Design for Saudi public services: Integrating graphic design to improve the experience of Zamzam water services across the Umrah visitors' journey

Submitted for the Degree of Doctor of Philosophy PhD
School of communication
At the Royal College of Art

2024

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Abstract

This practice-led research examines the capacity of graphic design to contribute to improving the visitor experience of Zamzam water services across their Umrah journey. Zamzam water is a holy water considered one of the enduring miracles of Islam and represents God's mercy for Muslims. The Umrah is a non-obligatory but important religious ritual for Muslims. Saudi is the land on which the two Holy Mosques and the Kaaba are located. It is the Kaaba, the holiest Islamic shrine on earth, that Muslims around the world turn towards at prayer. The Saudi government has the great honour to serve Umrah visitors and to ensure their comfort and safety. Enriching their religious experience is identified as one of the overriding objectives of the Saudi Vision 2030. This is envisaged as a process to improve the quality of the services related to Umrah religious rituals while also integrating e-services across Umrah visitors' journey to meet visitors' needs and desires.

The central aim of this research is to contribute to facilitating the Umrah journey for Umrah visitors by examining in what ways graphic design can help to improve public services within a religious context. More specifically, the main research question is: How can graphic design contribute to enhancing Umrah visitors' experience of the Zamzam water service across the Umrah journey?

To accomplish this, the methodology combines a range of methods and graphic design practices while prioritising human-centric and culturally sensitive design-led approaches. Culturally sensitive means that this research is conducted with respect to Islamic faith and teachings embedded within the Saudi government values for services related to religious rituals. To scope the existing graphic design profession in Saudi, a two-part strategy incorporated desk-based analysis complemented by a series of Design Conversations with local and regional practitioners who possess first-hand knowledge and experience of working in graphic design in the Saudi context. This revealed a gap in the ways that graphic design was being employed to enhance the delivery of public services and led to innovation in the field. Limitations in the understanding of how graphic design can contribute to a greater public service improvement industry were exposed, and the consequent lack of case studies that could demonstrate such a contribution.

Consequently, an opportunity was identified within Saudi to strengthen and expand upon the understanding of graphic design as a method to improve the experience of public services rather than as only an aesthetics-related activity. The range of approaches undertaken in the research positioned it at the intersection of visual communication design, social design and service design and borrows from all these fields. Ultimately the research findings led to the discovery of ten interrelated themes that form a service graphic communication framework, which is piloted through the case study of Zamzam water service across the Umrah journey.

This practice-led research presents a tangible opportunity to improve the visitors experience through the service graphic communication design framework. Furthermore, with regard to the perception of graphic design in Saudi, this research serves as a catalyst for change at all levels of the graphic industry beginning with graphic design education within Saudi universities.

“This thesis represents partial submission for the degree of Doctor of Philosophy at the Royal College of Art. I confirm that the work presented here is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

During the period of registered study in which this thesis was prepared the author has not been registered for any other academic award or qualification. The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.”

Mallaa Alamoudi

22 January 2024

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Acknowledgements

This PhD research was made possible due to the support of many people. First and foremost, I express an immense thank you to my dearest mother, Professor Etedal Huwait, to whom this PhD research is dedicated. She has always encouraged and made it possible for me to continue my education. Since embarking on this PhD she has helped in every way she could to support me over the course of my research, equally through the highs and the lows.

A special thank you goes to my supervisors, Professor Teal Triggs and Dr. Joanna Choukeir, who offered direction and insights to inform this research throughout the years and despite the many challenges we faced during the global pandemic. Thank you to Dr Hala Mansour for her added support and guidance in the final stretch of seeing this research through to submission. To Dr. Rosa Woolf Ainley, a special thanks for her sharp eye and quick turn around in proof reading the final version of my thesis. All my appreciation to Professor Ian Montgomery and Dr Ida Telabasic for their time and engagement in discussing my thesis.

Taking into consideration the sensitive and religious nature of Zamzam water services, a big thank you must be expressed to The General Presidency for the Affairs of the Two Holy Mosques. The Presidency facilitated my visit to the Sacred Mosque as a researcher, enabling me to conduct the mapping of Zamzam water services withUmrah visitors. An equal thank you to the representatives of Zamzam Water Project for sharing with me their insights about the services. Thank you also to the local and regional graphic designers who took time to share with me their personal knowledge and experience of the industry despite their busy schedules. I am thankful to my PhD colleague, Larissa Nowicki, for being my backbone through all the twists and turns of this journey. Also, I am grateful for Lama Alghamdi's friendship and for all the smiles she brought to my face through her sense of humour.

In conclusion, I would like to express my immense gratitude to the Saudi government. I thank them for all ways they enable Saudi women to strive for achievement at the highest levels of academia throughout the world via their generous scholarships and support in studying abroad.

Chapter one: Introduction

1.0 Chapter introduction

This is a PhD by practice in graphic design. The PhD explores graphic design as a method to improve the experience of Zamzam water services across the Umrah journey through adopting human-centric and culturally sensitive design-led approaches. This research is ‘culturally sensitive’ with respect to the Islamic faith and teachings that are entwined within and throughout the Saudi government’s cultural values for services related to religious rituals. These values respect the privacy and time of Umrah visitors at the Sacred Mosque and throughout the Umrah journey; as an example, no photographs were taken during the two phases of the field work (see sections 4.5.1 and 4.7.1). Within these cultural values, serving Umrah visitors is considered a noble responsibility and duty. This is exemplified in how the King of Saudi Arabia, Salman bin Abdulaziz Al Saud is addressed as ‘Servant of the Two Noble Sanctuaries’ instead of ‘His Majesty’ (Saudi Vision 2030, 2016), an indication that Umrah visitors are positioned at the ‘top’ and the Saudi government and its agencies as ‘down’ (see section 2.2.1). Zamzam water has a distinct heavy taste because it contains a higher level of natural minerals when compared to desalinated water. Also, Zamzam water is believed to be a natural source of healing for the sick and is enough as food to satisfy according to the Prophet Muhammad peace be upon him (Arab News, 2020). The Umrah is a non-obligatory but an important religious ritual for Muslims. It is believed that the religious ritual of the Umrah enables Muslims to strengthen their faith, seek forgiveness and pray for their needs. Umrah rituals can be done at any time of the year. Umrah visitors drink Zamzam water any time before, during and/or after Umrah (Alarabiya news, 2020).

This introductory chapter sets out the research overview, starting with the context of the research and case study (Section 1.1), the field of practice (Section 1.2), and the research overall aims and questions (Section 1.3). Then the chapter presents the background leading into this PhD research (Section 1.4) and the research methodology (Section 1.5). The introduction chapter ends with the research contributions (Section 1.6) and overview of the thesis chapters (Section 1.7).

1.1 Research and case study context

In 2016, the Saudi government launched Saudi Vision 2030 with three main pillars that foster: ‘a vibrant society, a thriving economy and an ambitious nation’ (Vision 2030, 2016). To realise its vision, the Saudi government established six overarching objectives, 27 branch objectives and 96 strategic objectives (Figure 1). Alongside this, the government established 11 Vision Realisation Programmes to translate Vision 2030 into a series of actions in order to reach the government’s stated objectives. Under the branch objectives of serving Umrah visitors, the Saudi government’s stated aims are ‘to improve the quality of services provided to Umrah visitors and enrich the spiritual and cultural experience of Hajj and Umrah visitors’ (Vision 2030, 2016). Saudi is the land of Islam’s Two Holy Mosques: the Sacred Mosque in the city of Mecca and the Prophet Mosque in the city of Madinah (Vision 2030, 2016). The two Holy Mosques are focal points for Muslims around the world.

The Sacred Mosque in Mecca is the first and main destination for Muslims undertaking the religious rituals of Hajj and Umrah and is commonly referred to as the ‘House of God’. The Sacred Mosque is home to Kaaba, a cube-like architectural structure (Figure 2) located at the centre of the Mosque, the direction of prayer for Muslims globally. In addition, the Sacred Mosque is home to the Zamzam well beneath the Kaaba, which is the source of Zamzam Holy Water. Muslims visit the Sacred Mosque to pray, to take part in Hajj rituals, to perform Umrah rituals and to drink Zamzam water.

Hajj is an annual pilgrimage and is done within the last month of the Islamic calendar; specifically, Hajj starts on the 8th of Dhul Hijah and lasts for five days. Muslims are required to undertake Hajj once in their lifetime if they have the physical and financial ability. During Hajj, pilgrims move across certain areas within Mecca city and engage in a series of religious worship rituals such as reciting an intention to undertake Hajj, undertaking Tawaf and Sa’i and praying (Alarabiya news, 2020). The Prophet’s Mosque in Madinah is the second destination for Muslims and is home to the Sacred Chamber where the Prophet died and was buried. Muslims visit the Prophet’s Mosque to pray and to visit the Sacred Chamber.

During the Umrah rituals, Muslims follow Hagar’s steps when Zamzam water appeared (see section 4.1). Zamzam water is the foundation upon which the Umrah religious

rituals were initiated. The cultural significance of the water stems from its religious value. Umrah visitors drink Zamzam water because the water is believed to be a natural source of healing for the sick. Also, it is culturally believed that the water is a source of God's blessing and mercy. At the time of this research there were two touchpoints for Zamzam water services across the Umrah journey: the Sacred Mosque and Jeddah International airport. At the Sacred Mosque, Zamzam water is distributed in containers and dispensers, free of charge and in unlimited quantity. Umrah visitors either used the provided cups to drink Zamzam water or they brought their own containers to drink or fill with the water. At the airport departure, Umrah visitors were able to buy a five-litre container of Zamzam water packaged in a cartoon box for air-shipping. The container is sold for around 2 pounds. Channels of communication for the services of Zamzam water were not in evidence at the airports; neither were there specific religious protocols for drinking Zamzam water.

Since the 1930s, the Saudi government and its agencies spared no effort in providing services for Hajj pilgrims and Umrah visitors. As part of the Vision Realisation Programmes, the Saudi government launched the 'Pilgrim Experience Programme: *God Guest Program'.* This Programme seeks to enhance the religious and cultural experience by providing greater ease and convenience during the journey of Hajj and Umrah. To achieve this, the Programme continuously aims to integrate e-services into Hajj and Umrah journeys, improve hospitality and transportation, upgrade accommodation and launch new services as needed. In addition, the Programme seeks to enrich the cultural experience of Hajj and Umrah by restoring cultural-historical sites. One of the Programme's achievements is the launch of NUSK– the first official platform in the form of a website[1] and an app for smartphones – that enables Umrah visitors from around the world to organise their Umrah journey to Mecca, from applying for e-visas, booking hotels and accessing other services. For example, the adopted electronic visa system reduced Umrah's visa processing time from 14 days to five minutes (Saudi Vision 2030, 2023). Also, the Programme launched other initiatives such as Pilgrimage without a Bag[2] and comprehensive health insurance (Vision, 2030).

[1] https://www.nusuk.sa

[2] Pilgrimage without a bag is an initiative launched in collaboration with the Saudi Post Office. The initiative enables pilgrims to travel light by transporting their luggage from their accommodation to the designated Hajj terminal at King Abdulaziz International Airport, also known as Jeddah International Airport (Splonline, 2019).

This research is culturally relevant because of my dual identity as a researcher and Saudi citizen. I embrace the Islamic religion, engage in Umrah rituals, and drink Zamzam water. I grew up in Jeddah city in Saudi, approximately an hour and 26 minutes drive away from the Sacred Mosque. This distance allowed me to visit the Sacred Mosque on regular basis. During my visits, I witnessed first-hand the experience of Zamzam water services. Also, I witnessed the Saudi government's continuous efforts to improve the services relating to Umrah religious rituals including Zamzam water services. In addition, I am aware of the Saudi government's ambitious vision to improve the experience of religious rituals. Section 1.4 describes how my initial observations of Zamzam water services at the Sacred mosque combined with my dual identity led me to this research.

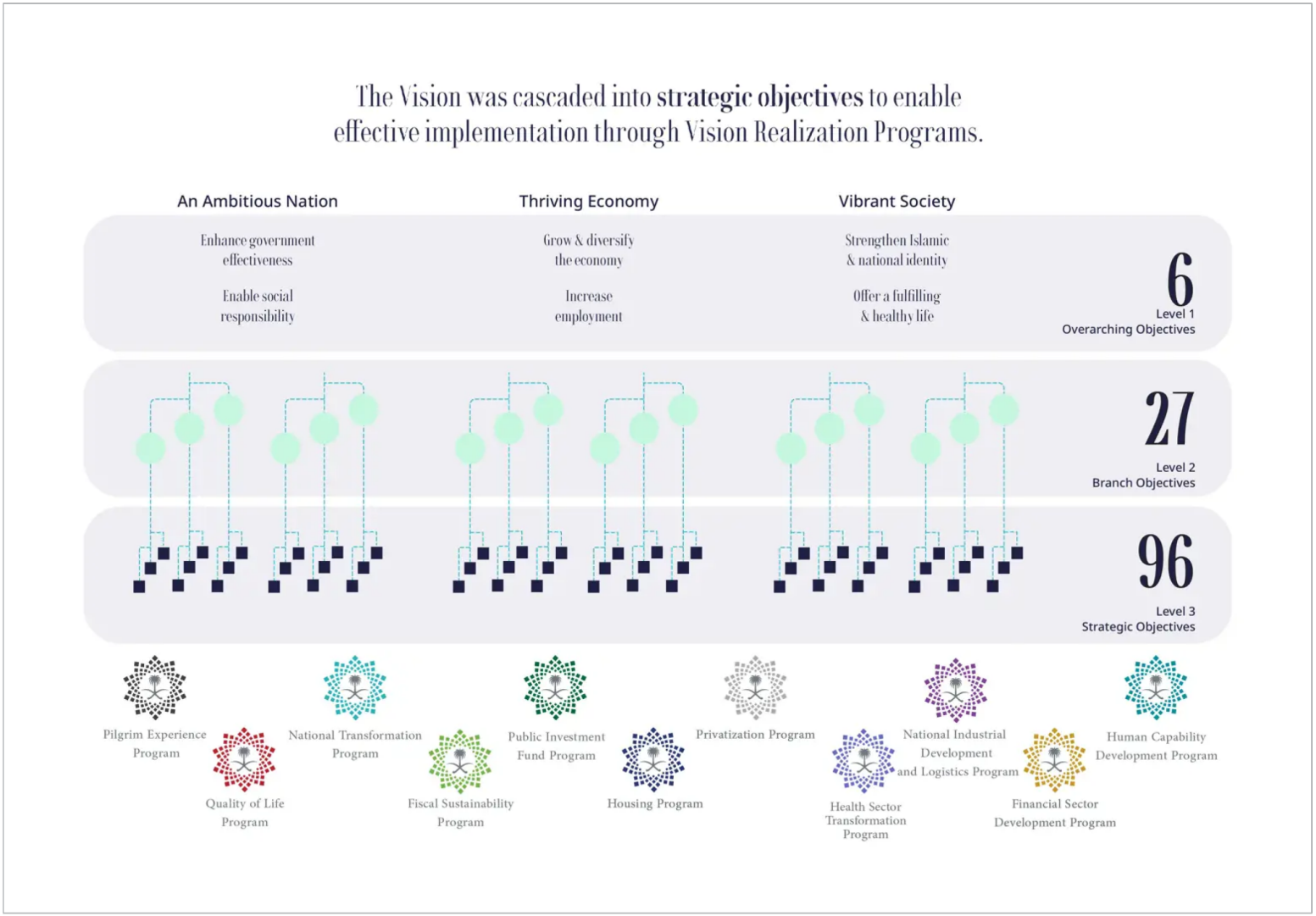

Figure1: Levels of objectives and the Vision Realisation Programme established to realise the Saudi Vision 2030 (Saudi Vision 2030, 2023).

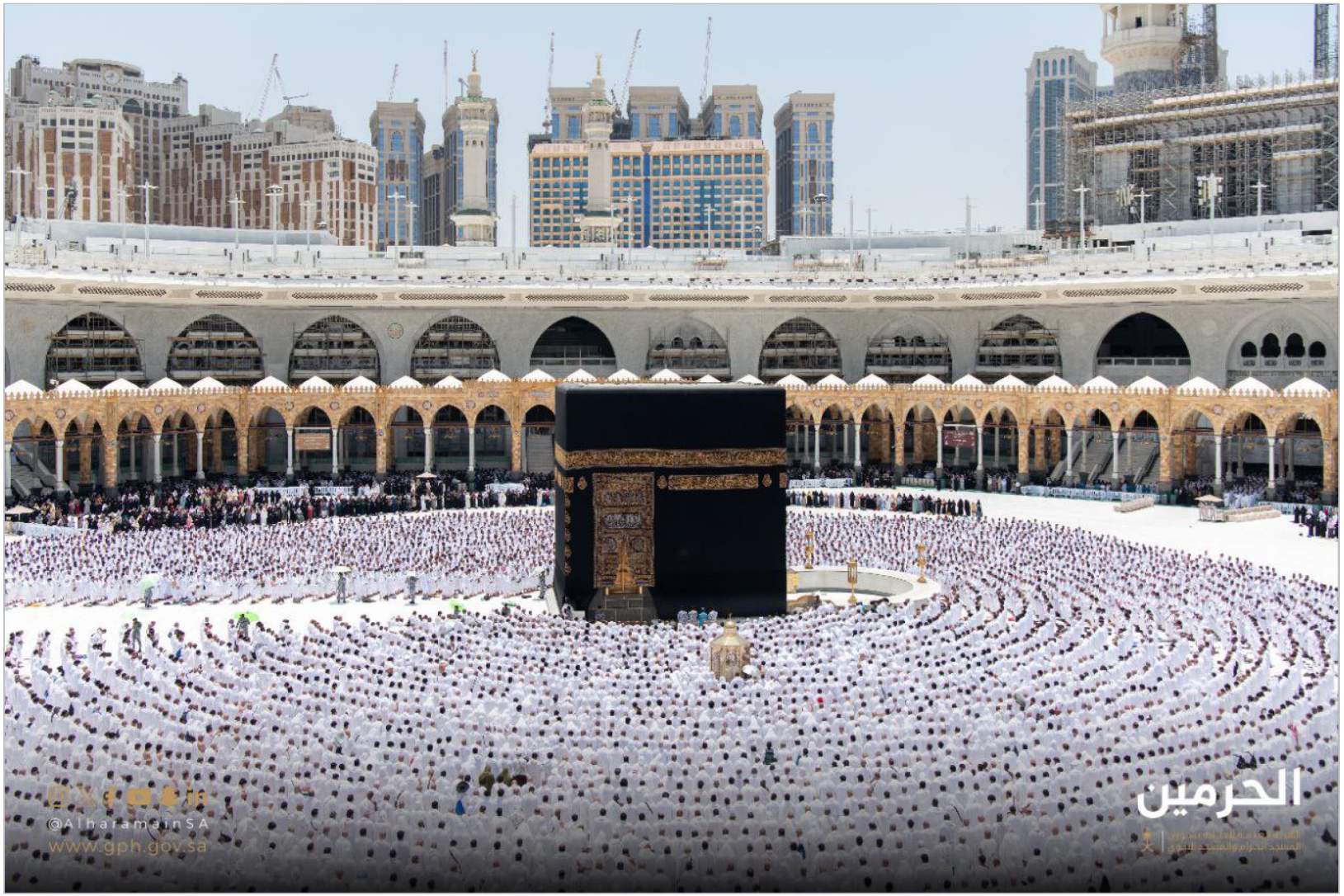

Figure 2: The Kaaba, the black cube-like architectural structure (General Authority for the Affairs of the Two Holy Mosques. 2024).

1.2 Field of practice

This research is positioned within the field of graphic design as it aligns with the Saudi's current professional usage of the term. For the purpose of this thesis, graphic design is defined in two main ways. Firstly, graphic design as defined by the Architecture and Design Commission[3] is 'the practice of projecting messages and ideas with visual communication through image, typography, text, and colour across different print and digital media to enhance visual interaction between people' (Architecture and Design Commission, 2021). Secondly, this PhD defines graphic design as an activity that organises communication (messages, modes and channels) and implements and evaluates the impact of communication. This definition, which is what I'm proposing in order to expand the field of graphic design in Saudi, is opposed to the Commission's definition, which mostly focused on executing visual aesthetic for communication rather than focusing on conceptual frameworks build upon theories of communication.

Underpinning the research, my definition of graphic design draws from and expands upon Jorge Frascara's views on the cultural contexts of the local and contemporaneous practices of graphic design. Frascara emphasises that it is part of the designer's responsibility to create communications that recognise the needs of a society to which they contribute and to consider and to enrich the society's cultural value (1997, p.19). Frascara defines graphic design as 'the activity that organises visual communication in society. It is concerned with the efficiency of communication, the technology used for its implementation, and the social impact it effects, in other words, with social responsibility' (Frascara, 2019, p.306). Efficiency in communication is achieved when communication fulfils the motivations of its creation whether explanation, persuasion and/or identification (Boag, 2017, pp.624–25). The motivation of communication centres on the needs of its intended audience (Frascara, 1997, p.3). Frascara explains that '[T]he need for communicative efficiency is a response to the main reason for the existence of any piece of graphic design" (2019, p.306). Although Frascara is a western design scholar, his view of graphic design is pertinent as it aligns with the view of this research.

[3] The Architecture and Design Commission is a Saudi government organisation that oversees the architecture sector and design fields including graphic design in the Kingdom.

1.3 Overall aim and research question

Situated in the field of graphic design, this PhD research responds to Vision 2030 by proposing and human-centric and culturally sensitive design-led approaches to Saudi graphic design to improve the experience of Zamzam water services as one of the services related to the religious rituals of Umrah. The research shares a similar aim with the Pilgrim Experience Programme: to facilitate the Umrah journey through improving services sensitive to enhancing the religious experience of Umrah visitors. The research contributes to this aim by selecting Zamzam water as a pilot case study, proposing to enhance the value that design brings to improve the experience of Zamzam water services across the Umrah Journey. The research focuses on Zamzam water services across the rituals of the Umrah journey as the ritual is accessible all year round and not confined to a particular period of time, which is not the same for Hajj. As a researcher based in London, this year-round accessibility enabled me to undertake multiple site visits to the Sacred Mosque. These visits provided opportunities to better understand and embody the experience of Zamzam services. Beyond this thesis, the research aims to introduce design as an approach for policymaking in the Saudi government. The overarching question that guided the PhD research is:

How can graphic design contribute to improving the experience of Zamzam Water services across Umrah journey? The overarching question allowed me to hypothesise and define a subquestion of how human-centric and culturally sensitive design-led approaches to graphic design might contribute to improving the experience of Zamzam service across the Umrah visitors' journey. While investigating the theoretical literature review, the adopted approaches served as guide to uphold the Saudi government cultural values for religious services.

1.4 My background leading into this research

I graduated with a Bachelor's degree of Arts in Graphic Design from Dar Al-Hekma University, the first Saudi institution of higher education for women that offered a degree in graphic design sine 1999 (Dar Al-Hekma University, 2023). During my career in Saudi as a graphic designer and graphic design educator, I intuitively identified a gap for developing an understanding of the significant role graphic design could play in improving the experience of local public services. At that time, the field of graphic

design was not considered a prominent practice and was mostly practiced within the commercial sector.

During my undergraduate studies in graphic design, and in particular on the packaging design course, I was asked to design a package for a product of my preference.
As someone who highly appreciates the visual communication values of graphic design and who hypothesises the role of design to improve public services, I questioned the inconsistent visual language used to identify Zamzam water services across the Umrah journey. Jakob Schneider, a pioneer in service design, states that integrating the graphic designer through the service design process 'should be as self-evident as the hiring of a project manager' (2011, p,78). In addition, through observation I have recognised and noted discrepancies in the experience of Zamzam water services at the Sacred Mosque. I witnessed a group of Umrah visitors struggling with carrying Zamzam water containers around the Sacred Mosque. Further, I found that the cups provided to drink Zamzam water at the Sacred Mosque did not meet the needs of some visitors who wanted to drink Zamzam water in the worshiping areas at the Mosque. The provided cups are small in size meaning that visitors have to take more than one cup and walk carefully so as not to spill Zamzam water on the floor. On bringing the full cups into the worshiping areas, I observed that the water is often spilled on the prayer mat. At the time of my undergraduate studies, I lacked the systematic approach needed to articulate and evidence my observations. Therefore, while on the packaging design course, I chose to focus on the visual language of the service by designing the label of a Zamzam water bottle. After the project was submitted, I reflected on the impact of my practice and its ability to address my personal observations of the Zamzam experience at the Sacred Mosque. The following two questions emerged and I had no answer for either:

How might designing the label of Zamzam water improve the experience of the Zamzam water service at the Sacred Mosque?

How might the design of the label of Zamzam water enhance the religious experience of Umrah visitors?

In 2013, I pursued a Master's degree in Design (MDes) at York University, Toronto, during which I reflected on my ethical and social responsibilities as a designer. I began to consider the ethical dimension in my graphic design practice through the concept of communicating 'with' instead of communicating 'at' an intended audience. Also, I started to look at the social aspect of graphic design beyond the frame of charity and pro bono work. This contemplation influenced me to investigate the human-centric and culturally sensitive approaches pursued in this research.

My application for this PhD coincided with the launch of Saudi Vision 2030 in 2016. In a television interview about the Vision, his Royal Highness the Crown Prince and Prime Minister of Saudi Arabia, Mohammed Bin Salman announced the Saudi government's intention to embrace the rich and authentic Islamic cultural heritage and to build the largest Islamic museum in the world in line with global standards. In focusing on enhancing Islamic cultural heritage, this announcement was the first of its kind from a public official in Saudi. Most importantly, this announcement indicated that the Saudi government was taking the initiative to support the art and design sector in the Kingdom. In 2020, the indication was confirmed as the Saudi government established the Ministry of Culture, with 11 commissions[4] to oversee art and design in the kingdom (Ministry of Culture, 2020).

Taking into consideration the government's 2030 Vision and my capacity as a graphic designer and educator, I saw the opportunity to explore the role of graphic design in improving the experience of public services in Saudi. I chose Zamzam water services for the research case study because, as a Saudi citizen, I know that it falls under the category of the services sensitive to religious rituals which the Saudi government aim to continuously improve. King Salman bin Abdulaziz states: 'It has been an honour for us in the Kingdom of Saudi Arabia to serve the Two Holy Mosques and Allah' guests. We have pledged ourselves, our potentials, and our effort as leadership, government, and citizens to the comfort, security, and safety of the guests' (2021, p.3). One of the key challenges I faced during the research was to maintain and enhance and rather than evaluate the Saudi government's cultural values for services sensitive to religious

[4] These commissions include the Commission of Culinary Arts, Literature, Publishing & Translation Commission, Film Commission, Fashion Commission, Music Commission, Libraries Commission, Museums Commission, Heritage Commission, Visual Arts Commission, and Architecture and Design Commission (Ministry of Culture, 2020).

rituals. This is because these values are rooted in and guided by the teachings and faith of Islam religion (see section 2.2.1).

1.5 Research methodology

This is practice-led research and my graphic design practice leads the research process from identifying evidence-based gaps in the experience of Zamzam water services to turning these gaps into design opportunities. For example, my practice helped in visualising the future-state experience of Zamzam water services[5] across the Umrah journey (Figure 75). The practice-led research methodology was chosen to contribute knowledge to address the capacity of graphic design as a way of thinking and analysis to improve the experience of public services in Saudi. Linda Candy, a researcher in creativity in the arts and sciences, explains in her article 'Practice Based Research: A Guide' that practice-led research 'is concerned with the nature of the practice and leads to new knowledge that has operational significance for the practice' (2006, p.1). As Candy describes it, my research applies existing theories and methods, builds on them to develop new contributions to the graphic design profession in Saudi. Additionally, practice-led research emphasises the concept of the 'practitioner researcher'. This concept is theorised by scholar Stephen Scrivener who explains that 'in "research-in-design" projects, systematic documentation and reflection-in-action play a crucial role as it supports the practitioner's reflections and brings greater objectivity – or critical subjectivity – to the whole project' (2009, p.392). Scrivener also emphasises the importance of 'the final reflection – or reflection-on-action – that it should reflect not only on the project as a whole in relation to the issues explored but also on the goals attained and the reflection in action and practice itself' (2009, p.392). In accordance with Scrivener's theory, my research is conducted in a step-by-step manner, the process is documented and the results are analysed, reported on and contextualised. According to Christopher Frayling's design research typology, this research methodology adopts a 'research through design' approach (1993, p.5). Frayling explains that research through design is about 'taking a problem outside design and using design to address it' (RTD Conference Series, 2015). Based on Frayling's approach, in this research graphic design is placed at the forefront to improve the Zamzam water service experience across

[5] The future-state experience of a service communicates the guidelines of what the service experience should be like (Nielsen Norman Group, 2020).

Umrah visitors' journey. To address the research subquestion, the research methodology adopts three overarching methods.

1. Theoretical review of literature

The theoretical review was chosen as a method for gathering documented insights on how graphic design can improve the experience of public services. The review aimed to underpin the proposed human-centric and culturally sensitive design-led approaches to improving the experience of Zamzam water services across the Umrah journey. This theoretical review sets the parameter that excludes fields and disciplines beyond the human-centric and culturally sensitive design approaches. I began the theoretical literature review by mapping the fields and disciplines around the area of design for public services such as information design, Design Culture, human-centred design, experience design, and service marketing (Section 2.0). This mapping was guided by the proposed design-led approaches and positioned the research at the intersection of visual communication design, social design and service design. Through methods of thematic coding analysis and meta-synthesis[6], I reviewed the theoretical context of the fields and disciplines identified in the research. The outcome of this theoretical review effected a service graphic communication design framework[7] led by ten themes to improve the experience of Zamzam water services across the Umrah journey (Section 2.4).

2. Reviewing the graphic design profession in Saudi

Undertaking a review of the graphic design profession in Saudi was chosen as a method to systematically understand the local nature of the profession. The aim of the review was to examine the original intuitively identified local gap in the Kingdom's profession and to underpin the research contribution of this thesis. Also, the review aimed to investigate the proposed human-centric and culturally sensitive design-led approaches to graphic design. To do so, the research undertook two methods. The first method was desk-based analysis into the profession (section 3.2). This method collected data from primary sources (such as the Saudi Design Festival and the Architecture and Design Commission) available in the public domain about the graphic design profession in Saudi. Further, the method adopted thematic

[6] meta-synthesis is the integration of findings from different studies (Robson, 2011, p.377).

[7] Framework is defined as 'a particular set of rules, ideas, or beliefs which you use in order to deal with problems or to decide what to do' (Collins, 2023).

analysis to systematically analyse and interpret the collected data. The second method was what I call ‘Design Conversations’ undertaken with local and regional designers (seven designers from Saudi; three designers from United Arab Emirates, Egypt and Lebanon; section 3.2). These conversations took the form of a semi-structured interview. The outcomes and interpretation of these two methods are combined in meta-synthesis. The result of this synthesis was four insights that reflect opportunities and gaps in the graphic design profession in Saudi (Section 3.4). The desk-based method of analysis has limitations and may only be viewed as an indicator based on accessible data about the Kingdom’s graphic design profession. The selected design conversation method substantiated the potential resulting personal accounts by the desk-based research.

3. Zamzam Water’s services case study

The case study of Zamzam Water’s services was chosen as a method to pilot the outcome of the theoretical review – the service graphic communication design framework to improve the experience of Zamzam water services across the Umrah journey. A single case study is presented for a longitudinal examination of this single ‘case’. A case study approach helps in understanding ‘how’ and ‘why’ a certain event is occurring through a systematic process of collecting and analysing data and responding to the analysis (Flyvbjerg, 2006, pp.219–45). Additionally, a single case study can be adopted to test and develop a new hypothesis (Crouch and Pearce, 2015, p.141). Through the case study process, the research mapped Zamzam water services experience through five methods: (1) desk-based research pre-pandemic, (2) combination of autoethnography and in situ observation, (3) desk-based research during-pandemic, (4) opportunity development through combination of ‘Say, Do, Make’ approaches (Sanders and Stappers, 2020, p.70) and (5) semi-structured interview with 17 Umrah visitors. The findings of these methods are combined in meta-synthesis to identify gaps in Zamzam water services (Section 4.8). The research also draws from the service graphic communication design framework for Zamzam water services (Section 2.4), which is the outcome of the theoretical review, to turn the identified gaps in the services experience into design opportunities (Section 4.9). The small sample size of the case study may indicate a limited estimation of its contribution to the Saudi graphic design profession. However, the Zamzam water services case study contributes to the lack of rigorous

case studies that showing the value of graphic design for public services in Saudi. This contribution explored indepth the capacity of graphic design as a way of thinking and analysis to improve the experience of Zamzam water services across the Umrah journey.

