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Author	洪, 虹(Hong, Hong) 稲蔭, 正彦(Inakage, Masahiko)
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Master's Thesis  
Academic Year 2020

IBTILA After Experience: Creating an  
Interactive and Immersive Platform to Support  
Repeat Visitation



Keio University  
Graduate School of Media Design

Hong Hong

A Master's Thesis  
submitted to Keio University Graduate School of Media Design  
in partial fulfillment of the requirements for the degree of  
Master of Media Design

Hong Hong

Master's Thesis Advisory Committee:

Professor Masa Inakage (Main Research Supervisor)

Senior Assistant Professor

Chihiro Sato (Sub Research Supervisor)

Master's Thesis Review Committee:

Professor Masa Inakage (Chair)

Professor Kazunori Sugiura (Co-Reviewer)

Senior Assistant Professor

Chihiro Sato (Co-Reviewer)

Abstract of Master's Thesis of Academic Year 2020

# IBTILA After Experience: Creating an Interactive and Immersive Platform to Support Repeat Visitation

Category: Design

## Summary

Every concept creator desires to deliver a mind-blowing and exciting experience to their audience. But what most creators look past when designing a user experience is the value granted by the 'after experience'. This 'after experience' refers to what an audience is left with after they have interacted with a piece of content, making it a crucial component of any user experience. A key example is Disney's themed souvenir shops at their park exits, which gives customers the opportunity to purchase products that allow them to relive their experiences and create intent for visitation in the future. This paper introduces an application within the co-creating universe as an after experience to a story-based Quiz Game Room project. The task of co-creating requires creativity from each individual who participates in the collaboration. At the same time, the after experience builds connections between the users and the content they consume and interact with.

## Keywords:

Interaction, Immersion, Platform, Connection, Design

Keio University Graduate School of Media Design

Hong Hong

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# Chapter 1

## Introduction

### 1.1. Project background

The Quiz Game Room project is a story-based online quiz game which aids users in testing their inner voice and personality through interactions with visual graphics. The working process includes three parts of the experience: the pre-experience, the game experience, and the after experience. Each member of this project group is in charge of one part of the experience. During the pre-experience, customers are able to visualize the basic setting and world view of the story. At the same time, a link will appear to guide the participants to the next stage of the experience. The game experience is made up of the quiz experience and is the main part of the journey. In this section users play the quiz game and receive the results when they have finished. The after experience segment begins once the customers have finished the quiz experience and have exited the game. The function of the after experience is to stimulate customer engagement and prompt them to share the experience with others and revisit. The topic of this thesis is describing the design of the after experience for this interactive quiz game.

#### 1.1.1 Worldview and settings

The methodology used to create an effective after experience will be to co-create a concept that coincides with the quiz game, and then construct the after experience to build upon that. The after experience will be designed to follow the worldview and journey granted by the game experience and will end with a lesson sent to the game players (that everyone is a unique individual). The after experience will be designed to deliver this message, along with background details of the story.

#### 1.1.2 Background story

The entirety of the Quiz Game Room experience is based on a tale of a “self-awakening journey”. The story begins with a tale of how after the big bang

occurred, each of the planets in the universe blasted apart. Some of the planets lost their color and forgot who they were, so their goal is to fight against obstacles to finally find their original colors. Each quiz within the game experience is like a dungeon in a maze. The users play the role of a planet by answering the quiz's questions quickly, using instinct, to reveal their inner personalities. For example, a sample question might ask "would you rather to stay by yourself or to gather with others?". As a result, by playing this quiz game, participants come to understand themselves more thoroughly. This leads them to finally finding the original color of their planets at the end of the storyline. The after experience includes the resolution of the story which states that, "just like each little star finds their own color, every individual become a unique planet to shine together in the universe.". In addition to this, the after experience also delivers a message of staying united, as well as creating a trigger for users to revisit the game. One way in which this is done is through developing a collective game feature, which allows for game players to receive one random planet to represent themselves for each visit. Even more, the game creates a co-creating space which allows for users to engage with along with friends who play the game.

Table 1.1 Work flow

Before Experience	Experience	After Experience
Illustrate the worldview and settings of the game	Visualize the story	Visualize the result
Introduce mission and goal	Merge the quiz into story line	Encourage users to scan
Motivate users to scan the QR Code and start	Combine adventure with interactions	guide users to co-create
	Provide immersive game experience	Motivate users to revisit and share experience

## 1.2. Goal and message

Given that the original Quiz Game Room project idea has expanded from an of-line form to a fully online experience (as a result of the unexpected COVID-19



(<https://zoom.us/zh-cn/meetings.html>)

Figure 1.1 from offline to online

pandemic outbreak), a new message to sum up this experience has become crucial. The initial Quiz Game Room project was planned to be made up of an offline projection mapping experience to be held in the Turkish Cultural Center.<sup>1</sup> The key of this original idea was to grant customers a personalized and an immersive experience. The projection on the walls of the center was set to change with each user who answered the quiz and completed the game. However, while the original project was focused on offline virtual immersion, the pandemic has altered capabilities to complete such experiences. As such, given that people have been forced to stay away from each other and practice social distancing, all offline activities have become impossible. Due to this situation, the project group decided to enhance the emotional immersion of the project instead. This is being completed by focusing on online visual immersion, rather than through the experience originally created by projection mapping. Additionally, to enhance the after experience, a virtual co-creating universe is being designed for people who are staying at home, but who still want to stay connected and have exciting interactions with others.

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1 <https://tokyocamii.org/ja/>



Figure 1.2 quiz room project

### 1.3. Target Users

Millennials are regarded as one of our primary target groups for this project. This is because the team members for this project are within the same age group. Being within the same age group allows the team members to relate better to this population of individuals and to better understand any struggles they might currently be facing. For instance, compared to other generations, millennials are more familiar with distant parts of the world, but they still have questions; they are responding to emerging situations across the globe, but they want to know what drives them to make the decisions they make. As a result, they are willing to listen to the voice in their heart, and they are struggling to break the rules and to become distinctive in a globalized world.

Females are the main targeted customer group for products surrounding emotional needs, as they are believed to have enormous potential in consumption capacity. In addition to this, females are also more likely empathize and relate to games with stories. Even more, as avid fans of fortune telling and psychological tests, females are more likely to share their results with their friends and to share new experience on Social Network Systems.

## 1.4. After experience

When creating a user experience, content designers always look past when designing a user experience is the value granted by the ‘after- experience.’ For most of the user experience designers always consider what attracts users to experience again is by the satisfaction level of the experience. First-timers’ revisit intentions may be influenced mainly by destination performance as a whole because of their initial stay, while repeaters’ intentions may be influenced largely by promotional efforts to recall their positive memory and by disseminated information on new attractions. [1] However, it is limited in many conditions. For instance, for the same psychological test, most people would not take for a second time. In this condition, after experience needs to be designed separately to encourage repeat users at some level, which also brings up a rare view angle of how to design an after-experience. At the same time, almost all runners expect repeat visitations because the rise of user retention increases the value of content. This thesis introduces a concept of designing an after-experience that maximum inspire users to revisit.

