the purchase decision-making process by customers, and these activated motivations frequently include intricate interactions. Different consumer motives may cooperate or compete to influence customers' purchase. (Xiao, 2022) .The purpose of the study was to comprehend how gender-specific AR affects people's decisions. Important insights into the different preferences and inclinations among male and female consumers were discovered by studying the mean score of AR in customers' decision-making processes. With a better knowledge of the role AR plays in influencing consumer behavior, focused methods and customized approaches may now be used to successfully engage clients in the Kurdistan Region according to their gender preferences. The outcome of the results shows that the usage of AR is higher in female section than male because of two reasons, first according to the result of the mean score which is 31.1, and second reason is the question were distributed among female consumers. Furthermore, the outcome result of mean score of male gender is 26.6.

5.3.3 **Objective 3:** To examine the relationship between AR and consumer decision-making in the food industry in Kurdistan.

Based on the result there is positive and significant relationship between Augmented Reality and Consumer Decision Making. The third objective of this study is to illustrate how consumer decision making and augmented reality are related to food industry sector. AR is useful in consumer decision making because it improves their presentations and demonstrations of projects, making it easier for decision makers to understand and visualize complex concepts. This leads to more accurate decision-making and helps consumers understand and make informed choices about the products and services they are considering. AR is a set of technologies that

combines real-world situations with computer-generated virtual things, augmenting reality by adding real-time interactivity. AR connects virtual things with the physical world, allowing users to perceive augmented information as part of their physical surroundings, allowing AR marketing to adapt digital information and communicate with customers in real-time in the shared, embedded environment. (Qin et al., 2021).

5.4 Limitation for this study

Although the study sheds light on how augmented reality (AR) affects customer choice in the food sector in the Kurdistan Region, there are several limitations that should be noted. First off, because the study only examines the Kurdistan Region, its applicability to other nations or areas may be constrained. Differently than in other situations, the cultural and socioeconomic characteristics unique to the Kurdistan Region may have an impact on customer perceptions and behavior. Second, the study depends on self-reported data collected via questionnaires, which might contain errors or biases in responses. A deeper knowledge of how AR affects consumer decision-making may be possible with the use of objective metrics or observational data. Thirdly, this study compares how well male, and female are aware of AR in food industry. Also, 249 consumers of food industry provided information for this study. Additionally, the study does not examine the sustainability or profitability of the long-term implications of AR deployment in the food business. The long-term effects and cost-effectiveness of using AR technology might be studied in more detail. Finally, the report makes no mention of potential difficulties or hindrances to deploying AR in the food business, such as the need for technology infrastructure or training. Future research should consider and correct these flaws to offer a more complete knowledge of the connection between AR and consumer decision-making.

5.5 Recommendation for this study

Several suggestions may be made based on the research results and their implications for the Kurdistan Region's food business. First off, companies in the food sector have to think about using augmented reality (AR) technology into their marketing and consumer interaction plans. This may be achieved by creating augmented reality (AR) features or applications that enable customers to engage and perceive their items, offering a distinctive and immersive experience. Second, industry participants should make an investment in educating customers about the advantages and uses of augmented reality in the food sector. Promotional efforts, joint ventures with IT firms, or even the organization of AR-based conferences or workshops can accomplish this. Finally, governments and government organizations should encourage the use of AR technology in the food sector by offering incentives, financing, or legal or regulatory frameworks that enable it. The Kurdistan Region food business can improve client experiences, distinguish their goods, and ultimately succeed in a cutthroat market by embracing AR and utilizing its potential.

5.6 Conclusions

By examining the effects of augmented reality (AR) on customer decision-making in the food business in the Kurdistan Region, this study seeks to close a research gap. With a developing food business in the Kurdistan Region, augmented reality technology offers the ability to distinguish products and enhance customer experiences. This study sheds light on how properly employing AR might boost sales and customer happiness by investigating the connection between AR and consumer decision-making. The results of this study will help researchers, policymakers, and practitioners better understand how augmented reality (AR) may improve consumer decision-making in the Kurdish food business. This study's statistical analysis sheds light on how AR and consumer decision-making are related in crucial ways. The demographic study included details on the respondents' gender, age, employment status, and level of education. The survey gathered primary data from customers in the Kurdistan Region food business. The findings of the analysis of the mean scores of AR usage in consumer decision-making revealed the extent of AR adoption in the food business. Additionally, using T-tests, the investigation investigated the mean AR

scores in consumers' decision-making based on gender. Correlation coefficients were used to investigate the connection between AR and customer decision-making. These statistics evaluations give a thorough grasp of the influence of AR on customer choice in the Kurdistan food business. The stakeholders in the food business in the Kurdistan Region should be aware of the study's conclusions.

The findings imply that using augmented reality (AR) technology in the decision-making process might have a favorable impact on customer decisions. Businesses in the food sector may offer dynamic and interesting experiences to clients by adopting augmented reality, presenting product details, ingredients, and even virtual tastings. Challenges like rivalry from foreign goods and a lack of customer knowledge about local offers can be handled with this. By distinguishing goods, enhancing consumer decision-making, and eventually increasing sales and market share, implementing AR will not only increase customer happiness but also help the food sector in the Kurdistan Region expand and be sustainable.

References:

Abdulmutalib, Raafat. Research-iraq, A. R. (2021, April 17). “Kurdistan's food-security challenges.” Home -. Retrieved January 16, 2023, from https://researchiraq.com/?p=300.