1.6 Research contributions

This practice-led research presents two main contributions to the field of graphic design, and specifically to the development of the Saudi graphic design profession, by bringing a new and locally relevant understanding to what graphic design can do in public service.

The first contribution is a service graphic communication design framework to improve the experience of Zamzam water services across the Umrah journey. The second contribution is a research methodology and framework that can be transferred and adapted to inform graphic design practice supporting other Saudi public services. Also, the research opens up other possibilities and informs new ways of engaging the profession more effectively in the experience of other public services. Beyond this, the developed service graphic communication design framework and the systematic process and the set of methods relating to Zamzam water services case study can be made transferable to inspire the improvement of the Zamzam water service experience across the Hajj journey and at the Prophet's Mosque in Medina. Further, the developed framework for Zamzam water services can serve as a source of inspiration and springboard for other designers interested in design’s capacity to improve public services more broadly and, importantly, for policymakers to learn from and build upon.

In relation to visual communication design theory and practice, the PhD research expands on and updates Jorge Frascara’s definition of visual communication design. In relation to social design theory and practice, the research makes a case for designers to engage with the context of their design and to be respectful to the cultural values of this context. For service design, the research demonstrates how service design approaches and methods – often used to deliver fast and efficient services – can also be employed to enhance the religious experience of Umrah visitors.

For the Saudi Vision 2030, this practice-led research contributes to the strategic objective of enriching the religious and cultural experience of Umrah visitors. This area

of intervention focuses on examining and evaluating the experience of Zamzam Water services by making the interaction with the service more workable and useful for Umrah visitors. Particularly, the intervention contributes to a reduction in gaps in the experience and towards achieving efficiency in communications. Consequently, improving the experience of Zamzam water services contributes to enriching the religious experience of Umrah visitors.

1.7 Overview of the thesis chapters

The thesis is structured into five chapters. Chapter one provides an overview of the research context, aim, question, the systematic inquiry taken to answer the research question and the research contribution to knowledge. Chapter two is divided into four sections. The first three review the theoretical context of visual communication design, social design and service design. The fourth section addresses the overarching research question through the service graphic communication design framework for Zamzam water services across the Umrah journey. Through chapter three, the research evidences my initial idea, underpins its contribution and confirms the proposed human-centric and culturally sensitive design-led approaches to answer the research overarching question. Chapter four presents the Zamzam water case study in order to demonstrate and pilot the value of the service graphic communication design framework to explore, evaluate and improve Zamzam water's services experience across the Umrah journey. Chapter five provides a reflection on the research overarching question to conclude the research. The chapter also provides an overview of the research contribution to knowledge, its limitations and next steps.

This introductory chapter has outlined the research context, field of practice, overall aim and research question. The chapter presented the methodology adopted to address the research question and concluded by outlining the research contributions and an overview of the thesis structure. In the following chapter, the research conducts a thematic coding analysis of literature relating to visual communication design, social design and services design to confirm and inform the proposed methodology of human-centric and culturally sensitive design-led approaches to graphic design.

Chapter two: Review of relevant design theory and practice

2.0 Chapter introduction

Chapter two reviews the theoretical context that aligns with and sets the scope of this PhD research. The aim of the review is to investigate the research hypothesis to address the research's overarching question. The chapter is organised into four sections. The first three sections examine the theoretical context of visual communication design (2.1), social design (2.2) and service design (2.3). The review here is partial and focused on specific design fields that are not prominent within the Saudi graphic design profession, as distinct from branding and marketing. However, the scoped fields have provided my graphic design practice with knowledge to design a well-aligned intervention. The PhD research used a thematic coding analysis to systematically review the theoretical literature. Colin Robson, an expert in social science research method, explains that thematic coding analysis is one of the common approaches for qualitative data analysis. This approach involves using predetermined themes or relies on themes that emerge from interacting with the data for analysis and interpretation (2011, pp.474–75). Inspired by Robson, I have familiarised myself with the data by reading the selected texts which hold definitions of visual communication design, social design and service design. I extracted and analysed ideas and approaches (codes) from each definition (Figure 3); then I summarised the extracted ideas separately (Sections 2.1, 2.2 and 2.3). Following this, I gathered all the approaches and ideas generated across the definitions into a table for meta-synthesis (Section 2.4). The result of this integration and interpretation is ten themes that form the service graphic communication framework for Zamzam water services within the context of the Umrah journey.

The theoretical literature review of this PhD research began with the process of mapping the disciplines[8] and fields[9] around the area of graphic design for public services (Figure 4). This mapping activity was conducted through an iterative process across the research. This helped to define the research scope by establishing what comes within and what lies outside the remit of this research. Alongside that, the activity was

[8] In this research discipline is defined as inclusive category and includes general areas of studies (Repko et al., 2019, pp.29–30). Examples of discipline include business, engineering, social sciences, marketing and design. Cross states that design as a discipline means that 'design studied on its own terms, and within its own rigorous culture […] that there are forms of knowledge special to the awareness and ability of a designer' (2001, p54).

[9] Field is defined as a specific area of study within a discipline. For example, service design is a field of study within the design discipline. The field looks at what design can bring to the service sector (Meroni and Sangiorgi, 2011, p.9).

useful in gaining knowledge from contributions within the research context which both informed and validated the research proposed approaches. According to Carole Gray and Julian Malins, the activity of ‘mapping the terrain’ helps in developing a focused theoretical review for the research and gaining an understanding of the research context through acknowledging and critically reviewing relevant contributions (2017, p.5). To start the mapping process, Gray and Malins suggest the researcher begins with a maximum of six words that provide ‘criteria and parameters for searching and may need to be expanded, contracted and amended depending on the results of initial searches’ (2017, 43). This thesis adapted Gray and Malins’ approach, beginning with four key design areas to initiate the mapping activity: graphic design, Cultural Design, human-centred design and service design. These four design areas were inspired through the research hypothesis: examining how human-centric and culturally sensitive approaches to graphic design might contribute to improving the experience of Zamzam water service across the Umrah visitors’ journey. Graphic design is the field of practice of this research. Cultural Design and human-centred design were selected to maintain and enhance the Saudi government’s cultural values for services sensitive to religious rituals. Service design was selected because the research explores the capacity of graphic design within the context of Zamzam water services across the Umrah journey. The next section (2.1) reviews the theoretical context of visual communication design.

Figure 3: Part of the thematic coding analysis process to map the area around graphic design for public services.

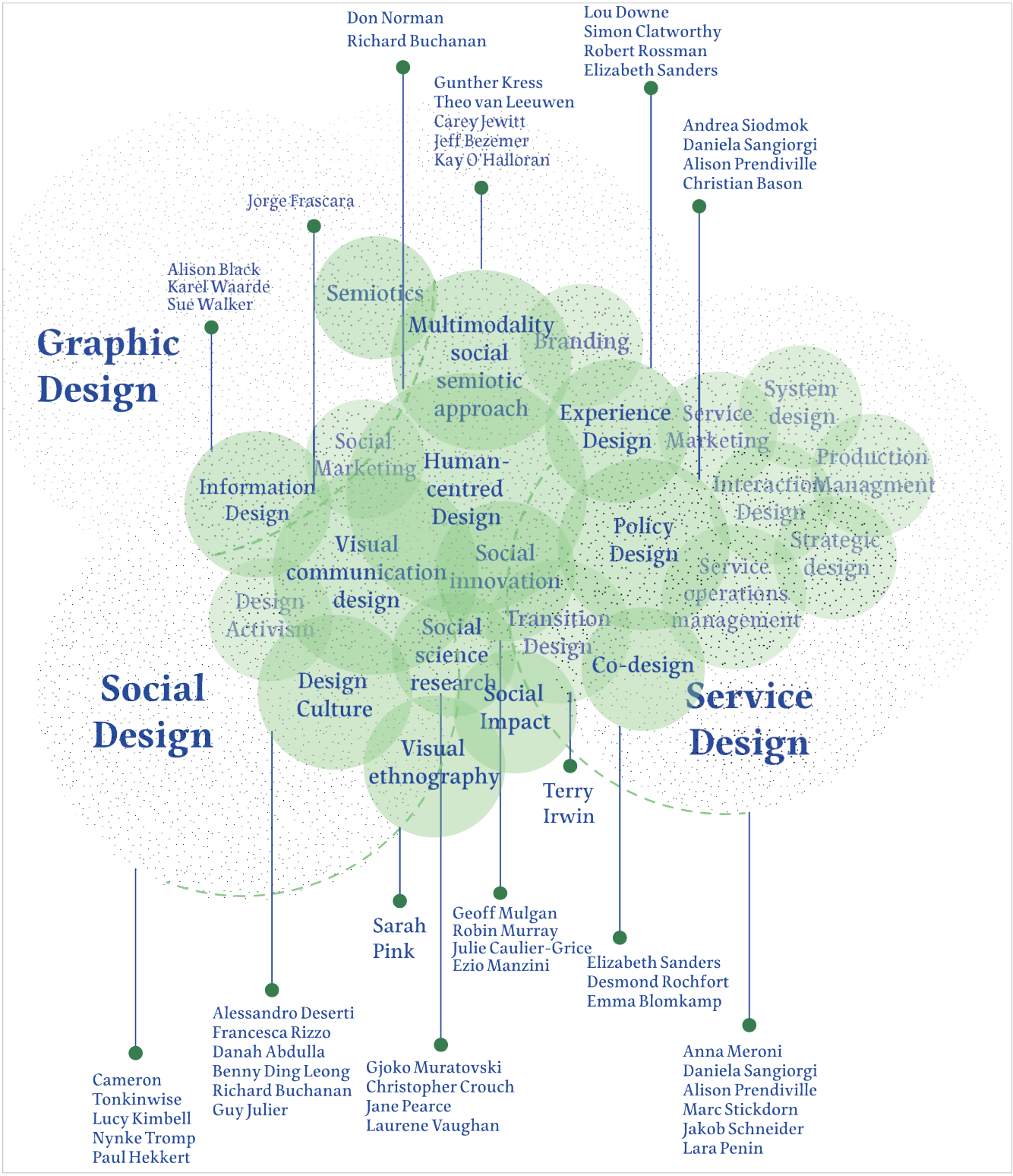

Figure 4: Mapping the literature review around graphic design for public services.

2.1 Theoretical context of visual communication design

In this section, the review examines how visual communication design might inform the proposed human-centric and culturally sensitive design-led approaches to graphic design within the context of Zamzam water services for Umrah journey. To do so, the research starts by charting the visual communication design field for this thesis. The research draws from and builds upon Jorge Frascara's definition of visual communication design for social change, which is considered throughout the thesis in relation to key approaches such as audience-centric, mixed methods and evaluative.

Visual communication design is the field of practice this design-led research draws from – a field that has not previously been clearly mapped out in Saudi but complements the local understanding of graphic design which is mostly concerned with executing visual aesthetic as described by the Architecture and Design Commission. Graphic design as defined by the Architecture and Design Commission[10] is 'the practice of projecting messages and ideas with visual communication through image, typography, text, and colour across different print and digital media to enhance visual interaction between people' (Architecture and Design Commission, 2021). To aid in my exploration, I adopt and adapt Frascara's understanding and definition of visual communication design. Frascara, design theorist and educator, has written extensively about visual communication design. He argues that the term 'graphic design' places too much focus on the creation of graphic forms and omits 'the creation of effective communications', which is an essential aspect of the profession (2004, p.4). Therefore, Frascara coined the term 'visual communication design', which has been used interchangeably with graphic design, graphic communication design and visual communication design (2004, pp.1–4). In 2004, in his book titled *Communication design: principles, methods, and practice*, Frascara attempted to frame the field of visual communication design using references from communication theories, design studies and socially focused design (Choukeir, 2015, p.39). Frascara explains the influences of theses disciplines as follows:

> Communication design as we know it today developed its essential components in the 1920s. It changed in the 1950s when new developments in psychology, sociology, linguistics, and marketing attracted the attention of designers, leading them to change their objective from artistic creation to effective communication.

[10] The Architecture and Design Commission is a Saudi government organisation that oversees the architecture sector and design fields including graphic design in the Kingdom.

> We are now witnessing a third stage, primarily based on developments in technology, which have resulted in increased attention paid to notions of interaction between the public and information. (Frascara, 2004, p.57)

Frascara is an advocate of the value of visual communication design to governments, stating that:

> There are enough market-driven designers to keep the economy going, but there is a great need for talented communicators in the social field, as much as there is a great need to demonstrate to governments and the private sector how much benefit there is to be collected from intelligent communications in this field, even financially. (1997, p.31)

During his professional career, Frascara worked on projects to demonstrate this value. For example, in the traffic safety project for the Federal Government of Canada (2015), he utilised visual communication design as a method to reduce the magnitude of traffic problems and to communicate with government to allot resources to increase traffic safety (2015, pp.40–41). The field of visual communication design – as applied in this design-led research – draws from multimodality: a social semiotic approach communication, information design and overlaps with social design and service design (Figure 5). This is because the research focuses on graphic design as a method to improve the experience of public services. To date, there are no theories or definitions that frame the area of graphic design for public services in Saudi and this is one of the prominent contributions of this PhD research. However, Frascara's texts (1997 and 2004) provide a foundational reference of visual communication design for social change.

Frascara's writings, though written some time ago, are still relevant to establishing a discussion of terminology for the PhD thesis. Further, at the time of his writings in the 1990s, graphic design emphasised the implementation of visual communication (over planning and organising communication itself) of the profession to reach differentiation among the competing aesthetic in the industry (Barnard, 2005, p.139). The 1990s' focus on graphic design in the west as critiqued by Frascara in his article 'Graphic design: fine art or social science?' (1988), is similar to the focus of graphic design in Saudi in the mid-2020s. Therefore, the alignment of Frascara's writings on visual communication design with the aim of this research makes his definition of visual communication design for social change highly relevant. The underlined terms in the following

quotation clearly define visual communication design for social change as intended and ordered by Frascara.

> I would say that visual communication design, seen as an activity, is the process of conceiving, programming, projecting, and realising visual communications that are usually produced through industrial means and are aimed at broadcasting specific messages to specific sectors of the public. This is done with a view toward having an on the public's knowledge, attitudes, or behaviour in an intended direction. (Frascara, 2004, p.2)

Frascara limits visual communication design to the mode of the visual. However, I would argue that for the purpose of this PhD, a multi-modal approach to communication more accurately reflects the current direction of the work in the field. Gunther Kress, a professor of semiotics and education, stated that multi-modality is the 'normal state of human communication' (2010, p.1). Kress explains that "in communication several modes are always used together … designed so that each mode has a specific task and function' (2010, p.28). Additionally, Kress makes it part of a designer's responsibility to select the mode of communication that is suitable to the content or message to be communicated and for the audience involved in communication (2004, p.116). Furthermore, Derek Yates and Jessie Price point out that communication is embraced through a combination of multiple modes. They suggest that '[s]ound, moving image, animation, and more recently, interaction, responsive media and social networking have all conspired to create communication that evolves through complex connections between different channels' (2015, p.41). In contemporary times, social media[11] plays a significant role in communication (Jewitt, 2016, p.263); examples of social media platforms include Twitter (now X) and Instagram (Kaplan & Haenlein, 2011). These platforms enable individuals to orchestrate and exchange meaning through configuration of different modes such as writing, speech, still image, moving image, melody and gestures. Instagram, for example, has evolved from a mono-model of communication (sharing images) to multimodality of communication through enabling a combination of interactive and responsive communication and integrating video and sound options, text, colours and gestures and music (Instagram, 2023). This research addresses multimodality through a social semiotic approach (Kress, 2010). In addition, multimodality is key to the experience of the Zamzam water service for two intrinsically

[11] Social media is defined as 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content' (Kaplan & Haenlein, 2010, p.61).

connected reasons. The Pilgrim Experience Program adopts multimodality of communication made available by social media through the launch of the NUSK platform (in the form of a website and mobile applications), which enables Umrah visitors to plan their journey (Nusk, 2022). Secondly, the future-state experience of Zamzam water services across the Umrah journey integrates Zamzam water services within NUSK application to enable Umrah visitors to learn about the services, especially the current takeaway services at the pre-visit stage of their journey (Chapter 4, section 4.8, point 2).

Despite the position that the research takes on multi-modal approach to communication, the research refers to the field as visual communication design as Frascara does. However, the research proposes to expand the field of graphic design and refers to it as ‘graphic communication design’. This is to emphasise that graphic design is not only about executing visual aesthetics and to clarify that communication is addressed through graphic design.

According to Frascara, visual communication design for social change is a process that includes a set of activities of ‘planning of communication, visualisation, production’ (2004, p.91) and evaluation (1997, p.10; Figure 6). The activity of planning communication involves designing systematic ways (methods) to understand and identify problem areas where visual communication design can make a contribution (Frascara, 2004, p.94). This means that the visual communication values of graphic design are not limited to producing final visuals, whether physical or digital. Rather, graphic design is used as a method to contribute to the process of thinking and analysis. Therefore, the review draws from the field of information design to underpin the capacity of graphic design in contributing to the process of analysis and synthesis.

As Frascara states, the output of the visual communication design process is communications: ‘the design response to a social problem cannot be conceived as the production of few posters and fliers that tell the people what to do and what not to do’ (1997, p.22). The Dutch graphic designer Jan Van Toorn made a similar point: ‘People have become so obsessed by the shell of the product that the complexity of the action of design … is reduced to the order of the decorated eggs’ (1998, p.156).

Visual communication design is tailored to specific audience. Frascara emphasises that generic communications that intend to reach ‘everybody’ reach few people (1997, p.8). This means that the decision-making of choosing the content (messages), style, medium and modes of communication design has to be informed by the needs of its intended audience (Frascara, 1997. p.9). Therefore, Frascara invites designers to draw methods from social science research to carefully understand the intended audience’s needs and inform the visual communication design intervention accordingly (1997, pp.58–59). Along the same lines, Kress emphasises that ‘communication always has been and will remain subject to social, cultural, economic and political givens’ (2010, p.19).

According to Frascara, efficiency in visual communication design is achieved when communication fulfils the purpose and motivation of its creation (1997, p.3). He maintains that the designers’ responsibility includes ‘contributing the identification and creation of supporting measures aimed at reinforcing the likelihood of achieving the intended objectives’ of the communication (1997, p.5). Additionally, Frascara explains that achieving the objective of communication requires borrowing knowledge and methods from other fields and disciplines (2019, p.307). Accordingly, this research draws from information design to evaluate and achieve efficiency in communication. This section has reviewed the definition of communication design for social change that has been guided by my literature review, in particular the work of Frascara. In the following subsections, the research supplements this framework by reviewing multimodality: a social semiotic approach to communication and information design.

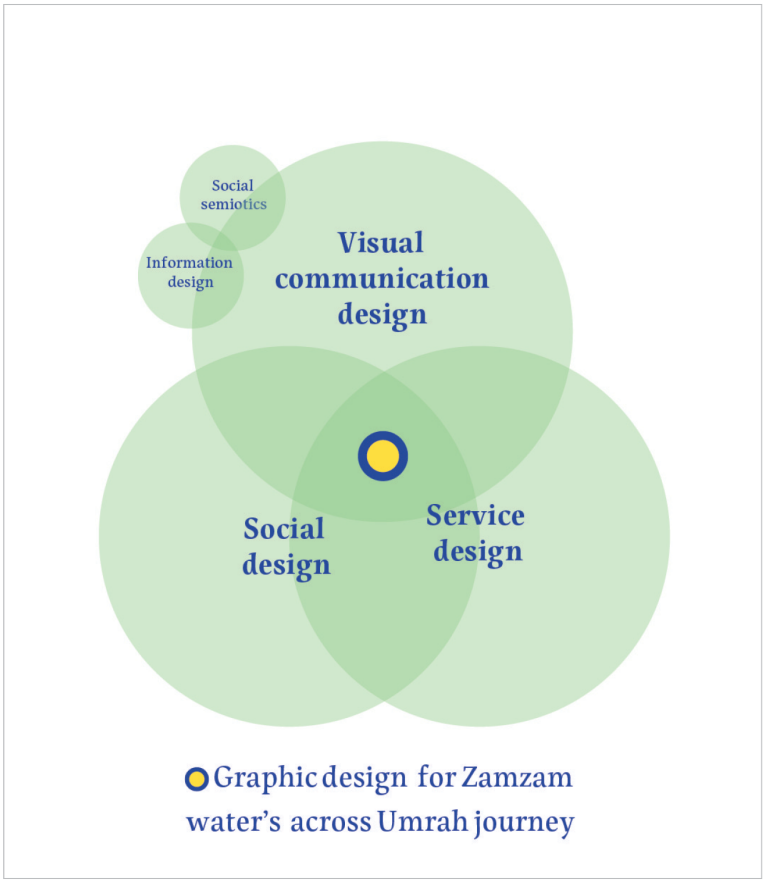

Figure 5: The field of visual communication design as applied in this design-led research.

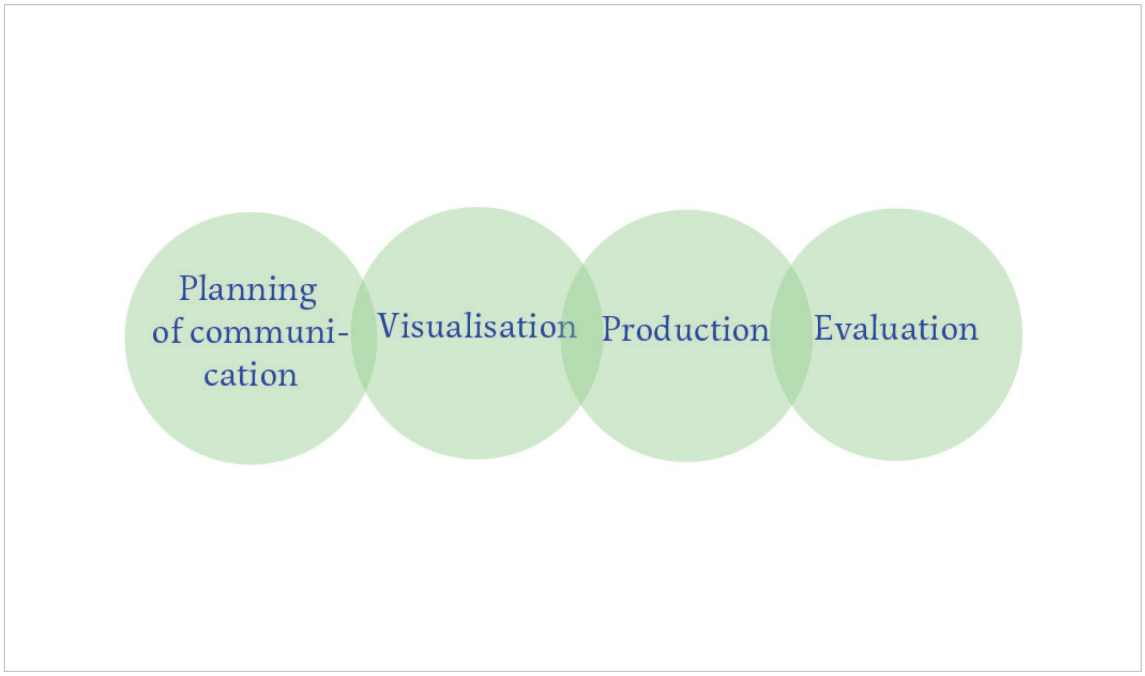

Figure 6: Visualisation by author of Frascara's process of visual communication design for social change.

2.1.1 Multimodality: Social semiotics approach to communication

Gunther Kress and Theo van Leeuwen introduced the concept of a multi-modal approach to communication in their book *Multimodal Discourse: The Modes and Media of Contemporary Communication* (2001). This concept is a departure from the traditional dichotomy of image and text, emphasising the combination of various modes of making meaning to form a coherent message for communication (Jewitt et al., 2016, p.3). Kress explains that the multi-modal approach is becoming more relevant as communication is changing. The reason for that change lies in intertwined social, cultural, economic and technological changes (2010, p.5). Similarly, Jewitt et al. state that a multi-modal approach to communication is becoming more noticeable with the rise of social media platforms such as YouTube, which enable individuals to access and combine multiple modes of 'meaning making' that were difficult to disseminate before (2016, p.25). Kress defines mode as 'a socially shaped and culturally given semiotic resource for making meaning' and states that each mode has distinct possibilities and limitations for meaning-making (2010, p.79). All elements – images, illustrations, soundtrack, music, gesture, written language, layout, speed, moving image, colour, 3D objects, and the position of an element – can function as a mode to be used in representation and communication (Weber, 2017, p.251). For the purpose of this thesis, the research adopts a social semiotic approach to communication. This means that the meaning of the communication arises from social interaction (Kress and Leeuwen, 2021, p.3). Kress writes that 'the "social" in "social semiotics" draws attention to the fact that meanings always relate to specific societies and their culture' (2004, p.111). Accordingly, a social semiotic approach to communication provides graphic design with a number of modes to shape communication relating to the needs of Umrah visitors.

2.1.2 Information design

Information design is of necessity human-centred and is concerned with achieving efficiency in communication (Frascara, 2015, p.5). The International Institute for Information Design (IIID) defines information design as 'the defining, planning, and shaping of the content of a message and the environments in which it is presented, with the intention of satisfying the information needs of the intended recipient' (IIID, 2007b, p.8; cited in Frascara, 2015, p.8).

Information design provides graphic designers with multi-modal data visualisation tools which contribute to a process of thinking and analysis. Michael Friendly, specialist in the field of information design, refers to data visualisation as 'the science of visual representation of data'. Friendly describes data visualisation as 'information which has been abstracted in some schematic form, including attributes of variables for the units of information' (2009, p.2). Data visualisation relies upon interweaving diverse expressive resources (modes) such as written language, illustrations, images, colours, diagrams and charts (Weber 2017, pp.243-56; Hiippala 2020, pp.277-93). Barbara Tversky, professor of psychology and education, defines a diagram as 'an arrangement of marks on a virtual page (stone, paper, or screen) that represents a set of ideas and their relations' (2017, p.350). Tversky explains that diagrams play a key role to 'structure information to enable comprehension, inference, and discovery' (2017, p.350). Also, diagrams facilitate describing complex situations that are hard to explain verbally (Frascara, 2015, p.12; Tversky 2017, pp.349–50). Along similar lines, Frascara states that verbal description 'challenges memory and imagination, and deceivingly present problems as if they were under control' (2015, p.41). The multi-modal data visualisation through graphic design is my practice in this research; it appears in the Zamzam water services case study in the form of journey map – a combination of diagram and expressive modes, including text, layout, colour, photographs, text and illustration – to map the experience of Zamzam water services across the Umrah journey.

Additionally, information design contributes to positive service experience (Schneider, 2011, p.70). According to Andrew Boag, the design of service communication 'is an essential aspect of customer experience' (2017, p.619). Along the same lines, Down mention that it is 'vitally important' to explain to users exactly how a service works as it influences a large part of their experience (2020, p.59). Robert Linsky suggests using the LUNA approach of evaluation – 'Locate, Understand, Act'– to evaluate and achieve efficiency in communication. This approach focuses on the content of the communication which informs and influences the design of the communication (message, modes, aesthetic and channels) (2017, p.635). The underlined terms in the following quotation explain the criterion of evaluation: 'Stakeholders must be able to locate information easily and quickly. Then they need to understand the information they have found. And, finally once the information is found and understood, the

stakeholder must be able to act on the information' (Linsky, 2017, p.635). In different contexts, some of the criteria are more critical than others, but their ultimate goal is to achieve efficiency in communication. For example, 'Act' has enabled mapping Zamzam water service experience during Covid-19 to identify gaps between the Presidency posts about Zamzam water services and the needs of the Mosque visitors from these posts.

2.1.3 Visual communication design section conclusion

In this section, I examine Frascara's definition of visual communication design for social change. The examination revealed five approaches through which visual communication design can contribute to evidence and inform the proposed design-led approaches for graphic design to improve the experience of the services across the Umrah journey: (1) multimodal social semiotic approach to communication, (2) audience-centric, (3) mixed methods, (4) evaluative, and (5) interdisciplinary (Figure 7). In the next section, the field of social design that overlaps with the field of visual communication design as charted here is examined. This examination aims to review the social design contribution as a means to inform the adopted design-led approaches to graphic design.

Approach	Description
Multimodal social semiotic communication	Enables combining various modes of making meaning to shape and express the communication content (message) according to the need of the intended audience.
Audience-centric	Entails tailoring communication according to the needs of its intended audience.
Mixed methods	Draws from social science research to achieve rigorous understanding of the communication's intended audience.
Evaluative	Involves identifying and creating approaches to ensure that communication fulfils the purpose of its creation.
Visual-based	Draws from multi-modal data visualisation to contribute to process of thinking and analysis.
Interdisciplinary	Requires drawing knowledge from other fields and disciplines to achieve efficiency in communication.

Figure 7: The table summarises the contribution of visual communication design to evidence and inform the proposed design-led approaches for graphic design to improve the experience of the Zamzam water service across the Umrah journey.

2.2 Theoretical context of social design

This section reviews the theoretical context of social design. It examines how social design might inform the proposed human-centric and culturally sensitive design-led approaches to graphic design. To do so, the research examines Armstrong et al's definition of social design published in the Social Design Futures report funded by the UK-based Arts and Humanities Research Council (AHRC). The research also examines sensitive fields to social design: Design Culture and social science research and social impact evaluation approach.

In 2014 the AHRC funded ground-breaking research to help chart the unmapped social design arena, identify opportunities and existing challenges (Armstrong et al., 2014, p.11). The result of the research was the *Social Design Futures* report, the first extensive scholarly work that documented and predicted the field across academic, policy and practice-led initiatives. One of the key findings from the report was that the academic research landscape of social design was still weak (Armstrong et al., 2014, pp.7–9). The report defines the concept of social design as follows:

> The concepts and activities enacted within participatory approaches to researching, generating and realising new ways to make change happen towards collective and social ends, rather than predominantly commercial objectives. Social design can therefore be understood to encompass a broad set of motivations, approaches audiences and impacts. For instance, these may be embedded within government policies or public services extremely critical of and divergent from these. (2014, p.15)

After the Social Design Future report was published, several social design researchers attempted to structure the field and define the term, including Cameron Tonkinwise (2019), Lucy Kimbell (2020), Nold et al (2022) and Nynke Tromp and Stéphane Vial (2023). Regardless of the attempts made, the concept of social design remains unclear to researchers and remains a topic of academic debate (Nold et al., 2022, p.32; Tromp and Vial, 2023, p.14). This is because design as an activity is (1) inherently social and (2) is informed and carried out by individuals to address social concerns (Tromp and Hekkert, 2018, p.18). For example, Manzini defines social design in terms of dealing with 'problematic situations' such as extreme poverty, illness and social exclusion (2015, p.64). Thomas Markussen explicitly disclaims Manzini's definition of social design, stating that social design focuses on micro-level change instead of large-scale effect social innovation (2017, pp.168–69). Tromp and Hekkert explain that social design (1)

improves the circumstances of under-represented individuals, (2) informs policies and improves the quality of public services, and (3) builds and improves social capital (2018, pp.18–20); this PhD research falls under the second characteristic. However, social design can manifest within NGOs, not-for-profits (Tromp and Hekkert, 2018, p.18) and the private sector explicitly pursuing social values such as socially oriented start-ups (Markussen, 2017, p.168).

For the purposes of this research, I argue that social design has evolved in response to design paradigms that stressed visual style and aesthetic and prioritised commercial aims between the 1960s and the 1990s (Barnard, 2005, p.139). In contrast, during the same timeframe, other more socially oriented design paradigms emerged, such as those initiated by Ken Garland (1964), Victor Papanek (1971) and Jorge Frascara (1997, 2004). These paradigms refocused the design process to prioritise human needs and led to the establishment of social design (Choukeir, 2019, p.822). Also, I would argue that social design led to the development of other design fields, such as service design. Lucy Kimbell, professor in contemporary design practices at Central Saint Martins, University of the Arts London, states that qualities of social design overlap with services design. Kimbell explains that both social design and service design share an 'understanding of, and purpose of designing for, lived experiences, as well as their critical and contextual awareness of the relations they produce accounts of and in which they aim to intervene' (2020, p.6). This sensitivity toward lived experiences in social design led to an examination of the emerging field of study Design Culture in the next subsection.