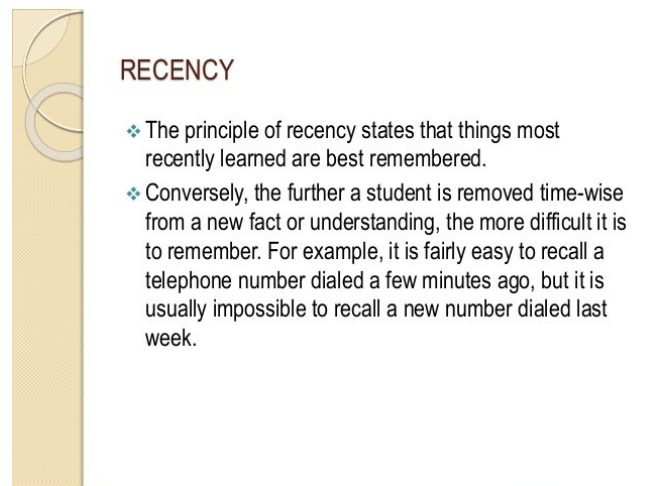
When considering the meaning of after experience, runners only regard after experience as a section of consumption behaviors. It is meaningful since most of the content that customers experience requires consumption to make it profitable. If the consumption behavior occurs after they experience the full content, it is more reasonable it uses the sale after experience as the scale to evaluate the customer’s satisfaction level. However, the results are not always accurate since the quality of designing after experience also influences customers’ consumption intention. The post-consumption evaluation of service quality is frequently asserted to be more complicated than the evaluation of products, primarily because of the intangibility of services, the heterogeneity across service encounters and the inseparability of production and consumption [2]

Disney’s store has bring the concept of designing after-experience to a higher level by adding elements inside of the store to help users relive the memory by consuming the products related to the experience in a themed shop. However, it is still not enough. The future of designing after experience should not only be a “souvenir shop.” After-experience has the potential to be considered as an individual topic since the enormous value it could create. Revisit intention also

comes from the method that applied in designing the concept of after experience.

### 1.4.1 Principle of recency

The concept of designing after experience follows the principle of recency, which states that things most recently learned are best remembered. Conversely, the further a student is removed time-wise from a new fact or understanding, the more difficult it is to remember [3] This evidence also indicates the importance of designing an after- experience. Since in every experience, after-experience is always the last part of the journey, only the most premium part of the experience should be demonstrated and relived to the users.



(<https://www.slideshare.net/RichardKasirye/principles-of-learning-2> )

Figure 1.3 Principle of recency

### 1.4.2 Repeat visitation

When designing an after-experience, the initial consideration is based on if the after-experience encourage repeat visitation. It is also a visualized scale to estimate if the after-experience is serviceable to the whole experience. The design of after experience designer for the quiz room project is particularly challenging. Since the subject of the quiz room is a psychological test to identify what kinds of



person the users are, most users will automatically assume that they had already reached the end of the experience when they were getting the result. Repeat visitation also seems impossible for such a project like this. However, by keeping the goal of “encouraging repeat visitation” in mind, different methods are applied in designing this problematic task.

## Chapter 2

# Related Works

## 2.1. Existing works related to after experience design

### 2.1.1 Pop Mart's Blind Box

As one of the most famous pop-culture brands in China, the collective “blind box” Pop Mart<sup>1</sup> keeps a considerable sale and owns millions of fans crazy about their products. Like other lottery games such as open treasure chests in a video game, Pop Mart’s blind box also has the characteristic of letting users get random items every time they open the blind box. The goal of “collect all 12 versions in this series ” is clear. The” hidden character” is also an attraction to the customers who love to be the lucky one. Customers are easily attracted by the beautiful design and excited about random surprise every time they open the blind box with their own hands. Which this procedure is considered crucial for collecting features that each customer should get their trophies with their own hands. And in digital co-creating space also apply the same method of letting customer to stand up and search for their planet by their own. The image is a Pop Mart’s offline carnival in INDIGO<sup>2</sup>, where they also applied some method for visitors to revisit. The whole site was designed as a physical monopoly game on a real-life scale. Users can scan the QR code in the “Gas Station”, a photo spot on the site, and download a monopoly game on their smartphones. Moreover, the gas station is the only place that the visitor can collect money for the monopoly game every day outside of the mobile game. Many other utilities in this carnival are also for bringing back visitors. For example, a gift shop that sells a time limit and store limit blind box and a time limit Molly dessert bar. At the center of the square, there is also a projection room for kids to draw vehicles and scan to participate in a racing game

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1 <https://jp.popmart.com/>

2 INDIGO is a retail-led mixed-use mall in Beijing  
<http://www.indigobeijing.com/en//>

that is projected on the wall. With the purpose of “make something fun,” Pop Mart also carried out their collective strategy in considering after experience. But there are also drawbacks, for example, for Pop Mart’s blind box, unlike Nendoroid and Figurema of Japanese Animation characters, which has a strong fan-base. For Pop Mart’s product is facing the problem that customers are left nothing to do with the blind box characters after they complete collecting all 12 versions in one series, this is because of lack of storytelling.



Figure 2.1 INIDIGO Pop Mart

### 2.1.2 Forbidden city’s after experience

Forbidden city has been a “must visit” tourism scenic area in Beijing for decades. It is such a popular destination in all Chinese national holidays, which seems like it does not demand for repeat visitations. However, when the curator of forbidden city brings up the idea “to give new vitality to the forbidden city”, the role of this world famous cultural heritage has switched to a different level. At the same time, after experience of visiting forbidden city had become essential. By having such an extremely rich cultural heritage, the turn around of forbidden city has been dramatically successful. As the last existing palace since Ming dynasty, forbidden city was home for 24 emperors in ancient China. It is such a well-known tourism spot that people all around the world are aware of it. And almost every Chinese person has been to the forbidden city once in their life. However, even though “Have to visit once” is a firm message in every Chinese citizen’s consciousness, most of the people in recent world do not have any empathy towards this old emperor’s home. With all the effort in cyber marketing and the support from the government, now

the forbidden city has become a land mark of Chinese cultural and creative industry. By publishing creative merchandises related to ancient Chinese culture and holding up time limit historical events, the forbidden city's image to younger generations has change thoroughly in just few years. The method that the curator of forbidden city applied for bringing back customers is to make forbidden city an pop-culture intellectual property to create fan base among younger generations. The methodology requires cyber marketing. By leting users interact with contents online, curators of forbidden city published different creative contents includes graohics and texts taht are widely accessible online.Variety shows about forbinden city were also published on net work video platforms. Additionally, co operation with fashion brands to have creative and cultural clothing and cosmetics. Since almost every citizen has visited forbidden city at least once in their life, all the method that taken could be considered as concept of creating "after experience". Defintely includes bringing back memories of visiting forbidden city.

What dose the digital co-creating space could learn from this related work engaging users.

### **2.1.3 Disney's theme store**

Disney might be the best expert in creating memorable experience to their customers. When costumers first having conscious in after experience, they must have already visited Disney lands somewhere in the world. The contents that created by Disney are all well considered. For example ,all disney charactors are powerful intelectual properties that includes storytelling and holds strong fan base. The after experience designed by Disney are mostly related to relive the experience. Like the souvirnior shop at the exit of every ride are decorated distinctively which reminds users the theme ride they just experienced minutes ago. For most memorable and stimulative rides such us rollacosters , there will be a photo booth that sells the photo that has been taken during the ride.Creative souvenirs are also available for bringing back memories. People can't tell if Disney's runners are not designing after experience in purpose. Someone might debate that the relaxing environment in Disney world it self could generate revisit intention.



