

Immersive Technology Study As A Science Innovation to Enhance Modern Dining Experience

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Abstract

In this modern time, advanced innovation has entered most parts of our daily routine such as at design field, technology, culinary, craftsmanship and other things. For culinary field, the presence of an inundate eating experience which including the most recent virtual innovation that enhancing the inside plan idea is one of the examples. Now a day the experience of eating at a restaurant has become a modern lifestyle meanwhile a memorable experiences setting is not well understood. This research aims to study how the application of virtual technology as one of the innovations of science brings new experiences in the field of restaurant interior design, especially in the presentation of food menus. This research using existing social exposure that exists with qualitative and descriptive methods. Result of this study reveals knowledge about the latest science innovation in virtual technology which give a good impact for the future restaurant design and extra ordinary dining experience. At last researcher figures out that in the advanced day time, collaboration without any boundaries between art design and innovation technology can be applied in various aspects of life.

Keywords

virtual technology, science innovation, art design, food presentation, dining experience

1. Introduction

Every human being has basic needs that must be met. Speaking of needs, each individual has a level of need that must be met gradually, from the lowest to the highest. This level of need was put forward by Abraham Maslow in a pyramid structure known as Maslow's pyramid. Abraham Maslow believes that all motivation happened as a reaction to an individual's experience of the five basic types of needs. According to Maslow, there are 5 kinds of basic needs, which are always experienced by an individual. As seen below on Figure 1, Maslow's Hierarchy of Needs theory describes it as a dynamic holistic synthesis or combination of theories (Iskandar, 2016).



Figure 1. Maslow Pyramid.

Food has become one of the leisure options in this modern period with rising stress levels throughout society, particularly in the capital city where people rush in every direction. Eating is no longer just about meeting demands or feeling satisfied in the stomach; eating is not only just a matter of taste, but the entertainment factor is also taken into account during this eating time. That is why the culinary arts are improving all the time. Meanwhile, we can see that urban populations do most of the cooking because they are more stressed than rural ones. Culinary pursuits have become a way of life in urban areas. Now a day, research in the restaurant sector has focused heavily on 'culinary'

innovations, with little emphasis on creativity and innovations in marketing, management, processes, and services (Lee et al. 2019). Many fine dining restaurants competing to serve very significant modified food in order to pursue the present, innovate in order to keep up with the development of community phenomenon in restaurant dining experience to stay exist in this modern era.

Countless restaurants in the city are contesting in presenting different atmosphere to attract the guests. One of the newest trends we can see is the “experience”. A memorable experience is what a restaurant setting is all about, yet it's not well understood or measured (Yang Cao 2019). Restaurant design that is associated with technological advances and scientific innovation is already a must be considered aspect by fine dining restaurant players. What is needed to face this situation are including 3d projection, virtual technology, augmented reality and many more.

Customers are now expecting a genuine interactive experience while eating. It is no longer enough to simply give a fantastic culinary product; the experience and service must also be excellent. To make customers feel something fresh, the experience must be present in everything that comes out. This can be accomplished with the help of the latest technology that is rapidly evolving around the world. The restaurant, particularly in the hotel, is continually up to speed on market trends in culinary needs.

The restaurant selling value is lifted from the environment of the space that amaze the visitors. Restaurant interior design plays a significant part to bring out the objectives. Not only the interior design, but also the additionally innovative advances and the development of digital technology that have been introduced and collaborated in the interior, which we know as virtual technology or virtual reality, can introduce an alternative ambience to the interior.

1.1 Problem Statement

Problem stated here is our society now a day require new innovations in restaurant business by thinking about how to incorporate with science technology into the interior design which becomes attractive for consumers and the food presentation too. Not only in the food sector virtual reality technology can reach been explored, but also in other sectors such as education, exhibition, tourism, architecture and many fields. By assessing and investigating a few cooperative occasions between virtual innovation and plan, we can figure out that the collaboration effort can gives an exceptionally intriguing encounter and decidedly affects human existence. All through this paper will carries an eye to the general public that virtual innovation as part of science innovation can merged with art design in retail sector which is restaurant.