2.2.1 Design Culture

Alessandro Deserti and Francesca Rizzo define Design Culture as '[a] system[12] of knowledge, competencies and skills in use within a situated context to develop new solutions and pursue innovation' (2021, p.42). This means that design is linked and guided by the cultural context in which it appears and operates. Culture is defined as 'the network of objects and ideas that communicate meaning to the members of a particular group of people' (Crouch and Pearce, 2015, p.2). In this research, culture is

[12] A system includes 'artefacts, practices, values, and beliefs' (Deserti and Rizzo, 2014, p.36).

understood as equivalent to the Saudi government's cultural values[13] for services related to religious rituals including Zamzam water services. These cultural values are rooted in the Islamic religious faith and teachings. The Saudi government and its agencies consider these services as a noble responsibility and duty (Saudi Vision 2030, 2016; Pilgrim Experience Program, 2021). The King of Saudi Arabia, Salman bin Abdulaziz Al Saud is addressed as 'Custodian of the Two Holy Mosques' or, more precisely, as 'Servant of the Two Noble Sanctuaries' instead of as His Majesty, reflecting these values. Religious service users who are pilgrims and Umrah visitors are considered to be 'God's guests' and the Saudi government is honoured to service them (Pilgrim Experience Programme, 2023). King Salman states that:

> It has been an honour for us in the Kingdom of Saudi Arabia to serve the Two Holy Mosques and Allah[14] guests. We have pledged ourselves, our potentials, and our effort as leadership, government, and citizens to the comfort, security, and safety of the guests. (Pilgrim Experience Programme, 2021, p.3)

Returning to Design Culture, Danah Abdulla, Programme Director of Graphic Design at Camberwell, Chelsea and Wimbledon Colleges of Arts, discusses Design Culture in the context of Jordanian design education and practice. Abdulla explains that Design Culture 'provides a possible space to question this universality of design and the blind borrowing of ideas, practices and philosophies from elsewhere.' (2021, p.220). Also, Abdulla encourages designers to engage in a deeper fieldwork and immersive process of research to generate cultural-based knowledge that feeds into the design practice (2021, p.220). Similarly, Asian designers such as Daniel Koh, a Singapore-based art director (cited in Julier, 2014, p.6) and Benny Ding Leong, Professor of Design Practice (cited in Clark, 2003) adopt a culturally sensitive approach in their design practice. For example, Ding Leong mentions that cultural knowledge could enrich contemporary design theory and underpin innovation in design practice' (Leong and Clark, 2003, p.50). Along the same lines, some western design researchers such as Richard Buchanan (2001), Alessandro Deserti and Francesca Rizzo (2014), and Guy Julier (2015) advocate a cultural approach to design. Design Culture can then be seen to confirm the validity of human-centric and culturally sensitive design-led approaches to graphic design proposed for this research.

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[13] Cultural values defined as 'the governing ideas that guides thought and action in a given society' (Kalliny and Gentry, 2012, p.16).

[14] Allah' means god.

Design Culture has provided this research with an approach to question the relevancy and the historicity of western design knowledge, theories, and practices in relation to the Saudi government's cultural values for services sensitive to religious rituals. For example, design activism – considered as a form of social design (Armstrong et al., 2014, p.29) – was excluded from the remit of this research because design activism adopts a subversive approach and takes an oppositional stand to dominant power (Markussen, 2013, p.39). This design-led research does not work against the Saudi government and does not take a disruptive approach. Instead, the research works alongside the Saudi government to improve the experience of its services, especially within religious settings. It is important to note that the research was conducted independently from the Saudi government. Design for social innovation, a field sensitive to social design (Armstrong et al., 2014, p.29), was also excluded from the remit of the research. Pioneers in social innovation explain that social innovation generates social change through alliance between 'top' institutions with political power and sources and 'down' community individuals with ideas and energy (Murray et al., p.2010, p.5; Manzini, 2019, pp.404–05). The concept of alliance between 'top' and 'down' and the definition of 'top' and 'down' is opposite to and contradicts the Saudi government's cultural values of religious services. The Saudi government keeps the top-down hierarchy and places pilgrims including Umrah visitors at the 'top' position and places the government's agencies and resources 'down'. In his speech to pilgrims, the King explains that '[i]t has been an honour for us in the Kingdom of Saudi Arabia to serve the Two Holy Mosques and Allah guests. We have pledged ourselves, our potentials, and our effort as leadership, government, and citizens to the comfort, security, and safety of the guests' (Pilgrims Experience Programme, 2021, p.3).

It is worth noting that the culturally sensitive approach to design, proposed and taken by this design-led research, is not an encouragement to abandon or devalue western and other design knowledges, theories and practices. Instead, it is about motivating Saudi and Arab designers to stay open and to learn from various design models while having agency in establishing what is suitable and in alignment with their cultural values. The adopted cultural approach to design leads this research to examine social science research that provides designers with methods to design-aligned interventions (Choukeir, 2019, p.823).

2.2.2 Social science research

Social science research is a purposive and rigorous examination that falls under quantitative and qualitative research strategies (Bryman, 2012, p.5). Each research strategy provides different types of knowledge to the design research depending on the research question being investigated (Crouch and Pearce 2015, p.68). Crouch and Pearce explain that quantitative research focuses on the collection of numerical data and allows the design researcher to generalise and to achieve a breadth of understanding, not depth. Qualitative research focuses on the collection of qualitative data, often in the form of words,[15] enables the design researcher to understand in some depth details about individual experiences (2015, pp.68–69). In addition, qualitative research provides graphic design with ethnographic approaches to tailor communication to the needs of the intended audience. Crouch and Pearce explain that ethnographic approaches have a significant role to play in doing research in design and are used 'to better understand the events, social interactions, and experiences that take place in social and cultural contexts' (2015, p.90). Frascara recommends a combination of both qualitative and quantitative methods to underpin the design of the communication strategy (1997, p.59). The following subsection reviews social impact evaluation as an approach to evaluate the impact of design intervention**.**

2.2.3 Social impact evaluation

Social impact evaluation is about the discourse of evaluation in the service of social impact. Queensland government literature defines social impact evaluation as an approach 'to analyse and describe the social[16] and economic value that the proposed project will achieve' (2021, p.4). Social impact evaluation is essential because investment decision-making requires showing the investment's potential to create socio-economic value (Queensland government, 2021, p.5). One of the challenges that the social design field faces is limited models of evaluation that provide both social and financial values without prioritising one value over the other (Akama and Yee, 2019, p.7). Evaluation has many definitions across different fields and application. In communication design, Thomas Valente and Patchareeya Kwan define evaluation as:

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[15] Crouch and Pearce explain that qualitative data are 'less commonly in the form of images, film or other artefacts' (2012, p.68).

[16] 'Social value' refers to what is worthy of importance to a group of individuals such as communities, organisations, governments and business (Uscreates, 2013, p.5).

> … the systematic application of research procedures to understand the conceptualisation, design, implementation, and utility of interventions (here, communication campaigns). Evaluation research determines whether a program was effective, how it did or did not achieve its goals, and the efficiency with which it achieved them. Evaluation contributes to the knowledge base of how programs reach and influence their intended audiences so that researchers can learn lessons from these experiences and implement more effective programs in the future. (2013, p.83)

Valente and Kwan identify two types of evaluation: 'formative' and 'summative' (2013, p.85). Similarly, Jim MacNamara states that evaluation must be conducted at least twice before (formative) and after (summative) communication intervention (2018, p.23). MacNamara adds that evaluation of communication at all stages 'requires focus on audiences […] who determine whether or not communication is effective' (2018, p.24). Formative evaluation consists of activity to define the scope of the problem to be addressed through communication design, whereas 'summative' evaluation involves investigating the effectiveness, outcome and impact of the research output for future adjustments and improvements (Valente and Kwan, 2013, pp.85–86). The output of 'summative' evaluation in communication design is often limited to numerical data (such as number of website page views) that can't indicate the impact of the design or how the design can be improved (Stahl-Timmins, 2017, p.452). However, Jorge Frascara makes the evaluation of the designed communication strategy part of the designer's responsibility:

> The designer is responsible for the development of a communicational strategy, for the construction of visual instruments to implement it, and for contributing to the identification and creation of supporting measures aimed at reinforcing the likelihood of achieving the intended objectives. … Evaluation must form part of the design strategy and serves to adjust and improve the effects of the campaign. (1997, p.5)

Therefore, the research proposes the Social Impact Framework for 'summative' evaluation developed by Uscreates which measures the impact achieved by the communication intervention on society and economy. This framework draws from the 'logical model' initiated by Carol Weiss in the early 1970s and identifies a number of stages that are sequentially and causally sensitive to one another (MacNamara, 2018, p.43). These stages are arranged and visualised into the sequence of 'ripple effect' (Figure 8) (Uscreates, 2013b).

Input: Resources and activities employed to develop and deliver the intervention.

Output: Designed intervention and deliverables.

Outcome: Changes that happened as a direct result of the output.

Impact: Long-term effects on society – what will be changed?

Value: The value of the impact in financial terms, including measuring the social return on investment

A fuller summative evaluation for Zamzam water services case study was not undertaken as the impact of the Covid-19 pandemic precluded the completion of a prototyping phase of the research. This is one of the limitations of the research, which involved having to respond to, for example, the Sacred Mosque closure for six months to prevent the spread of Coronavirus, international travel restrictions and vaccine requirements. Instead, the research focused solely on formative evaluation to identify gaps and opportunities to improve the Zamzam water service experience across the Umrah journey. The formative evaluation consisted of mapping the service experience through different methods, as examined in chapter four, from section 4.3 to 4.7.

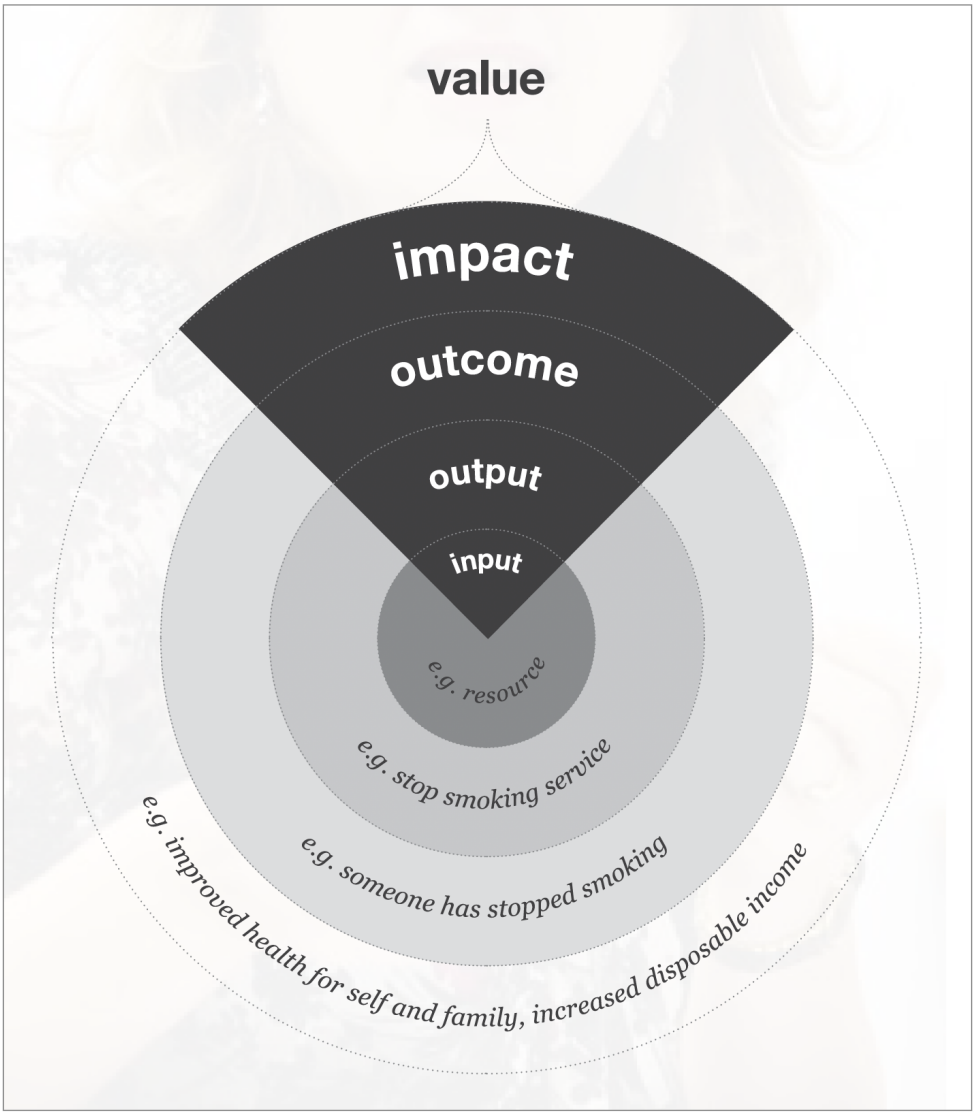

Figure 8: Social Impact Framework developed by Uscreates (Uscreates, 2013b).

2.2.4 Social design section conclusion

In this section (2.2), I examine the theoretical context of social design. The examination revealed four approaches through which social design can contribute to evidence and inform the proposed design-led approaches for graphic design in this research: (1) culturally sensitive, (2) mixed methods, (3) evaluative, (4) interdisciplinary (Figure 9). In the following section, the research examines service design, the second (and last) field that overlaps with the field of visual communication design as charted in this research.

Approaches	Description
Culturally sensitive	A lens to critically adopt and adapt western design knowledge to align with the Saudi government's cultural values of services related to religious rituals.
Mixed methods	Incorporation of social science research methods into the research in order to conduct a rigorous design process and design a well-aligned intervention.
Evaluative	Incorporation of 'formative' and 'summative' evaluation methods and Social Impact Framework to evaluate the impact of communication intervention.
Interdisciplinary	Enabling the research process to include seeking knowledge from fields and disciplines beyond but sensitive to social design to inform the proposed design-led approaches.

Figure 9: The table summarises the contribution of social design to evidence and inform the proposed design-led approaches for graphic design in this research.

2.3 Theoretical context of service design

This section examines the theoretical context of service design. It considers how service design might inform the proposed human-centric and culturally sensitive design-led approaches to graphic design. To do so, the research draws from and expands on approaches and activities according to Stickdorn et al's definition of service design. Further, the research examines fields related to service design: experience design, human-centred design and collaborative design, and policy design (Meroni and Sangiorgi, 2011, pp.38–40).

Prior to the inception of service design, services were designed by individuals who were not educated in design or did not consider themselves to be professional designers. In particular, services were 'engineered' with prioritisation given to the efficiency of the back-office logistics (Tonkinwise, 2019, pp.13–14). A shift to service design happened at the end of the twentieth century and beginning of the twenty-first (Kimbell, 2009, p.157). This shift coincided with the rise of the internet which has changed the ways services are accessed and used, even if the services are not accessed remotely (Downe, 2020, pp.20–21). Additionally, the shift to service design was a result of recognising the role of design in contributing to innovation and economy growth (Kimbell, 2009, p.157). Furthermore, the emergence of service design in the private sector led to its expansion into many domains including the public sector (Service Design Network, 2016, p.6). Stickdorn et al describe the practice of service design as follows:

> It is a human-centred, collaborative, interdisciplinary, iterative approach which use research, prototyping and a set of easily understood activities and visualisation tools to create and orchestrate experiences that meet the needs of the business, the user and other stakeholders. (2018, p.27)

Accordingly, service design takes interdisciplinary, human-centred and collaborative approaches to design for experiences that meet the needs of individual users of a service and the service-providing organisations. Penin explains that managers and decision-makers within service-providing organisations need to be convinced that return on investment is possible and that value is created for users (2018, p.303). Similarly, Buchanan et al mention that policymakers are often interested in service design approaches but need evidence of social and economic impact (2017, p.193). Tim Brown, leader in the realm of innovation and design, provides innovation evaluation framework of desirability, feasibility and viability (2019, p.24).

Desirability: about enabling users to achieve the goal they set out to do with minimum steps and 'quickly and smoothly' (Down, 2020, p.123).

(1) Feasibility: about the possibility of function within predictable time (Brown, 2019, p.24).

(2) Viability: about ensuring a return on investment (ROI) from designing the service (Brown, 2019, p.24).

This framework helps to provide a service offering that meet users' needs and is financially rewarding to the service-providing organisations. The implementation of this framework is to be applied at the prototyping phase of the case study as part of my future research.

Service design employs graphic design to reveal tacit knowledge and opportunities about how the experience of services can be improved. Also, service design utilises graphic design to help to prototype and communicate the future-state experience of the service (Schneider, 2011, p.78). Penin explains that visualisation through prototyping enables hypothetical experience to be seen, felt, assess and reworked (2019, p.149).

Returning to Stickdorn et al's definition of service design, the research reframes the creation of experiences as 'design for experience', because what can be designed are the conditions around the experience and not the experience itself (Penin, 2018, p.42). The research also reframes service design within the context of both public and private services as opposed to only business needs. Penin explains that service design can be practiced within public and non-for-profit organisations in addition to private organisations (2018, p.303).

The research adds three further approaches to Stickdorn et al's definition of service design. The first is the sequential approach which entails designing the service from end-to-end and to fit within a wider user journey (Downe, 2020, p.81). The holistic approach is essential to the service's experience as it allows coordination between the service [17] and its various logistic flows (Penin, 2018, p.152). This approach provides an understanding of how the service might be delivered in the most effective way (Downe, 2020, p.81). The sequential approach divides the service's experience into three interrelated stages: 'pre-service period' (getting in touch with a service before the actual

[17] Channels refer to any means through which users interact with the service (Stickdorn et al, 2018, 46).

service period), during service (when the actual service is experienced), and post-service (after service is used and experienced) (Stickdorn and Schneider, 2011, p.40–41).

Secondly, the holistic approach; this approach assures the delivery of consistent service experience offering from end-to-end, from the point of becoming aware of the service, to experiencing it, to sharing feedback, referring or returning to it. Achieving consistency requires seamless integration between the logistics flow behind the service (Penin, 2018, 153). Lou Downe, ex-Design Director of the UK gov[18], explains that achieving a streamlined service involves having 'shared standards, goals and incentives' among the service's organisations (Downe, 2020, p.119). Also, consistency requires maintaining a unified and consistent communication and visual language throughout the service. This is because consistency in communication provides anchors to positive experience and promotes trust during interaction with the service (Schneider, 2011, p.73). Downe emphasises that '[the] service should look and feel like one service, regardless of the channels it is delivered through. The language used should be consistent, as should the visual styles and interaction patterns' (2020, p.129). This is because 'every breach of consistency is a breach of trust' (Downe, 2020, p.141).

Thirdly, the evaluative approach; this approach requires integrating feedback and suggestions channels in the design of the services. Penin states that through feedback channels users can tell service providers about problem and opportunities against which the service can be adapted and improved (2018, p.298). The following subsection examines experience design as one of the fields that overlaps with service design.

2.3.1 Experience Design

The field of experience design is context-specific (Svabo and Shanks, 2015, p.25) and lacks an exact definition that articulates and recognises its potential (Rossman and Duerden, 2019, p.14). This research describes the concept of experience design by explaining the relation between 'service' and 'experience'. 'Service' is defined as something offered to help users do something" (Downe, 2020, p.19) while 'experience' is the interaction between the users and the service (Rossman and Duerden, 2019, pp.9–10). Ultimately, Zamzam water services need to be designed to meet the need of Umrah

[18] https://designnotes.blog.gov.uk

visitors. Only Umrah visitors can share feedback and insights on how their experience went and whether the services met their needs. Meroni and Sangiorgi explain that experience design provides service design with a framework to consider the emotional aspect of the service experience (2011, p.38); for example, this has informed mapping the emotional aspect of Zamzam water service experience with Umrah visitors. Therefore, understanding the experience of users is crucial when designing or redesigning services (Meroni and Sangiorgi, 2011, p.37). This leads the research to examine two fields that contribute to understanding users' experience: human-centred design and collaborative design.

2.3.2 Human-centred design

Human-centred design (HCD) has roots in user-centred design, which was developed to avoid designing products and technology based on designers' assumptions and intuitions (Krippendorff, 2004, pp.49–50). At the beginning of the 21st century, Buchanan considered HCD as an approach to connect design to human dignity and human rights (2001, p.36). However, HCD is employed as an approach that can support organisations to identify opportunities for improvements and change (IDEO, 2015). According to Meroni and Sangiorgi, HCD provides service design with a framework to research into users' experiences within context (2011, p.38). Don Norman, design thinker and professor, defines HCD as follows:

> It means starting with a good understanding of people and the needs that the design is intended to meet. This understanding comes about primarily through observation, for people themselves are often unaware of the difficulties they are encountering. (2013, p.9)

Accordingly, HCD gives service users a more consultative role in the design process. Users submit their feedback on a given problem and/or solution decided on by a professional (Blomkamp 2018, p.732). This leads the research to examine collaborative design to engage users through the design process.

2.3.3 Collaborative design (co-design)

Co-design provides service design with an approach to engage with users in order to reveal tacit knowledge that can itself reveal latent needs (Meroni and Sangiorgi, 2011, p.40). Similarly, Akama and Prendiville explain that co-design helps designers to bring to the surface knowledge that is tacit, intuitive, non-verbal or emotional integrated into

lived experience, and which may not be revealed by other methods or approaches (2013, p.6). Co-design was sparked from a democratic spirit which believes that individuals affected by design decisions need to be involved in the process of making these decisions (Sarnoff, 1990, p.i). However, Elizabeth Sanders, a collaborative design pioneer, clarifies that co-design can be practiced in different contexts that do not necessarily match the mindset from which co-design originated (2013, p.62).

Sanders and Stappers define co-design as 'the creativity of designers and people not trained in design working together in the design and development process' (2020, p.25). Accordingly, co-design shifts the design paradigm from designing *for* people to designing *with* people (Rochfort, 2002, p.160). This means designers emerge as facilitators who can choose and design suitable tools and activities, such as mapping and model building, in order to enable users to express their needs (Blomkamp 2018, p.733; Sanders and Stappers, 2020, p.25). The next subsection covers policy design to examine design as an approach for policymaking.

2.3.4 Policy design

Policy design is an area of service design where design theories and methods with roots in visual communication design, experience design, human-centred design and co-design are employed to inform policymaking (Buchanan et al., 2017, pp.183–84). Christian Bason explains that policy design connects policymakers to lived experiences and helps them to understand the root causes of problems and their underlying interdependencies (2020, p.4). Also, policy design can help governments to deliver better and faster services for less investment in order to meet the needs and expectations of citizens (Rebolledo, 2020, pp.41–42). Therefore, policy design might provide an approach for the Saudi government to achieve the Saudi Vision's 2030 strategic objectives of (1) improving the services provided to Umrah visitors and (2) enriching the religious and cultural experience of Hajj and Umrah visitors.

Policy design can manifest as design labs either within governments or working for governments such as the Policy Lab UK (Bason and Schneider, 2020, p.34), a creative space established in 2014 which sits within the Cabinet Office to inform and deliver new policy solutions. Also, the lab can inspire ways of thinking by developing new knowledge, skills and tools (Policy Lab, 2014). Andrea Siodmok, former Chief Design

Officer and Deputy Director at the Cabinet Office, proposes four phases that serve as a guide through the policy design process and set the expectation for the output of each phase (2020, pp.194–97). These phases position the Zamzam water services case study at the co-design phase of the design policy process.

(1) Diagnostic phase: about understanding the nature of the problem and laying the foundation of the project. The phase captures the existing service experience, policies, available resources and organisations involved in delivering the service. This phase is similar to mapping the experience of Zamzam water services through desk-based research before the Covid-19 pandemic (Section 4.4), a combination of observation and auto-ethnography (Section 4.5) and desk-based research during the pandemic.

(2) Co-discovery phase: about critical inquiry and insights that identify inefficiencies in the service and surface latent needs. Buchanan et al state that insights generated through design approaches help 'bridge the gap between a policy vision and policy implementation' (2017, p.185). Examples of best practices locally, regionally and internationally can be collected and examined as sources of inspiration at this phase. This phase is similar to mapping Zamzam water services with Umrah visitors (Section 4.6) and with representatives of the Zamzam Water Project (Section 4.7). The output of this phase is similar to the developed key insights and gaps in the Zamzam water service experience (Section 4.8)

Through the previous two phases, multi-modal data visualisation through graphic design are employed to contribute to the development of evidence-based insights along with various design tools and methods such as observation, cultural probes and journey maps.

(3) Co-design phase: the phase in which designers build on the developed analytical insight to generate new ideas. These ideas are often prototyped to be tested by users for feedback and modification. Joachim Halse states that visualisation communicates future possibilities 'that may not otherwise be available for experience and critique in corporeal form' (2020, p.201). This phase is partially similar to the future-state experience of Zamzam water services.

(4) Co-delivery phase: the outcome of the diagnostic, discovery and design phases brought together. The output of this phase varies according to the aim of the project at hand and could range from new legislation to a shift in public services.

Despite the value design brings to policymaking, designers can be faulted for their inability to create sustainable business models for implementing design ideas (Mulgan, 2014, p.4). Designers are also criticised for their inability to align the design ideas with the system of organisations providing the service. (Buchanan et al., 2017, p.193). Sangiorgi and Prendiville explain that when designing for policy, designers are required to consider 'the hidden organisational system and process behind the interface with users, that enable the aimed-for experience' (2017, p.3).

For example, understanding the disjointed nature between Zamzam water's service-providing organisations enabled me to address the root causes of some of the gaps in the services' experience. This understanding required me as a designer to go beyond the front stage of interaction with the services and examine the relationship between the services providing organisations; it also informed the decision to incorporate the future-state experience of Zamzam water services within the NUSK application[19] to align within the context of the Umrah visitors' journey. The business case development and implementation planning that support the design intervention to improve the experience of the service is conducted as the next step of this research.

[19] The NUSK application is an official platform for Umrah visitors to plan their Umrah journey established in 2022 by the Ministry of Hajj and Umrah.

2.3.5 Service design section conclusion

In this section (2.3), I examine the theoretical context of service design. The examination revealed seven approaches through which service design can contribute to evidence and inform the proposed design-led approaches for graphic design to improve the experience of Zamzam water services across the Umrah journey: (1) human-centred, (2) collaborative, (3) interdisciplinary, (4) visual-based, (5) sequential, (6) holistic and (7) evaluative (Figure 10). In the following section, the research concludes the theoretical review of the literature by responding to the overarching research question: How can graphic design contribute to improving the experience of Zamzam water services across the Umrah journey?

Approaches	Description
Human-centred	Designing the service in a way that put in balance between the needs of both the service's users and the service-providing organisations. Also, the human-centred theme considers the emotional aspect of the users' experience.
Collaborative	Engaging both the service's users and the service-providing organisations in the design process from end-to-end.
Interdisciplinary	Enabling designers to seek knowledge from other fields and disciplines to contribute to improving services' experience.
Visual-based	Employing the visual communication values of graphic design to (1) understand and evaluate an existing service experience and (2) enable future-state experience to be seen, felt and reworked.
Sequential	Dealing with the service as a whole and within the users' wider journey. Also, the approach orchestrates the service experience into three interrelated stages: pre-, during and post-service.
Holistic	Requiring seamless integration between the service-providing organisation to achieve a consistent service experience from end-to-end.
Evaluative	Integrating feedback and suggestion channels throughout the service journey in order to learn about gaps in the service experience.

Figure 10: The table summarises the contribution of service design to evidence and inform the proposed design-led approached for graphic design to improve the experience of Zamzam Water's services across Umrah journey.

2.4 Chapter conclusion

This chapter scoped and reviewed the theoretical context of visual communication design (Section 2.1), social design (Section 2.2) and service design (Section 2.3). The chapter concludes by combining the outcome of these contextual reviews in meta-synthesis (Figure 11). Robson describes that meta-synthesis 'involves the qualitative aggregation and interpretation of non-quantitative findings that have been extracted from topically related study reports' (2011, 377). The result of the meta-synthesis is ten simultaneous themes that form a service graphic communication framework for Zamzam Water's services across the Umrah journey. Also, these themes confirm and inform the research hypothesis to respond to the overarching research question. Further, these themes informed the designed and applied methodology for the case study (Section 4.2).

The themes of the service graphic communication framework for Zamzam water services across the Umrah journey are (Figure 12):

Human-centred: considers the needs of Umrah visitors within the context of what is functionally possible and profitable for the service-providing organisations. Also, the human-centred theme considers the emotional aspect of Umrah visitors' experience.

Multimodal social semiotic approach to communication: requires tailoring the communication strategy of Zamzam water services to the needs of Umrah visitors. This means design decisions about the communication's content (message), modes and channels are made in order to fulfil the needs of Umrah visitors.

Culturally sensitive: respect and maintain the Islamic faith and teachings which are embedded within the Saudi government's cultural values for services related to religious rituals.

Collaborative: requires engaging Umrah visitors and Zamzam water service-providing organisations throughout the design process of the service improvement.

Mixed methods: provides quantitative and qualitative methods and ethnographic approaches to conduct a rigorous design process and to develop evidence-based insights to improve Zamzam water services across the Umrah journey.

Sequential: requires approaching the Zamzam water service experience from end-to-end within the wider journey of Umrah visitors. Also, the sequential theme divides the

services' journey across the Umrah journey into three interacted stages: pre-visit, during visit and post-visit**.**

Holistic: requires seamless integration between Zamzam water service-providing organisations to achieve a consistent service experience from end-to-end.
Interdisciplinary: enables designers to draw knowledge from various disciplines and fields to improve the Zamzam water services experience across the Umrah journey.

Visual-based: utilises multi-modal data visualisation through graphic design to (1) analyse and communicate gaps in the experience of Zamzam water services as they stand and to (2) capture future-state experience of the services so it can be seen, felt, tested and modified.

Evaluative: requires integrating feedback and suggestion channels through Zamzam water services across the Umrah journey.

Visual communication design	Social design	Service design
Multi-modal social semiotic communication: enables combining various modes of making meaning to shape and express the communication content (message) according to the needs of the intended audience.	**Culturally sensitivity:** This approach provides a lens to critically adopt and adapt western design knowledge to align with the Saudi government's cultural values of religious services.	**Human-centred:** This approach requires designing the service in ways that create a balance between the needs of both the service's users and the service-providing organisations.
Audience-centric: entails tailoring communication according to the needs of its intended audience.	**Mixed methods:** The approach provides the research with social science research methods to conduct a rigorous design process and design a well-aligned intervention.	**Collaborative:** This approach requires engaging both the service's users and the service-providing organisations in the design process from end-to-end.
Mixed methods: draws from social science research to achieve rigorous understanding of the communication's intended audience.	**Evaluative:** The approach provides the research with 'formative' and 'summative' evaluation methods and Social Impact Framework to evaluate the impact of communication intervention.	**Interdisciplinary:** This approach enables designers to seek knowledge from other fields and disciplines to contribute to improve services' experience.
Evaluative: involves identifying and creating approaches to ensure that communication fulfils the purpose of its creation.	**Interdisciplinary:** This approach enables the research to seek knowledge from fields and disciplines beyond but related to social design in order inform the proposed design-led approaches.	**Visual-based:** This approach employs the visual communication values of graphic design to (1) understand and evaluate an existing service experience and (2) to enable future-state experience to be seen, felt and reworked.
Visual-based: utilises multi-modal data visualisation through graphic design.	-	**Sequential:** This approach deals with the service as a whole and within the users' wider journey. Also, the approach orchestrates the service experience into three interrelated stages: pre-, during and post-service.
Interdisciplinary: requires drawing knowledge from other fields and disciplines to achieve efficiency in communication.	-	**Holistic** This approach requires seamless integration between the service-providing organisations to achieve a consistent service experience from end-to-end.

Visual communication design	Social design	Service design
-	-	**Evaluative** This approach requires integrating feedback and suggestion channels throughout the service journey in order to learn about gaps in the service experience.

Figure 11: Results of meta-synthesising the outcome of reviewing the theoretical context of visual communication design, social design and service design.