(<http://www.woshipm.com/marketing/1963188.html>)

Figure 2.2 Creative and Cultural products

### 我在故宫修文物 (2016)



(<http://www.woshipm.com/marketing/1963188.html>)

Figure 2.3 Forbidden city's variety show

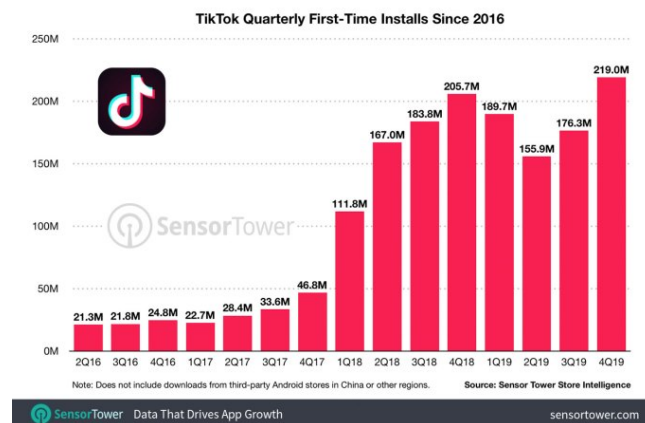


([www.shanghaidisneyresort.com/](http://www.shanghaidisneyresort.com/))

Figure 2.4 Disney Winnie the Pooh After experiencew

### 2.1.4 Tik Tok's succeed in user retention

If one ask “what is the most successful application in 2019” over the globe? “Tik Tok” must be one of the answer from most people. Before tik tok took on the world, users’ time that spend on social applications have mainly occupied by twitter, youtube and facebook. The market has been monopolized by the United States’ companies for decades. Popular contents were also limited due to the high threshold of content creator. Tik Tok’s success is not only on user amount, but also on user retention, which is considered one valuable goal of repeat visitation. In another word, the most valuable feature of tik tok is it occupies users a great deal of time. By pushing short videos that show the everyday life of ordinary people, users spent their pieces of time on these random short videos. As an application with social features, one revolutionary change made by Tik Tok is the form of communication is not limited to texts and graphic, but a new type of media- a short video. What had realized this revolution is technological development when the bandwidth has risen at a rapid speed. This evidence also makes the designer reconsider the future of the co-creating universe when the co-creating universe is available not only on an iPhone’s AR real-depth camera but other types of terminals, such as AR glasses.



(<https://techcrunch.com/wp-content/uploads/2020/01/tiktok-installs-by-quarter-since-2016.jpg?w=680>)

Figure 2.5 Tik Tok's succeed in user retention

## 2.2. collaborative/interactive method in existing works

### 2.2.1 collaborative fine art exhibitions

The collaborative feature is also implemented successfully in fine art field. In artists' collaborative exhibitions, visitors use artistic elements to co-create a unique space. Visitors from different backgrounds express their understanding of creativity in contrasting ways. This fact has proven that when creative works are put together, even though in a detached way, they also initiate artistic value. Quiz room also pursue this same feature as the same as other physical co-creating art. However, drawbacks are also apparent. First of all, for most of the collaborative artworks besides Graffiti, customers are practicing artists' artwork in co-creating exhibitions. So they are lack of empathy towards the artwork. In contrast, the planets users create in digital co-creating space are based on the result they get from a personality test, so they have a strong feeling about the planet and regard the planets as something that represent user themselves. Secondly, in other collaborative artwork such as Graffiti, it requires drawing skills that are not suitable for most people.



Figure 2.6 co-creating art



### 2.2.2 Sketch Aquarium

The Teamlab's Sketch Aquarium<sup>3</sup> introduced scanning and projection technology, allowing children to “scan and interact with their sketch” during a visit to the Teamlab Gallery. This particular project, “Sketch Aquarium,” is a digital co-creating project designed by Teamlab, an accessible technology team expertise in interaction design. In the concept aspect, the same as the Teamlab's sketch aquarium project, the digital co-creating wall also has the featured function that the unique work that the customers scanned will also appear on a digital surface. This kind of experience could also be used in novel ways, particularly for creating creative co-creating artworks. However, there are also limitations. Although the Sketch Aquarium and Sketch Town<sup>4</sup> are fun, the interactions are a little limited, preventing anything like a story to form. [4] Indeed, storytelling plays a significant role in creating immersion, and it makes the after experience distinct from other projects. In this digital co-creating universe, users need to take a personality quiz with the storyline before explore and participate in the universe. As a result, the users will have a stronger feeling that the planet represents the user themselves.

### 2.2.3 Animal crossing

Animal crossing becomes popular over the globe is not only because the pandemic has forced people to stay at home and practice social distancing, so they have plenty of time to play games. The high rating and the word of mouth of this game have proven it times and times again that this game is nearly perfect times and times. The after experience design - digital co-creating universe concept also learned from its game contents. Collecting futures, the users complete their islands with their creativity. When plenty of game players today are complaining that the games in markets are too overwhelming, the animal crossing is a perfect product for all gamer levels. Everyone who plays this game has different goals and missions. Some of the users only want to collect all the fishes and plant all kinds of flowers. Others are collecting furniture to build an ideal island to accommodate

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3 <https://www.teamlab.art/jp/ew/aquarium/>

4 <https://www.teamlab.art/jp/w/sketchsmarrrtown/>



(<https://www.teamlab.art/jp/ew/aquarium/>)

Figure 2.7 Sketch Aquarium



(<https://www.teamlab.art/jp/w/sketchsmarttown/>)

Figure 2.8 Sketch Smart Town

their best friends. Even if a user chose to do nothing but talking with animals that live on the island every day, it could also be admitted as a happy island life. There are no constraints on "what you must do" in this animal crossing world. Users can share and visit strangers' island by having a dream when reject giving an impolite sea otter scallop to gain a better attitude from the sea otter. Users also learn the philosophy of life from this game. One most valuable lesson besides the collecting and co-creating feature that learned from this game is the concept of "light experience": Light missions, light social feature. Even though the social feature is simple, the joy it brings is infinitely enormous.



(<https://www.animal-crossing.com/>)

Figure 2.9 animal crossing

## Chapter 3

# Concept

In order to reach the goal of encouraging users to experience the quiz room again, a concept of designing a digital co-creating universe with a collective collaborative and interactive feature is introduced in this thesis.