1.2 Research Objectives

The research objective of this study is to provide knowledge to the society about the advancement of science today is already long ways ahead. Numerous technologies have been discovered and can be applied to all aspects of life. In this review, examined scientific discoveries in the field of virtual technology that bring humans to feel the immersive experience when dining at high-end restaurants.

2. Literature Review

It takes more than food to create a good dining experience. Presentation of the restaurant environment must be taken into consideration in creating more a meaningful experience to restaurant promotion (Arifin, 2010). Certain atmospheric elements generated different types of customer behavior. For instance, in order for revisit intention to occur, it was suggested that the restaurant refurbish itself with appropriate lighting, refined style, and accommodating layout (Reimer and Kuehn, 2005).

Wall and Berry (2007) in their study referenced that in spite of the fact that food quality is fundamental, the mood and service performance extraordinarily impact a client's assessment of a specific foundation. Diners judge a restaurant experience from the technical quality of the food, the ambience and other design and technical elements; and humanism, the performance, behaviour, and appearance of the employees. The findings of Parsa, Self, Njite, and King (2005), who found that while food quality was critical to restaurant success; excellent food alone did not guarantee success, are same.

The continuity of science improvement every once in-a-while impacts different parts of way of life. One of them is the advancement of computerized and virtual innovation which in accordance with the improvement of science. Many organizations contend to deliver the most recent advancements to face the new era in this world (Putra 2014). The

term computerized and virtual is now sounds natural in daily existence. The computerized innovation has been applied in different parts of life such as education, transportation, wellbeing, financial matters and other different fields. The food business is developing quickly, hence the level of administrations are presented in an extremely elevated requirement in this culinary industry.

The food presentation as well as the eating vibe itself, which known as high end food or fine dining. Fine dining restaurant offers restaurant experience that is typically more sophisticated, unique and surely expensive than some average restaurant (Harington et.al, 2011). Many fancy eateries are found in five stars lodging or business locale region which the presentation of the food is more tasteful and elegant with the genuine kind of their mark. For food industry examination, the trend and opportunities of this extravagant diners are very promising. For that reason, some development are expected to draw in market by teaming up virtual innovation with any elements of eating like the food and the presentation as well, the feel or ambience and last is the interior design.

Technological progress is something that cannot be avoided in this life, because technological progress will run according to the progress of science. Every innovation is created to provide positive benefits to human life. Technology also provides many conveniences, as well as a new way of doing human activities. Humans have also enjoyed many of the benefits brought by technological innovations that have been produced in the last decade (Ngafifi, 2014).

In this current era of globalization, mastering technology becomes a prestige and indicator for a country's progress. Countries are said to be developed if they have a high level of mastering technology, while countries that cannot adapt to technological advances are often referred as failed countries. The development of the world of science and technology is so awesome that it has indeed brought tremendous benefits to the progress of human civilization. Concisely said the current technological progress has really been recognized and felt to provide a lot of convenience and comfort for the mankind living (Dwiningrum 2012).

Martono (2012) stated technology as part of science promises many things to human. Technology promises change, technology promises progress, technology promises convenience, technology promises productivity increasing, technology promises speed, and finally technology promises popularity. All of that can penetrate in all aspects of our lives such as commodities, medicine, art design, tourism, education and others.

3. Methods

To achieve an appropriate result, this study will use observations, hypothesis that will also be supported by virtual technology theory. Qualitative research methods is used to emphasises the study process. Theoretical support will also be provided as a background review of the research due to the limitation of time and current situation of pandemic. The main subject for study case will be observed gradually. Some steps of collecting data used in this research are essential data collection which researcher takes from books, journals, articles and other different references identified with the field of virtual technology, art design and interior design. It is relied upon to get same vision and knowledge so the researcher can go to the second phase of information assortment strategies. From the first data collection, the author will do documentation which is a method of research and planning that emphasizes the visual parts of the study object. Related to the country condition now a day, the documentation will be provided by the web and other sources.