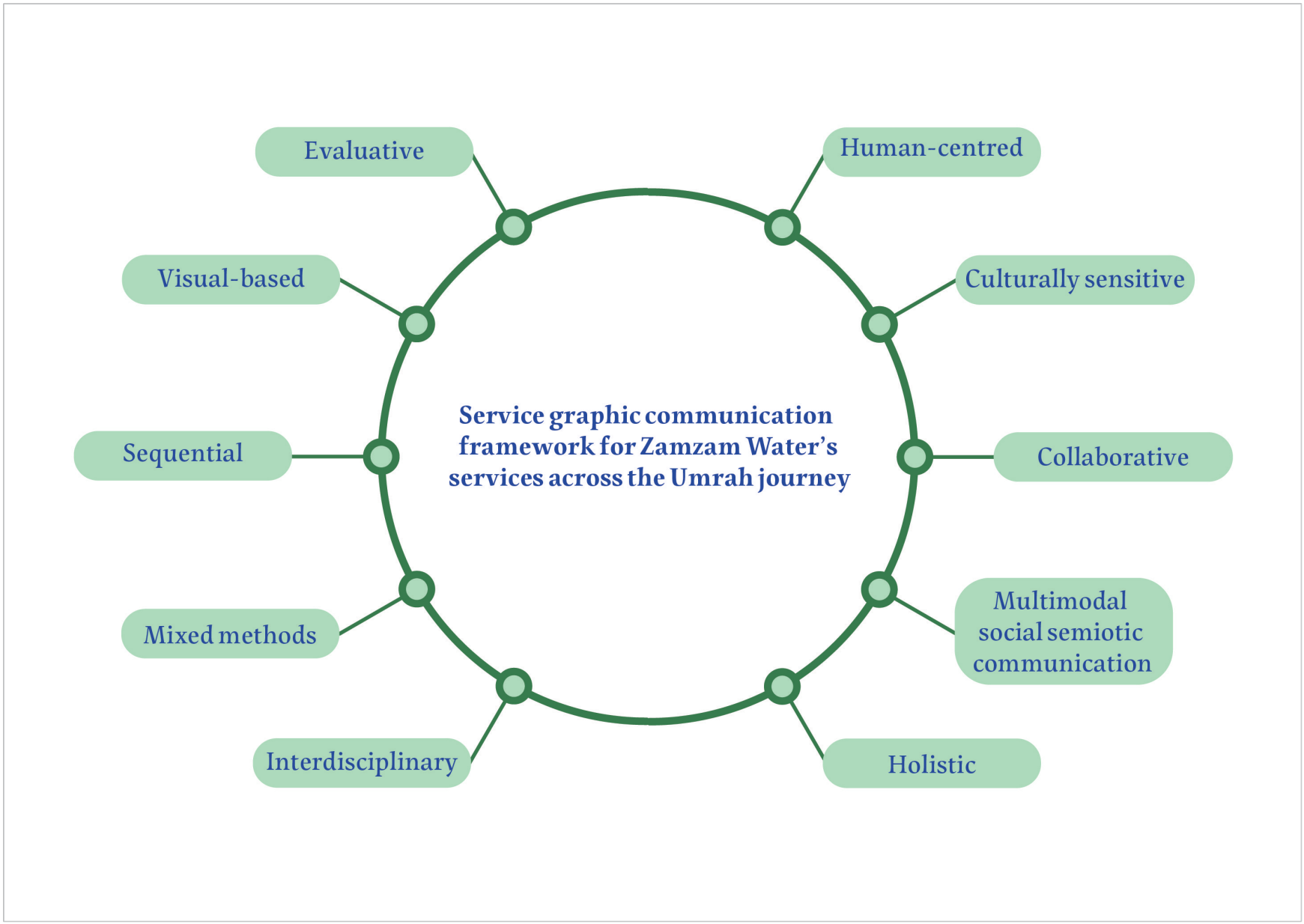

Figure 12: Visualisation of the service graphic communication framework of Zamzam water service within the Umrah journey.

Chapter three: A review of graphic design in the Saudi context

3.0 Chapter introduction

This chapter undertakes a contextual review of the graphic design profession in Saudi. The aim of the review is to evidence the initial idea and impetus behind the research and to confirm the significance of the research hypothesis. Also, the review aims to identify the research contribution within both the Saudi graphic design profession and the wider ambition of Saudi Vision 2030. To do so, a review of graphic design within Saudi Vision 2030 provides the starting point (Section 3.1). Following that, using two methods, a desk-based analysis into the Saudi graphic design profession, (Section 3.2) and then Design Conversations (Section 3.3) are conducted. The outcomes of these two methods highlight the opportunities and potential gaps in the graphic design profession in Saudi (Section 3.4).

3.1 Graphics design within Saudi Vision 2030

The Ministry of Culture was established by a royal order in June 2018 to oversee the Kingdom's cultural sector locally and internationally. The Ministry is committed to define and support the growth of the cultural sectors by removing barriers, limiting bureaucracy and enabling creativity to flourish[20]. To do so, the Ministry engaged extensively with Saudi citizens and local and international cultural experts. This has involved examination of international best practice within the existing cultural ecosystem. The Ministry has conducted meetings with local cultural agencies and with local and international cultural experts (Ministry of Culture, 2019, p.7). This extensive research resulted in splitting the cultural sector into 16 subsectors with 11 commissions to oversee these sectors[21] (Ministry of Culture, 2019). In 2020, the Ministry of Culture established the Architecture and Design Commission with six subsectors, including architecture, urban design and planning, and landscape architecture as well as the fields of interior design, graphic design and industrial design. The Architecture and Design Commission supports the Ministry of Culture to realise the Vision's pillars of growing

[20] The ministry of Culture website and reports are the only source of information about what the Ministry does and how.

[21] The cultural sub-sectors in the Kingdom include heritage, museums, archaeological and cultural landscapes, theatre and performing arts, cultural festivals and events, books and publications, architecture and design, natural heritage, film, fashion, language and translation, culinary arts, literature, libraries, visual arts and music. The commissions that oversee these sectors include Culinary Arts Commission, Literature, Publishing and Translation Commission, Theatre and Performing Arts Commission, Architecture and Design Commission, Film Commission, Heritage Commission, Libraries Commission, Museums Commission, Music Commission, and Visual Arts Commission (Ministry of Culture, 2019).

the creative economy and enriching the national identity (Architecture and Design Commission, 2020). To do so, the Commission has set out six strategic objectives against which its impact will be measured. These are the Commission's objectives as described on its official website:

'(1) Regulate and develop the architecture and design sector.
(2) Support the diversification of Saudi Arabia's economy by growing the creative industries.
(3) Educate future professionals … and provide architecture and design with the best opportunities and resources to thrive both domestically and internationally.
(4) Global recognition.
(5) Position Saudi Arabia as the regional environmental sustainability leader in architecture and design.
(6) Foster and promote innovation and research to shape the future of the sector.'
(Architecture and Design Commission, 2020)

This PhD research is positioned within the remit of the Architecture and Design commission and focuses on and contributes to the field of graphic design within that. Also, the research enables the Ministry of Culture to contribute to the Vision's strategic objectives of, firstly, improving the quality of services provided to Hajj and Umrah visitors and secondly, enriching the religious and cultural experience of Hajj and Umrah visitors (Saudi Vision 2030, 2016) (Figure 13). In the next section, the research reviews the graphic design profession in Saudi between 2017 and January 2023 to gain insights about its workings.

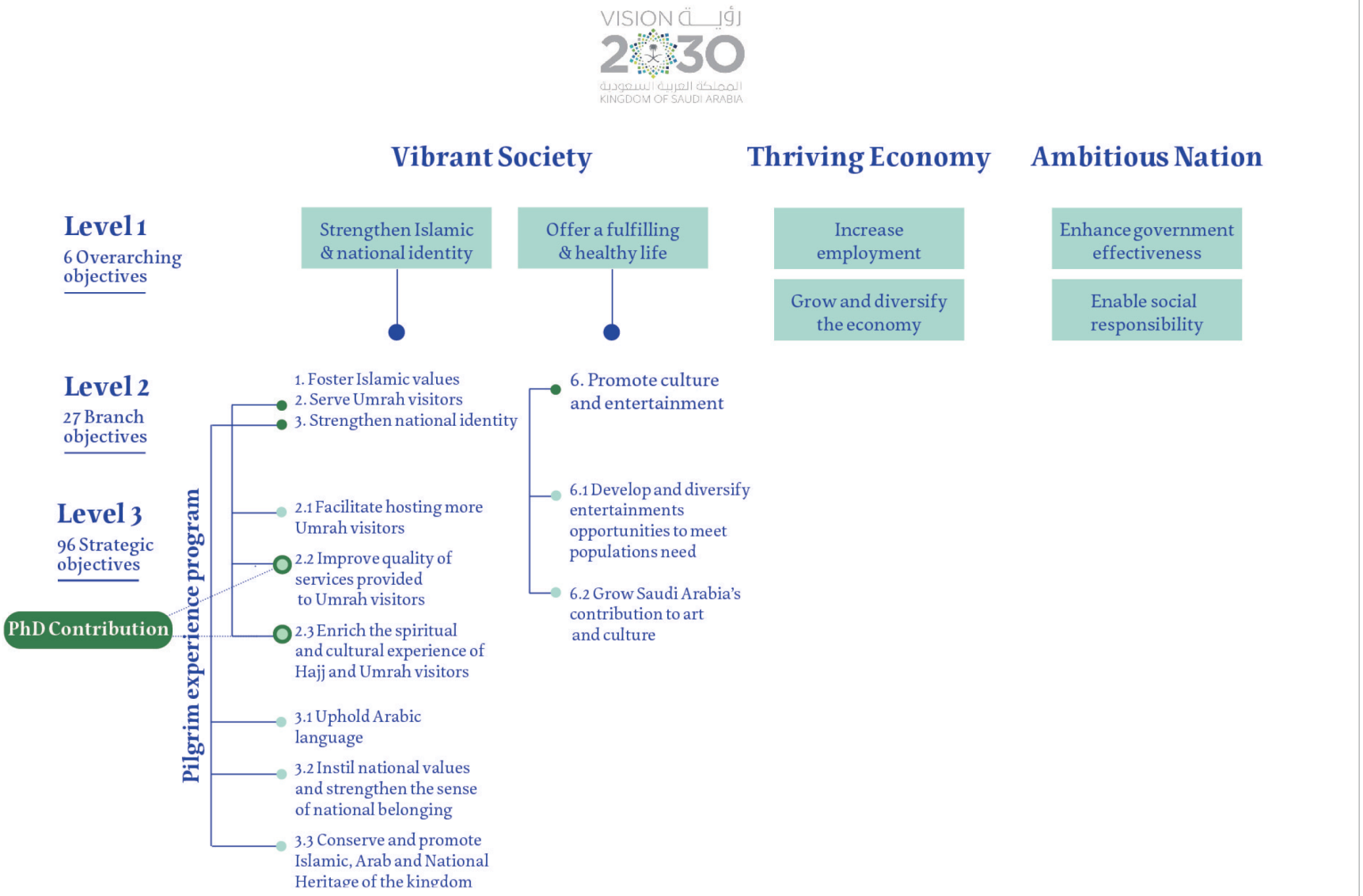

Figure 13: The contribution of this PhD research within the strategic objectives of the Saudi Vision 2023.

3.2 Desk-based analysis into the Saudi graphic design profession

The desk-based analysis into the Saudi graphic design profession was conducted between 2017 and January 2023. The purpose of the analysis was to develop an understanding about the profession in the Kingdom, given the lack of adequate scholarship in the field.

3.2.1 Data collection and analysis

The analysis into the Saudi graphic design profession looked at primary sources available in the public domain. The collected data for the analysis was from primary sources published by the Saudi government's agencies. Muratovski describes primary sources as 'public records or documents published by governments or non-governmental bodies' (2022, p.124). The Saudi government's available sources include published data on (1) the website of the Saudi Ministry of Education, (2) the Instagram account of Saudi Design Week, (3) the Instagram account of the Architecture and Design Commission, and (4) the Instagram account of Saudi Design Festival. The research used thematic analysis to systematically analyse and interpret collected data from each source. The interpretation of this analysis is summarised in figure 21. Colin Robson explains that thematic analysis relies on predetermined themes that emerge from interaction with data. The collected data under each theme is organised into a table for analysis and interpretation (2011, pp.474–75). For example, I arrived at the themes of analysing the data from Saudi Design Weeks by examining the talks and workshops in the design fair-related graphic design and the design fields within the scope of this PhD research. Under each source of data collection I explain how I have arrived at the themes of analysis. The following is a brief description of each data source and the process of data collection and analysis.

(1) **The Ministry of Education:** The Ministry is a public-sector organisation that supervises public and private education in Saudi. The research analysed the list of educational institutions (28 public[22] and 15 private universities and 23 private colleges[23]) available on the Ministry's website. I arrived at the themes of analysis by looking for institutions that offer a degree programme in graphic design as graphic design is the field of practice this research is concerned with. The collected data was organised into a table for analysis and interpretation (Figure 14).

University	Type of university	Name of department
Imam Abdulrahman Bin Faisal University (IABFU)	Public university	Graphic Design and Multimedia
Princess Nourah Bin Abdulrahman University (PNU)	Public university	Graphic Design and Digital Media
Jeddah University (JU)	Public university	Graphic Design
Dar Al-Hekma University	Public university	Visual Communication
Interpretation	**Graphic design is a growing profession in Saudi.** • The analysis revealed a small number of universities (four) that provide a degree in graphic design when compared to the overall number of universities and colleges in Saudi (62 educational institutions) that offer degrees in other majors such as engineering, business and medicine. • This small number of universities offers an explanation to the lack of comprehensive scholarship about the profession in Saudi.	

Figure 14: Analysis and interpretation of the collected data about the universities that offer degrees in graphic design in Saudi.

[22] https://moe.gov.sa/en/education/highereducation/Pages/UniversitiesList.aspx

[23] https://moe.gov.sa/en/education/highereducation/Pages/PrivateUniversity.aspx

(2) **Saudi Design Week (SDW):** The design fair celebrated and promoted different design professions in Saudi including graphic design between 2014 and 2019. The design fair programme was mainly published on the SDW official account on Instagram.[24] The research analysed in aggregation three editions of SDW that were supported by the government's General Entertainment Authority.[25] I arrived at the themes of analysis by examining the posts showing the talks and workshops in the design fair about graphic design and the design fields within the scope of this PhD research (Figure 15). From a total of 1489 posts, 13 were related to the scope of this PhD. To analyse and interpret the collected data, it was organised into a table (Figure 16).

[24] https://www.instagram.com/saudidesignweek/

[25] The General Entertainment Authority is a Saudi government agency responsible for developing, organising and supporting the entertainment industry in Saudi. The authority was responsible for supporting the 2017, 2018 and 2019 editions of SDW (Saudi Design Week, 2017).

Figure 15: Part of the coding process of the Instagram posts of SDW (2017 and 2019) to extract the themes of analysis.

SDW's Edition	Talks	Workshops
Fourth edition, 2017	There were no design talks about graphic design.	Arabic lettering and Typography by Tarek Atrissi Square Kufi Calligraphy by Najla Albassam
Fifth edition, 2018	Stimulating sustainable thinking in graphic design practice in the Arab world by Tarek Atrissi. The Social Design ABC by Rita Szerencses. The Real Value of Design by Victor Grant Linscott.	Bilingual Typography Design by Tarek Atrissi Social Design by Rita Szerencses Infographics by Hans Asfour
Sixth edition, 2019	Modernising Culture through Art (illustration) by Ahmed Alrefaie. Design and Passion by Tarek Atrissi	Co-design: Participatory Design by Ahmed Sharabassy Typo Motif by Nada Abdallah Typographic Experiments with Ruq'a Style by Tarek Atrissi Design Entrepreneurship by Tarek Atrissi
Interpretation	**Graphic design is mostly perceived to be about its visual communication values** • Graphic design was present in talks and workshops related to calligraphy, typography and illustration. • Emerging interest in the fields of social design and collaborative design, as demonstrated by the related workshops and design talks.	

Figure 16: Analysis and interpretation of the data collected about graphic design and the design fields within the scope of this PhD research from the Instagram account of SDW.

(3) **The Architecture and Design Commission:** The Commission uses Instagram as a platform to communicate its initiatives and contributions.[26] I arrived at the themes of analysis by looking at the posts about the Commission's initiatives and contributions to the development of the graphic design field and other design fields within the scope of this PhD research (Figure 17). Twenty-seven posts out of 125 were related to the scope of this research. The collected data was organised into a table for analysis and interpretation (Figure 18).

[26] https://www.instagram.com/archmoc/?hl=en

Figure 17: Part of the coding process of the Instagram posts of the Architecture and Design Commission to extract the themes of analysis.

Type of contribution	Description of contribution
Survey initiative: Researchers and experts guide directory survey	The Commission conducted the survey in 2020, 2021, 2022 and 2023. The survey result of 2020 revealed that 50 out of 628 participants were specialists in graphic design. The survey result for the other years had not been released to the public at the time of this PhD research.
Survey initiative: Remote meeting with academics and specialists in graphic design 2022	The meeting aimed to contribute to the development and enhancement of the graphic design profession in Saudi. The outcome of the meeting was not shared publicly.
Educational initiative: Scholarship programme	The Commission offers scholarship for Saudis to pursue degrees in graphic design abroad.
Educational initiative: A&D educators forum	The Commission established A&D educators forum to foster the development of design education in the Kingdom. Topics discussed during the forum and related to this PhD research include collaborative design and interdisciplinary approaches to design. The outcome and recommendations of the forum were not shared with the public.
Educational initiative: Watan Letters competition	The Commission launched the Watan Letters competition for graphic designers and Arabic font designers. The competition aimed to enhance and support Arabic typography. Participation in the competition involves designing a series of three typography posters or videos in celebration of national poetry.
Educational initiative: DESIGNATHON 2023	The DESIGNATHON focused on applying human-centred approach to design. The DESIGNATHON aimed to foster design for wellbeing, design for social impact and design for sustainability. The expected outcome of the DESIGNATHON includes developing 'innovative design concepts into various formats, such as awareness campaigns, policies, applications, games and more' (Ministry of Culture, 2023). Applications were open for designers from different design fields including graphic design. Details about the DESIGNATHON's final outcomes were not shared with the public.
Recognition initiatives: London Design Biennale	The Commission provided opportunities for Saudi designers including graphic designers to participate in the London Design Biennale 2023.
Recognition initiatives: Saudi Design Festival	The Commission established and supported the Saudi Design Festival (formerly SDW).
Interpretation	**Graphic design is a growing profession.** **Graphic design is mostly perceived to be about the implementation of visual communication.** **Emerging interest in considering the social impact of design and applying human-centred approach to design.**

Figure 18: Analysis and interpretation of the data collected about the Architecture and Design Commission's contribution to the development of the field of graphic design in Saudi between 2020 and 2023.

4. **Saudi Design Festival (SDF):** The festival is the successor of Saudi Design Week and a member of World Design Week (Saudi Design Festival, 2023). Its programme was published on the festival's account on Instagram.[27] For the purposes of this research, an analysis of the programmes of two editions of SDF (2022 and 2023) in aggregation was undertaken. I arrived at the themes of analysis by examining the posts relating to the panel discussion, workshops and exhibition about graphic design and the design fields within the scope of this PhD research in the design festival (Figure 19). Eighteen posts out of 311 were related to the scope of this PhD. The collected data was organised into a table for analysis and interpretation (Figure 20).

[27] https://www.instagram.com/saudidesignfestival/

Figure 19: Part of the coding process of the Instagram posts of the Saudi Design Festival (2022, 2023) to extract the themes of analysis.

Festival edition	Panel Discussions	Workshops	Exhibitions
First edition 2022	There was no panel discussion about graphic design.	Calligraphy in art and design – Lulwah Alhumood, and Areej Attalah Design thinking vs UXD – Dr Haifa AlHumaidan and Eman Al Wahaby	Hundred Best Arabic Posters: one hundred posters were exhibited in celebration of Arabic visual culture.
Second edition 2023	Going G-local: Local and International Brand Positioning – Watfa Hamidadin, Banan Alyaquby, Abeer Alessa and Jasmine Bager Interdisciplinary design practice – Jawaher AlSudairy, Turki Gazzaz, Abdulrahman Gazzaz and Jou Pabalate	Brand your neighbourhood – Almashtal Community House & Creative Incubator The Matchmaking Game – Areej Attallah (typography design) Graphic design portfolio review – Bold Comms Graphic design portfolio review – Shaddah Studio Graphic design portfolio review – Nada Hakeem Street poet collection 2 (typography design and screen printing) – Shaddah Studio Introduction to Glyphs Program – Maha Althukair Branding Portfolio Review – Fadel Shaath Digitising traditional calligraphy – Abdulrahman Alfayez Designing a brand – Yones Aalaboudi Design thinking for innovation	There was no exhibition related to graphic design.
Interpretation	**Graphic design is mostly perceived to be for the implementation of visual communication. Graphic design is practiced within branding.**		

Figure 20: Analysis and interpretation of the data collected about graphic design and the design fields within the scope of this PhD research from the Instagram account of the SDF.

Ministry of Education	Saudi Design Week (2017, 2018, 2019)	The Architecture and Design Commission	Saudi Design Festival (2022, 2023)
Graphic design is a growing profession in Saudi.	Graphic design is mostly perceived to be about the visual communication values.	Graphic design is a growing profession. Graphic design is mostly perceived to be about the implementation of visual communication. Emerging interest in considering the social impact of design and applying human-centred approach to design.	Graphic design is mostly perceived to be for visual communication values. Graphic design is practiced within branding.
Interpretation	**Graphic design is a growing profession.** **Graphic design is mostly perceived to be about its visual communication values.** **Emerging interest in considering the social impact of design and applying human-centred approach to design.** **Graphic design is practiced within branding.**		

Figure 21: Meta-synthesis of the thematic analysis of the data collected from the Ministry of Education, Saudi Design Week, the Architecture and Design Commission and the Saudi Design Festival.

3.2.2 Analysis limitations

The desk-based analysis into the Saudi graphic design profession was limited in relation to the breadth and depth of data that I was able to access through public sources. Firstly, this was due to the lack of access to data about graphic design teaching content in Saudi. Also, accessible data is lacking about the outcomes of Saudi Design Week, Saudi Design Festival, the Architecture and Design Education Forum and DESIGNATHON 2023. Secondly, the analysis did not inspect the outcome of 'the research and guide directory survey (2021–2023) or the meeting with the graphic design academics and specialists (2022). This is because the data was not made public by the Architecture and Design Commission at the time of this research. However, the analysis provided the research with a springboard to understand the profession in the Kingdom. Also, the analysis confirmed that graphic design as a method to improve the experience of Saudi public services is an area of inquiry that has not been fully researched. In the next section, I discuss the semi-structured interviews in the form of Design Conversations to complement the desk-based analysis into the Saudi graphic design profession.

3.3 Design Conversations on the context of the graphic design profession

Design Conversations is a method designed to supplement the desk-based analysis into the Saudi graphic design profession. The conversations aimed to cultivate a deeper understanding about the profession in terms of working definitions, benefits and challenges from the experience and perspective of the participating designers. Also, the conversations aimed to examine with the participants the prominence of social design and service design and how these can inform or benefit the graphic design profession.

3.3.1 Data collection and analysis

The form of the Design Conversations was inspired by the semi-structured interview. According to Crouch and Pearce, semi-structured interviews allow the researcher to shape the focus of the interview while giving participants an amount of freedom to direct its progress (2015, p.112). Also, semi-structured interviews enable the design researcher to capture the experience and perspective of participants. By contrast, the structured interview is mostly employed in survey research and offers the interviewee a fixed range of answers (Bryman, 2012, p.209). The Design Conversations were forged between me and ten professional designers (seven designers from Saudi Arabia, one from each of the United Arab Emirates, Egypt and Lebanon). The designers were selected because they were referred to by design studios and/or designers emerged from the desk-based analysis into the Saudi graphic design profession. The participating designers hold various positions including design researcher, junior graphic designer, creative director, founder of design studio, founder of digital design space and freelancer.

The Design Conversations were conducted between 2020 and 2021, at the time of Coronavirus spreading around the world causing a global pandemic and travel restrictions. Thus, all conversations were carried out remotely via Zoom meetings to overcome travel barriers in place at that time. During the conversations, the participating designers had the right to refuse to disclose any information they do not want to share. Following ethics procedures[28], recordings of the conversations were stored securely and destroyed after the completion of analysis and interpretations.

[28] https://www.rca.ac.uk/research-innovation/research-ethics/

The research used thematic analysis to collect, analyse and interpret data from the conversations. As stated previously, in thematic analysis predetermined or extracted themes serve as the foundation for analysis and interpretations (Robson, 2011, p.477). The themes of analysis are conceptualised, based on the perception of the participants about the literature review scope of this PhD research. These themes are (1) the definition, benefit and limitations of graphs design, (2) the definition and prominence of social design and its benefit for graphic design and (3) the definition and prominence of service design and its benefit for graphic design. The collected data was organised into three tables with the columns of each table representing the explored themes (Figures 22, 23 and 24. The rows of each table display responses from the participating designers anonymised from 1 to 10 as designers did not want to reveal their identities. The bottom of the table shows the interpretations of collected data from all designers. Interpretations of the Design Conversations are summarised in Figure 25.

Designer's number	Graphic design definition	Graphic design limitations	Graphic design benefits
One	'It's a commercial practice activity and practiced within commercial context (branding and advertising) where you are working specifically for a client to develop a commercial outcome. There is better awareness about the value of graphic design in Saudi but we are not there yet. The Saudi government has established initiatives to support and give value to the creative industry including graphic design. So there is a better and increasing awareness about graphic design than before but we are not there yet. You know when the government takes initiatives there is a ripple effect to other industries. For example, look at the visual identities of the different ministries. All the identities have been changed after the launching the Vision.'	'There are few avenues to practice graphic design outside commercial context and branding and advertising. Graphic designer is still included the box of artist or in the box of logo designer. Many initiatives use graphic design but they do not necessarily define it as graphic design. When graphic design is used in art exhibitions, they define it as art. But this is changing, it's not a complete limitation. They do not know enough of what graphic design can bring to the table. There is a gap between aesthetic (producing visuals) and communication. The communication aspect of the profession is not yet considered. It's not clear for people yet. A lot of designers and clients think of graphic design as a visual activity and totally forget about communication. Society places foreign expertise at higher position than local expertise.'	'You can see the benefits in the commercial sector. The government started to recognise and give value to creative industries including graphic design. However, governments did not see examples on how graphic design can play a role in improving the experience of public services or in establishing communication with citizens.'

Designer's number	Graphic design definition	Graphic design limitations	Graphic design benefits
Two	'Graphic design is used for commercial purposes. It's mostly used for advertising and branding and for social media (Instagram and Facebook).'	'There is a bigger need to look at graphic design and design in general within the context of public services and social change perspective. There is a need to make graphic design more participatory and more community-based rather than just focusing on branding and advertising. Governments still have not really seen the value of graphic design as it can be. A lot of people think of graphic design within a commercial context and focus on its visual values. Sometimes they think of graphic design as too frilly, unnecessary. There are opportunities for graphic design outside the commercial sphere but it's super related to the political situation of the country.'	'Financial benefits are clear for businesses but not governments.'
Three	'Graphic design is most prominent in branding and visual identities everywhere. Nowadays, graphic designers are required to design visuals for social media content. High demand for graphic design in the food and beverages industry.'	'Lack of enough Arabic and Latin matching fonts. Lack of high-quality printing.'	'There is a high demand for graphic design especially in the food and beverages industry. Business owners care more about the visual identities of their brands. They want the brands to be related to and speak to the local culture.'

Designer's number	Graphic design definition	Graphic design limitations	Graphic design benefits
Four	'Graphic design is defined by Adobe Creative Cloud applications and is mainly practiced under marketing and within branding agencies.'	'There are not enough examples that show what graphic design can bring to the table within the context of public services. Graphic design comes at the very end of the design process. Most of the government's organisation depends on marketing agencies rather than having in-house design team. Lack of job description for graphic design positions in public services.'	'Financial benefits for the private sector.'
Five	'Graphic design is a visual activity and is mainly used within commercial sectors. It's growing in Saudi and is strongly associated with branding and marketing.'	'Foreign designers and advertising agencies are preferred to local designers and agencies. Clients perceive graphic designers as visual executors. People approach graphic design for aesthetic purposes. Designers and clients are not aware of the importance of design research. There is a gap in the local education of graphic design which only focuses on visual training. Graphic design education should include courses in branding, marketing, business and communication. Graphic designers should know how to develop a branding and communication strategies and develop business cases for projects.'	'Graphic design can benefit the public sector in terms of developing communication strategy, especially with rise of social media.'

Designer's number	Graphic design definition	Graphic design limitations	Graphic design benefits
Six	'Graphic design is too tied into commercial work. Graphic design is perceived more as a job rather than as an intellectual practice.'	'Graphic design work is limited to branding agencies and commercial spaces. There is a limited perspective of what graphic design can do for society in terms of how it can improve public services. This is due to a lack of examples that would make designers realise their capabilities beyond the commercial sector industry. Graphic design is limited to visual execution without enough awareness about its communication role. Designers might become obsolete in few years because AI can do a 'good job' in visual execution. There is a gap in the local education system. It imitates the west to try to become international. Design education needs knowledge from other fields such as cultural studies, social theory, philosophy. Designers have to be careful when adapting or importing western design models, theories and education system.'	'Definitely graphic design has financial value for the commercial sector. But we need to see examples on how graphic design can be employed to benefit public services. The benefits of graphic design to the public sector need to be explored and researched.'
Seven	'Visual communication.'	'Some clients, whether from the public and private sector, can't understand the value of design research to their brands and services.'	'Graphic design is booming now. It is shifting from a hardly noticeable to a fast-growing field and profession in Saudi.'
Eight	'Communication design.'	'Lack of awareness about the communication aspect of graphic design.'	'Some governments started to recognise the value of graphic design as a drive for economic growth.'

Designer's number	Graphic design definition	Graphic design limitations	Graphic design benefits
Nine	'Graphic design can be defined through Adobe software programmes such as Photoshop, InDesign, Illustrator and AfterEffects.'	'Local businesses prefer foreign design studios. The profession is not well known in Saudi. My friends think of graphic designers as artists.'	'Graphic design benefits the private sector.'
Ten	'Visual activity utilised by commercial sector industry, big brands and huge cultural organisations.'	'I can't think of limitations for now.'	'Enhance and promote culture. Financial benefits for companies.'
Interpretations	**Graphic design is a growing profession.** **Graphic design is mostly perceived for its visual values.** **Graphic design is practiced within the commercial sector under branding and marketing.**		

Figure 22: Analysis and interpretation of the participating designers' perspectives on graphic design. The data in the table was collected from design conversations conducted between 2020-2021.

Designer's number	Prominence of social design	Benefits of social design for graphic design
One	'The concept of social design has roots in the UK context, as an alternative to using design for commercial purposes or entertainment. Design is used for social purposes and context, for example, in hospitals or public services. I would say social design is a specialisation. The term and concept of social design is not prominent in Saudi. But social design might be practiced under different name in the Kingdom. My problem with social design, design thinking, human-centred design or any western design approaches or methods is that it comes with fixed processes and/or concepts, which are not necessarily suitable and applicable to all countries, cultures and clients. A 'one size fits all' approach is not good. Designers need to understand the roots of these concepts and approaches. Also, they need to be critical and careful when applying these concepts within their local context.'	'Social design can utilise graphic design visualisation to communicate ideas, not just to make them look good. Social design can open up more avenues to practice graphic design outside the commercial sector. But this requires considering the communication aspect of graphic design.'
Two	'Social design is a very British term and is prominent in the UK and supported by the UK government. In the Middle East, designers and people think of design in social context such as dealing with alcoholics or people who have mental or physical disabilities – this should not be the only cases or understanding of the field. Social design has to come from the culture and be supported by political strategies in order to be a sustainable practice. The security and the wealth of the government plays a big role when considering the social aspect of design. Regional designers have to agree on the naming. We do not have to call it social design. Regional designers have to adopt and adapt methods and approaches in order to fit within their own local context and culture. I would say social design is important especially for public services. Social design depends on how much the governments want to listen to citizens.'	'Social design can open up avenues to practice graphic design outside the commercial sphere or in more specialised contexts.'
Three	'Can you explain what you mean by social design? No, social design is not prominent.'	'I do not know how it can benefit graphic design.'
Four	'I have never heard of social design and I do not think it's prominent in Saudi.'	'I do not know.'
Five	'I am not familiar with social design. I do not believe it's a prominent field.'	'I can't tell you how it can benefit graphic design.'
Six	'No. It's not prominent at all.'	'I have no idea.'
Seven	'I believe all design is social. From my experience, it's not prominent.'	'I have no idea.'

Designer's number	Prominence of social design	Benefits of social design for graphic design
Eight	'Not prominent at all.'	'Social design has nothing to do with graphic design.'
Nine	'Not prominent.'	'Why does graphic design need social design?'
Ten	'Not prominent.'	'I do not know.'
Interpretation	**Social design is not a prominent practice.** **There is emerging interest in considering the social impact of design.** **There is cultural sensitivity when it comes to borrowing knowledge and methods from western design models.**	

Figure 23: Analysis and interpretation of participating designers' perspectives on social design. The data in the table was collected from design conversations conducted between 2020-2021.

Designer's number	Prominence of service design	Benefits of service design to graphic design
One	'Human-centred approach to design is gaining attraction lately. But you can't separate the human from design. It's an intertwined relationship. You can't do design without humans in mind. But the approach is not very prominent in Saudi. Decisions are mostly made top-down. The concept of not engaging people in decision-making could be related to the engineering approach for public services which is very strict and fixed. The human-centred approach of service design is extremely important when designing for public services. Input and feedback from people are very important. Feedback channels that help improve the design are needed. You are not designing for the person who makes the decision, you are designing for people so get people's feedback and involve them in the design process. Service design is not prominent and not even close of being prominent based on my experience. This is because of the top-down approach in making decisions. This can be rooted to the structure of families. It's a cultural thing. Also, due to lack of awareness about the value of these approaches to public services.'	'Service design overlaps with graphic design. Service design may provide designers with knowledge to supplement their design decision-making.'