### 3.1. Thinking process

The project group's decision on project contents has changed times in two years. The quiz room project group was originally called "pop up store" because the first mission of this project group was to design a pop-up store for a Korean company 101 Global. By the time considering the future of the pop-up store. The group members had already had in mind that interactions and collaborations are the future creative content design. Back to the time, the first idea was a pop-up store that brings a fan base to spread Korean culture. The first idea in the designer's small divided group was an offline featured pop-up store with a live stream function and a real-time comment wall outside of a physical store. Then in the fieldwork in 2019, the idea has swift to an offline exchange room to change users' stories, which also keeps artist features that users can also use their exchanged objects as a "sculpture" to participate in a physical co-creating exchange room. However, eventually, the idea of a quiz game room from other groups won the debate. However, by two years of considering the future of user experience design, The designer already had a philosophy on creating a compelling experience. The group is grateful to the help of the "growth hackers" from Korean company 101 global. In the designer's philosophy in designing the user experience, the interaction and rapid feedbacks created fan-base. Therefore all of the designer's other designs are all about offline interaction with other users. Communication and sharing intension is also essential components in design thinking. Now for the concept of designing a digital co-creating universe, by keeping the goal of stimulating repeat visitation in mind, the designer ado

pted different new ideas, such as a collectible Gacha game. At the same



Figure 3.1 original idea of pop up store

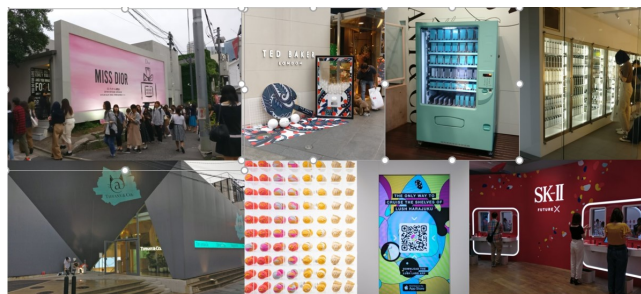


Figure 3.2 Field works with 101 Global

time, since revisitation occurs when the technical interaction is beyond expectation. /cite4 The designer considered the official AR camera kit that Apple published could be downloaded to unreal engine 4 to realize the scanning function, which also fulfills the requirement of "changing platform" at the time.

When given after experience In stereotype images, users' revisit intension only related to the content itself is universal recognition. The designer's other role in designing after the experience is to break the stereotype and maximize repeat visitations with all effective practices that could be implemented. In order to achieve the goal, these principles need to be kept in mind.

### **3.1.1 Principle of recency**

According to the principle of recency [3], the contents of bringing back memories also need to be regulated to achieve the best expectation for content designers. For example, only the most persuasive message needs to be reviewed in after-experience. This concept indicated the most gripping message, which is "when we shine together, we create a better world" that has to be revealed in the after-experience. After users start to have empathy towards the message, a link between the co-creating universe and users established, this procedure not only stimulates repeat visitations but also conduct to future interactions such as asking friends to co-create the universe with the users.

### **3.1.2 Light contents for users**

Since after experience is not part of the game experience, the contents need to stay less overwhelming for users. By not setting heavy goals and no forced interactions, all users have their freedom to co-create their universe by any way they desire. This idea is learned from the popular game animal crossing. If the mission is light and delightful, Revisit intension increases.

### **3.1.3 Curative graphics**

It seems like people in recent world young generations enjoy watching curative animal videos online. The co-creating universe is also expected to be a curative

space for users to take a break from the overwhelming world. By using paper cutting art style, the motion of the planet is also peaceful and restorative. The designer believes the visual design could have the atmosphere to attract repeat users to feel releasing in this virtual universe.

### **3.1.4 Mind-blowing interactions**

The most entertaining interactions were when using Iphone's real depth camera. Users can scan the crystal they receive as a gift from the quiz room experience. At a very high level of abstraction, consumers may compare the outcome of their experience to the level of the utility or value that they had expected to receive. [?] The unexpected result occurs- the screen had turned into a paper cutting universe. This procedure also includes other actions needed to be done by the users, which stand up and walk around the room to find the planted they just created by scanning the crystal.

## **3.2. Design Goal**

The main goals of the after experience are to encourage customers to revisit the site, recall the game's message, and to share their experiences with others. Different strategies are implemented in the after experience to achieve these goals. The sudden pandemic not only gives the team limitations and challenges, but also lets the team see the breakthrough point. Even though the offline projection mapping, which is a popular style, is not available currently, the demand for online interactive experiences has still risen. Because of this, now designers can ditch formalism, and focus their attention on the core requirements for immersive experiences. At the same time, these challenges forces the designers to be creative and to reconsider the meaningfulness of their visual design. The point of this project is to deliver the message that, "even though we are distinct individuals, when we unite together, we can make a better world.". It is hoped that this message can give people hope in these present challenging times.

### 3.3. Design Background

The designing process of this after experience—digital a co-creating wall with a story-based quiz game, makes our project distinct from other after experiences. For this particular project, this concept of a co-creating space as an after experience has been determined to be an appropriated solution. In addition to this, the story of a self-awakening journey and the personality quiz format also enhances the relationship between users and the planets. It is believed that the users will feel connections to the planet that they have been assigned, and will allow for it to represent them.

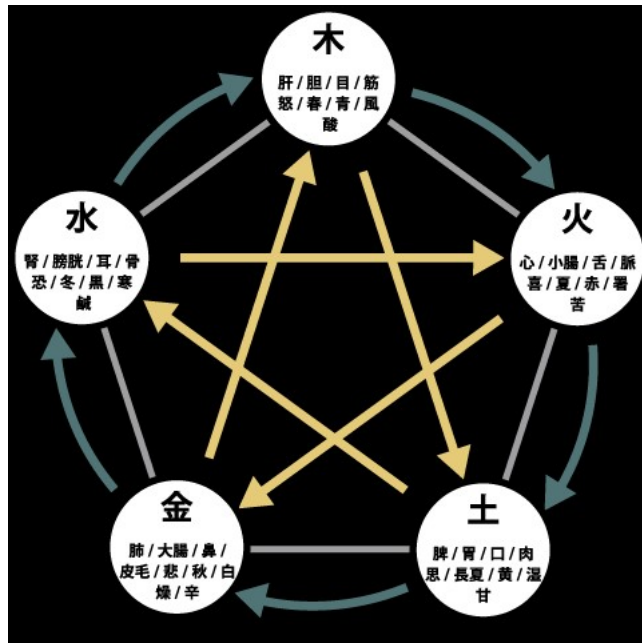
#### 3.3.1 ‘Wuxing’

Gold, wood, water, fire, and earth: these five elements form the first visual elements that this group has decided upon. Taken from antiquity, wuxing forwards the notion that human beings and everything else in the world are made up of five key elements. The initial theme, of “one Asia” was determined by the partner who sponsored this project. As a result of keeping this theme in mind, the team has searched for concepts that could be welcomed in most Asian countries. Through this, this five-element model has become our solution to fulfill this requirement.

#### 3.3.2 Atlas Pattern

The Turkish Cultural Center was originally chosen as our location because of its available supply of millennial-age females (who represent our target group). The chosen atlas pattern is complementary to Middle-Eastern ideals, and we felt that it fit with the cultural background of the Turkish people because of this. The complementary pattern is derived from the importance of Geometry in Islamic art. The lines of the atlas pattern created will be reflective of this traditional geometry. Additionally, the atlas also has the five identified elements and further grants a feeling of infinity. Because of these background reasons, the atlas is supported as the chosen design for the after experience.





(<https://www.pngwing.com/en/free-png-dtcuc>)

Figure 3.3 Rule of Wuxing

### 3.3.3 Background Story

The background story of this project creates an immersive emotional experience for the user through including a range of fun and unique settings, as well as a complete world view. The individual who finds all of the crystal shaped pieces can see through this transparent crystal and begin the self awakening journey with the star piece. Following conquering all of the obstacles and difficulties, the star finally finds its original color. Eventually, the star goes back to its original color and reconstructs the universe.

### 3.3.4 Message

Given that the full text of the background story will not be shown in most movies or games, disseminating the project's message will become the scale to judge whether the experience has been successful. This message is simply, "everyone is unique individuals, and when we unite the universe is a more colorful place."