ABI Research. The Digital Enterprise Ecosystem: Augmented Reality Spotlight. 2019. Available online: https://www.sbiresearch.com/blogs/2019/10/01/digital-enterprise-ecosystem-augmented-reality-spotlight/ (accessed on 15 May 2021).

Aggarwal, R., & Singhal, A. (2019). *Augmented Reality and its effect on our life*. https://doi.org/10.1109/confluence.2019.8776989.

Ahmad, F.; Guzmán, F. Consumer skepticism about online reviews and their decision-making process: The role of review self- efficacy and regulatory focus. J. Consum. Mark. 2021, 38, 587–600, https://doi.org/10.1108/jcm-09-2020-4119.

Ahn, J., Williamson, J., Gartrell, M., Han, R., Lv, Q., & Mishra, S. (2015). Supporting healthy grocery shopping via mobile augmented reality. *ACM Transactions on Multimedia Computing, Communications and Applications*, *12*(1s), 1–24. https://doi.org/10.1145/2808207.

Amin, S. M., & Ahmad, U. N. U. (2012). The attributes of electronic service quality (e-SQ) among academic librarians. Procedia-Social and Behavioral Sciences, 65, 260-265.

Ann. (2021). Augmented Reality (AR) in Food Industry. www.iboson.io. https://www.iboson.io/ar-in-food-industry

Anuyut, Yossapornpaiboon, A. (2021, November 27). How augmented reality technology changed the food industry? LinkedIn. Retrieved December 18, 2022, from https://www.linkedin.com/pulse/how-augmented-reality-technology-changed-food-anuyut-yossapornpaiboon/.

Batat, W. (2021). How augmented reality (AR) is transforming the restaurant sector: Investigating the impact of “Le Petit Chef” on customers’ dining experiences. *Technological Forecasting and Social*

Change, *172*, 121013. https://doi.org/10.1016/j.techfore.2021.121013.

Beck, D. E., Crandall, P. G., O'Bryan, C. A., & Shabatura, J. C. (2016). Taking food safety to the

Boon-itt, S., 2015. Managing self-service technology service quality to enhance esatisfaction. Int. J. Qual. Serv. Sci. 7 (4), 373–391.

Bottani, E., & Vignali, G. (2019). Augmented reality technology in the manufacturing industry: A review of the last decade. *IISE Transactions*, *51*(3), 284–310. https://doi.org/10.1080/24725854.2018.1493244.

Cannavo, A.; Lamberti, F. How Blockchain, Virtual Reality, and Augmented Reality are Converging, and Why. IEEE Consum. Electron. 2021, 10, 6–13, https://doi.org/10.1109/mce.2020.3025753.

Cao, M.; Zheng, L.; Jia, W.; Liu, X. Fast monocular visual odometry for augmented reality on smartphones. IEEE Consum. Electron. 2020, https://doi.org/10.1109/mce.2020.2993086.

Carmigniani, J., Furht, B., Anisetti, M., Ceravolo, P., Damiani, E. and Ivkovic, M. (2011), "Augmented reality technologies, systems and applications", Multimedia tools and Applications, Vol. 51 No. 1, pp. 341-377.

Chanlin, L.-J., & Chan, K.-C. (2018). Augmented reality applied in dietary monitoring. *Libri*, *68* (2), 137–147. https://doi.org/10.1515/libri–2017–0024.

Chen, J.V.; Tran, A.; Nguyen, T. Understanding the discontinuance behavior of mobile shoppers as a consequence of technostress: An application of the stress-coping theory. Comput. Hum. Behav. 2019, 95, 83–93, https://doi.org/10.1016/j.chb.2019.01.022.

Chevalier, C., & Kiefer, C. (2020). What does augmented reality mean as a medium of expression for computational artists? Leonardo, 53(3), 263-267.

Chylinski, M., Heller, J., Hilken, T., Keeling, D. I., Mahr, D., & de Ruyter, K. (2020). Augmented reality marketing: A technology-enabled approach to situated customer experience. *Australasian Marketing Journal*, *28*(4), 374-384.

Cook A.V., L. Ohri, L. Kusumoto, C. Reynolds, and E. Schwertzel. 2020. „Augmented shopping: The quiet revolution„. Deloitte Insight. Accessed 08/02/2021. https://www2.deloitte.com/us/en/insights/topics/emerging-technologies/augmented-shopping-3d-technology-retail.html.

Crofton EC, Botinestean C, Fenelon M, Gallagher E. Potential applications for virtual and augmented reality technologies in sensory science. Innovative Food Science & Emerging Technologies; 2019. vol. 56, p. 102178.

Crofton, E. C., Botinestean, C., Fenelon, M., & Gallagher, E. (2019). Potential applications for virtual and augmented reality technologies in sensory science. *Innovative Food Science and Emerging Technologies*, *56*, 102178. https://doi.org/10.1016/j.ifset.2019.102178.

Cruz, E., Orts-Escolano, S., Gomez-Donoso, F., Rizo, C., Rangel, J. C., Mora, H., & Cazorla, M. (2019). An augmented reality application for improving shopping experience in large retail stores. *Virtual Reality*, *23*(3), 281–291. https://doi.org/10.1007/s10055-018-0338-3 deliver the right information to shoppers. *International Journal of Mobile Human Computer.*

Dey, A., Billinghurst, M., Lindeman, R. W., & Swan, J. E. (2018). A systematic review of 10 years of augmented reality usability studies: 2005 to 2014. *Frontiers in Robotics and AI*, *5*, 37.