Designer's number	Prominence of service design	Benefits of service design to graphic design
Two	'Service design is an approach that provides designers with a bigger understanding and learning about who they are designing for or with rather than just having a questionnaire. It's a bottom-top approach to design. It's part of the design education in Lebanon but it's not prominent outside universities. HCD has to have a much bigger place with social and public services. The human-centred approach of service design is not prominent in the Middle East from my experience. I do not think it's even practiced within the public sphere. For social design and service design to work, especially within social context and public services, the government has to have a similar mindset of change and utilising design to improve its services.'	'Service design can open avenues and specify context to practice graphic design. Also, it can bring more attention to the communication aspect of graphic design.'
Three	'The human-centred approach of service design is adopted by the design management team in the studio; most of the team's members have a background in graphic design. As a graphic designer, I need the project brief to tell me what to design. I do not want to be involved in research.'	'I do not think it benefits graphic design. At the studio, graphic designers only focus on visualisation and meeting the tight deadlines.'
Four	'No, it's not prominent. The design sector in Saudi is young and growing.'	'I do not know.'
Five	'No, it's not prominent.'	'Service design can open more avenues to practice graphic design. But from my experience, it's essential for graphic designers to have a background in branding, marketing and business.'
Six	'No, it's not prominent.'	'Graphic designers need to focus on designing visuals only.'

Designer's number	Prominence of service design	Benefits of service design to graphic design
Seven	'All design is human. We do adopt a human-centred approach in the studio under marketing.'	'The human-centred approach is essential for graphic design but not necessarily to be conducted by graphic designers. I prefer graphic designers to stay focused on producing visuals to meet tight deadlines. Design research can be conducted by a creative who has background in branding, marketing, and business with an experienced eye in design.'
Eight	'We adopt a human-centred approach to design. Also, the government of Dubai adopts a human-centred approach to improve its services and engage citizens.'	'Service design can help graphic designers to refocus on the communication aspect of the profession.'
Nine	'Service design is not prominent at all.'	'Services design provides graphic design with knowledge and methods to enhance communication efficiency.'
Ten	'It's not prominent.'	'It does not benefit graphic design.'
Interpretations	**Service design is not a prominent practice.** **There is emerging interest in a human-centred approach to design.**	

Figure 24: Analysis and interpretation of participating designers' perspectives on service design. The data in the table was collected from design conversations conducted between 2020-2021.

Graphic design	Social design	Service design
Graphic design is a growing profession.	Social design is not a prominent practice.	Service design is not a prominent practice.
Graphic design is mostly perceived for its visual communication values.	There is emerging interest in considering the social impact of design.	There is emerging interest in a human-centred approach to design.
Graphic design is practiced within the commercial sector under branding and marketing.	There is cultural sensitivity when it comes to borrowing knowledge and methods from western design models.	-

Figure 25: Summary of interpretations of Design Conversations.

3.3.2 Design Conversations' limitations

It is important to note that the outcome interpretations from the Design Conversations are specific to this PhD research and cannot be generalised to the wider graphic design profession in Saudi. This is because the participating number of Saudi designers (seven) is a relatively small sample when compared to the overall number of Saudi graphic designers (50) who participated in the Architecture and Design Commission's survey in 2020. Also, the Design Conversations did not examine how graphic design is perceived by significant Saudi officials and policymakers, such as Dr Sumayah Al-Solaiman, CEO of the Architecture and Design Commission. However, the Design Conversations enabled an indepth focus on the research scope and they provided knowledge and evidence to confirm the initial impetus for the research and identify its contributions. This leads into a discussion on the opportunities and gaps in the graphic design profession in Saudi.

3.4 Opportunities and gaps in the Saudi graphic design profession

This section provides four insights reflecting on opportunities and the gaps within the Saudi graphic design profession. These insights resulted from the application of my meta-synthesis analysis according to Robson's definition within *Real World Research* (2011). Robson describes that meta-synthesis includes the analysis and combination of qualitative data from multiple studies (2011, 377). My meta-synthesis focused on the outcome interpretations of the desk-based analysis into the Saudi graphic design profession, Design Conversations, as well as my individual reflection as a researcher (Figure 26). This section explains how these insights contributed to supporting the research impetus and informed the proposed design-led approaches with the Zamzam water service case study.

Desk-based analysis into the Saudi graphic design profession	Design Conversations
Graphic design is a growing profession.	Graphic design is a growing profession.
Graphic design is mostly perceived to be about its visual communication values.	Graphic design is mostly perceived for its visual communication values.
Graphic design is practiced within branding.	Graphic design is practiced within the commercial sector under branding and marketing.
Emerging interest in considering the social impact of design and applying human-centred approach to design.	There is emerging interest in considering the social impact of design.
-	There is cultural sensitivity when it comes to borrowing knowledge and methods from western design models
-	There is emerging interest in a human-centred approach to design.
-	Social design is not a prominent practice.
-	Service design is not a prominent practice.
Opportunities and gaps in the Saudi graphic design profession	
1. Graphic design is a growing profession in Saudi	
2. Emerging interest in considering the social impact of design	
3. Lack of awareness about the capacity of graphic design to improve the experience of public services in Saudi	
4. Lack of rigorous case studies that demonstrate the value of graphic design to improve the experience of public services in Saudi	

Figure 26: Meta-synthesis of the outcomes of the desk-based analysis into the Saudi graphic design profession and Design Conversations.

The opportunities and the gaps within the Saudi graphic design profession area s following:

1. **Graphic design is a growing profession in Saudi**

The desk-based analysis into the Saudi graphic design profession provided two pieces of evidence which indicate that graphic design is a growing and expanding profession in the Kingdom. This is first demonstrated through the recent establishment of the Architecture and Design Commission in 2020, over the duration of this PhD research (2017–2023). This is in addition to the fact that the Commission is considered the first government department of its kind responsible for regulating and developing the architecture and design sector in the Kingdom (Architecture and Design Commission, 2020). The second piece of evidence involves the Commission's contributions to the graphic design profession – again during the time of this research – which indicate that the profession is in a development phase. These contributions are summarised as follows:

- **Survey initiatives** The Commission conducted a survey in the years 2020, 2021 and 2023 to establish a database of graphic designers in Saudi. The survey results in 2020 revealed that 50 participants (out of 628) were specialists in graphic design (Figure 27). The survey results for the other years were not available at the time of this research. In 2022, the Commission conducted a virtual meeting with Saudi graphic design academics and specialists to discuss strategies related to the development of the profession in the Kingdom (Figure 28).
- **Educational initiatives** The Commission provides scholarship opportunities for Saudis to pursue degrees in graphic design in other countries and to learn from western design knowledge and expertise (Figure 29). Additionally, the Commission has established the Architecture and Design Education Forum to foster the development of architecture and design education in the Kingdom (Figure 30).
- **Recognition initiatives** The Commission supports the Saudi Design Festival which is part of the World Design Week organisation (Figure 31). The festival was established in 2022 and so is relatively new compared to Dubai Design Week which was established in 2015 (Dubai Design Week, 2023). Also, the Commission provides opportunities for Saudi designers, including graphic designers, to

participate in international design fairs such as the London Design Biennale (the Architecture and Design Commission, 2023).

Through Design Conversations, it was confirmed that the graphic design profession in Saudi is growing and developing at pace. Participating designer number seven stated: '[G]raphic design is booming now and is shifting from a hardly noticeable to a fast-growing field and profession' (2021). Participating designer number one attributed the growth of graphic design in Saudi to the government's interest and investment in the field. Designer number one mentioned that '[t]he Saudi government has established initiatives to support and give value to the creative industry including graphic design. So, there is a better and increasing awareness about graphic design than before but we are not there yet' (2020). The Saudi government's interest and investment in the graphic design profession confirms the need for this design-led research in relation to the Saudi context.

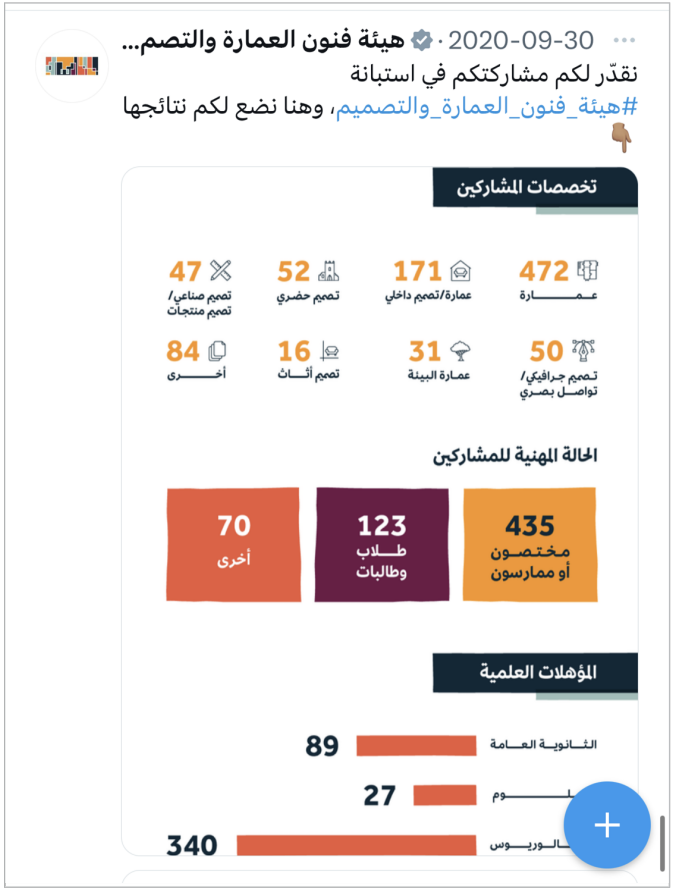

Figure 27: Results of the survey conducted by the Architecture and Design Commission in 2020 to establish a database of graphic designers in Saudi (Architecture and Design Commission, 2020).

Figure 28: Invitation to the virtual meeting with Saudi graphic design academics and specialists (Architecture and Design Commission, 2022).

Figure 29: The Commission's announcement of the meeting with the Cultural scholarship programmes (Architecture and Design Commission, 2023).

Figure 30: Invitation to the Architecture and Design Education Forum (Architecture and Design Commission, 2021).

Figure 31: The image shows the Commission support to Saudi Design festival (Architecture and Design Commission, 2022).

2. Emerging interest in considering the social impact of design

The desk-based analysis into the Saudi graphic design profession revealed interest in considering the social impact of design. The Architecture and Design Commission established and launched DESIGNATHON 2023, a design challenge that focused on applying a human-centred approach to design. The aim of DESIGNATHON 2023 was to foster design for wellbeing, design for social impact and design for sustainability (Figure 32). The following quotation is an extract from the expected outcome of the DESIGNATHON as described on the Ministry of Culture website: 'The expected outcome of this creative process is to develop innovative design concepts into various formats, such as awareness campaigns, policies, applications, games and more' (Ministry of Culture, 2023). Also, fields such as collaborative design and social design are emerging in the Saudi design profession.

The 2018 and 2019 editions of Saudi Design Week provided workshops and design talks that demonstrated the value of social design and collaborative design within the western context (Figures 33 and 34). The government's support and investment in the social impact of design confirm the proposed human-centric design-led approach in relation to the Zamzam water services case study. Also, the government's interest in the social impact of design confirmed the positioning of this research at the intersection of specific design fields (visual communication design, social design and service design) as opposed to branding and marketing. In addition, Design Conversations revealed that two of the participating designers encouraged a critical approach when drawing from western design fields such as social design and human-centred design. This critical approach confirms the human-centric and culturally sensitive design-led approach to graphic design to improve the experience of Zamzam water across the Umrah journey. The following are extracts from two of the participating designers' responses.

> Social Design is a British term, is prominent in the UK and is supported by the UK government. Social design has to come from the culture and be supported by politics in order to be a sustainable practice … Regional designers have to adapt methods and approaches in order to fit within their local context and culture … (Designer two, 2020)

My problem with social design, design thinking, human-centred design or any other western design approach is that it comes with fixed processes and/or concepts, which are not necessarily suitable and applied to all countries, cultures and clients. A ‘one size fits all’ approach is not good. Designers need to understand the roots of these concepts and approaches. Also, they need to be critical and careful when applying these concepts within their local context (Designer one, 2020)

Figure 32: The Architecture and Design Commission's invitation to designers to participate in the DESIGNATHON 2023 (Architecture and Design Commission, 2023).

Figure 33: Post announcing a social design workshop as part of the Saudi Design Week programme (Saudi Design Week, 2018).

Figure 34: Post announcing a collaborative design workshop as part of the Saudi Design Week programme (Saudi Design Week, 2019).

3. Lack of awareness about the capacity of graphic design to improve the experience of public services in Saudi

The desk-based analysis into the Saudi graphic design profession revealed an excessive focus on the profession's visual values with less consideration for its visual communication values. For example, the researched editions of Saudi Design Week and the Saudi Design Festival showed that graphic design was represented in design talks and workshops related to the visual communication values of the profession such as typography, calligraphy and lettering (Figures 35 and 36. Also, the Architecture and Design Commission launched a typography competition for graphic designers and Arabic font designers. The aim of the competition as described on Instagram was to enhance and support Arabic typography (Figure 37). This focus on the visual values of the profession validates the tacit knowledge that I researched in depth about the local gap in perceiving graphic design as a method to improve the experience of public services in Saudi. This design-led research contributes to this gap by proposing a framework of service graphic communication for Zamzam water services. Three of the participating designers were critical about how graphic design is mostly perceived for its visual values and is mostly practiced within the context of commercial services industry under branding and marketing. The following are quotes from their responses.

> There are few avenues to practice graphic design outside the commercial context and branding and advertising … the communication aspect of the profession is not yet considered. A lot of designers and clients think of graphic design as a visualisation activity and totally forget about communication. (Designer one, 2020)
>
> There is a big need to look at graphic design and design in general within the context of public services and social change … and make graphic design more participatory and community-based rather than just focusing on branding and advertising. (Designer two, 2020)
>
> Graphic design work is limited to branding agencies and commercial spaces … There is a limited perception of what graphic design can do for society and in terms of how it can improve public services. Graphic design is limited to visual execution without enough awareness about its communication value. (Designer six, 2021)

These designers' perceptions about graphic design confirms the decision to adopt Frascara's definition of graphic design in this research. As stated previously,

Frascara defines graphic design as ‘the activity that organises visual communication in society. It is concerned with the efficiency of communication, the technology used for its implementation and the social impact effects’ (2019, p.306).

Figure 35: Post about an experimental Arabic typography workshop as part of the Saudi Design Week (Saudi Design Week, 2019).

Figure 36: Post about a typography design and screen-printing masterclass as part of the Saudi Design Festival (Saudi Design Festival, 2023).

Figure 37: Post about a typography competition for graphic designers and Arabic font designers (Architecture and Design Commission, 2023).

4. Lack of rigorous case studies that demonstrate the value of graphic design to improve the experience of public services in Saudi

Four of the participating designers pointed to the absence of illustrative examples that demonstrate the value of graphic design for public services. The following are verbatim transcriptions of the responses of participating designers:

> ‘Governments did not see examples on how graphic design can play a role in improving the experience of public services or engaging with citizens’ (Designer one, 2020)

> ‘Governments still have not really seen the value of graphic design as it can be. A lot of people think of graphic design only within the commercial aspect. Sometimes they think of graphic design as too frilly, unnecessary’ (Designer two, 2021)

> ‘There are not enough examples that show what graphic design can bring to the table within the context of public services. Graphic design often comes at the very end of the design process’ (Designer four, 2020)

> Definitely graphic design has financial value for the commercial sector. We need to see examples on how graphic design can be employed to benefit public services. The benefits of graphic design to the public sector need to be explored and researched (Designer six, 2020)

Along the same lines as these participating designers, Frascara emphasises the need for case studies that show the value of graphic design to government. He states:

> There are enough market-driven designers to keep the economy going, but there is a great need for talented communicators in the social marketing field, as much as there is a need to demonstrate to governments and private sector how much benefit there is to be collected from intelligent communication in this field, even financially. (1997, p.31)

This design-led research contributes to addressing the absence of rigorous Saudi case studies focusing on the value of graphic design to public services through the case study of the Zamzam water service.

3.5 Chapter conclusion

In this chapter, I have reviewed the context of graphic design profession in Saudi, investigating and confirming the initial research perception. This involved undertaking a process of systematic data collection, analysis and synthesis (Section 3.2) and (Section 3.3) about the profession in the Kingdom. As a result of undertaking the contextual review, two opportunities and two gaps that underpin the contribution of this research and supported the proposed design-led approaches are identified. The first gap (figure

38) informed the research focus on utilising graphic design as a way of thinking and analysis to improve the service experience rather than concentrating on the production of an exciting visual aesthetic. The second gap (Figure 38) informed close attention to the use and form of a case study as part of the research contribution.

The opportunities	The gaps
Graphic design is a growing profession.	The first gap is lack of awareness about the capacity of graphic design to improve the experience of public services in Saudi.
Emerging interest in considering the social impact of design.	The second gap is lack of rigorous case studies that exemplify the capacity of graphic design to improve the experience of public services in Saudi.

Figure 38: The table summarises the opportunities and the gaps in the Saudi graphic design profession.

Chapter four: Zamzam water services case study

4.0 Chapter introduction

The Zamzam water services case study is one of the PhD research contributions. The aim of the case study is to test the services graphic communication design framework to the Zamzam water services. In particular, it demonstrates the capacity of graphic design to identify evidenced-based gaps in the services and turn those gaps into design opportunities. To inform its methodology and methods, the case study applies the developed service graphic communication (Section 2.4). In addition, the case study draws from the four phases that guide policy design (Section 2.3.4) to structure its process: (1) diagnostic, (2) co-discovery, (3) co-design and (4) co-delivery.

The chapter begins by presenting the historical context of Zamzam water (Section 4.1) and specifically Zamzam water at the Sacred Mosque (Section 4.2) and the case study methodology (Section 4.3). The chapter then introduces the diagnostic phase of the case study. This phase includes mapping the service through desk-based research, and prior to the Covid-19 pandemic (Section 4.4), a combination of observation and autoethnography (Section 4.5) and then during the pandemic (Section 4.6). The chapter then moves to present the co-discovery phase of the case study. This includes mapping Zamzam water services with Umrah visitors (Section 4.7) and with representatives of the Zamzam Water Project (Section 4.8). The output of the discovery phase is evidenced-based gaps in the service experience (Section 4.9). Following this, the chapter presents the design phase of the case study. Here, the identified gaps are turned into design opportunities (Section 4.10), which form the future-state experience of the Zamzam water service experience. The chapter concludes by outlining the next steps for the case study (Section 4.11) and a summary of the key contributions to knowledge through this case study (Section 4.12).

4.1 Zamzam water: historical context

The historical context of Zamzam water is important for understanding the rituals and religious aspects of the Zamzam water service experience. This section describes the relationship between Zamzam water, the religious ritual of Umrah, and the heritage of Zamzam water services with extracts from verses in the Holy Qur'an and drawing from documentaries about Zamzam water services.

Zamzam the miraculous water source opened up thousands of years ago when Abraham left his wife Hagar and his new-born son Ismail to God's care in the desert. This was in what is present-day Mecca, a city in western Saudi Arabia. Abraham left them with dates and water and returned to the place he had come from. Hagar asked him, 'Abraham, why are you going and leaving us alone? Has God commanded you to do so?' Abraham answered, 'Yes'. Hagar commented that God would not neglect her and her son. While Abraham was on his way back, he prayed for his wife and his son: 'Our Lord! I have settled some of my offspring in a barren valley, near Your Sacred House, our Lord, so that they may establish prayer. So make the hearts of "believing" people incline towards them and provide them with fruits, so perhaps they will be thankful.' (Chapter 14, Ibrahim, verse 37). After some time, Hagar and her son suffered from thirst as they ran out of water and dates. Hagar walked back and forth seven times between two hills, Safa and Marwah, in search of water. Zamzam water appeared and Hagar collected some of the water for herself and fed her son. It is believed that the appearance of Zamzam water was caused by an angel who hit the ground with his wings, making the water gush from the Zamzam well. Years later, Abraham built a shrine called Kaaba – house of God – 20 metres away from the Zamzam well. The following verse from the Holy book explains the value of Kaaba:

> Verily, the first house [of worship] appointed for mankind was that at Bakkah (Mecca), full of blessing, and a guidance for mankind and jinns. In it are manifest signs [such as] the standing place of Abraham. And whoever enters it, attains security. (Chapter 4, Al Imran, verses 96–97)

Muslims follow the Umrah ritual by engaging in two worships sequentially: Tawaf and Sa'i. During Tawaf, Muslims circle the Kaaba, where Abraham left his wife Hagar and his son Ismail, seven times and praise God. Sa'i is undertaken after completion of Tawaf. During Sa'I, Muslims walk back and forth seven times between Safa and Marwah, the same way that Hagar walked when she was in search of water.

The Zamzam well was obliterated by heavy rain and strong wind as a punishment for the Jurhum tribe who led people away from the religion of Abraham. It was rediscovered as a glad tiding upon the birth of Prophet Mohammed 570CE. The rediscovery of the well was made by the Prophet's grandfather Abd Al-Muttalib, who had a divine revelation about its location. Al-Muttalib and his only son took upon themselves to provide and serve Zamzam water to pilgrims. Since then, and through different historical periods, the profession of Zamzamis emerged.

Zamzamis were a group of men who took the responsibility of distributing Zamzam water from the Zamzam well to pilgrims at and around the Sacred Mosque in Makkah. The workflow of Zamzamis was managed and supervised by an elected sheikh. The Zamzami scented special pottery containers with mastic and filled them with Zamzam water from the well. Then they would serve the water to pilgrims in round drinking cups made of copper. Each Zamzami was assigned a specific area at the Sacred Mosque where he placed his containers filled with Zamzam water on top of each other and waited for pilgrims to come. Each Zamzami had his own visual mark drawn on the container using beeswax and ash. A Zamzami could extend the scope of his services to include procuring Zamzam water takeaway containers for pilgrims to take home.

The Zamzamis profession continued until the end of the 19th century. In 1982, a Saudi royal decree was issued ordering the General Presidency for the Affairs of the Two Holy Mosques (the General Presidency), currently known as the General Authority for the Affairs of the Two Holy Mosques) to be responsible for serving Zamzam water across the Sacred Mosque and Prophet Mosque (the General Presidency, 2020).

4.2 Zamzam water at the Sacred Mosque

Zamzam water flows from the Zamzam well located at the Sacred Mosque in Mecca. The mouth of the well is 21 metres away from Kaaba and is 31 metres deep beneath the Mataf area. The well has two clean springs – one from Safa and Marwah, and the other from Kaaba – with no insects, fungi or other water contaminators. Zamzam water continues to flow at 11 litres per second as the minimum rate and 18.5 litres per second at its maximum (Excellence from Al Haram, 2018).

The water at the Sacred Mosque is distributed by pumping it from the well using two huge water pumps that alternate, 24 hours a day. Then the pumped water is transmitted

to the King Abdulla Bin Abdulaziz Project for Zamzam Complex through special pipelines to maintain its unique characteristics. The General Presidency of the two Holy Mosques describes the process as follows: ‘The processes of water drawing and pumping and the controlling of pipelines and tankers through optical fibres are all carried out using the high-tech SCADA’s system’ (Zamzam Blessed Water, 2018). According to the documentary Excellence from the Mosque (2018), Zamzam water is one of the biggest water dispensers around the globe due to the large number of people who drink it daily. Zamzam water dispensed in the Sacred Mosque is estimated at 700,000 litres per day but this figure springs to a million litres per day during holy seasons (2018). Zamzam water stations are distributed across the Sacred Mosque. Each station is supplied with different types of Zamzam water dispensers and containers and disposable plastic cups for hygienic reasons. Zamzam water is served cool or otherwise for the convenience of the Sacred Mosque visitors. The dispensers and containers are periodically washed and sterilised throughout the day (Figure 30). Every day around the clock 100 random samples are collected from Zamzam water dispensers at the Sacred Mosque and sent to the laboratory to test the water safety and to preserve its sanitation (Figure 40; Excellence from Al Haram, 2018).

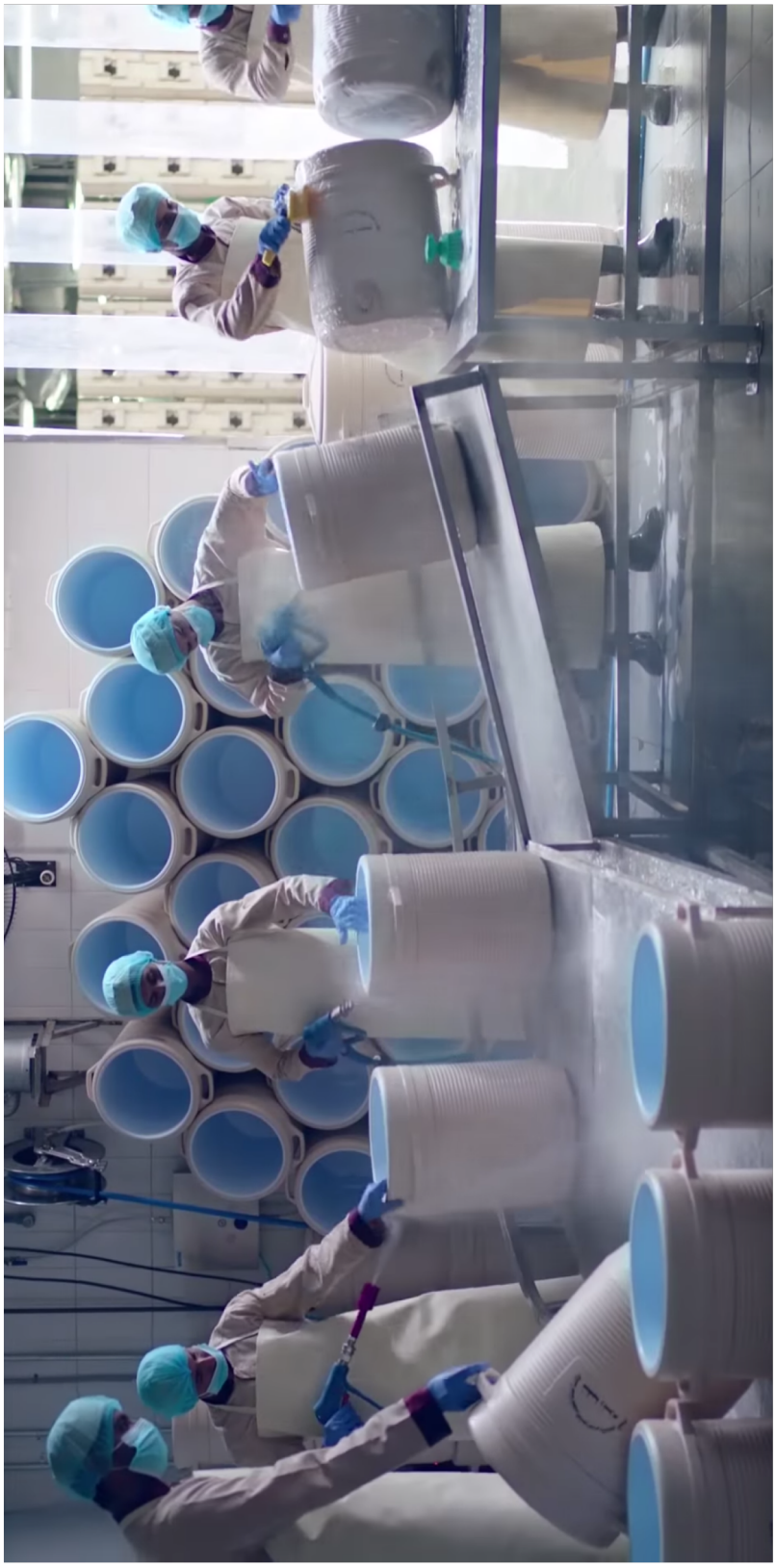

Figure 39: Workers washing Zamzam water containers used to distribute Zamzam water at the Sacred Mosque (Excellence from Al-Haram, 2018).

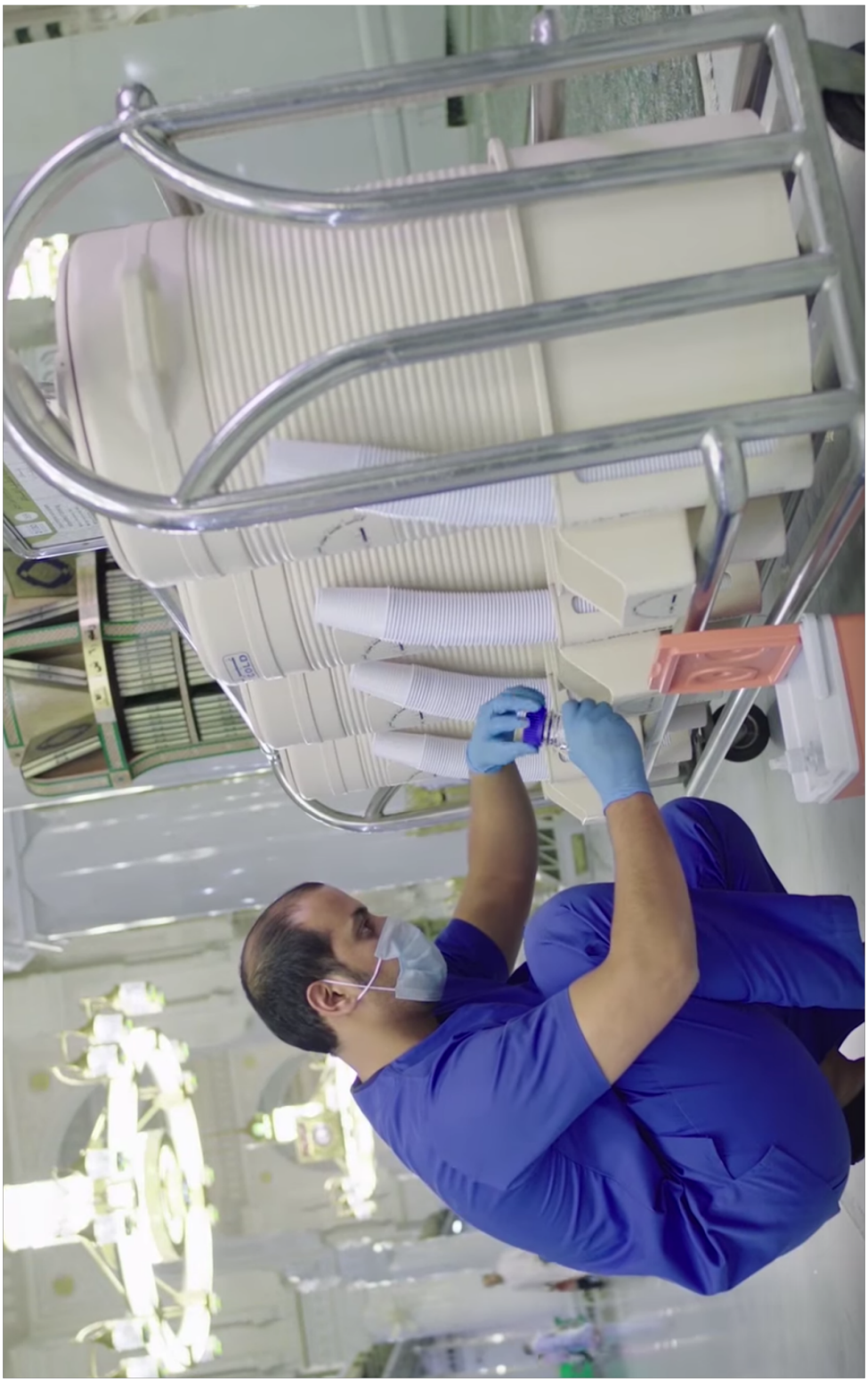

Figure 40: A lab technician testing samples of Zamzam water at the Sacred Mosque (Excellence from Al-Haram, 2018).