## 3.4. Customer Journey

This chart describes the customer journey of the whole experience, with the after experience beginning from the blue block. After the users view the information on the pre-experience web page and then finish playing the quiz game, they are able to receive a crystal. The crystal consists of a particular atlas pattern drawn within it to represent the participant themselves, which is the visualized version of their personality quiz result. Customers are able to collect the crystal or can use their smart phone to scan it. When their pattern is scanned by Apple's truth-depth camera, a world coordinate is established, and a virtual world appears in their smart phone. Following this, the customer can move their smart phone around a 360-degree display to look for their particular planet and pattern. After creating this universe, the user can then play the quiz game again or can invite their friends to take the quiz to expand their universe of planets.



Figure 3.4 user test

Stages of journey	Receive a crystal		Scan the crystal		Explore the Universe		Invite friends and revisit	
Activities	receive a crystal	See the instruction of scanning	Scan the crystal	Tap the screen and form the universe	Walk around and look for planets	Find the planets that just scanned	Invite friends to play	Scan friends crystal and co-create
Feelings								
Very happy								
Overall satisfied	😊	😐	😐	😐	😊	😊	😊	😊
Unhappy								
Experiences	the crystal has the same link tabs are shown	wonder what will happen	See the universe	Walk and turn the smart phone	Feel satisfied	Ask friends to scan	see the universe changes after their contribution	
Customer expectations	a delightful souvenir		Something pops out		Find what they had done with this universe		Their friends crystal is different	Friends feel satisfied too

Figure 3.5 Customer Journey

## 3.5. Strategy and Design

### 3.5.1 Collective

In addition to attracting customers to revisit the site, the core idea of this project is to create as many varieties of planets for users to collect as possible. Our project is similar to other online games like “Gacha” and “Blind box”, in that each customer will receive a random souvenir, “a crystal”, after they complete the game experience. This procedure creates the incentive to drive the users to revisit and view the collections of other users. A large number of existing mobile games utilize this kind of incentive structure in some manner. Statistics shows that more than 50 percent of the in-app consumption of Tencent’s mobile game platform is from a “random treasure box” system. This indicates to us that the attraction of collecting digital objects is so powerful that people are willing to spend money on these kinds of random surprises. Studies also show that this method stimulates human’s dopamine secretion, which makes game players want even more collectibles and features. To create an effective item-collection experience, two key rules will be followed. First of all, runners need to let the participants see the goal that they are working towards during their time spent collecting. Second, there will be limited number of items which are rare, prompting users to return to keep playing.

### 3.5.2 Collaborative

Beyond simply collecting, there are further steps for players to follow to make this after experience more unique and impressive. For most games focused on item collection, like ‘Gacha’, the interaction stops after the users collect all the items in a series. In addition to this, the collaborative function in the after experience allows for users to operate the collections as their reward. This co-creating concept is implemented in artistic aspects such as through Kusama Yayoi’s co-creating exhibit, “the room of dots”. Within this exhibit, participants are able to revisit to see how the room has changed since their last visit. According to “Mi phone’s strategy”, people are more supportive of user experiences that they have already participated in. Furthermore, many users are delighted to discover that the space

will also appear differently between their first and last visits. Within this co-creating space, if users desire to make their universe consist of more and more planets, they must revisit the game and earn more crystals to scan. Given that it is quite a large space, game players must walk around with their smart phones to discover the planet they have created. This process makes the experience fun and interactive for the game users. It has been deemed that this experience will not be diminished in the online version of the game, since users can still collect planets and enjoy themselves. Even more, participants are able to expand their enjoyment further through inviting friends to play the game. Through this, participants have the ability to scan their friends' patterns to create a unique universe along with others. Co-creating goes beyond sharing experiences and creating new worlds, because it is additionally a form of communication between players. Even though individuals have different opinions and speak different languages, they have commonalities that can help them to connect as well. With the unique planet that customers receive after taking the personality quiz, they can use it to co-create a universe with others, which further supports the message of "be united" without using words to explain the concept itself.

### 3.5.3 Design

Visual and interactive design is an essential aspect of experiential design. This is because such design patterns function to enhance the participants collecting and interacting intentions. The co-creating universe's visual design consists of two different styles. Since the after experience is the final segment of the whole experience, the design needs to be based on a worldview setting, and the style needs to be consistent with the rest of the experience. Even though the design of planets and the design of digital spaces are different, the results illustrate that the visuals are in harmony with each other. The planets are created by using atlas silks' pictures as texture to put in a sphere shape in 3D modeling. Since the atlas is a piece of cultural heritage which already has thousands of different pattern designed by ancient artists, this perfectly fits the massive demand for unique features. Furthermore, most of the atlas patterns are in repeatable permutations, which allows for the planets to appear as constant spheres without unnatural gaps when fitting the flat image to the spherical shapes.



Figure 3.6 Atlas Silk Design

Further, the designs of the digital co-creating space needs to be consistent with the overall style of the ‘before experience’, which is a paper-cutting style web page. In this part, paper cutting layers with the primary colors of blue and violet are used to create the atmosphere of space. There are also massive layers creating contours to illustrate the landscapes of the story’s physical map. For example, when the main character, “the star,” goes on his journey to find his original color, he faces obstacles such as a cosmic storm or black hole. These landscapes are additionally shown abstractly in this paper-cutting style universe.



Figure 3.7 Planets with Atlas Pattern

The original idea of the co-creating wall was to manufacture it in a physical form. In this manner, customers would receive a random sticker to put on a

physical wall. This style of physical experience is similar to the procedure of Kusama Yayoi's co-creating dot project. However, given that the whole project has now been moved to an online form, the technical method has also made a swift transition to a virtual format.

The interaction is based on the Augmented Reality technology available through the Apple AR kit. Unreal Engine 4 is used for the development engine. Through the use of Apple's true depth camera, patterns are able to be simulated and scanned. Following this, the plate and world coordinates can be determined using the system's core software. The universe formation takes place when the users click the screen. Through the scanned images that are input, the data is transferred and is used to form the planets inside of the universe.

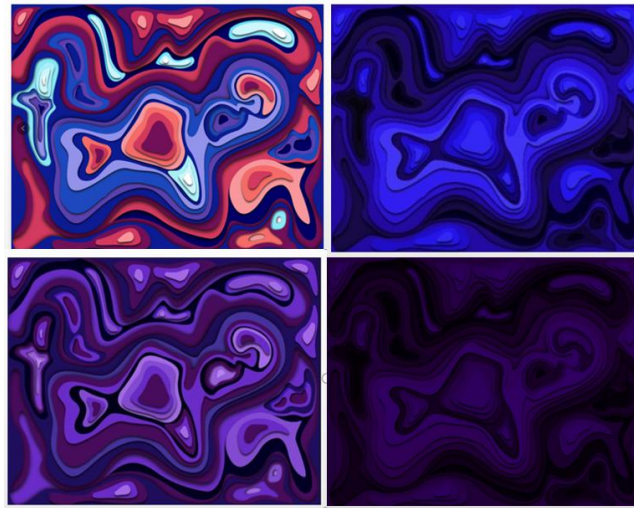


Figure 3.8 Design of Paper cutting Universe

### 3.5.4 Technological Aspects

The original idea of co-creating wall was in physical form. Customers get a random sticker to put on a physical wall which is similar to the procedure of Kusama Yayoi's co-creating dot project. However, since the whole project has now been moved to an online form, the technical method has also made a swift transition to an online version.