4. Data Collection

Researchers collect primary data and secondary data simultaneously. Primary data were obtained from books on design, restaurants, technological developments and the latest updates on restaurant interior design. In addition, papers and journals related to the latest technology regarding virtual technology, as well as journals about dining experiences that have been studied are also collected to be used as literature review materials. While the supporting data is obtained from interviews and documentation, as well as the web related to the immersive dining experience and the latest technology as part of knowledge innovation. It is hoped that with this data collection, it can be processed and analyzed so that an interesting conclusion or output can be obtained to be developed again in further research.

5. Results and Discussion

5.1 Virtual Immersive Technology

We are familiar about innovation covers numerous aspects. We can enjoy imperceptible innovation in regular daily existence like cell phones, television, planes, etc. There is an imperceptible innovation that we called virtual technology, which today it is most of the time utilized in numerous areas of life since it gives a deception or extra sensation of experience that is more intriguing than what it is. For example, there is what is called virtual reality, where virtual reality (VR) refers to a computer-generated simulation in which a person can interact within an artificial three-dimensional environment using electronic devices (Mitchell 2020). Virtual reality is one of the virtual immersive-technology. Immersive technology is a technology that blurs the boundaries between the real world and the digital world or the world of simulation, so that users can experience an atmosphere similar to the real world. According to the Nasscom report, immersive media represents a massive market of \$180 billion by 2022. Reports project immersive media solutions to be key players across a variety of industries. Examples of immersive media include virtual reality, augmented reality, mixed reality, multimers ion. These technologies, and others to come, fall under the umbrella term of “extended reality” (Imagine 4D, 2020).

An overview of the five different types of immersive media technologies as the result of science innovation in this global universe:

- **Virtual Reality (VR):** A digital environment replaces the user’s physical environment. VR completely immerses individuals in this digital world, and this is typically done using head-mounted displays (i.e. VR goggles).
- **Augmented Reality (AR):** Digital content overlays a real-world environment. This technology enhances reality rather than replacing it. An example of AR includes Snapchat’s photo filters.
- **Mixed Reality (MR):** As its name suggests, MR is a blending of the real world with a digital world. This experience creates an environment in which technology and the physical world coexist and interact with each other. As the coming together of VR and AR, MR also requires headwear.
- **Multimmersion™:** Using curved mirrors and a curved projector screen, Multimmersion™ creates a virtual environment with an accurate sense of depth and three dimensionality.
- **Extended Reality (XR):** The umbrella term that covers virtual reality (VR), augmented reality (AR), mixed reality (MR) and Imagine 4D’s new immersive media Multimmersion™.

Some examples of how immersive technologies are being used today:

- **Automotive industry:** For example, VR technology allows engineers and designers to experiment easily with the look and build of a vehicle before commissioning expensive prototypes.
- **Healthcare:** Healthcare workers can use immersive technologies for training purposes and prepare themselves in a low-risk 3D environment before working on real bodies.
- **Tourism:** Immersive technologies allow people to experience virtual guided tours all around the world before finalizing and booking their trip. Immersive media can allow marketers to go beyond providing basic images and videos, allowing users to actually experience the destination before making a commitment.
- **Real Estate and Interior Design:** Home buyers can experience their future home including the interior before it is even built. Immersive media and 3D content play important roles. This opens up opportunities for developers and designers to upsell their offerings and allows customers to customize their home to their taste.

In interior design, particularly for restaurant inside the tangible aspect underscores buyers' abstract assessment of the assistance environment based on the customers' five senses. The five faculties incorporate visual (feeling of sight), aural (feeling of hearing), olfactory (feeling of smell), gustatory (feeling of taste), and material (feeling of touch), which can be used by specialist organizations to increase the value of administration items and separate themselves from other specialist organizations (Schmitt, 2010). Consumers drew in utilizing a more significant level of senses can have more vital encounters, and they are all the more really immersed in the experiences (Pine and Gilmore, 1998).