4.3 Zamzam water service case study methodology

The case study methodology is informed by the developed service graphic communication framework to improve the experience of Zamzam water services across the Umrah journey. The following five methods have underpinned the case study:

1. Ethnographic approaches

For the case study an ethnographic approach was adopted to examine the experience of Zamzam Water services across the Umrah visitors' journey through the Umrah religious ritual. Crouch and Pearce state that ethnographic approaches have a significant role to play in research in design. This is because ethnographic approaches enable designers to better understand individuals' experiences by considering the broad backdrop of the cultural context within which the design is experienced (2015, p.101). Similarly, Meroni and Sangiorgi state that ethnographic approaches help designers to gain 'a deeper understanding of peoples' experiences in order to inform the design for services' (2011, p.37). Ethnographic approaches enable designers to ensure that the experience being observed is examined through different perceptions to achieve data triangulation (Crouch and Pearce, 2015, p.129). Triangulation of data validates the insights drawn from a case study by providing 'evidence from different perspectives that serves to cross check and provide validity for the claims being made' (Crouch and Pearce, 2015, p.129).

2. Visual ethnography

Visual ethnography was adopted as part of the ethnographic approach, a method that allows researchers to record and represent aspects of the examined experience through the use of visual approaches such as drawings, photography and film (Pink, 2021, p.3). Sarah Pink, social scientist, ethnographer and social anthropologist, explains that visual ethnography helps evidence the research findings and enables others to sense and feel the examined experience (2021, p.4).

3. Journey maps

Penin describes journey maps as follows:

> A visual timeline that graphically documents a sequence of service engagements and interactions, showing multiple touchpoints and channels throughout. It captures the user's whole route through the service … The journey map is essentially a user-centred tool. The point of view is always that of users – what they see, feel and experience. (2022, p.216)

The basic structure of the journey maps includes lanes of channels and communication channels[29], emotional experience[30] and service providers[31]. Other lanes are storyboards,[32] backstage processes[33] and key insights. Vertically, journey maps may be segmented to represent the sequential stages[34] of the journey: pre-, during and post-visit (Stickdorn et al, 2018, pp.46–47). Further, Stickdorn et al explain that journey maps 'can be used to visualise existing experiences as well as potential future experiences' (2018, p.44).

The journey map was adopted for the case study as a method of visualising the overall experience of Umrah visitors of Zamzam water services across the stages of their journey. The journey map helped to identify gaps and in Umrah visitors' experience and thereby move the analyse towards potential solutions. The journey map was additionally useful in communicating the proposed future-state experience of the Zamzam water service.

The structure of the Zamzam water journey map includes criteria against which the experience was examined and measured. For example, the criteria of containers and dispensers, communication channels and feedback channels helped the process of understanding and identifying gaps in the experience. These criteria were informed by the service graphic communication framework devised for Zamzam water services as outlined in Section 2.4. This framework was the result of mapping the overlap between visual communication design, social design and service design. The structure of the journey map designed for the Zamzam water case study includes:

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[29] Channels refer to any means of communication involved at specific stages such as a website, an app, face-to-face interaction or a printed advertisement (Stickdorn et al, 2018, p.46).

[30] Emotional experience represents users' feelings at each stage of the service journey and helps to reveal specific gaps within their experience (Stickdorn et al, 2018, p.46).

[31] Service providers are the organisations involved in delivering the service at each stage of the journey.

[32] Storyboards provide a visual representation of each stage through illustrations, photographs or sketches (Stickdorn et al, 2018, p.45).

[33] Backstage processes represent those processes carried out by organisations and systems involved in frontstage experience which are not visible to users. Frontstage refers to the processes, employees and channels with which users have direct interaction (Stickdorn et al, 2018, p.53).

[34] Stages represent the main phases of the service journey (Stickdorn et al, 2018, p.45).

1. **Stages of the journey**: representing the three interrelated stages of the Umrah journey. This lane is inspired by the sequential theme.
2. **Umrah visitors' experiences (steps):** the visitors' interactions, such as through communication channels and using Zamzam water containers and dispensers. This also includes activities such as drinking Zamzam water.
3. **Needs and expectations:** the goals Umrah visitors want to meet at each stage. This lane is inspired by the human-centred theme.
4. **Containers and dispensers**: the means by which Umrah visitors engage with Zamzam water.
5. **Communication channels**: how Umrah visitors learn about Zamzam water services across the Umrah journey. This also represents the means by which Umrah visitors can access human assistance, such as by phone. This lane is inspired by the multimodal social semiotic approach to communication theme.
6. **Feedback channels**: how Umrah visitors can submit their feedback and suggestions about Zamzam water services across the Umrah journey. This lane is inspired by the evaluative theme.
7. **Visual language:** a consistent visual system (visual marks, logotype, typeface, pattern and colour) that communicates a service identity, its look and feel. This is inspired by the holistic theme.
8. **Service-providing organisations**;
9. **Emotional experience**: This lane is inspired by the human-centred theme;
10. **Findings**.

However, the journey map as a visualisation and representational method of service experience has its limitations. Journey maps fail to address the complex nature of the service experience (Stickdorn et al., 2018, p.26); instead, journey maps reflect on parts of the experience. This is because service experience can be discussed from multiple perspectives, such as delivery process and systems (Yu, 2019, p.439). Within this case study, the journey map does not represent other services across the Umrah journey beyond Zamzam water services. Although the journey maps do not capture the backstage operational dimensions, in this case, the restriction is intentional to focus on the front-facing interaction aspects of Zamzam water services.

4. Thematic coding analysis

The case study uses thematic analysis to systematically gather, analyse and synthesis data about the Zamzam water service experience. Robson states that thematic analysis starts with predetermined themes and/ or themes that can arise from interacting with the data (2011, p.475). I arrived at the themes of analysis by the dimensions of the examined service experience, which are informed by the service graphic communication framework. The sections 4.4 to 4.8 introduce five methods designed to map the Zamzam water services experience across the Umrah journey.

5. Collaborative

The case study adopts co-design as a method to map *with* Umrah visitors – not *for* the visitors – their experience of Zamzam water's services across the Umrah journey. As stated previously, co-design can help designers reveal tacit knowledge about the examined experience (Akama and Prendiville, 2016, p.6) and also because Umrah visitors are experts in their own experience of Zamzam water services across the Umrah journey. Blomkamp states that as individuals are experts in their own experiences, they should be involved in the designing of services that relate to those experiences (2018, pp.732–33). The following three sections (4.4, 4.5 and 4.6) represent the diagnostic phase of the Zamzam water services case study.

It is important to state that my cultural knowledge of Umrah religious rituals helped me contextualise and capture the complexity of the Zamzam water services experience. The potential biases of my personal experience were mitigated by the methods adopted for mapping the Zamzam water services experience with Umrah visitors (see section 4.7) and with representatives of the Zamzam Water Project (see section 4.8). These provide triangulation of data in examining the experience of Zamzam water services from different perspective.

4.4 Mapping Zamzam water service-experience through desk-based primary research pre-pandemic

Desk-based primary research informed the initial mapping of the service-experience of Zamzam water to establish a foundation for further interrogation (Figure 44). Stickdorn et al state that desk-based research always comes at the beginning of the design process and often enables designers to preliminarily learn about a service experience from the perspective of its providing organisations. The output of the desk-based research may result in text snippets and/or a collection of photos visualised as a mood board (2018, p.12). Muratovski explains that primary sources can include variety of documents, photographs or documentaries published by government or non-government organisations (2022, p.124). This method of mapping through desk-based primary research helped me to capture the end-to-end experience of Zamzam water services across the Umrah visitors' journey using pre-existing data. Consequently, the mapping provided a foundation of preliminary knowledge to support my understanding of the state of Zamzam water services at the time. Also, the mapping contributed to the preparation for mapping the experience through a combination of observation and autoethnography (Section 4.4). Through this, I was able to roughly draw the route of the fieldwork. This was essential due to the Sacred Mosque's huge architectural open space which extends over 1 million square metres and which has 200 gates (Excellence from Al-Haram, 2018). The route starts and ends at Umrah gate, named after the Umrah ritual (Figure 41).

4.4.1 Data collection and analysis

I gathered primary data about Zamzam water's services across the Umrah journey from four official Saudi agencies' online data sources available at the time of implementing this method. The first source was the *Hajj and Umrah* e-magazine. The magazine used to be published monthly by the Ministry of Hajj and Umrah and focused on reporting the achievements of the services related to religious rituals for Hajj and Umrah. I reviewed the 12 issues of the magazine from 2018 (Figure 42), seeking out articles related specifically to the case study. The second source was the documentary film *Zamzam Blessed Water* (2008) by the Presidency of the Two Holy Mosques, currently known as the General Authority for the Affairs of the Two Holy Mosques.[35] This 15-

[35] https://www.youtube.com/watch?v=ZL3MJb_djUU&t=483s

minutes long documentary features the religious value of Zamzam water, and the experience of Zamzam water services at the Sacred Mosque and at the post-visit stage of the Umrah journey. The third source was the documentary film *Excellence from Al-Haram* (2018), authorised by the General Presidency.[36] The documentary is 33 minutes long and features the services provided at the Sacred Mosque including those of Zamzam water. The fourth source was the Pilgrim Experience Program website[37] (God Guest Program), which reports on the Program's objectives towards improve the experience of Umrah journey for its visitors.

These official sources provided data about the experience of Zamzam water services in photographic, editorial and audiovisual forms. To visualise and analyse this data qualitatively, it was organised within a journey map of predetermined themes (Figure 43 and 44). These themes of analysis are informed by the service graphic communication framework. The columns of the map show the three stages of the Umrah journey, pre-visit, during visit and post-visit. The rows of the map provide information about the service experience from the perspective of the providing organisations across each stage of the journey (Zamzam water's dispensers and containers, communication channels and the service-providing organisations). The analysis of each stage of the journey was conducted through an iterative process both in isolation and in relation to the other stages of the journey. Results of the analysis are shown at the bottom of the journey map.

4.4.2 Limitations

Mapping the service-experience of Zamzam water through desk-based primary research pre-pandemic is partial because the experience was solely mapped from the perspective of the service-providing organisations. This design-led research proposes to align what the service-providing organisations offer to meet the needs of Umrah visitors. However, the mapping provided a preliminary understanding of the context of Zamzam water services across the Umrah journey. It also established a strong foundation to prepare for the fieldwork in order to get a first-hand understanding of the visitor experience with Zamzam water services at the Sacred Mosque.

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[36] https://www.youtube.com/watch?v=b5W5US7sZNQ&t=963s

[37] https://pep.gov.sa/

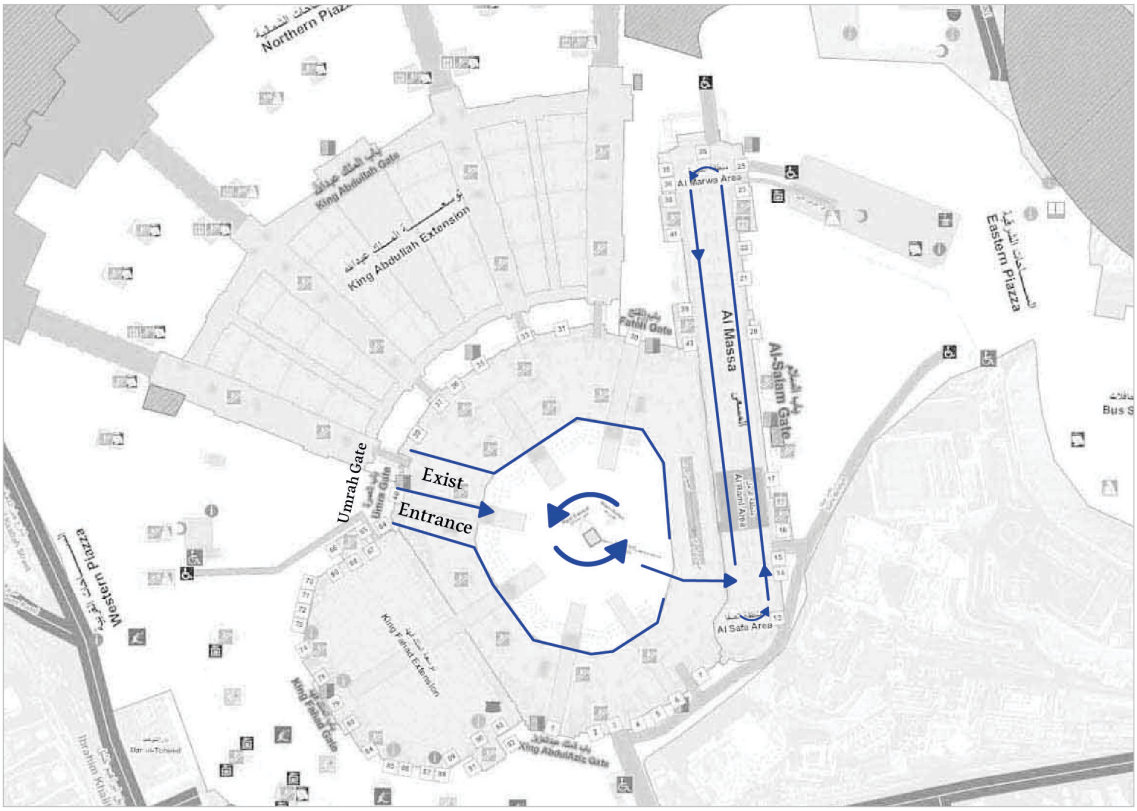


Figure 41: Outline of the fieldwork drawn on the Sacred Mosque map (The General Presidency, 2018).

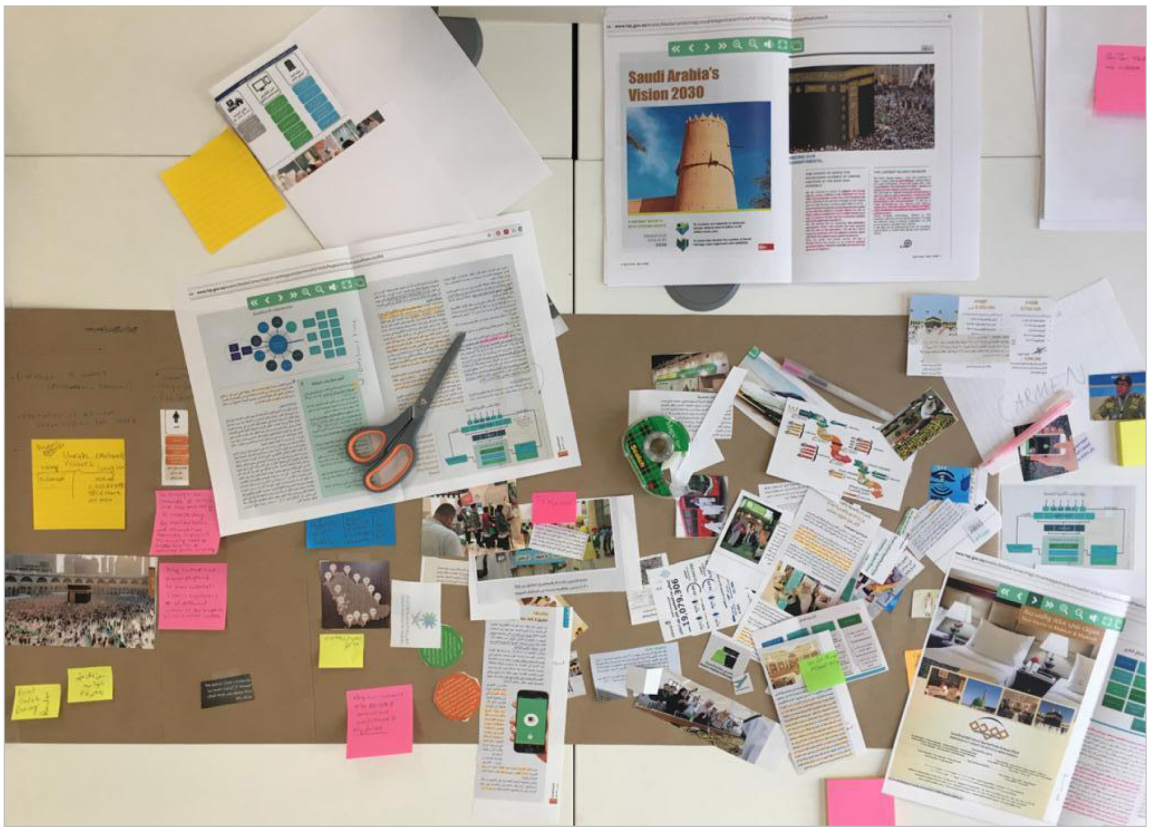


Figure 42: Part of the reviewing process of the Hajj and Umrah magazine.

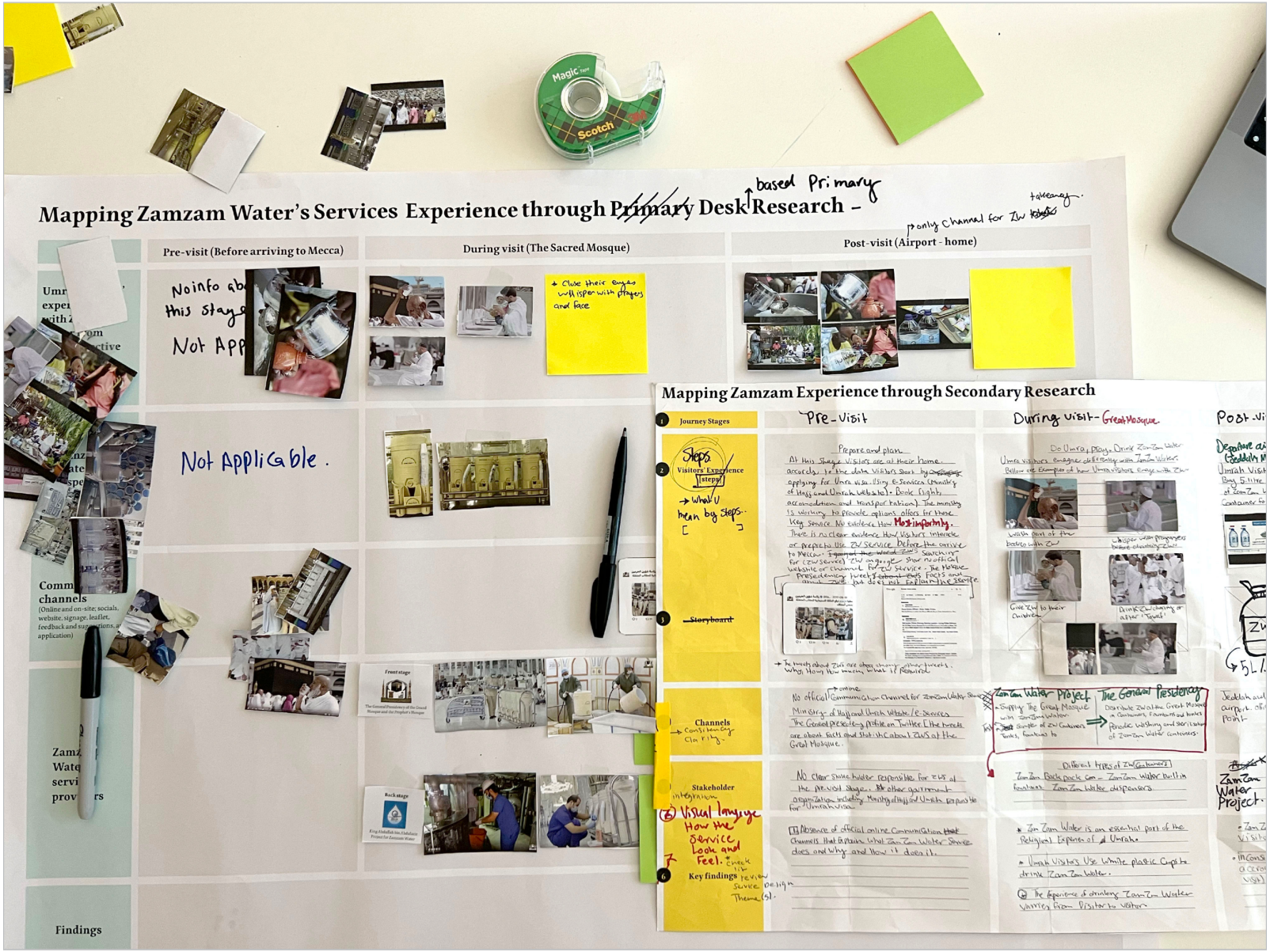


Figure 43: Part of the process of mapping the Zamzam water service-experience through desk-based primary research pre-pandemic.

Mapping the services experience of Zamzam water through Primary Research

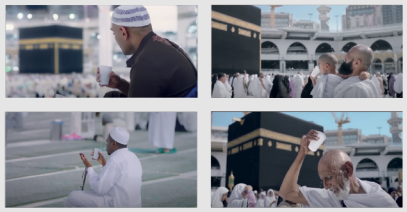
Stage	Pre-visit (Before arriving to Mecca)	During visit (The Sacred Mosque)	Post-visit (Airport - home)
Umrah visitors' experience with Zamzam water from the perspective of its service providers	Not applicable	 Some visitors close their eyes, whisper with prayers and face Kabbah before drinking Zamzam water. Some visitors wash part of their bodies with Zamzam water. Some visitors serve the water to their children.	Umrah visitors share Zamzam water with family as a precious gift from their Umrah journey. The visitors serve Zamzam water in steel cups. Also, the visitors fill clay/ceramic bottles with Zamzam water.
Zamzam water dispensers and containers	Not applicable	An example of a Zamzam water dispenser at the Sacred Mosque.	Five-litre container of Zamzam water packaged for air-shipping.
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions, and application)	Absence of online communication channels that provides information about the services across the Umrah journey. The Mosque Presidency occasionally (20 out of 4k tweets) information about Zamzam water services at the Sacred Mosque.	An example of the Presidency tweet about Zamzam Water services. The tweet reads: 'the Presidency increased the number of Zamzam water backpacks at "Mataf" area.' Absence of online feedback and suggestion channels for Zamzam water services at the during visit stage of the journey.	Absence of communication channels that provides information about Zamzam water services at the postvisit stage of the journey. Absence of online feedback and suggestion channels for Zamzam water services at the post-visit stage of the journey.
Zamzam water service providers	No evidence relating to organisations responsible for providing information about Zamzam water services at the previsit stage of the Umrah journey.	**The General Presidency of the Grand Mosque and the Prophet's Mosque** → The Presidency distributes Zamzam water at the the Mosque. The Presidency is responsible for conducting periodic washing and sterilisation for Zamzam water dispensers. **King Abdullah bin Abdulaziz Project for Zamzam Water** → The Project supplies the Mosque with Zamzam water. The Project examines samples from Zamzam water dispensers round the clock to ensure the water is free from contamination and bacteria.	The Zamzam Water Project is responsible for bottling and packing Zamzam water in takeaway containers in alignment with airlines' shipping requirements. The project is responsible for providing these bottles at Jeddah and Al-Madinah international departure airports, the main airports for Umrah visitors.
Findings	1. Zamzam water is an essential part of the religious experience of the Umrah ritual. The experience of engaging with Zamzam water is sacred and varies from visitor to visitor.	2. Umrah visitors buy Zamzam water in takeaway containers to share the blessing of the water with their family. 3. Lack of online communication channels that provide information about Zamzam water services across the Umrah journey.	4. Lack of a single and consistent visual language of Zamzam water services across the Umrah journey. 5. Lack of online feedback and suggestion channels for Zamzam water services across the Umrah journey.

Figure 44: Visualisation of Zamzam water service-experience through desk-based primary research pre-pandemic.

4.5 Mapping the Zamzam water service-experience through autoethnography and observation

Mapping the service experience through a combination of autoethnography and observation represents the first phase of two phases of the research fieldwork of the case study and was inspired and informed by autoethnography and observation (Figure 49). Leon Anderson explains that analytic autoethnography is valuable in situations where the researcher is '(1) a full member or the research group, (2) visible as such a member in published texts, and (3) committed to developing theoretical understandings of social phenomena' (2006, p.373). As part of my auto-ethnographic process, I was particularly observant of my surroundings and other visitors' experience. Crouch and Pearce explain that observation is a method for 'going out and getting close to the activities and everyday experiences of other people' (2015, p.90). I conducted the fieldwork at the Sacred Mosque in Mecca, Saudi Arabia, as the main stage of Zamzam water services across the Umrah visitors' journey – as revealed from mapping the services through desk-based primary research (Section 4.4). Mapping this experience through autoethnography and observation enabled me to develop an indepth understanding of how Umrah visitors engage with Zamzam water at the Sacred Mosque.

The mapping helped me to understand my dual identity as design researcher and Umrah visitor. I embrace the same religion as Umrah visitors and engage in the same religious rituals. I have regularly visited the Sacred Mosque and engaged in conversations with Umrah visitors when I was based in Jeddah, Saudi Arabia before I moved to Canada in 2012 to pursue my Master's degree and then moved to the UK in 2016 to pursue my PhD. Therefore, besides being the researcher, I am an ideal participant in my own research. Under this dual identity as a visitor and researcher, I was respectful of the site's visiting provisions. In addition, autoethnography increased my understanding of reflexivity – explained as 'researchers' awareness of their necessary connection to the research and hence their effects upon it' (Davies, 1999, p.7).

4.5.1 Fieldwork Ethical consideration

Prior to visiting the Sacred Mosque, I obtained approval from the Royal College of Art Research Ethics Committee to ensure that I was aware of and respecting the conditions for visiting[38] the Sacred Mosque, which align with the conditions of the ethical

approval. I applied for and was granted preliminary approval to access the Mosque as a researcher, on three conditions: firstly, that I caused no interruption and no intervention to Umrah visitors, especially at praying and worshiping areas; secondly, that I would conduct no 'side conversations' (informal interviews) with Umrah visitors; and thirdly, that I would take no photographs of the visitors or of the Mosque. The second and third conditions created limitations that impacted the research process in terms of recording, evidencing and validating my observations of visitors' experiences with Zamzam water services.

However, these limitations were minimised through the complementary nature of autoethnography and observation. The former allowed me to immerse myself in the experience and the latter allowed me to step back and reflect on other visitors' experiences. Muratovski explains that ethnographic observation requires 'the researchers to find a way to be close enough to the group and the culture in order to learn from it, but not too close because sometimes it can be difficult to step back and look at things objectively' (2022, p.89). Additionally, to overcome the limitation caused by the third condition, I employed the visualisation of graphic design to illustrate the objects I observed being used by Umrah visitors while engaging with Zamzam water at the Sacred Mosque. I also used images relating to the Zamzam water service published by and available at the Presidency's official account on Twitter to validate my own observations at the Mosque. These illustrations and images are incorporated as part of the journey map used to analyse the service-experience (Figure 45). In addition, I recorded detailed descriptions of what I observed using the voice memo application on my phone. This is because the use of smartphones at the Sacred Mosque is more common and accepted than the use of pen and paper or showing the act of writing in a religious and spiritual context.

4.5.2 Data collection and analysis

I visited the Sacred Mosque in Mecca, Saudi Arabia on three consecutive days in January 2019. I started the visit on the first day by identifying four locations of Zamzam water dispensers and containers across the mapped route away from worshiping and congestion areas, the main entrance and exit points (Figures 46 and 47).[39]

[39] The fieldwork route was mapped based on findings from the primary desk-based research.

On the first day, I visited the Mosque in the morning, afternoon and evening. I found that in the evening the Mosque was congested with visitors who were engaged in different religious rituals such as praying, reading the Holy book and doing Umrah rituals. This congestion is in part because of temperature in Mecca is very high during the day and it is often cooler at the evening when the sun is less harsh and direct compared to morning and afternoon conditions. It is worth mentioning that the Mosque is equipped with hundreds of underground cooling units to cool the interior and the ground of the Mosque (Excellence from Al-Haram, 2018). Therefore, on the second and third days, I visited the Mosque in the morning and afternoon to avoid peak hours. Throughout the three days of the fieldwork, I observed the engagement of 28 Umrah visitors with Zamzam water; 12 visitors on the first day, eight on both second and third days. I reached the point of data saturation on the second day (after the afternoon visit) where findings about the engagement of Umrah visitors with Zamzam water started to replicate. According to Crouch and Pearce, at saturation point 'data stops to give rise to new insights but instead begins to reconfirm what has already been established' (2015, p.95).

During my observations of Umrah visitors and myself, I collected the data according to the predetermined themes of the journey map informed by the service graphic communication framework for Zamzam water services (Umrah visitor engagement with Zamzam water, dispensers and containers, channels, and visual language). After each visit, I transcribed the observational audio recording of each visitor and myself into a single journey map (Figure 48). The top section of the journey map represents the stage of the Umrah journey. The rows represent the predetermined themes according to which data about the experience was collected, mapped and analysed. Due to the small number of the observed Umrah visitors, I analysed the journey map experience from each visit and then aggregated all journeys into a combined map (Figures 49 and 50). Then I reflected on the visitors' experiences in relation to my own experience. The results of the analysis are shown at the bottom of the journey map.

4.5.3 Limitations

Finally, mapping the Zamzam water service-experience through autoethnography and observation enabled me to develop confidence in understanding the possibilities of Umrah visitors' engagement with Zamzam water and the context of Zamzam water

services across the Sacred Mosque. However, the mapping is lacking due to methodological limitations. Firstly, as Anderson warns, insights developed through autoethnography cannot be generalised (2006, p.386). Similarly, Atkinson et al state that: ‘We must not lose sight of the ethnographic imperative that we are seeking to understand and make sense of complex social worlds of which we are only part of (but a part nevertheless)’ (1999, p.462). Secondly, observation provides an understanding of the bigger picture of a particular event but does not reveal tacit knowledge about the event (Crouch and Pearce, 2015, p.94). For example, the mapping revealed that Umrah visitors brought flasks and bottles of different sizes to the Mosque. However, the mapping did not reveal the need behind the use of these bottles and flasks, even when I reflected on my own experience of engaging with Zamzam water. Thirdly, through observation, the researcher’s perspective unconsciously influences the observation (Muratovski, 2022).

In order to deal with these limitations, observation often goes hand-in-hand with interviews. Crouch and Pearce explain: ‘Observation and interviewing are particularly complementary methods, with observations providing the wide-angle viewpoint that is then given more focus through interviews’ (2012, p,92). Therefore, the next two methods used ethnographic interviews and were designed to map Umrah visitors’ service-experience of Zamzam water with and representatives of Zamzam water service-providing organisations.

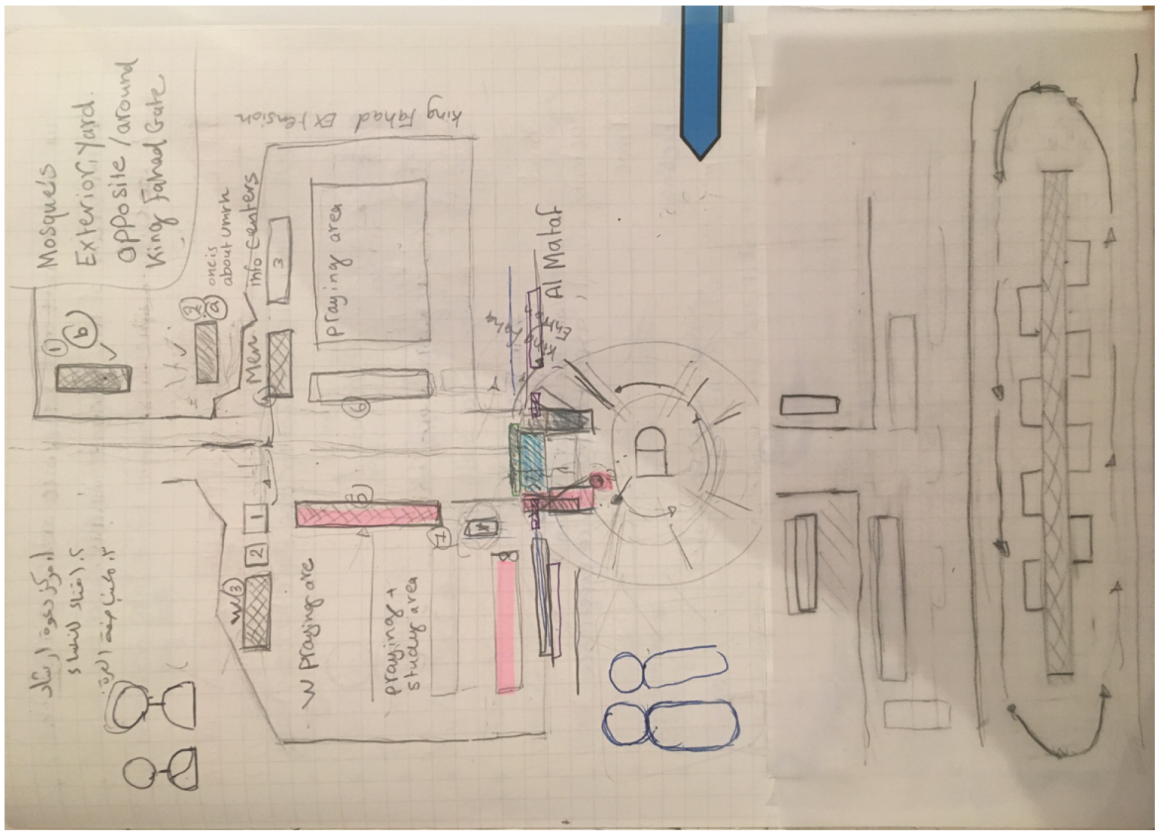


Figure 45: Sketch of identifying the locations of Zamzam water dispensers and containers across the fieldwork route.