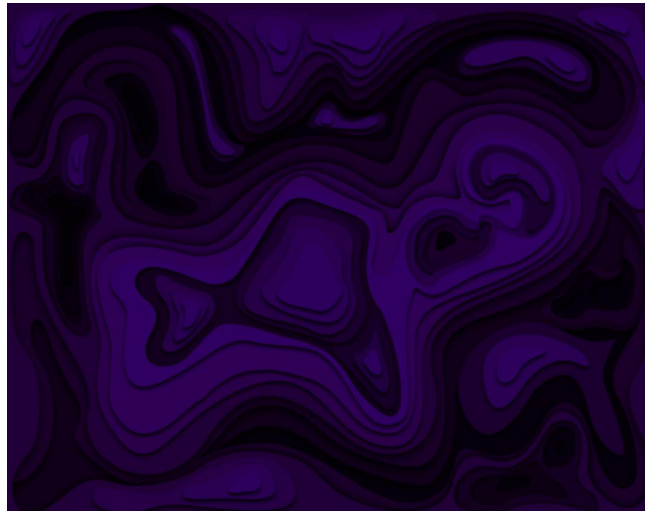


Figure 3.9 The Universe appear in the app

The interaction is based on the Augmented Reality technology available with the Apple AR kit. Unreal Engine 4 is used for the development engine. Through the Apple's true-depth camera, a pattern could be simulated and scanned. Then the Plate and world coordinates will be determined using the system's software. When users click the screen, the universe is formed. Through the scanned pictures of a feather, the data gets transferred to form the planets inside of the universe.

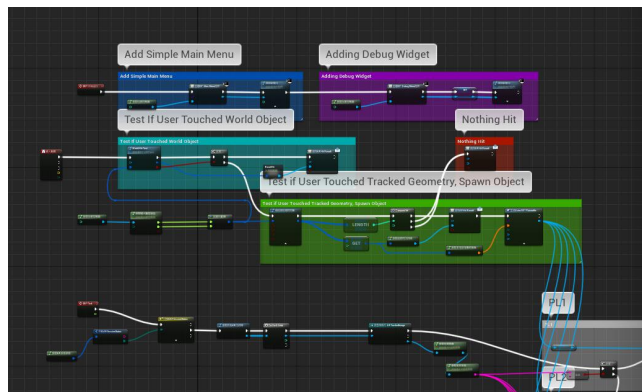


Figure 3.10 Blueprint



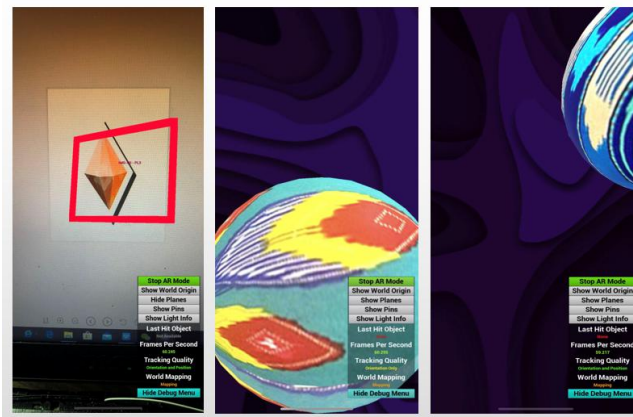


Figure 3.11 User Interface of the App

## Chapter 4

# Evaluation

Given that each stage of the quiz room project is designed separately by different members in the project group. The evaluation for the full journey was not available for test subjects. Even though some story messages were missing, the after experience could be tested separately. Gameplay methods also changed due to the limitations.

### 4.1. Evaluate method

Four test subjects that are related to the design concept but in different backgrounds were chosen to experience the digital co-creating universe application. Three of them are millennial-aged females who represent our target group. Moreover, one test subject was a male user to provide different view angles from the non-target user group.

Before testing the digital co-creating universe application, all test subjects were asked to read the story outline. After they fully understood the process of quiz room experience and the background story, all test subjects could access the quiz room experience video. Then the crystals were provided to them as souvenirs to conduct the test process of after experience.

First, All the crystals were shown to the testers. Second, they were asked to choose one by instinct. Then testers were asked to use their iPhone to scan the crystal they had chosen. When the universe was formed, testers were allowed to get up and look for their planets. After testers found their planet, other choices of crystals were provided to them.

### 4.2. Interview

The data was collected by conducting in-depth interviews. The findings were identified and analyzed, and conclusions drawn. Interviewees were also asked to fill in a scale chart based on A Likert Scale Examples for Surveys designed by



Figure 4.1 User test

Sorrel Brown. [5]

### 4.2.1 Interview Questions

The interview questions started from shallow entry-level questions to learn about interviewees' overall impression of the digital co-creating universe. When the interviewers had a more comprehensive understanding of interviewees' points, the interview questions were conducted in different directions depending on interviewees' distinctive emphasis, which made the interview more flexible for test objects from different backgrounds. The in-dept interview questions based on three functions/methods: collecting function, collaboration, and interaction.

Entry-level of interview questions:

Question 1:What is your overall comment on this app.

Question 2:Which part do you enjoy the most?

Question 3:Would you invite your friends to play? And why?

Question 4:What message could you receive from the experience?



Figure 4.2 Test subject 1: Lotto

Question 5: Would you play again, and why?

Question 6: What are the points that need to be improved?

In-depth interview questions:

Question 1: Your personal philosophies of these functions/methods based on your background.

Question 2: Do you think these functions/method is supportive for repeat visitation/ inviting friend.

## 4.2.2 Interview Result

Test subject 1

Lotto is a 25 years old female graduate student from Musashino University. She represents a repeat visitor to Disney land in Tokyo.

Lotto's comments on graphics and interactions

An AR app related to the real world. What appeared in the virtual world was something that I had chosen. It made me feel that this little space belongs to me.

The atmosphere in the universe made me believe that I was the creator of this unique universe. At the same time, I want to collect more planets and make the universe more bustling. The most engaging experience was when I walked around with my smartphone to find my planet. My favorite moment was when I blurred the border between the virtual world and the real world, making me feel like my planet is around me in my room. Lotto's comments on collaboration and communication I want to create a universe with my close friends. I am also curious about what their chosen pattern would be, and I would love to have their planet to be in my universe as well. Everyone creates his universe. The choices that we made subconsciously will cause the consequences. I think the message is about "If we are with friends, we create a social world."

Conclusion for test subject 1

Lotto's answers mostly based on her personal feelings. As an energetic, art background collage girl Lotto is showing a positive attitude towards all kinds of unprecedented experience. Curiosity is the main driving force for her actions.

Test subject 2

Cong is a 30 years old female mobile game designer who is working in Netease Game. She has five years of working experience in designing female romantic genre mobile games.

Answers to collecting feature

The willingness to collect crystals depends on time and money consumption. For example, if the quiz game is free and only takes about five minutes to complete, I will have more motivation to play again. In my case, I would pay more attention to the attractiveness of the design. When looking at the planets, I can tell the design is related to mid-west culture. I think the visual of planets indeed benefits the satisfaction level of collecting. Additionally, since the crystals are the collecting elements in this experience, I expect the crystal to be a real entity. If the crystal is collectible in the real world, the collecting experience will strive for further improvement. In other words, collecting digital objects will reduce the level of user experience. All to all, visual design is the essential component in my consideration.