Dietrich C. 2010. Decision-making: factors that influence decision making, heuristics used, and decision outcomes. Inquiries journal.

http://www.inquiriesjournal.com/articles/180/decision-making-factors-thatinfluence-decision-making-heuristics-used-and-decision-outcomes. Accessed on 18 March 2019

Doorn, J.V., Mende, M., Noble, S., Hulland, J., Ostrom, A.L., Grewal, D., Petersen, J.A., 2017. Domo arigato Mr. Roboto. J. Ser. Res. 20, 43–58.

Dray. (2023, January 27). What Is Augmented Reality? | The Franklin Institute. The Franklin Institute. https://www.fi.edu/en/what-is-augmented-reality

Echo3D. (2022, February 10). *How augmented reality (AR) is reshaping the Food Service Industry*. Medium. Retrieved December 23, 2022, from https://medium.com/echo3d/how-augmented-reality-ar-is-reshaping-the-food-service-industry-a558039badad.

Edelman D. C., Singer M. 2015. Competing on customer journeys. Harvard business review. https://hbr.org/2015/11/competing-on-customer-journeys. Accessed on 8 March 2019

Ehab, M., Adel, R., & Abdelmoaty, H. (2020). The Effect of Augmented Reality Applications on Customer's Purchase Intentions. *International Journal of Advanced Scientific Research and Management*, *5*(11), 34-43.

Etikan, I., Alkassim, R., & Abubakar, S. (2016). Comparision of snowball sampling and sequential sampling technique. Biometrics and Biostatistics International Journal, 3(1), 55. https://www.academia.edu/download/42569290/BBIJ-03-00055.pdf.

Fakhri, M. (2012). Globalization and its impact on small and medium-sized enterprises. International Journal of Economics, Commerce and Management, 1(1), 1-8.

Feng, Y., & Mueller, B. (2019). The State of Augmented Reality Advertising Around The Globe: A Multi-Cultural Content Analysis. *Journal of Promotion Management*, *25*(4), 453–475. https://doi.org/10.1080/10496491.2018.1448323.

Fritz, W., Hadi, R., & Stephen, A. (2022). From tablet to table: How augmented reality influences food desirability. *Journal of the Academy of Marketing Science*, *51*(3), 503–529. https://doi.org/10.1007/s11747-022-00919-x.

Grewal, D., S. M. Noble, A. L. Roggeveen, and J. Nordfalt. 2020. “The Future of In-store Technology.” *Journal of the Academy of Marketing Science* 48 (1): 96–113. doi:10.1007/s11747-019-00697-z.

Gudruntebart. (2022, June 27). *Marketing trend 2022: The importance of augmented and virtual reality*. CAD Schroer. Retrieved December 23, 2022, from https://www.cad-schroer.com/news/marketing-trend-the-importance-of-augmented-and-virtual-reality/.

Habidin, Fadly, Nurul , (January 2015). "Sustainable Performance Measures for Malaysian Automotive Industry.'" https://www.researchgate.net/publication/281852946_Sustainable_Performance_Measures_for_Malaysian_Automotive_Industry-Javaid, M., Haleem, A., Singh, R. P., & Suman, R. (2021). Substantial capabilities of robotics in enhancing industry 4.0 implementation. Cognitive Robotics, 1, 58–75. https://doi.org/10.1016/j.cogr.2021.06.001

Habidin, N. F., Zubir, A. F. M., Fuzi, N. M., Latip, N. A. M., & Azman, M. N. A. (2015). Sustainable performance measures for Malaysian automotive industry. World Applied Sciences Journal, 33(6), 1017-1024.

Hackl, C., & Wolfe, S. (2017). Marketing new realities: An introduction to virtual reality and augmented reality marketing, branding, and communications. Cold Spring, NY: Meraki Press.

Hilken, T., De Ruyter, K., Chylinski, M., Mahr, D. and Keeling, D.I. (2017), “Augmenting the eye of the beholder: exploring the strategic potential of augmented reality to enhance online service experiences”, Journal of the Academy of Marketing Science, Vol. 45 No. 6, pp. 884-905.

Hilken, T., K. De Ruyter, M. Chylinski, D. Mahr, and D. I. Keeling. 2017. “Augmenting the Eye of the Beholder: Exploring the Strategic Potential of Augmented Reality to Enhance Online Service Experiences.” *Journal of the Academy of Marketing Science* 45 (6): 884–

905. doi:10.1007/s11747- 017-0541-x.

How augmented reality can - and can't - help your brand. Harvard Business Review. (2022, March 31). Retrieved December 23, 2022, from https://hbr.org/2022/03/how-augmented-reality-can-and-cant-help-your-brand.