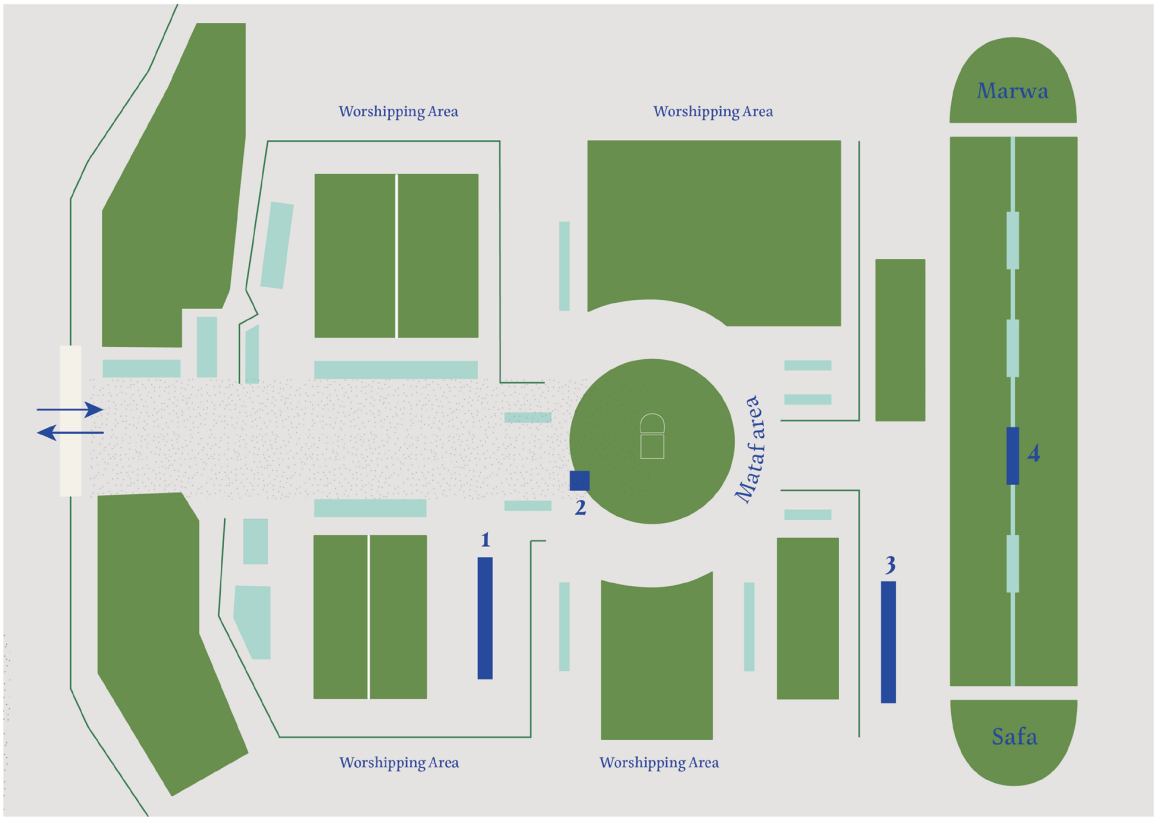


Figure 46: Visualisation of the identified four locations of Zamzam water dispensers and containers across the fieldwork route.

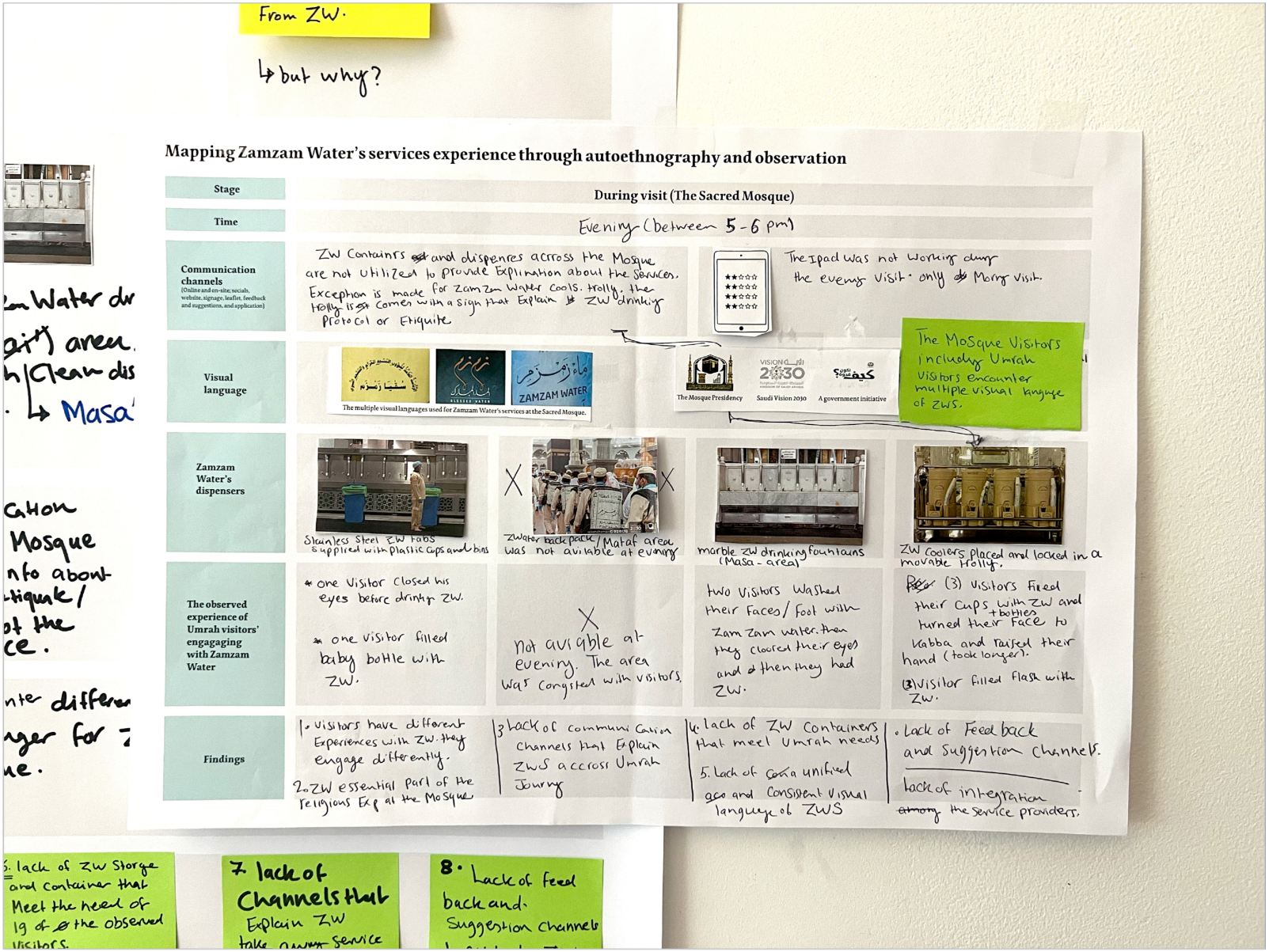


Figure 47: Elements of analysis of Zamzam water service-experience mapped on the evening of the first day of the Mosque visit.

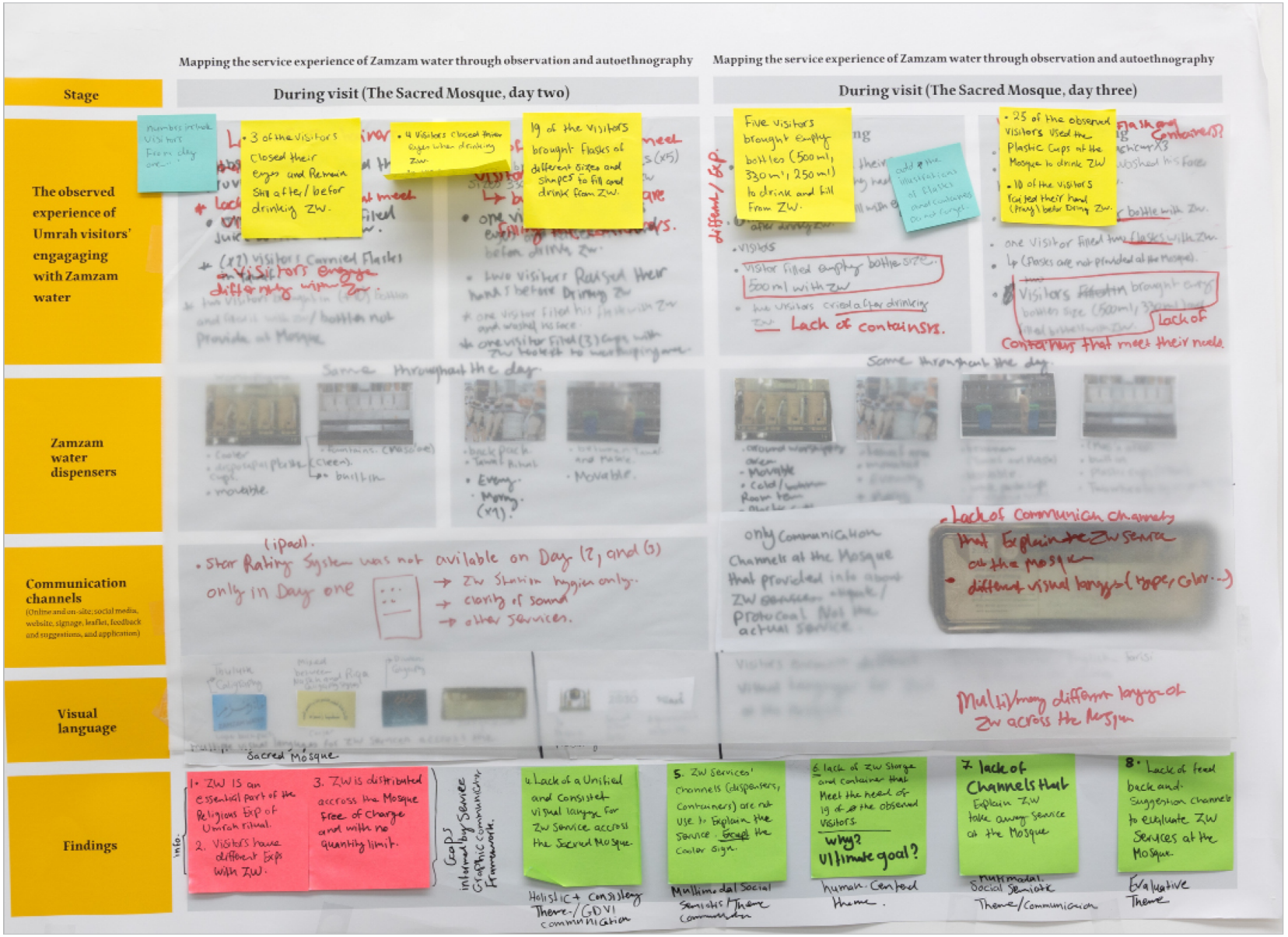


Figure 48: Documentation of the process of analysing the mapped experience of Zamzam water service through observation and autoethnography.

Mapping the service experience of Zamzam water through observation and autoethnography

Stage	During visit (The Sacred Mosque)			
The observed experience of Umrah visitors' engaging with Zamzam water	Four of the observed Umrah visitors closed their eyes and whispered before drinking Zamzam water. Three of observed Umrah visitors closed their eyes and remained still after drinking Zamzam water. Ten of the observed Umrah visitors washed their faces and other parts of their bodies with Zamzam water. One of the observed visitors filled a baby bottle with Zamzam water.	25 of the observed Umrah visitors used the provided white plastic cups at the Mosque to drink Zamzam water. **An Illustration of the providede plastic cups at the Mosque.** Ten of the observed Umrah visitors raised their hand (as an act of praying) before drinking Zamzam water.	19 of the observed Umrah visitors brought flasks of different sizes and shapes, from outside the Mosque to drink and fill from Zamzam water. **Illustrations of water flasks seen during observation.**	Five of the observed Umrah visitors brought empty beverages bottles and water bottles of other brands (sizes 500ml, 330ml and 250ml) to drink and fill Zamzamwater. **Illustrations of juice and water bottles seen during observation.**
Zamzam water dispensers	 Zamzam water coolers with dispenser. Each cooler is attached to two cup holders, one for clean disposable plastic cups and the other for used cups. The coolers are placed and locked in a movable trolley.	 Zamzam water backpack, often found at the 'Mataf', area of circumambulation. The workers serve Zamzam water while Umrah visitors do the Tawaf ritual.	 Marble Zamzam water drinking fountains at 'Sa'i' area supplied with clean disposable plastic cups.	 Stainless steel Zamzam water tabs supplied with cup holders for clean disposable plastic cups and two wheelie bins placed at front.
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions, and application)	The Presidency used a star rating app on iPad to collect feedback about the hygiene of Zamzam water dispensers. The iPad was placed at the 'Masa' area. The iPad was only working on the morning visit of the first day of the fieldwork.	The presidency occasionally tweeted about Zamzam water services at the Mosque. On the third day of the fieldwork, the Presidency tweeted a Youtube link to the documentary Zamzam the Blessed Water .	A sign attached to the Zamzam water coolers trolley explained the etiquette and ritual of drinking Zamzam water in Arabic, English and Farsi.	
Visual language	Zamzam water services do not have a unified visual language across the Sacred Mosque. The services uses multiple colour palettes, typefaces, calligraphic styles, imagery and visual marks. **The multiple visual languages used for Zamzam water services at the Sacred Mosque.**	Examples of the visual marks that appear on Zamzam water dispensers across the Mosque. **The Mosque Presidency** **Saudi Vision 2030** **A government initiative**		
Findings	1. Zamzam water is an essential part of the religious experience of the Umrah ritual. 2. The observed Umrah visitors had different experiences with Zamzam water.	3. Zamzam water is distributed at the Mosque free of charge and with no limit on quantity. 4. Most of the water dispensers are not utilised to explain the etiquette and ritual of drinking the water.	5. Lack of a unified and consistent visual language for Zamzam water services across the Mosque. 6. Lack of Zamzam water containers that meet the needs of 19 (out of 28) of the observed Umrah visitors.	7. Lack of communication channels that provide information about Zamzam Water services at the Mosque, within 'during visit' stage. 8. Lack of feedback and suggestion channels for Zamzam Water services at the Mosque, within 'during visit' stage.

Figure 49: Visualisation of Zamzam water service-experience through auto ethnographic and observational

As a researcher based in London, I was preparing to travel to Saudi in May 2020 to conduct these interviews as part of the second and final phase of the fieldwork. However, the global outbreak of Coronavirus in March 2020 resulted in a period of uncertainty and strict measures of lockdown and travel restrictions. These measures were loosened in summer 2021 and travel was allowed on condition of showing a proof of vaccination. Accordingly, the second phase of the fieldwork was delayed until December 2021. Also, the outbreak of the virus meant that I was unable to follow up interviews with Umrah visitors. As a consequence of the lockdown, the practicalities of the situation led me to slightly reconfigure the research subquestion to examining how human-centric and culturally sensitive approaches to graphic design might contribute to improving the experience of the Zamzam service across the Umrah visitors' journey. Also, the situation led me to reconsider the sources and methods of data collection, in order to align with the pandemic context. Therefore, I designed the method of mapping the Zamzam water service experience during the Covid-19 pandemic from October 2020 to November 2021. Although the mapping was designed for a specific period, it confirmed the case study hypothesis and initial findings identified before Covid-19 through mapping the service experience through desk-based primary research and combination of observation and ethnography.

4.6 Mapping the Zamzam water service-experience during the Covid-19 pandemic

Mapping the service-experience during the pandemic aimed to capture any changes in response to the pandemic conditions; in particular, the ways in which Mosque visitors engaged with Zamzam water services during the pandemic (Figure 55). The mapping was inspired by desk-based primary research, which, according to Stickdorn et al, is often used to provide preliminary knowledge about an existing service experience from the perspective of its users and provider organisations. Also, data for mapping through desk-based research can be collected through screenshots of social media posts or hashtags (2018, p.12).

4.6.1 Data collection and analysis

During the Covid-19 pandemic, governments adopted the use of social media communication tools such as Twitter to communicate with citizens and inform them about problems, restrictions and measures related to the pandemic (Al Shaher and Radwan, 2022, p.369). For example, the Saudi government represented by its Ministry of Health utilised the Ministry's official account on Twitter as a channel to brief and guide the public about Covid-19 in the Kingdom (Figure 51). Similarly, the government represented by its Ministry of Hajj and Umrah utilised the Ministry's official account on Twitter as a channel to post updates and requirements for doing Umrah rituals during the pandemic (Figure 52). Therefore, I tracked Zamzam water's service-providing organisations' social media accounts scoped by the desk-based primary research before Covid-19. I found that the Mosque Presidency's official account on Twitter was almost the only official online communication channel that provided information about Zamzam water services during the pandemic.

During the time of this mapping, from October 2020 to November 2021, the Presidency posted 42 tweets (out of 21,600 tweets about other services provided at the mosque) about Zamzam water services during Covid-19. I checked the Presidency profile on Twitter every Thursday as that day marks the last working day in Saudi. I particularly monitored and kept a record of all tweets about Zamzam water services and how the Mosque visitors or potential visitors responded to these tweets. It is worth noting that the Mosque Presidency did not engage with or respond to the visitors' replies on Twitter. Due to the religious and sensitive nature of the services, the Presidency did not disclose information about the approach in dealing with visitors' replies. I devised a

systematic and visual approach for data collection by numbering and displaying all the collected tweets and replies on a research desk. I then visualised, individually analysed and arranged this data into two diagram tables with pre-determined themes. The first table displays the tweet's number and content (Figure 52). The second table shows the visitor's number, response, type of response and ability to act on the tweet content (Figure 53). This visualisation process allowed me to analyse the tweets and the visitors' replies to these tweets individually and in relation to one another. After that, this data was thematically reclustered into themes of Zamzam water dispensers, visitors' feedback and suggestions, visual language, and communication channels within a single journey map (Figures 54 and 55).

4.6.2 Zamzam water services context during the Covid-19 pandemic

Mapping the Zamzam water service-experience during the covid-19 pandemic revealed that the pandemic resulted in the closure of the Sacred Mosque for almost six months from March 2020, as part of the efforts to curb the Coronavirus outbreak in Saudi. The Sacred Mosque reopened gradually in October 2020, with reduced hours and capacity and strict measures of wearing masks and social distancing. In order to visit the Sacred Mosque and engage in any religious ritual, visitors had to book a visit slot through the application of 'Eatmarna' (currently known as NUSK) or the application of Tawakkalna after showing proof of vaccination (Figure 56). The mapping also revealed that the overall experience of Zamzam water services at the Sacred Mosque had shifted in line with the guidance of the Saudi Ministry of Health in an attempt to reduce infections and fatalities associated with the spread of Covid-19. The original dispensers and containers at the Sacred Mosque were out of service and visitors were not allowed to bring in their personal containers to drink from and fill with Zamzam water for safety reasons. Instead, the Mosque Presidency served Zamzam water in 330ml plastic bottles, two bottles per visitor (Figure 57). These bottles were distributed mostly by specialist workers for Zamzam water services or by the smart robot (Figure 58). The Presidency introduced new Zamzam water trolleys where the water was served in plastic cups for hygiene reasons (Figure 59).

4.6.3 Limitations

Mapping the Zamzam water service-experience during the Covid-19 pandemic although useful had some drawbacks. It was not possible to generalise the captured experience as

it only represents a selection of those who chose to voice their experience and/or offer suggestions to improve their experience of Zamzam water services at the Sacred Mosque through X (then known as Twitter; 4 visitors out 400,000 daily visitors). The captured experience cannot be generalised to all Umrah visitors; this is in part because through X (Twitter) tweets it is not easy to identify which religious ritual the Mosque visitors were engaging with during their visit. Further, it cannot be assumed that all the Mosque visitors or Umrah visitors follow the Presidency on X (Twitter) or that they were able to locate the Presidency account on X (Twitter).

Above all, at the end of implementing this mapping (November 2021), the Presidency announced the return of Zamzam water services to their pre-Covid state. This meant that the Presidency returned to distributing Zamzam water in coolers, fountains, tabs and water backpacks. It also meant the discontinuity of 330 ml Zamzam water bottles. In the following section I map the Zamzam water service-experience with Umrah visitors with the following criteria: (1) to clarify and validate findings from the fieldwork before Covid-19; (2) to have a deeper understanding about the Zamzam water service-experience; and (3) to identify gaps in the experience according to the needs and expectations of the visitors. The next two sections (4.7) and (4.8) represent the co-discovery phase of the case study.

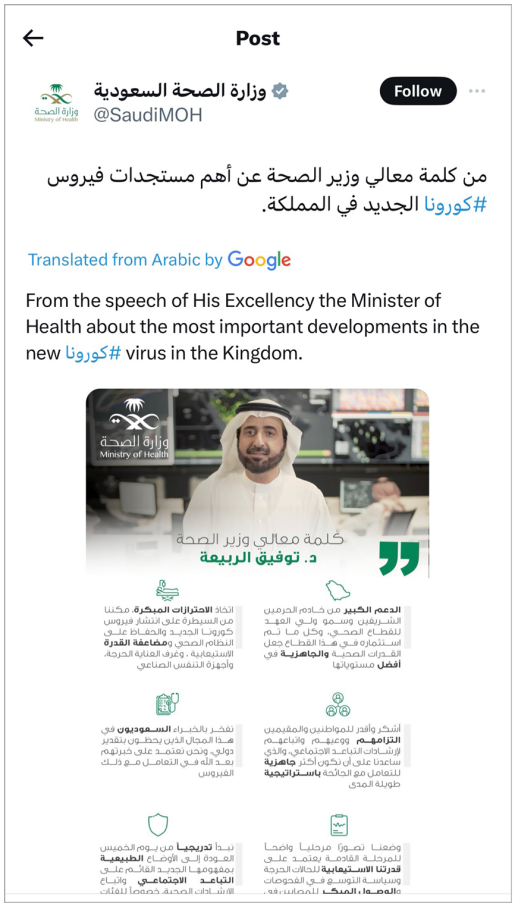


Figure 50: Twitter post summarising the speech of the Ministry of Health about the Covid-19 status in Saudi (Ministry of Health, 2020).

Figure 51: The Ministry of Hajj and Umrah using Twitter to communicate the reason behind regulating the number of pilgrims during the pandemic (Ministry of Hajj and Umrah, 2021).

Figure 52: Documentation of part of the process of analysing the Presidency tweets about Zamzam water services during the pandemic.

Figure 53: Documentation of part of the process of analysing visitors' replies to Presidency tweets about Zamzam water services during the pandemic.

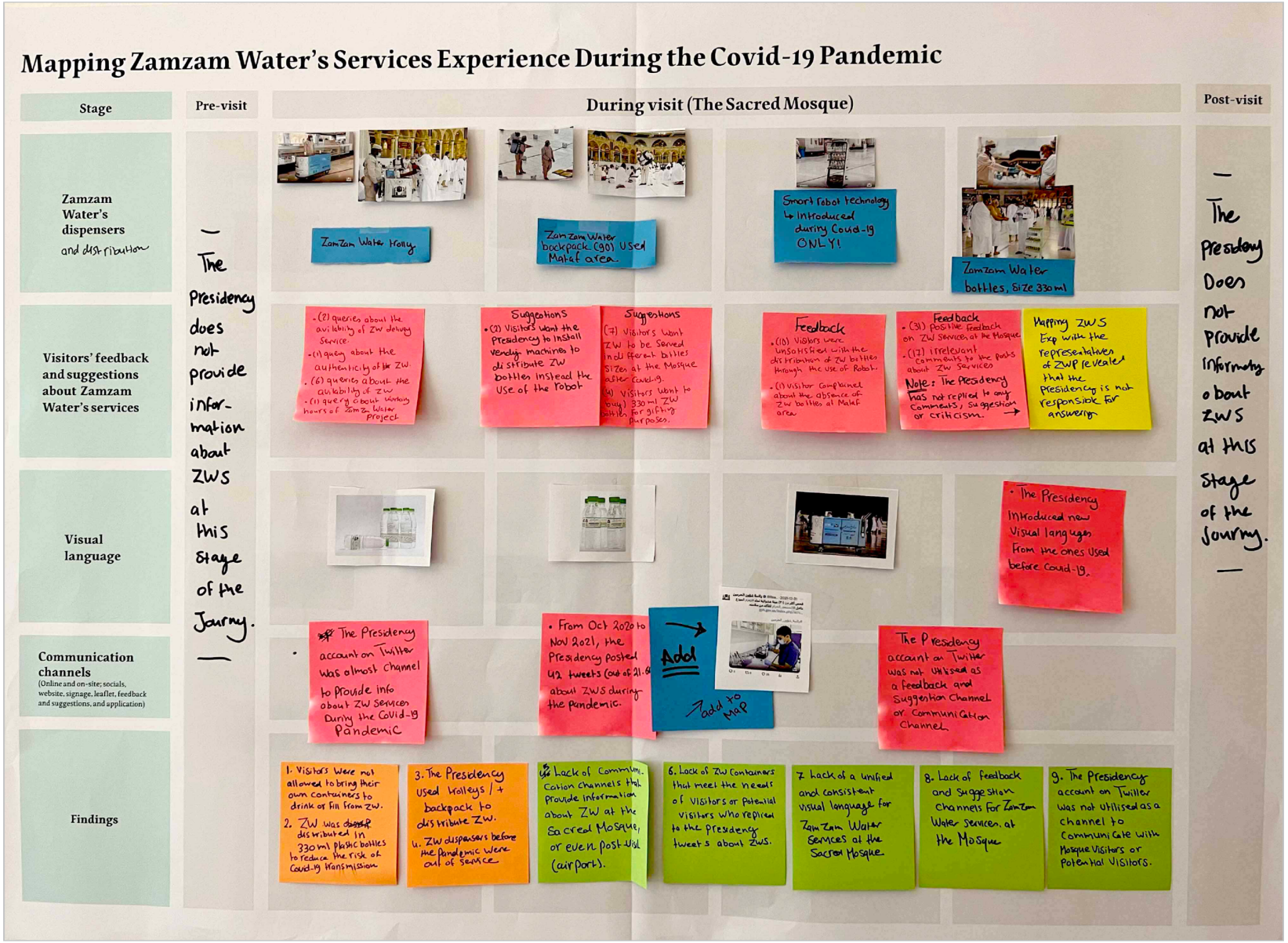


Figure 54: Part of the process of analysing the mapped experience of Zamzam water service during the Covid-19 pandemic.

Mapping Zamzam Water service-experience during the Covid-19 pandemic

Stage	Pre-visit	During visit (The Sacred Mosque)				Post-visit
Zamzam water dispensers	The Presidency does not provide information about Zamzam water services at the pre-visit stage of the Umrah journey.	Zamzam water trolley	Zamzam water backpacks (90 backpacks provided during the pandemic and across the Sacred Mosque When+ where?) supplied with clean disposable plastic cups.	Zamzam water bottles, size 330 ml.	Smart robot for distribution of Zamzam water bottles.	The Presidency does not provide information about Zamzam water service at the post-visit stage of the Umrah journey (at the airport).
Visitors' feedback and suggestions about Zamzam water services		**Queries** **Two** queries about the availability of Zamzam water delivery service. **One** query about the authenticity of the water. **Six** queries about the availability of 330 ml Zamzam water bottles outside the Mosque. **One** query about the working hours of the Zamzam Water Project.	**Suggestions** **Two** visitors want the presidency to install vending machines to distribute Zamzam water bottles instead of using the robot technology. **Seven** visitors want Zamzam water to be served in different bottles sizes at the Mosque after the pandemic. **Four** visitors want to buy 330ml Zamzam water bottles for gifting purposes.	**Feedback** **Ten** visitors were unsatisfied with the distribution of Zamzam water bottles through the use of robot technology. **One** visitor complained about the absence of Zamzam water bottles at the 'Mataf' area. **One** visitor mentioned that the Presidency did not answer his calls nor reply to his messages. **31** positive feedback comments on Zamzam water services at the Mosque. **17** irrelevant comments to the post about Zamzam water services. Note: the presidency has not replied to any comment, suggestion or criticism.	
Visual language					The Presidency introduced new and multiple visual languages for Zamzam water service at the Sacred Mosque during the pandemic.	
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions, and application)		The Presidency account on Twitter was almost the only official channel to provide information about Zamzam water services during the Covid-19 pandemic.	The Presidency was not utilised as channel to provide information about Zamzam water services at the Mosque.	From October 2020 to November 2021, the Presidency posted 42 tweets (out of 21.6K) about Zamzam water services at the Sacred Mosque during Covid-19.	The Presidency account on Twitter was not utilised as a feedback and suggestion channel.	
Findings		1. The Mosque visitors were not allowed to bring their own containers to drink from and fill with Zamzam water. 2. The Presidency distributed Zamzam water in 330 ml plastic bottles. These bottles were introduced to reduce the risk associated with the spread of Covid-19.	3. The Presidency distributed Zamzam water through dispenser trolleys and backpacks. 4. Most of the Zamzam water dispensers from before the pandemic were out of service during the pandemic. 5. Lack of channels providing information about Zamzam water services at the Mosque, within the 'during visit' stage.	6. Lack of Zamzam water containers that meet the needs of the visitors or potential visitors who replied to the presidency's tweets about the Zamzam water services. 7. Lack of a unified and consistent visual language for Zamzam water services at the Mosque.	8.Lack of feedback and suggestion channels for Zamzam water services at the Mosque, at the 'during visit' stage. 9. The Presidency account on Twitter was not utilised as a communication channel with the Mosque visitors or potential visitors.	

Figure 55: Visualisation of Zamzam water service-experience during the Covid-19 pandemic.

Figure 56: Eatmarna (left) and Tawakkalna (right) apps (Ministry of Hajj and Umrah, 2022).

Figure 57: Zamzam water 330ml plastic bottles distributed during the Covid-19 pandemic (The General Presidency, 2021).

Figure 58: Use of smart robot to distribute Zamzam water 330ml plastic bottles during the Covid-19 pandemic (The General Presidency, 2021).

Figure 59: A Zamzam water trolley used during the pandemic (The General Presidency, 2021).

4.7 Mapping Zamzam water service-experience with Umrah visitors

This represents the second and last phase of the field work of the Zamzam water case study. The mapping process aimed at getting closer to Umrah visitors in order to access tacit knowledge about their feelings, needs and expectations from their service-experience to improve the service accordingly. The mapping was conducted at the end of December 2021, at a time when the Omicron variant of Covid-19 was peaking (Figure 62). Consequently, safety measures such as wearing masks, social distancing and booking a visit slot via the Eatmarna mobile app – currently known as NUSK – were extended. However, the Zamzam water service-experience at the Sacred Mosque retained its pre-Covid-19 status.

Mapping Zamzam water services with Umrah visitors was inspired by combination of 'Say, Do and Make' approaches to get a deeper access to their experiences. Sanders and Stappers explain that the combination of these approaches provides tacit knowledge that can reveal latent needs (2020, p.66). Firstly, 'Do' is about observing what people do and is underpinned by observation which enables researchers to understand the bigger picture context of an experience (Crouch and Pearce, 2015, p.92). Secondly, 'Say' is underpinned by the semi-structured interview that enables researchers to get as close as possible to the reality of the interviewees' experiences (Crouch and Pearce, 2015, p.112). Thirdly, the 'Make' allows 'people to make things to express their thoughts and feelings' (Sanders and Stappers, 2020, p.70). Within the context of mapping with Umrah visitors, 'Make' is reframed as 'ideate' (idea generation) through the use of journey maps. This is because idea generation enables the expression of needs and desires regarding service experience. Also, idea generation usually comes before making and prototyping in the design process (Stickdorn et al., 2018, p.20).

4.7.1 Fieldwork ethical consideration

As indicated earlier, I obtained the RCA Ethics approval and I was granted a one-day visiting permission for three hours by the Authority of the Sacred Mosque on certain

conditions.[40] Obtaining the Authority permission was challenging. I was vetted due to the local security's complex system and strict measures adopted to ensure the safety of the Sacred Mosque and the Mosque visitors. In order to conduct the research ethically, I fulfilled the conditions of the Authority of the Sacred Mosque and the Mosque Presidency by doing the following:

I had the required two Covid-19 vaccination doses.