Figure 4.3 Test subject 2: Cong

I think users in Asia would be more attracted to the collectible concept such as treasure chest and blind box. It is because gambling is forbidden in Asian countries. However, the emotional requirement of gambling would not vanish even though the prohibition exists. On the contrary, people in western countries would be less attracted to this kind of experience.

Furthermore, my personal opinion on drawbacks in the collecting part is that the reward chain is too short. I understand it is not a game experience; however, it might require a stronger and longer reward chain for repeat visitation. The reward chain includes “Collecting crystals - scanning crystals- finding planets,” which might be too easy for long-term users. Users need a driving force to collect. Maybe you can design an interaction on the planets such as when users touching the planet, the journey of playing the quiz game will relive in video form. This idea is similar to the Easter eggs’ interaction, which exchanges to a projection of old pictures.

Cong’s comments on co-creating feature

Since the crystal represents the user, I would assume that if users can co-create the universe with loved ones, it will be a unique and exciting experience. Owning a



Figure 4.4 Test subject 3: Hongyi

parallel personal universe is a unique idea for communication features. Moreover, it would notably create special moments for one-sided lovers. For example, when a user goes to a shake-hand event, it would be extraordinarily stimulating and exclusive if he could scan the idol's crystal and co-create a universe with idols.

Conclusion for test subject 2

Cong is a professional game designer in the storytelling field. She has plenty of valuable comments on designing collecting functions.

Test subject 3

Hongyi is a 35 years old male, who runs a multi-National building material company. As a dilettante, he goes in for photography. He is also a devout Buddhist.

Hongyi's comments on interactions

The first time when I scanned the crystal was exciting. However, the process became a little redundant when I could foresight the result. Even though it is not a game, male users tend to be more attracted to sensory stimuli. That is why boys would spend more time on thrilling games and breathtaking experience.

This type of entertainment for light users is more acceptable for female users than male users.

Hongyi's comments on collaboration functions

It made more sense when I understood that the planets represent my personality test result. It also made my collection of planets more meaningful. Since I'm a Buddhism, I would spend my whole life searching for my inner voice. If the universe is a visualized reflection of my inner world, I would love to see how it looks. Furthermore, I think it would be more sympathetic if it could have a matching function. In the recent world, finding a soul mate is challenging. This collection of the planet is a "short-cut" of finding someone who shares similarities with me. I would love to meet with someone who has created a similar universe structure. For example, for future work, it can have a notification function. Using big data, users who share similar results will be data-pushed to each other and invited to join the same chat group.

Conclusion for test subject 3

Hongyi is a distinctive subject as a male user. He also suggested that the interviewer should include questions such as "Do you have religious beliefs." Because most of the male users are not interested in psychological tests, the collecting action initially will not be taken without experiencing the quiz game.

Test subject 4

Kona is a 22 years old Uighur girl who grew up in Xinjiang province, China.

Kona's comments on collecting:

Before experiencing this co-creating universe, I can only see atlas patterns on clothing. I think it is very creative and exceptional to design the planets with these patterns. The most attractive and exciting part of the experience is when I scanned the crystal. It became a planet with an atlas pattern in a virtual universe. There are also hidden surprises in this experience. For example, when looking closely at the crystals, I can see cameos of atlas patterns similar to the planets I created.

Kona's comments on revisiting and inviting friends





Figure 4.5 Test subject 4: Kona

I can't wait to invite my friends to collect the planets. Since my friends are mostly Uighurs who grew up in the Xinjiang area, they must feel exciting when seeing the atlas patterns on planets. I think it is a relaxing journey. I would love to visit again when I feel tired after a long time of studying.

I'm a cosmos lover. Therefore the combination of atlas pattern and planets is like a customized journey for me. The graphics attracted me a lot.

Conclusion for test subject 4

Kona, who is familiar with the design. The message she read from experience is more optimistic than other test subjects. I might say because of her cultural background. At the same time, as a female user, Kona also shows her enthusiast in graphics.

Table 4.1 Likelihood Scale

	Revisit	Invite Friends	Read Story
Test subject 1	Definitely	Very Probably	Probably
Test subject 2	Probably	Possibly	Probably
Test subject 3	Probably	Very Probably	Probably not
Test subject 4	Very Probably	Definitely	Definitely

## 4.3. Findings and Conclusion

### 4.3.1 Conclusion of evaluation

All the test subjects stated that the most exciting moment was when the planets appeared in the virtual universe after scanning the crystal. This evidence has shown that millennial group enjoy unprecedented technological interactions.

### 4.3.2 Findings in collecting function

Most test subjects supposed graphic is essential for collecting elements. Not only the attractiveness in visualization, but empathy towards the collection elements are also equally significant. Furthermore, the interview results show that the reward for collecting is rigid, which means users expect more varieties, such as different short term and long term rewards for collecting.

Users who are already in work will ask about billable context. Their first focus is on if it is a free experience and if it is profitable. However, student testers are more focusing on the experience itself.

### 4.3.3 Findings and future work of the collaborative function

When test subjects imagining the future of co-creating function, they always had creative ideas. Even though the most exciting moment is when interacting with the AR camera, the co-creating universe's future function seems more appealing to test subjects.

#### **4.3.4 Other findings**

The interviewer needs to explain to the test subjects the after-experience concept since it is not a common sense in user recognition. The interviewer had to describe the after-experience as “a bonus round after the game experience.” This finding also brings up a worth considering topic- the after-experience that designed for users should not be too “heavy,” which must be considered and designed as light experience.

## Chapter 5

### Conclusion

In conclusion, this concept introduces a unique after experience that is designed to fulfill the goal of the Quiz Room Game project. This after experience, while particular to this project, can additionally be implemented in other games or experiences. The robustness of this application is a result of its ability to trigger a user's revisiting and sharing intention. Through the use of these platforms and expectations, we hope to attract attention and retain users with this unique and interactive experience, as well as the after experience which follows.

#### 5.1. Limitations

The offline version of the quiz game is by utilizing projection mapping to create visual immersion. After the quiz game switch to an online form, the team decides to use a story with a world view and physical map to create equally powerful emotion. Although the project's emphasis has shifted, the starting point of the original idea for after experience was invariant, which also has the collective and collaborative feature. For the original plan, a physical co-creating wall that the users would see at the exit after they walk out of the projection room. With a more directly visual signal, interaction and function are more apparent to the users. The souvenir was stickers with different patterns for users to collect. When they see other people's stickers on the physical co-creating wall, they will engage by instinct. Additionally, a physical wall also has the function as a "photo punch-in point" to attract users to take pictures and post on social network systems, which is the traditional way to attract customers to visit. Moreover, this format is more similar to other offline co-create art exhibitions as well. The digital co-creating space's operation indeed lost some degree of freedom.



<https://tokyocamii.org/>

Figure 5.1 Other events in Turkish Cultural Center

## 5.2. Future work

### 5.2.1 The growing emblem with five element

There are also other old ideas that are effective for consisting of after experience. As one of the main goals of after experience is to attract users to go back and revisit, a growing rule is created like leveling up system in Video Games. Game players like to see through their effort their game characters or game items grow stronger. And most of the online games are setting small short term goals that easily to be seen to let the user have satisfaction and keep playing the games.

The first idea is to let customers get an emblem that contents magical element power. The shape and pattern of each element are varied. (Gold is yellow in a circular form; Wood is green in a square shape; Water is blue in water drop shape; fire is red in a triangular shape, and earth is black in hexagonal shape) If the customer gets the same result for the next visit, the color stays the same, and the pattern multiply. And it means this same element of power has grown stronger. If the customer gets the different result for the next visit, the color combines and the shape stay the same. And this indicates that this person has multiple element power.