Howard John A. and Sheth Jagdish N (2018). "The Theory of Buyer Behavior, New York: John Wiley & Sons," 1969, 83–114.https://scholar.google.com/scholar_lookup?title=The+Theory+of+Buyer+Behavior&publication_year=1969&pages=83-114#d=gs_qabs&t=1689091413969&u=%23p%3DIImhxhBEtlEJ

https://journals.sagepub.com/doi/pdf/10.1016/j.ausmj.2020.04.004.

https://www.researchgate.net/profile/Jason-Pallant/publication/342418622_Augmented_Reality_and_the_Customer_Journey_An_Exploratory_Study/links/60af39cb299bf13438ebb1a0/Augmented-Reality-and-the-Customer-Journey-An-Exploratory-Study.pdf.

https://www.researchgate.net/publication/347451835_The_Effect_of_Augmented_Reality_Applications_on_Customer%27s_Purchase_Intentions.

https://www.sciencedirect.com/science/article/abs/pii/S0969698914001283.

https://www.sciencedirect.com/science/article/abs/pii/S0969698915301351.

https://www.sciencedirect.com/science/article/abs/pii/S096969891730098X.

https://www.sciencedirect.com/science/article/abs/pii/S096969892031345X.

https://www.sciencedirect.com/science/article/abs/pii/S096969892031345X.

https://www.tandfonline.com/doi/abs/10.1080/09593969.2021.1901765.

Huang, T.L. and Liao, S.L. (2017), “Creating e-shopping multisensory flow experience through augmented-reality interactive technology”, Internet Research, Vol. 27 No. 2, pp. 449-475

Hwang, J., Lee, J., Kim, H., 2019. Perceived innovativeness of drone food delivery services and its impacts on attitude and behavioral intentions: The moderating role of gender

and age. Int. J. Hosp. Manag. 81, 94–103.

Ingham-Broomfield, R. (2014). A nurses' guide to quantitative research. *Australian Journal of Advanced Nursing, The*, *32*(2), 32-38. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=12ea414ad97a8c48a84ce284d06226308f4a0688#page=33 .

Interaction, *3*(2), 20–34. https://doi.org/10.4018/jmhci.2011040102.

Iqbal, M.S., Hassan, M.U., Habibah, U., 2018. Impact of self-service technology (SST) service quality on customer loyalty and behavioral intention: The mediating role of customer satisfaction. Cogent Bus. Manag. 5 (1) https://doi.org/10.1080/23311975.2018.1423770.

Janakiraman, N., H. A. Syrdal, and R. Freling. 2016. "The E ect of Return Policy Leniency on Consumer Purchase and Return Decisions: A Meta-Analytic Review." Journal of Retailing 92 (2): 226–235. doi:10.1016/j.jretai.2015.11.002.

Javornik, A. (2016). Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour. *Journal of Retailing and Consumer Services*, *30*, 252-261.

Javornik, A. 2016b. "'It's an Illusion, but It Looks Real!' Consumer A ective, Cognitive and Behavioural Responses to Augmented Reality Applications." *Journal of Marketing Management* 32 (9–10): 987–1011. doi:10.1080/0267257X.2016.1174726.

Jerelyn, A. (2022, June 13). How to leverage AR in your Digital Marketing Strategy. ClickZ. Retrieved December 18, 2022, from https://www.clickz.com/how-to-leverage-ar-in-your-digital-marketing-strategy/264804/.

John, Dudovskiy. Consumer Decision Making Process: A detailed analysis. Research. (2022, July 16). Retrieved December 18, 2022, from https://research-methodology.net/consumer-decision-making-process-a-detailed-analysis/.

Kang, M. H., Sun, B., Liang, T., & Mao, H. (2022). A study on the influence of online reviews of new products on consumers' purchase decisions: An empirical study on JD.com. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.983060.

Kotler P., Armstrong G. 2017. Principles of marketing, global edition. Pearson education limited. Accessed on 20 November 2018.

Lavoye, V., Mero, J., & Tarkiainen, A. (2021). Consumer behavior with augmented reality in retail: a review and research agenda. *The International Review of Retail, Distribution and Consumer Research*, *31*(3), 299-329.

manufacturers-Develop-your-business-using-augmented-virtual-reality.

MarketsandMarkets. 2019. "Augmented Reality in Retail Market Worth $11.4 Billion by 2025." Accessed 19.2.2020. https://www.marketsandmarkets.com/PressReleases/augmented-reality-retail.asp

next level—An augmented reality solution. *Journal of Foodservice Business Research*, *19*(4),.

Mazer. (2023, February 23). "Augmented Reality (AR) in the Food Industry" - Mazer. Mazer. https://mazerspace.com/augmented-reality-in-the-food-industry/#:~:text=How%20can%20AR%20technology%20be,quality%20control%2C%20and%20training%20employees.

Michael, Rygol. What are the current business barriers to AR Adoption & what is being done to overcome them? AREA. (2020, February 26).Written on Nov. 11, 2019 Retrieved December 18, 2022, from https://thearea.org/what-are-the-current-business-barriers-to-ar-adoption-what-is-being-done-to-overcome-them/.

Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., & Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of cardiac anaesthesia*, *22*(1), 67–72. https://doi.org/10.4103/aca.ACA_157_18.

Mourtzis, D., Angelopoulos, J., & Panopoulos, N. (2022). Manufacturing personnel task allocation taking into consideration skills and remote guidance based on augmented reality and intelligent decision

making. *International Journal of Computer Integrated Manufacturing*, *36*(1), 70–85. https://doi.org/10.1080/0951192x.2022.2078513.

Nematzadeh, A. (2018). Challenges facing the food industry in the Kurdistan Region of Iraq. Journal of Food Processing and Preservation, 42(4), e13371.

Othman, A.K., Hamzah, M.I., Abu Hassan, L.F., 2020. Modeling the contingent role of technological optimism on customer satisfaction with self-service technologies: a case of cash-recycling ATMs. J. Enterprise Inf. Manag. 33 (3), 559–578.

Pantano, E., Rese, A., & Baier, D. (2017). Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets. *Journal of Retailing and Consumer Services*, *38*, 81-95.

Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). A Multiple-Item Scale for Assessing Electronic Service Quality. Journal of Service Research, 7(3), 213-233.

Penco, L., Profumo, G., Serravalle, F., & Viassone, M. (2022). Has COVID-19 pushed digitalisation in SMEs? The role of entrepreneurial orientation. *Journal of Small Business and Enterprise Development*, *30*(2), 311–341. https://doi.org/10.1108/jsbed-10-2021-0423.

Penco, L., Serravalle, F., Profumo, G., & Viassone, M. (2020). "Mobile augmented reality as an internationalization tool in the "Made In Italy" food and beverage industry." *Journal of Management & Governance*, *25*(4), 1179–1209. https://doi.org/10.1007/s10997-020-09526-w.

Perid, J.L.A., & Steiger, P. (1998). Making electronic commerce easier to use with novel user interfaces. Electron. Mark. 8, 8-12.

Phupattanasilp, P., & Tong, S.-R. (2019). Augmented reality in the integrative internet of t hings (AR-IoT): Application for precision farming. *Sustainability (Switzerland)*, *11*(9), 1–17. https://doi.org/10.3390/su11092658.

Piroth, P., E. Rüger-Muck, and J. Bruwer. 2020. "Digitalisation in Grocery Retailing in Germany: An Exploratory Study." *The International Review of Retail, Distribution and Consumer Research* 1–19. doi:10.1080/09593969.2020.1738260.

Poncin, I., Garnier, M., Mimoun, M.S.B. and Leclercq, T. (2017), "Smart technologies and

shopping experience: are gamification interfaces effective? The case of the Smart store", Technological Forecasting and Social Change, Vol. 124, pp. 320-331, available at: https://doi.org/10.1016/j. techfore.2017.01.025.

Porter, M. E., and J. E. Heppelmann. 2017. "Why Every Organization Needs an Augmented Reality Strategy." *Harvard Business Review* 95 (6): 46–57.

Porter, M. E., and J. E. Heppelmann. 2017. "Why Every Organization Needs an Augmented Reality Strategy." *Harvard Business Review* 95 (6): 46–57.

Poushneh, A. (2018), "Augmented reality in retail: a trade-off between user's control of access to personal information and augmentation quality", Journal of Retailing and Consumer Services, Vol. 41, pp. 169-176, available at: https://doi.org/10.1016/j.jretconser.2017.12.010.

Poushneh, A. and Parraga, A.Z.V. (2017), "Discernible impact of augmented reality on retail customer's experience, satisfaction and willingness to buy", Journal of Retailing and Consumer Services, Vol. 34, pp. 229-234, available at: https://doi.org/10.1016/j.jretconser.2016.10.005;

Qin, H., Peak, D. A., & Prybutok, V. (2021). A virtual market in your pocket: How does mobile augmented reality (MAR) influence consumer decision making? *Journal of Retailing and Consumer Services*, *58*, 102337.

Qin, H., Peak, D. A., & Prybutok, V. R. (2021). A virtual market in your pocket: How does mobile augmented reality (MAR) influence consumer decision making? *Journal of Retailing and Consumer Services*, *58*, 102337. https://doi.org/10.1016/j.jretconser.2020.102337.

Rankohi, S., & Waugh, L. (2013). Review and analysis of augmented reality literature for construction industry. Visualization in Engineering, 1, 1-18.

Rauschnabel, P.A.; Rossmann, A.; tom Dieck, M.C. An adoption framework for mobile augmented reality games: The case of Pokémon Go. Comput. Hum. Behav. 2017, 76, 276–286, https://doi.org/10.1016/j.chb.2017.07.030.

Rezaei, S. (2015). Segmenting consumer decision-making styles (CDMS) toward marketing practice: A partial least squares (PLS) path modeling approach. *Journal of Retailing and Consumer Services*, *22*, 1-15.

Rizwan Raheem Ahmed, Kamran Ahmed Soomro. "Role of augmented reality in changing consumer behavior and decision." Written on Dec. 2021. Retrieved December 18, 2022, from https://www.researchgate.net/publication/357186523_Role_of_Augmented_Reality_in_Changing_Consumer_Behavior_and_Decision_Making_Case_of_Pakistan.

Robertson, N., McDonald, H., Leckie, C., McQuilken, L., 2016. Examining customer evaluations across different self-service technologies. J. Serv. Market. 30 (1), 88–102.

Romano, B. M., Sands, S., & Pallant, J. (2020b). "Augmented reality and the customer journey: An exploratory study." *Australasian Marketing Journal (Amj)*, *29*(4), 354–363. https://doi.org/10.1016/j.ausmj.2020.06.010.

Romano, B., Sands, S., & Pallant, J. I. (2020). Augmented reality and the customer.

Salah, Mohmed, Razwan. "The impact of virtual learning environments on the digitalization." Retrieved Dec. 31, 2021. Published on July 18, 2022. from.https://www.researchgate.net/publication/362132858_The_Impact_of_Virtual_Learning_Environments_on_the_Digitalization_of_Higher_Education_in_the_Kurdistan_Region-Iraq

Shan, W. (2015). The application of augmented reality technology in food professional education. *Advance Journal of Food Science and Technology*, *8*(7), 476–479. https://doi.org/ 1019026/ajfst.8.1548.

Sialparis. (2019). *Augmented reality: What applications for the food industry?* https://www.sialparis.com SIAL-Paris/All-the-SIAL-Paris-and-agri-food-industry-news .