Buyers' experiences in this case is restaurant guesses, can be examined and imparted to other people, making their memory more pleasant and positive even after the experience closes (Raghunathan and Corfman 2006). The social perspective is considered as a significant variable in restaurant settings on the grounds that numerous restaurant clients feast out principally for social reasons (Antun et al., 2010; Line et al., 2012). Implies how they experience the virtual

innovation while having the supper in the restaurant will be important and transferrable through storytelling to other people.

The influence aspect is an umbrella term, which can be additionally partitioned into temperament and feeling (Brakus et al., 2009). During the cycles of consumer experiences, different sorts of feelings and temperaments are engaged with consumer memory arrangement, like sensations of bliss, unwinding, nervousness, etc. There is research which sees feeling as a piece of the influence aspect, perceiving the critical job of feeling idea. The influence aspect incorporates mental responses and discernments to the outside climate. The social aspect is proposed to incorporate customers' activities and conduct encounters, which is getting more consideration in the cordiality writing (So et al., 2014). While the social aspect has been estimated contrastingly in different examinations, its significance is perceived in concentrating on the client encounters.

The continuity of science improvement is the advancement of computerized and virtual innovation which in accordance with the improvement of science. Many organizations contend to deliver the most recent advancements to face the new era in this world (Putra 2014). Now a day some virtual innovation applied in art design can be found all around the world, for example, in Singapore, China, Paris, Hong Kong and whatnot. One of the organization Gooest Tech sited in Beijing has produces numerous advanced digital workmanship that utilized in business occasions, for instance the "Cruise Light, Light and Shadow sensory art space" at Shenzhen's Fu Hua Li business road workmanship in China as show pictures bellow Figure 2. The remarkable scenes which though the crash of virtual and genuine, it coordinates the excellence of regular workmanship into metropolitan life and leads guests to begin an excursion of multi tangible art that conveys sensitive life feel.

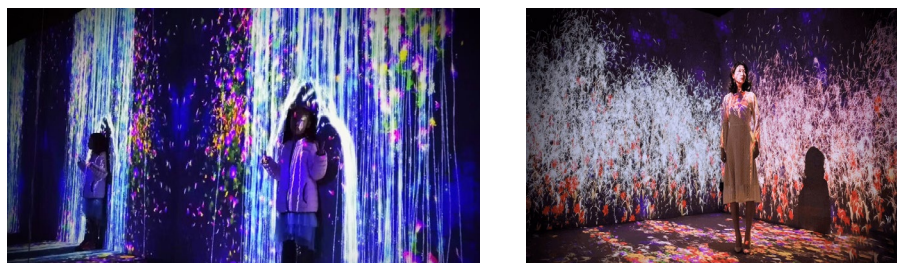


Figure 2. Digital Art (http://www.gooest.net/Case_home.aspx)

Picture show at Figure 3 is one of the installation of Gooiest Tech in supporting opening event of Fuzhou river city Real-Estate Sales Center. Because of Fuzhou river city is a panoramic riverside complex with Fuzhou traditional culture, this company team can bring the actual situation combining with the traditional culture of Fu Zhou by using modern digital art design with natural landscape, and produce an interactive installation to support the event.



Figure 3. Digital Art (http://www.gooest.net/Case_home.aspx)

Computerized visual craftsmanship includes 2D visual information displayed on electronic visual showcases or information which is numerically changed over into 3D information, seen through point of view projection on electronic visual introductions. 3D PC designs make the screen turns into a window into a virtual climate, where you organize objects for the computer to "photography". Commonly 2D PC illustrations use raster designs as the essential method for addressing source information, though 3D computer graphics illustrations use vector designs in the production of vivid augmented experience establishment which brings no limits between the art and the crowd.

5.2 Immersive Dining Experience.

The food presentation as well as the eating vibe itself, which known as high end food that is typically more sophisticated, unique, and surely expensive than some average restaurant can be found in fine dining restaurant (Harington et.al, 2011). With current innovative advances, we can track down numerous restaurant interior that current present high end food with a blend of virtual innovation applications. For instance, the virtual story project innovation introduced at the eating table is an illustration of virtual innovation in the art of design as shown on Figure 4 below. Vivid feasting has advanced since the times of "supper and a show," which frequently implied fair supper and shabby theatre creation that occasionally elaborate crowd interest in melody and dance. Ongoing advancements in entertainment innovation and culinary art have opened opportunities for really remarkable dining experiences that far outperform the expectations for dinner and a show. Foodie culture is greater than ever and chefs worldwide are striving to consummate their speciality, continually redefining known limit, and further, becoming producers of their multi-tangible creations, controlling various aspects of the environment many cannot yet imagine (Paradis, 2019)



Figure 4. Immersive Dining Experience.