After the first visit, the customer gets an emblem that represents their power. Like the rule shown in the image, for example, one customer gets the result of fire for the first visit, then receives a triangular emblem with a red-themed atlas pattern. The second visit shows the result of fire again, and the shape multiplied to



Figure 5.2 Color and shape refer to each element

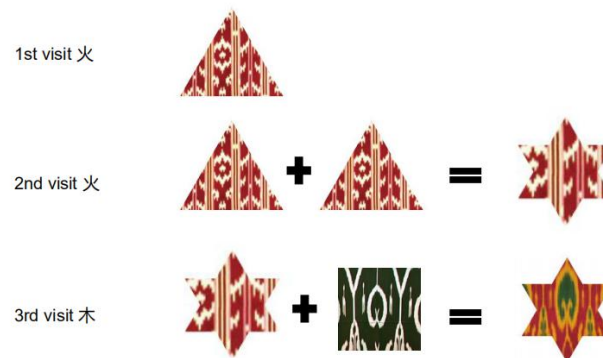


Figure 5.3 The rule of growing

become hexagram shape, but the design stays the same. This procedure indicated this customer has a higher level of fire magic, and the emblem is proof. For the third visit, this customer's choice makes a different result, which is wood. Then his hexagram emblem will indicate "wood magic" has combined with the original fire emblem.



Figure 5.4 More examples of how this rule creates different emblems

### 5.2.2 Physical co-creating wall

Since the co-creating idea has shifted to a digital version, the physical co-creating wall was with functioning. What the wall contents were a physical wall that customers can put stickers on. At the same time, a screen with a more complex atlas pattern will appear when there are the number of participants has reached to a certain level. The background of the screen changes rapidly when different colors of emblem are put on the wall. Furthermore, the changes depend on the percentage of what color of emblems that customers put on. Customers could also co-create the wall with friends and form a unique complex pattern with the combination of particular groups of people. The outstanding point of this method is that the universe changes uniquely depends on who are participants, and the participants' efforts make notable results. When the project has switched to online, the web page version of the co-creating wall is also using the same concept.

### 5.2.3 Social features

According to evaluation results, all test subject has shown tremendous interest in the future work of social features in co-creating experience. The idea of "light

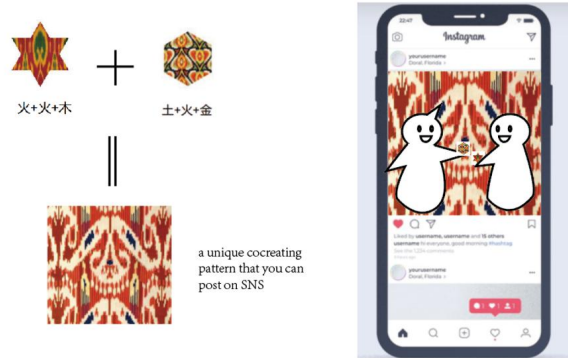


Figure 5.5 Physical co-creating wall

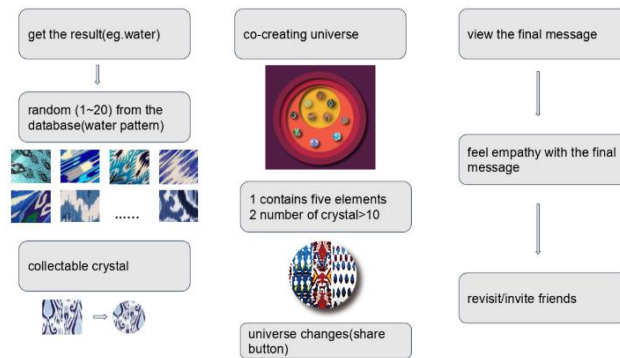


Figure 5.6 Work flow of co-creating universe on the web page



communication” should be the future of designing all social features in after experience. Even though the future work might not be the same content related to a psychological test that could help users match similar ones, the idea of co-creating the universe will still stay attractive for users. The emotion of every individual is distinctive. Therefore, creating one’s virtual universe that could also invite people to co-create only if the user approves them to enter is still a unique and exciting experience for users. In the quiz game room project, every planet represents the user. The use of co-creating in various exciting moments could be brought to mind. For example, in graduation seasons, close friends are forced to go on a separate path in life. Suppose they have a co-creating universe consisting of the planets representing a user and his closest friends. Even after years of separation, by showing the universe they built together years ago, it would become such a memorable experience. Another example that brings to mind is to scan parents’ and grandparents’ crystal. Then the personal universe would be consist of family members. Even though when people grew up, they have to leave their families and stay by themselves. The planets that represent their families will always there for the users. In other words, the planets in the co-creating universe also provide accompany. The personal co-creating universe concept could make up numerous treasurable moments for users to operate it creatively. Moreover, the way of operating the co-creating universe is open free for all users. Therefore different memorable moments could be built according to different individuals.

#### 5.2.4 Reward Chain

The rewards chain in collecting features is another essential component that needs to be considered. Even though the quiz room project is non-profit, the reward chain is the most significant part to look upon for creating profitable content in the future. Different research topics need to be included, such as by which level users are most willing to pay. An appropriate rewards chain also increases user stickiness. Redundant and simplex rewards will make users feel dull. Mobile games are applying multiple reply chains to keep users enthusiastic at the games. The most common method applied in the mobile game is to provide monthly payment and time limit rewards. What accompanies these rewards is a ranking list that refreshes every minute, which overall conduct a powerful concept to stimulate

users to make impulse consumption for the games. However, this type of method is not suitable for light users. Therefore, at the same time, free gifts should also be provided to the customers frequently at a specific time of day. This method both keeps users stickiness and increases users retention.

### 5.2.5 Different terminals for co-creating universe

The unexpected pandemic has brought the quiz room project from offline to a completely online version. When the original co-creating wall concept also switched to an online version of the digital co-creating universe., these changes had made the designers reconsider the future form of this co-creating idea. For the original plan, the physical co-creating wall is restricted to the location. Since it became an online version, the digital co-creating universe is also restricted to the terminal -the digital co-creating universe can only be seen inside users' iPhones. However, the development of technology has opened up the imagination of all types of interactions. At the beginning of this project, I also made a video of when the user swiping on his phone, the image will be projected on a skyscraper. In the future, the digital co-creating universe also will not be limited to its modality. The universe users have created should also be operated on AR glasses or even in the real world. The scanning interaction might seem new and exciting for people now, but the taste of interaction will change rapidly, accompanied by technological development. However, the core idea of letting people co-create content to build connections is the core message of the experience. The formalism would not create in-depth content; the only experience designed for the users could last long.

## 5.3. Final conclusion

All to all, this concept introduces of creating a collective, collaborative and interacting after-experience to reassure repeat customers for Quiz Room Game project. This after experience, while particular to this project, which engage Users, create Memorable experiences, and support repeat visitation can also additionally be implemented in other games or experiences. The robustness of this application is a result of its ability to trigger a user's revisiting and sharing intention. Through the use of these platforms and expectations, we hope to attract attention and

retain users with this unique and interactive experience, as well as the after experience which follows. The future of after experience design will change greatly by incorporating the digital co-creating universe concept.

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