Singh, A. S., & Masuku, M. B. (2014). Sampling techniques & determination of sample size in applied statistics research: An overview. International Journal of economics, commerce and management, 2(11), 1-22.

https://d1wqtxts1xzle7.cloudfront.net/65225177/21131_IJECM-libre.pdf?1608404466=&response-content-disposition=inline%3B+filename%3DInternational_Journal_of_Economics_Comme.pdf&Expires=1686853124&Signature=U0mGMdmB48Dfe1zo6uxnqPFIT-jOY8Fxh2MnYdmnG-6ahHyedlBr07QrK8yEKP4r9Hky-jtY0poGvAZKAXDSJYhUVILOnd6KYod6PEf50gqwPyCVsw7kIzTz4pZHNRWGmOaxeXLWXxFSRHvHNyLJ6xYNr8oWHOFsnsf~vxE96Zncsu8dY8lc4kac-yyGRm3t7~WbOWaiD0-uXcueS-JAlow6kv4W8Gh2qXicw1U6HDfZd3VvbBOW5e33g2y-QIQ4bu~-u5jan1GMt8cpnAh~NEL9BDn~N0Vx~yY81jFDxawIxGQ2roYp18Ex7qd5n1r-yu2b6Bej7KrvcNm9CxoEjw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA.

Siswaningsih, W., Firman, H., & Khoirunnisa, A. (2017, February). Development of two-tier diagnostic test pictorial-based for identifying high school students misconceptions on the mole concept. In Journal of Physics: conference series (Vol. 812, No. 1, p. 012117). IOP Publishing.

Stelick, A., Penano, A.G., Riak, A.C., & Dando, R. (2018). Dynamic Context Sensory Testing: A Proof of Concept Study Bringing Virtual Reality to the Sensory Booth. Journal of food science, 83 8, 2047-2051.

Suomala, J. (2020, September 2). *The consumer contextual decision-making model*. Frontiers. Retrieved December 23, 2022, from https://www.frontiersin.org/articles/10.3389/fpsyg.2020.570430/full.

Sushereba, C.E.; Militello, L.G.; Wolf, S.; Patterson, E.S. Use of Augmented Reality to Train Sensemaking in High-Stakes Medical Environments. J. Cogn. Eng. Decis. Mak. 2021, 15, 55–65, https://doi.org/10.1177/15553434211019234.

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. How to choose a sampling technique for research

(April 10, 2016) from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3205035.

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. International Journal of Academic Research in Management (IJARM), 5, 18-27. https://doi.org/10.2139/ssrn.3205035.

Todd, P. M., Rogers, Y., & Payne, S. J. (2011). Nudging the trolley in the supermarket: How to

Vanderroost, M., Ragaert, P., Verwaeren, J., De Meulenaer, B., De Baets, B., & Devlieghere, F. (2017). The digitization of a food package's life cycle: Existing and emerging computer systems in the logistics and post-logistics phase. *Computers in Industry*, *87*, 15–30. https:// doi.org/10.1016/j.compind.2017.01.004.

Wedel, M., Bigné , E., & Zhang, J. (2020). Virtual and augmented reality: Advancing research in consumer marketing. International Journal of Research in Marketing, 37, 443- 465.

What is augmented reality? The Franklin Institute. (2019, December 18). Retrieved December 18, 2022, from https://www.fi.edu/what-is-augmented-reality.

Xiao, J., Gong, Y., Li, J., Tang, X., Javeed, S. A., & Deng, Y. (2022). "A Study on the Relationship Between Consumer Motivations and Subjective Well-Being: A Latent Profile Analysis." Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.938060.

Yim, M.Y.-C., S.-C. Chu, and P. L. Sauer. 2017. "Is Augmented Reality Technology an E ective Tool for E-Commerce? an Interactivity and Vividness Perspective." Journal of Interactive Marketing 39: 89– 103. doi: 10.1016/j.intmar.2017.04.001.

Yrjölä, M., M. T. Spence, and H. Saarijärvi. 2018. "Omni-Channel Retailing: Propositions, Examples and Solutions." *The International Review of Retail, Distribution and Consumer Research* 28 (3): 259–276. doi:10.1080/09593969.2018.1445657.

APPENDIX A

Questionnaire

Dear respondent,

The aim of this study is to determine to examine the relationship between Augmented Reality and Consumer Decision Making In Kurdistan Region Food Industry

Your cooperation in answering these research questions is really appreciated as this will help the completion of the research. All information given will be kept strictly confidential and for the purpose of this research only.

Your cooperation and participation are highly appreciated. I wish you all the best in your future endeavors.

Researcher/ Student,

Banu Qadir Hamajan

Qaiwan International Uniserity, UTM Franchise

Management Technology Department

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Supervisor,

Dr.Abdulqadir Rahomee

Dr. Logaiswari

The questionnaire consists of three sections, as follows:

Section A: Demographics of Respondents.

Section B: Augmented Reality

Section C: Consumer Decision Making

SECTION A: Demographic Data. Please answer the following questions to provide information about your background for my research.