Picture above shows the insightful eating experience made by Japanese Team Lab for the Sagaya fine dining restaurant in Tokyo which is a vivid event, where the guests can investigate the new picturesque world each time the new dish is placed on the table. Named 'universes Unleashed and afterward Connecting', all that is on the table is seen by artificial intelligence.

Team Lab's known for their advanced intuitive establishment and the most current piece improves the feasting experience of visitors at Tokyo's Sagaya fine dining restaurant. The selective diner permits only eight clients per day, who will currently immerse themselves in an interactive eating experience. The multi-tactile occasion draws on taste, smell, and the excellence of Japan as a consistently changing table skips with symbolism made particularly for each course. The dividers and table load up with team Lab computerized pictures, made to submerge every guess in an exceptional world. Named Worlds Unleashed and afterward Connecting, the aggregate makes sense of that "when a dish is put on the table, the grand world held inside the dish is released, unfurling onto the table and into the encompassing space. For instance, a bird painted on an earthenware dish is set free from the dish and can roost on the part of a tree that has been released from an alternate dish" (Steward, 2017). Looks like the birds fly and trees develop out from the dishes. The elective the truth is likewise impacted by our developments and conduct, while every one of visitors' 'universes' is communicating with the truth made by the other.

In Jakarta, there is an extravagant restaurant that perform storytelling about the immersive culinary excursion through different landmass of the littlest gourmet specialist on the planet called *le Petit* cook. This presentation introduced by utilizing state of the art 3D visual innovation supplemented with music and a few properties. This submerge culinary excursion with 3D visual innovation carries new insight to the diner since they can feel like genuine little cook doing the cook in front of them as shown at Figure 5. Utilizing 3D planning innovation, a smaller than normal cook to life on the supper table, all through the sorcery of visual planning. By planning the feasting table and the articles on it, plates and cutlery, a virtual story is projected onto the tabletop. Numerous guesses look so inquisitive with this virtual innovation that comes in the restaurant dining experience, which located at Hyatt Hotel Jakarta with ultimate awesome technology.



Figure 5. 3D Mapping Technology of *le petit Chef* (<https://lepetitchef.com/grand-hyatt-jakarta>)

6. Conclusion

Many fancy restaurants are contending to introduce different climates to attract guests. They try to draw out the most current look that is called the "experience". In now a day restaurant we can discover a utilization of new virtual innovation to bring an extraordinary dining experience to the guests. The inside of the cutting-edge restaurant turns out to be very surprising as a result of the science innovation that makes augmented reality occurred.

Describing the new approach, the researchers summarized that the concept of multisensory eating served to diners at several fine dining restaurants in several countries is a new innovation in science. The thrill or experience of dining in a restaurant with an interior that presents an immersive experience with virtual technology has just been discussed. The popularity of this concept of dining with virtual technology highlights the potential development of virtual technology in the later stages.

The word "technology", which has always been synonymous with definite scientific aspect seems to be able to penetrate many aspects of life. It does not rule out the possibility of cooperation between the world of science technology and the world of art design can affect the future advancement. The collaboration with various other fields of science innovation without limit between art n technology are represented by some case study addressed above. Therefore, this study will lead to other researcher for further study about science innovation in technology for art design. Hoping that in the future there will be more extravaganza innovations that can be applied to art and design field, as the additional of the present virtual technology methods.

Scientific innovation provides knowledge to the public about current technological advances that are far ahead. This study concludes that scientific discoveries in the field of virtual technology such as immersive technology, 3D visual innovation, artificial intelligence which has been applied in several fine dining restaurants have provided an immersive dining experience for their customers

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