Instruction: Please tick (√) the preferred answer based on the scale below:

1. Age

□ 18-25

□ 25-30

□ 30-35

□ 40 or above 40

2. Gender

□ Male

□ Female

3. Work State

□ Part time

□ Employed

□ Unemployed

□ Student

4. Education Level

□ High school

□ Bachelor's degree

□ Master degree

□ Ph. D or higher

Appendix B

SECTION B: Augmented Reality

Instruction: Please tick (√) the preferred answer based on the scale below:

Strongly Disagree	**Disagree**	**Moderately Agree**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Augmented Reality

NO.	**Statement**	**1**	**2**	**3**	**4**	**5**
Q1	Augmented reality provides an easy and clear virtual experience in purchasing process.					
Q2	Using augmented reality apps help me save time in the purchasing process.					
Q3	Augmented reality provides effective and efficient Virtual experience in purchasing process.					
Q4	Interaction with Augmented Reality application allows getting tailored products information while purchasing					
Q5	Augmented reality makes the purchasing process interesting and exciting.					
Q6	Compared to traditional apps, an augmented reality app is easier to use.					
Q7	The perceived usefulness improves the app's attitude.					
Q8	Augmented reality helps the purchasing process to be more successful.					

APPENDIX C

SECTION C: Consumer Decision Making

Instruction: Please tick (√) the preferred answer based on the scale below:

Strongly Disagree	**Disagree**	**Moderately Agree**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Consumer Decision Making

NO.	**Statement**	**1**	**2**	**3**	**4**	**5**
Q1	While I buy a product, I feel connected to the story behind the reason of selling the product.					
Q2	I need sufficient information about the product before I buy it.					
Q3	In general, I try to purchase items of the highest overall quality.					
Q4	I make a special effort to choose high quality product.					
Q5	I search carefully for the best value for money.					
Q6	When it comes to purchasing a product, I always try to get the best or perfect option.					
Q7	Most of the products I buy nowadays are high quality.					

Thank You for your cooperation.

پرسیارنامه

وەڵامدەری ئازیز

ئامانجی ئەم لێکۆڵینەوە یە دیاریکردنی پە یوە ندی نێوان واقیعی زیادکراو و بڕیاردانی بە کاربە ر لە پیشە سازی خۆراکی هە رێمی کوردستان

هاوکاری ئێوە بۆ وەڵامدانەوەی ئەم پرسیارانە بەڕاستی سوپاسگوزارن، چونکە ئەمە یارمەتیدەر دەبێت بۆ تەواوکردنی توێژینەوەکە. هەموو زانیارییەکان بە تەواوی بە نهێنی دەهێڵرێنەوە و تەنها بۆ مەبەستی ئەم توێژینەوەیە.

هاوکاری و بەشداری ئێوە زۆر بەرز دەنرخێندرێت. هیوای باشترینتان بۆ دەخوازم لە هەوڵەکانی داهاتووتان.

توێژەر / خوێندکار - سەرپەرشتیار

بانوو قادر حەمەجان دکتۆر عەبدولقادر ڕەحیمی

یەکێتی نێودەوڵەتی قەیوان دکتۆر لۆگایسواری

بەشی تەکنەلۆجیای بەڕێوەبردن

ئیمەیڵ: banuqadir.166@gmail.com

:بڕسیارەکە لە سێ بەش پێکهاتووە

بەشی یەکەم: دیمۆگرافیای بەشداربووان.

بەشی B: Augmented Reality

Section C: بڕیاری بەکاربەر

بەشی یەکەم: داتای دیمۆگرافی. تکایە وەڵامی ئەم پرسیارانەی خوارەوە بدەرەوە بۆ پێشکەشکردنی زانیاری دەربارەی پێشینەی توێژینەوەکەم.

:ڕێنمایی: تکایە (√) وەڵامی پەسەندکراو لەسەر بنەمای پێوەری خوارەوە بنووسە

5. تەمەن

□ 18-25

□ 25-30

□ 30-35

□ یان سەروو ٤٠ ٤٠

6. ڕەگەز

□ نێر

□ مێ

7. دۆخی کار

□ کاتی بەش

□ بەکارهێنراوە

□ بێکار

□ خوێندکار

8. ئاستی خوێندن

□ قوتابخانەی ئامادەیی

□ بڕوانامەی بەکالۆریۆس

□ بڕوانامەی ماستەر

□ یان بەرزتر D

بەشی B: Augmented Reality

:ڕێنمایی: تکایە (√) وەڵامی پەسەندکراو لەسەر بنەمای پێوەری خوارەوە بنووسە

بە تۆندی ناڕازین	ناڕازی	بە شێوەیەکی مامناوەندی هاوڕا	ڕازیبوون	بە تۆندی هاوڕا
1	2	3	4	5

ڕاستی زیادکراو

.نەخێر	لێدوان	1	2	3	4	5
Q1	ڕاستی زیادکراو ئەزموونێکی ئاسان و ڕوون لە پڕۆسەی کڕیندا پێشکەش دەکات.					
Q2	بەکارهێنانی ئەپلیکەیشنی ڕاستی زیادکراو یارمەتیم دەدات کات بپارێزم لە پڕۆسەی کڕین.					
Q3	ڕاستی زیادکراو ئەزموونێکی کاریگەر و کاریگەر لە پڕۆسەی کڕیندا دابین دەکات.					
Q4	کارلێککردن لەگەڵ بەرنامەی ڕاستی زیادکراو ڕێگە دەدات بە وەرگرتنی زانیاری بەرهەمە تایبەتمەندەکان لە کاتی کڕیندا					

Q5	ڕاستی زیادکراو پرۆسەی کڕین سەرنجڕاکێش و سەرنجڕاکێش دەکات.					
Q6	بە بەراورد لەگەڵ ئەپە ئاساییەکان، بەکارهێنانی ئەپی ڕاستی زیادکراو ئاسانترە.					
Q7	بەکارهێنانی ئەپلیکەیشنەکە تایبەتمەندی ئەپەکە باشتر دەکات.					
Q8	باشترکردنی پرۆسەی کڕین بۆ ئەوەی سەرکەوتووتر بێت.					

بەشی یەکەم: بڕیاری بەکاربەر

ڕێنمایی: تکایە (√) وەڵامی پەسەندکراو لەسەر بنەمای پێوەری خوارەوە بنووسە:

بە تۆندی ناڕازین	**ناڕازی**	**بە شێوەیەکی مامناوەندی هاوڕا**	**ڕازیبوون**	**بە تۆندی هاوڕا**
1	**2**	**3**	**4**	**5**

بڕیاری بەکاربەر

.نەخێر	**لێدوان**	**1**	**2**	**3**	**4**	**5**
Q1	کاتێک بەرهەمێک دەکڕم، هەست دەکەم پەیوەندیم هەیە بە چیرۆکی پشت هۆکاری فرۆشتنی بەرهەمەکەوە.					
Q2	پێویستم بە زانیاری تەواو هەیە دەربارەی بەرهەمەکە پێش ئەوەی بیکڕم					
Q3	بە گشتی، من هەوڵ دەدەم ئەو بابەتانە بکڕم کە بەرزترین کوالێتی گشتییان هەیە.					
Q4	من هەوڵێکی تایبەت دەدەم بۆ هەڵبژاردنی بەرهەمێکی کوالێتی بەرز.					
Q5	من بە وریاییەوە بەدوای باشترین بەهای پارەدا دەگەڕێم.					

Q6	کاتێک دێتە سەر کڕینی بەرهەمێک، هەمیشە هەوڵ دەدەم باشترین یان باشترین بژاردە بەدەست بهێنم.					
Q7	زۆربەی ئەو بەرهەمانەی کە ئێستا دەیکڕم کوالێتی بەرزن.					

Any suggestion or comments, please indicate below.

……

……

……

……

……

……

……

THANK YOU VERY MUCH FOR YOUR TIME AND EFFOR

Appendix D

Turnitin Results

THE RELATIONSHIP BETWEEN AUGMENTED REALITY AND CONSUMER DECISION MAKING IN KURDISTAN REGION FOOD INDUSTRY

ORIGINALITY REPORT

19%	12%	3%	13%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Universiti Teknologi Malaysia Student Paper	2%
2	www.researchgate.net Internet Source	1%
3	Submitted to Chester College of Higher Education Student Paper	1%
4	umpir.ump.edu.my Internet Source	1%
5	www.clickz.com Internet Source	<1%
6	Submitted to Aston University Student Paper	<1%
7	discol.umk.edu.my Internet Source	<1%
8	Submitted to Bournemouth University Student Paper	<1%

9	Submitted to South Bank University Student Paper	<1 %
10	eprints.utm.my Internet Source	<1 %
11	easychair.org Internet Source	<1 %
12	Submitted to Northcentral Student Paper	<1 %
13	Submitted to Universiti Teknologi MARA Student Paper	<1 %
14	Hong Qin, Daniel Alan Peak, Victor Prybutok. "A virtual market in your pocket: How does mobile augmented reality (MAR) influence consumer decision making?", Journal of Retailing and Consumer Services, 2021 Publication	<1 %
15	www.ncbi.nlm.nih.gov Internet Source	<1 %
16	Submitted to Collarts Student Paper	<1 %
17	bic.utm.my Internet Source	<1 %
18	Submitted to Institute of Research & Postgraduate Studies, Universiti Kuala Lumpur	<1 %

	Student Paper	
19	Submitted to University of Bedfordshire Student Paper	<1 %
20	Submitted to Central Queensland University Student Paper	<1 %
21	seiso.id Internet Source	<1 %
22	Submitted to King's College Student Paper	<1 %
23	Submitted to Macquarie University Student Paper	<1 %
24	docshare.tips Internet Source	<1 %
25	Submitted to Royal Holloway and Bedford New College Student Paper	<1 %
26	etd.uum.edu.my Internet Source	<1 %
27	Submitted to Queensland University of Technology Student Paper	<1 %
28	www.tandfonline.com Internet Source	<1 %
29	Submitted to Jose Rizal University Student Paper	<1 %

30	erl.ucc.edu.gh:8080 Internet Source	<1 %
31	Submitted to Unicaf University Student Paper	<1 %
32	Submitted to University of Glamorgan Student Paper	<1 %
33	Submitted to University of Hong Kong Student Paper	<1 %
34	Submitted to University of Leicester Student Paper	<1 %
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46	sdh.hueuni.edu.vn Internet Source	<1 %
47	Submitted to University of Wolverhampton Student Paper	<1 %
48	people.utm.my Internet Source	<1 %
49	rgu-repository.worktribe.com Internet Source	<1 %
50	Submitted to UCSI University Student Paper	<1 %
51	researchspace.ukzn.ac.za Internet Source	<1 %
52	scholar.sun.ac.za Internet Source	<1 %

53	Submitted to Asia e University Student Paper	<1%
54	Submitted to University of New South Wales Student Paper	<1%
55	Submitted to University of Southampton Student Paper	<1%
56	Submitted to West Virginia University Student Paper	<1%
57	dataconomy.com Internet Source	<1%
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