I was accompanied by two members of staff and two guards whom I did not see but were in touch with the accompanied staff, to ensure visitors' safety. The staff and the guards were careful not to draw attention to me as a researcher. However, I introduced myself and my research briefly before asking Umrah visitors if they would like to take part in the research.

I conducted the mapping with Umrah visitors on the ground floor of the Sacred Mosque at a spot less congested with visitors and away from praying areas. This spot was chosen by the accompanied staff and guards in order to ensure the continuous flow of movement at the Mosque and to maintain visitors' privacy and security.

I used a random sampling technique for recruitment within the allocated spot to increase chances for Umrah visitors to take part in the mapping and reduce research biases (Bryman, 2012, pp.190–91). I mapped Zamzam water services with 17 Umrah visitors (out of 35 visitors who were approached).[41]

I did not ask the participating visitors to sign consent forms or to share information that could reveal their identity. This was because the participating visitors were concerned about protecting their anonymity and privacy. The visitors agreed to take part in mapping their experience of Zamzam water services by answering my questions and sharing their thoughts as long as they were not recorded and photographed. Adhering to

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[40] The Authority of the Sacred Mosque conditions to visit the mosque as a researcher are: (1) To be accompanied by representatives from the Authority of the Sacred Mosque and the Mosque Presidency; (2) To avoid crowded sites and times and not to disrupt or confuse the movement of the visitors and pilgrims; (3) To use the collected data only for research purposes; (4) To stop working half an hour before prayer times and resume working half an hour after the prayer has ended; (5) Note that it is forbidden to enter the work area or document work by photocopying; (6) That privacy of the participating visitors should be respected and visitors have the right to refuse to participate or withdraw at any time; (7) To observe commitments to the precautionary and preventive measures by official authorities; (8) To follow social distancing protocols in an accurate and proper manner to confront the outbreak of the Corona virus; (9) To follow all necessary procedures and measures for the safety of workers and visitors in accordance with safety and security procedures; and (10) Note that the research work will be stopped and the licence withdrawn in the event of non-compliance with any of the conditions and the researcher shall bear the responsibility for the consequences thereof.

[41] The participating visitors were international (meaning that they are not based in Saudi); their nationalities cannot be revealed due to religious and cultural considerations.

these requirements of participation was vital to conduct the research in an ethical manner.

I documented the participating visitors' mapping of Zamzam water service-experience in writing. I also used an electronic device (phone voice memo) to take notes between mapping with visitors. This is because the participating visitors maintained social distancing and refused to physically engage with any of my materials (writing pad, journey map and pen) that might lead to the spread of Covid-19. However, the participants were patient while I was writing down their thoughts and ideas and confirming their answers.

4.7.2 Data collection and analysis

I designed a journey map to rigorously capture and visualise with Umrah visitors their experiences as well as their desired experiences of Zamzam water services (Figure 60). The columns of the map show the three main stages of Zamzam water services across the Umrah journey. The rows of the map show predetermined themes against which the visitors' experience were mapped and analysed. This included the visitors' experiences, needs and expectations, communication channels, feedback and suggestion channels, utility and usability and emotional experience. The last row of findings was added for analysis and synthesis purposes. The languages selected for the journey map were Arabic and English as the most spoken languages at the Mosque among French, Farsi, Urdu, Mandarin and 60 other languages. Arabic was selected because it is widely considered the main language of Islamic religion (rather than the Saudi language) and English because it is one of the top five languages spoken by visitors at the Mosque (Excellence from Al-Haram, 2018). The 17 mapped experiences of Umrah visitors were analysed individually, then combined into a journey map to be analysed collectively (Figures 61 and 62). This journey map consists of the same stages and themes used to map the experience with each participating Umrah visitor.

4.7.3 Limitations

Mapping the Zamzam water service-experience with Umrah visitors revealed gaps in it across the Umrah journey. These gaps were identified based on exploring with Umrah visitors their expectations and unmet needs from the services across their journey – they

are further discussed in section 4.8. The revealed gaps cannot be generalised beyond the Zamzam water case study research due to the small number of participating Umrah visitors (17), when compared to the overall number of daily Umrah visitors (around 400,000 visitors per day[42]) at the time of implementing this method. Also, the revealed gaps through mapping with Umrah visitors needs further clarification from the perspective of Zamzam water service-providing organisations. This is because according to the service graphic communication framework, the human-centred theme involves a consideration of the needs of Umrah visitors in the context of what is functionally possible and profitable for the service-providing organisations. Therefore, the next method was designed to map Zamzam water service-experience with two representatives of the Zamzam Water Project, the organisation responsible for Zamzam water takeaway containers.

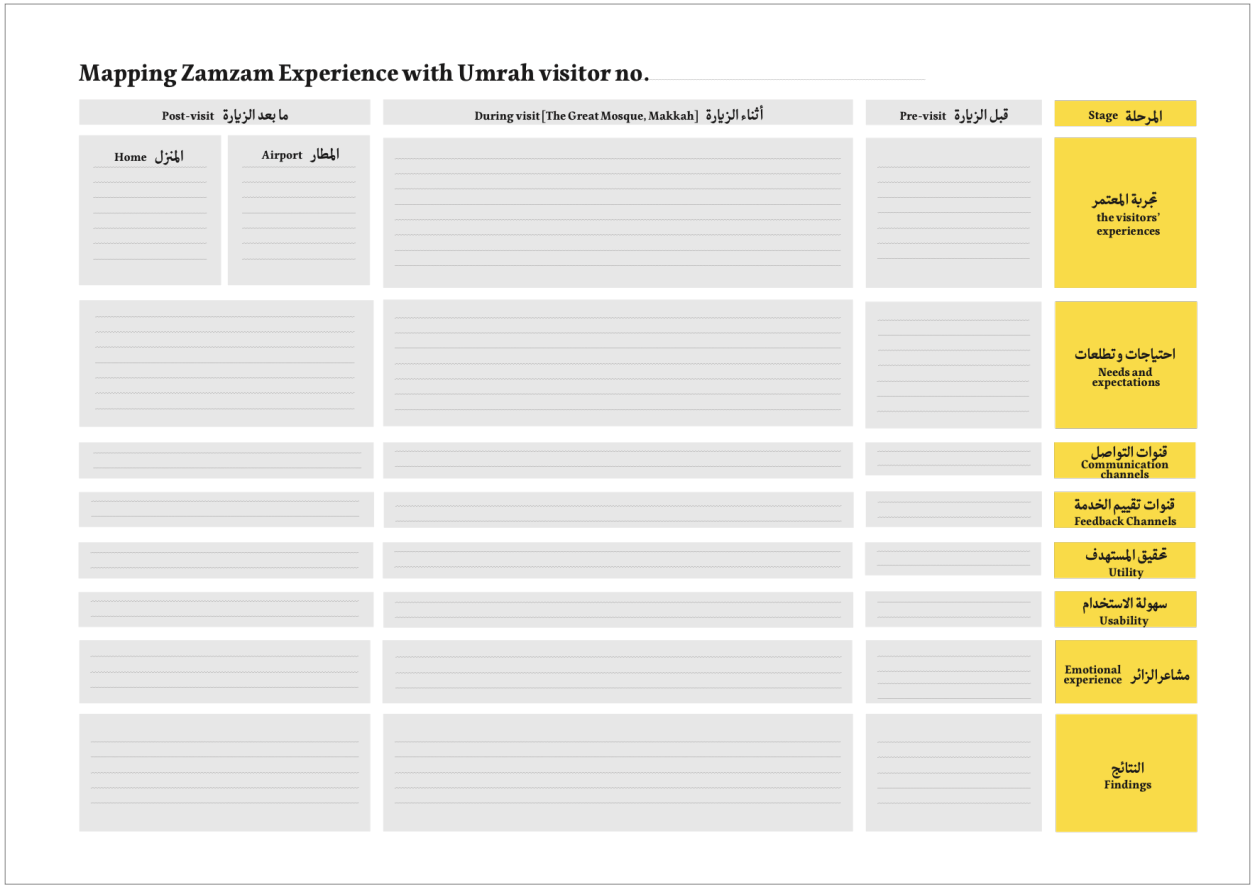


Figure 60: The journey map template used to map Umrah visitors' service-experience of Zamzam water.

[42] 400,000 was the average daily number of international Umrah visitors at the Sacred Mosque at the time of this research. This number increases during religious seasons (Ministry of Hajj and Umrah, 2021).

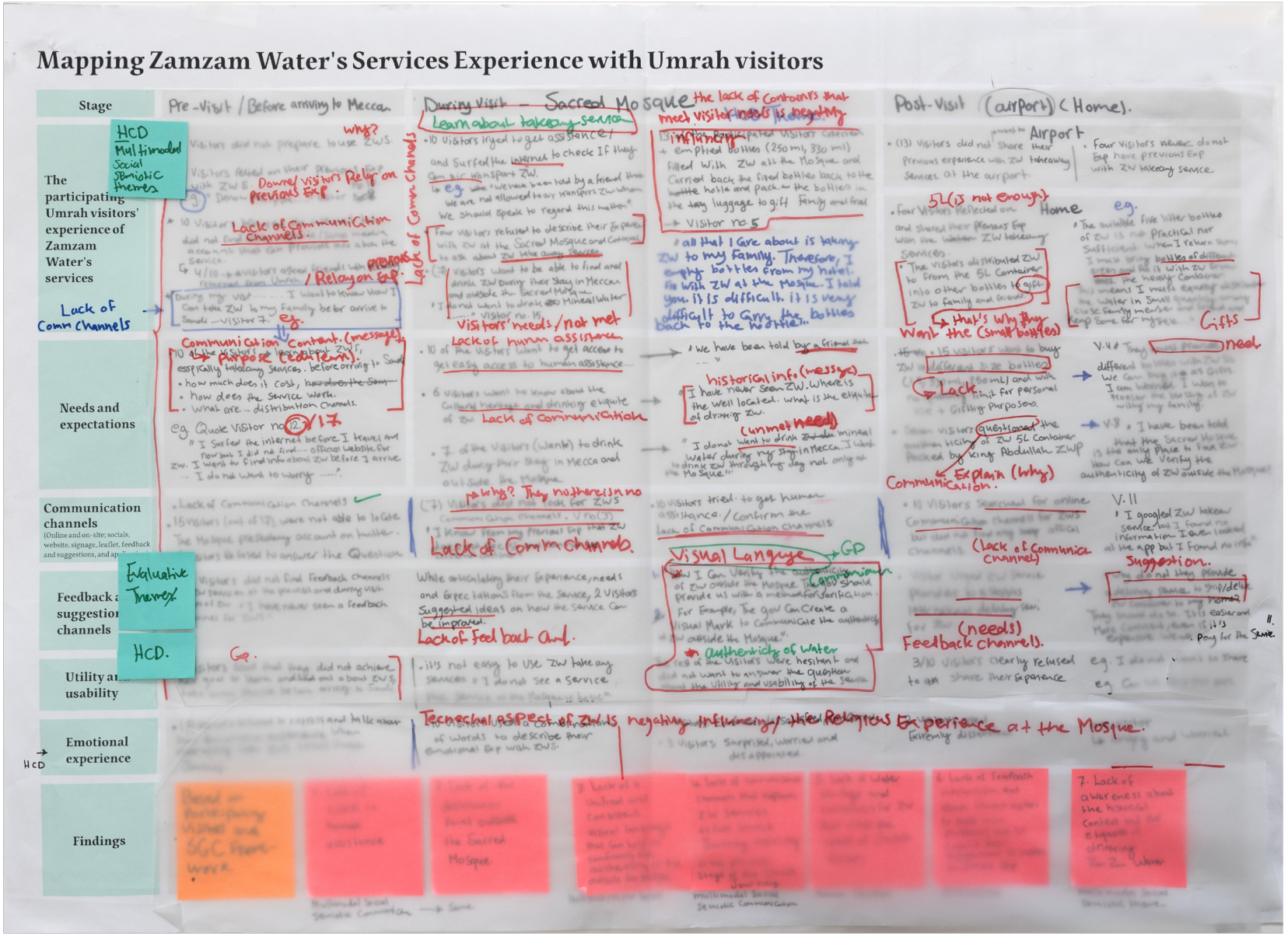


Figure 61: Part of the process of analysing the mapped experience of Zamzam water services with Umrah visitors.

Mapping service experience of Zamzam Water with Umrah visitors

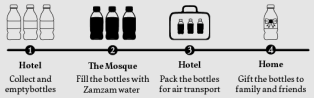
Stage	Pre-visit (vefore arriving to Mecca)	During visit (at The Sacred Mosque)		Post-visit (After leaving Mecca)	
The participating Umrah visitors' experience of Zamzam water services	Three visitors did not prepare to use Zamzam water services. Seven visitors relied on their previous experience with the services. They prepared by bringing their own reusable bottles to drink and fill with Zamzam water at the Mosque; e.g. **'I know the system. I brought my own bottles. I use them to drink Zamzam water at the Mosque and during my time outside the Mosque. Before I leave Mecca I fill these bottles with Zamzam water from the Mosque.'** **Ten** visitors did not find official communication channels for Zamzam water services when they surfed the internet. **Four** of the ten visitors asked friends who had recently returned from Umrah about Zamzam water's takeaway service; e.g.**'During my time at the mosque, I don't want to worry about air-transporting Zamzam water. Before I arrive at Mecca, I want to know how I can bring Zamzam water to my parents, sisters and brother; I searched online and found nothing to guide me.'** (Visitor one, 2021).	Ten visitors tried to get human assistance to check if they can air transport Zamzam water; e.g.**'We have been told by a friend that we are not allowed to air-transport Zamzam water. Whom we should speak to regarding this issue?'** (Visitor eleven, 2021). Four visitors refused to describe their experience of Zamzam water services at the Mosque and continued to ask about Zamzam water takeaway services. Seven visitors wanted to be able to find and drink Zamzam water during their visit and outside the Sacred Mosque; e.g. **'I don't want to drink mineral water during my stay in Mecca. I want to drink Zamzam water throughout the day. The water should be provided outside the Mosque.'**	13 visitors collected and emptied water bottles from other brands (sizes 250ml and 330ml). They filled their bottles with Zamzam water at the Mosque and carried them to the hotel. The visitors packed the bottles in their luggage; e.g. **'All I care about is bringing Zamzam water to my family. Therefore, I empty bottles from my hotel and fill them with Zamzam water at the Sacred Mosque. I told you it's difficult. It's very difficult to carry these bottles back to the hotel and pack it in the luggage.'** (Visitor eight, 2021).  1 Hotel: Collect and emptybottles 2 The Mosque: Fill the bottles with Zamzam water 3 Hotel: Pack the bottles for air transport 4 Home: Gift the bottles to family and friends	**Airport** 13 visitors did not talk about their previous experience of Zamzam water's takeaway services at the airport. Four visitors never experienced Zamzam water's takeaway service at the airport. **Home** **Four visitors reflected on their previous experience with Zamzam water's takeaway services after they returned home. The visitors dispense Zamzam water from five-litre container of Zamzam Water into other bottles to gift their family and close friends; e.g. 'The available five litre container of Zamzam water is not practical or sufficient.'** **'When I return home, I must bring bottles of different sizes and fill the bottles with Zamzam water from the heavy five-litre container. It's a difficult process. Each visitor is allowed to buy one container. This means I can't share the Zamzam water with all my family and frinds becaue I have to keep water for myself too.'**
Needs and expectations	Ten want to learn information about Zamzam water's takeaway service from official online communication channels before they arrive in Saudi; how do the services work? how much does it cost? What are the official distribution channels? One of the visitors stated, **'I surfed the internet before I travel and during my visit. I did not find an official website for Zamzam water services. Can you recommend one? I want to learn about the services before I arrive in Saudi. I do not want to worry about the process of bringing Zamzam water to my family during my time at and outside the Mosque.'**(Visitor four, 2021).	Ten visitors want access to human assistance to find information about air-transporting Zamzam water services. → **'We have been told by a friend that we are not allowed to air-transport Zamzam Water. Whom should we speak to regarding this issue?'** (Visitor eleven, 2021). Six visitors want to know about the historical context and drinking etiquette of Zamzam water. → **'I have never seen the Zamzam Well. Where is the well located? What is the etiquette of drinking Zamzam water? I want to know more about Zamzam water story.'** (Visitor thirteen, 2021). Seven visitors want to drink Zamzam water during their stay in Mecca, outside the Mosque. → **'I want to drink Zamzam w'ater throughout my day during my visit and not only at the Sacred Mosque.'**		Fifteen visitors want Zamzam water takeaway containers to be provided in different sizes bottles (1.5l, 1l, 330ml, and 250 ml) and with no quantity limit. The The visitors want to buy Zamzam water containers as gift for family and friends. → **'They must provide different sizes of filled bottles with Zamzam water so we can buy the bottles as gifts. I am worried. I want to easily share the blessed water of Zamzam with my family.'** Visitor five (2021) said: Seven visitors want a method to verify the authenticity of the five-litres container of ZamZam water packed by the Zamzam Water Project. Visitor two stated: → **'I have been told that the Sacred Mosque is the only place where I can find authentic Zamzam water. How can we verify the authenticity of Zamzam Water outside the Mosque?'**
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions, and application)	15 visitors did not locate the Mosque Presidency account on Twitter.	Seven visitors did not search for Zamzam water's services online communication channels. One visitor said **'I know from my previous experience that Zamzam water services do not exist online.'**	Ten visitors tried to access human assistance to check if they can air-transport Zamzam water.	Ten visitors did find online communication channels for Zamzam water services. One visitor commented: → **'I googled Zamzam water's takeaway services but I found no information. I even looked at the app but I found nothing'**	
Feedback and suggestion channels	11 visitors did not find feedback and suggestion channels for Zamzam water's services at the 'during visit' or'post-visit' stages. One visitor stated **'I have never seen a feedback channel for Zamzam services.'**	Two visitors suggested ideas on how the Zamzam water service could be improved. The first visitor suggested the following: → **'How can I verify the authenticity of Zamzam water outside the Sacred Mosque? The Saudi Government should provide us with a method for verification. For example, the government can create a visual mark to communicate the authenticity of Zamzam water outside the Mosque.'**		The second visitor suggested and urged Zamzam services-providers to establish an international delivery service for Zamzam water. The visitor asked: → **'Why do not they provide a delivery service to ship Zamzam water containers to my home? They should do so. It's easier and more convenient, even if it's expensive, we will pay for the service.'** (Visitor ten, 2021).	
Utility and usability	Ten visitors said that Zamzam water service did not help them to bring Zamzam water to their family and friends.	Ten visitors said it was not easy to use Zamzam water's takeaway services. One visitor said **'I do not see a service. Actually the service at the Mosque is basic.'**	Three (out the ten visitors) were hesitant to answer the questions.	Seven visitors refused to anser the question about the utility and usability of the services.	One visitor commented **'I do not want answer these questions.'** Another visitor asked **'Can we skip these questions?'**
Emotional experience	Seven visitors refused to express their feelings after interacting with Zamzam water services across their Umrah journey.	Ten visitors used a combination of words as follows to describe their emotional experience when interacting with Zamzam water services across their Umrah journey.	Four visitors used the words: **confused, dissatisfied** and **concerned.** Three visitors used the words **surprised, worried** and **disappointed.**	Two visitors used the words **disappointed** and **dissatisfied.**	One visitor used the words **angry, worried** and **dissatisfied.**
Findings	Mapping the service-experience of Zamzam water with Umrah visitors revealed **gaps** between visitors' needs and expectations and the delivered services of Zamzam water across the Umrah journey. These gaps were mainly related to Zamzam water takeaway services.	Ten visitors remarked that these gaps have negatively influenced their religious experience at the Mosque and across the Umrah journey. 1. Lack of online communication channels that explain and provide information about the water services across the Umrah journey, especially at the pre-visit stage.	2. Lack of easy access to assistance. 3. Lack of water storage and containers for Zamzam water the meet the needs of Umrah visitors. 4. Lack of Zamzam water's distribution point at the 'during visit' stage and outside the Mosque.	5. Lack of a unified and consistent visual language to recognise Zamzam water services across the Umrah journey. 6. Lack of awareness about the heritage and the etiquette of drinking Zamzam water.	7. Lack of feedback and suggestion channels that invite Umrah visitors to speak about problems and opportunities to improve Zamzam water services.

Figure 62: Visualisation of Zamzam water's service-experience with Umrah visitors.

4.8 Mapping the Zamzam water-service experience with representatives of King Abdullah Zamzam Water Project

This part of the process aimed to complement the gaps revealed in the Zamzam water service experience through mapping with Umrah visitors. Thirteen of the participating Umrah visitors expressed concerns related to Zamzam water takeaway services. Therefore, the method prioritised mapping the service-experience with the Zamzam Water Project over the Mosque Presidency because the Project (Figure 64) – as revealed through primary desk-based research – is responsible for Zamzam water takeaway services. Also, the method aimed to find out about other organisations involved in delivering the experience of Zamzam water services across the Umrah journey and the relationship between these organisations. This process was underpinned by the semi-structured interview which, as stated previously, provides an understanding of the examined experience from the interviewees' perspective (Crouch and Pearce, 2015, p.112).

4.8.1 Ethical considerations

Prior to mapping with the representatives of the Zamzam Water Project and based on the Project's request, I submitted an identification letter from the Royal College of Art Research Office to verify my identity as a PhD researcher at the RCA using Zamzam water services as a case study. In order to ethically conduct the research, I fulfilled the conditions and requirements of King Abdullah Zamzam Water Project by doing the following:

I conducted the mapping with the two assigned representatives of the Zamzam Water Project remotely through Zoom due to the explosive rise of the Omicron variant at the time.

I respected the rights of the representatives to be very careful about disclosing information about Zamzam water services because of the highly sensitive nature of the services and the religious and governmental contexts.

I did not record the mapping session with the two representatives based on the Project's request. However, the representatives were understanding and generous and allowed more time for the mapping (an hour instead of 30 minutes) so I could write and review their responses to my questions.

4.8.2 Data analysis and collection

The mapping with the representatives was structured into two parts. The first part focused on understanding the service experience from the perspective of the Zamzam Water Project. The second part was dedicated to reviewing with the representatives the needs and exceptions of the participating Umrah visitors from Zamzam water services. I designed and used the journey map as a tool to visualise and guide the mapping with the representatives and as a tool of analysis (Figures 63 and 64). The columns of the journey map show the main stages of the Umrah visitors' journey: pre-visit, during visit and post-visit. The rows show aspects of the service experience: Umrah visitors' needs and expectations, communication channels and feedback channels. The last row of findings was dedicated to the outcome of the analysis and synthesis.

4.8.3 Limitations

Mapping the Zamzam water service experience with the representatives of the Zamzam Water Project presented limitations due to the representatives disclosing little information, in their awareness of the sensitive nature of the service. Also, the mapping did not reveal the approach taken to design the Zamzam water takeaway services across the Umrah journey. Further, the mapping did not reveal the 'other' service-providing organisations involved in delivering the Zamzam water service experience across the Umrah journey. However, the mapping confirmed the gaps identified with the participating Umrah visitors in the Zamzam water service experience; for example, the mapping provided explanations for the lack of Zamzam water storage and containers that met the needs of Umrah visitors. These confirmed gaps are further discussed in the following section (4.8) which represents the output of the co-discovery phase of the case study.

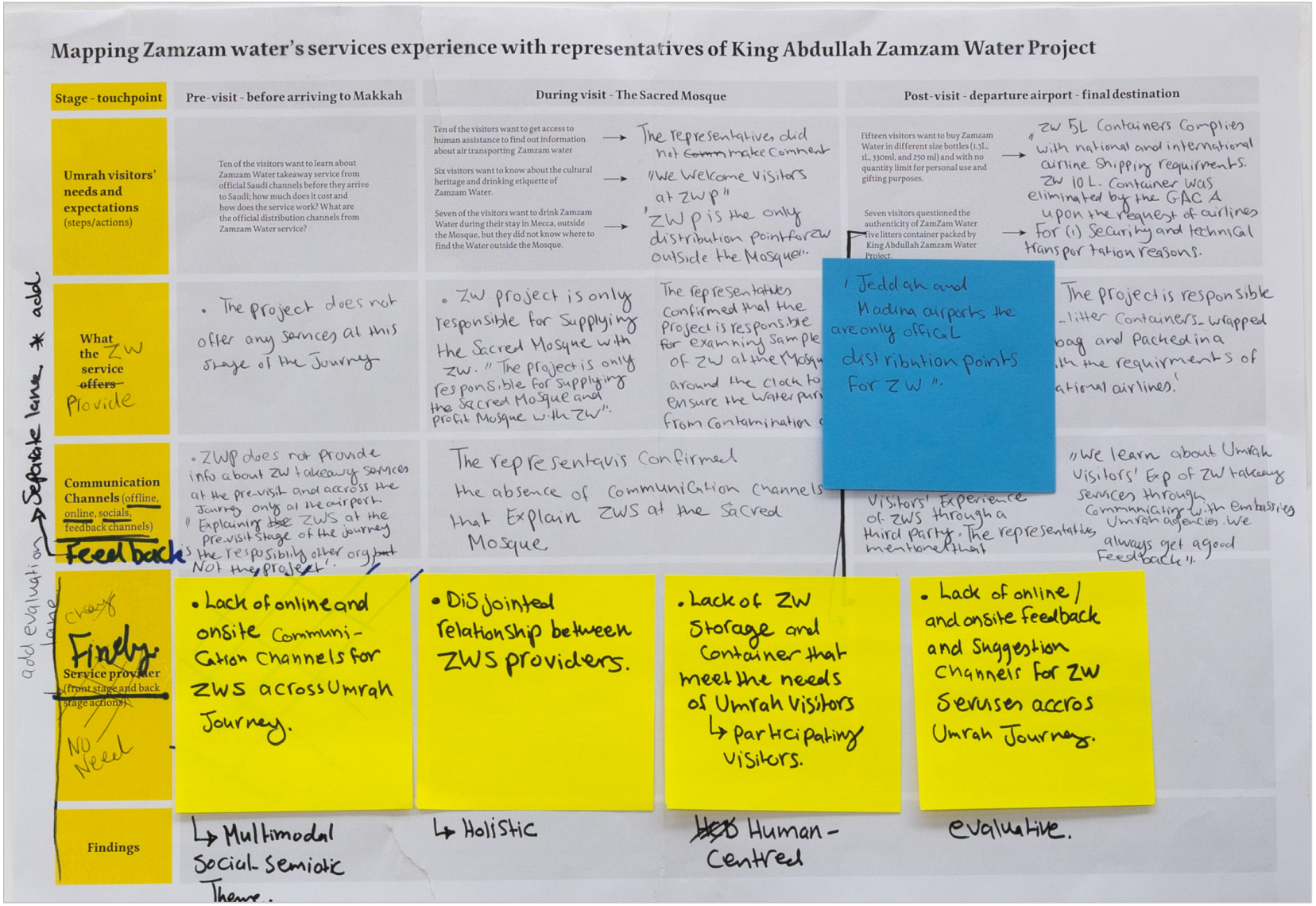


Figure 63: Part of analysis of the mapped experience of Zamzam water services with representatives of the Zamzam Water Project.

Mapping the service experience of Zamzam water with Representatives of the Zamzam Water Project

Stage	Pre-visit (Before arriving to Mecca)	During visit (The Sacred Mosque)	Post-visit (Departure airport - home)
Key insights from visitors' experience that were discussed with the representatives	**Ten** visitors wanted to learn about Zamzam water services from official communication channels before they arrive in Saudi. For example, the visitors want to learn about the following: How much does the service cost? What are the required steps to air-transport Zamzam water? What are the rituals and etiquette around drinking Zamzam water?	**Ten** visitors want to have access to human assistance to find out information about air-transporting Zamzam water services. → The representatives did not comment on this insight. **Six** visitors want to learn about the historical context of Zamzam water. → The representatives mentioned that **'We welcome visitors at Zamzam Water project.'** The representatives did not provide information about how visitors can access the project. **Seven** visitors want to drink Zamzam water during their stay in Mecca, outside the Mosque. → The representatives mentioned that the **'Zamzam Water Project is the only distribution point for Zamzam Water outside the Mosque.'** The representatives did not provide information about how visitors can access the project.	**Fifteen** visitors want to buy Zamzam Water in different size bottles (1.5l, 1l, 330ml, and 250 ml) and with no quantity limit. → The representatives mentioned that **'Zamzam water's five-litre container complies with national and international airline shipping requirements. Zamzam water's ten-litre container was eliminated by the General Authority of Civil Aviation upon the request of international airlines for security and technical transportation reasons.'** **Seven** visitors questioned the authenticity of ZamZam water five-litre containers packed by the King Abdullah Zamzam Water Project. → The representatives mentioned that **'Jeddah and Madinah international airports are the only official distribution points for Zamzam water.'**
What Zamzam water services provide	Zamzam Water Project does not provide services at this stage of the journey.	Zamzam Water Project is responsible for supplying the Sacred Mosque with Zamzam water. The representatives mentioned that **'The Project is responsible for supplying the Sacred Mosque and Profit Mosque with Zamzam water.'** The representatives confirmed that the Project examines samples from Zamzam water dispensers at the Mosque around the clock to ensure water is free from contamination and bacteria.	The representatives mentioned that **'The project is responsible for providing the Zamzam water five-litre container wrapped in a leak-proof plastic bag and packed in a carton to comply with requirements of national and international airlines.'**
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions and application)	Zamzam Water Project does not provide information about Zamzam water services at the pre-visit stage. Representatives said that **'Explaining Zamzam water services at the pre-visit stage of the Umrah Journey is the responsibility of other organisations, not the Project.'**	The representatives confirmed the absence of Communication channels that explain Zamzam water's takeaway services at the Sacred Mosque.	The project collects feedback about Umrah visitors' experience of Zamzam water services through a third party. The representatives mentioned that **'We learn about Umrah visitors' experience of Zamzam water takeaway services through communicating with embassies and Umrah visitors. We always get good feedback.'**
Findings	1. Lack of online and onsite communication channels for Zamzam water services across the Umrah journey.	2. Disjointed relationship between Zamzam water service providers.	3. Lack of Zamzam water storage and containers that meet the needs of the participating Umrah visitors. 4. Lack of online feedback and suggestion channels for Zamzam water services across the Umrah journey.

Figure 64: Visualisation of Zamzam water's service-experience based on mapping with representatives of the King Abdullah Zamzam Water Project.

4.9 Key insights and gaps in the Zamzam Water service experience

This section provides a mixed-methods meta-synthesis of all five methods of mapping the Zamzam water service-experience discussed in this chapter. The aim of the meta-synthesis is to identify areas in which the experience of Zamzam water services can be improved (Figure 65). As stated in the case study methodology, meta-synthesis is a systematic review and synthesis of findings of multiple studies conducted to gain broader understanding of the case under study (Robson, 2011, p.375). These identified gaps in Zamzam water service-experience demonstrate the research contribution of employing the service graphic communication framework for the services across the Umrah journey.

Key insights about Zamzam Water's ervices experience across Umrah journey

Stage	Pre-visit (before arriving to Mecca)	During visit (The Sacred Mosque)		Post-visit (departure airport - home)	
The participating Umrah visitors' needs and expectations	**Ten** visitors want to learn about Zamzam water services from official communication channels before they arrive in Saudi. For example, the visitors want to learn about: – how much the service costs; – what the required steps are to air transport Zamzam water; – what the rituals and etiquette are around drinking Zamzam water.	1. **Ten** visitors do not want to worry about air-transporting Zamzam water during their time at and outside the Mosque. 2. **Ten** visitors want to have easy access to human assistance to find information about air-transporting Zamzam water. 3. **Six** visitors want to learn about the rituals and etiquette of drinking Zamzam water.	4. **Six** visitors want to learn about the historical context of Zamzam water. 5. **Seven** visitors want to drink Zamzam water during their stay in Mecca, outside the Mosque. 6. **Fifteen** visitors want Zamzam water to be provided in different-sized bottles at the Mosque.	1. The visitors want Zamzam water takeaway containers to be provided in different sizes bottles (1.5l, 1l, 330ml, and 250 ml) and with no quantity limit. 2. The visitors want a method to verify the authenticity of Zamzam water takeaway containers.	3. The visitors want to buy Zamzam water containers as gifts for family and friends. 4. The visitors want an easy and practical way to distribute Zamzam water from the five-litre container into small bottles.
Emotional experience	Seven visitors refused to express their feelings and talk about the emotional aspect of interacting with Zamzam water services across their Umrah journey.	Ten visitors used combinations of words as follows to describe their emotional experience of interacting with Zamzam water services across their Umrah journey.	**Four** visitors used the words: confused, dissatisfied and concerned. **Three** visitors used the words surprised, worried and disappointed.	**Two** visitors used the words disappointed and dissatisfied.	**One** visitor used the words angry, worried and dissatisfied.
What Zamzam Water's services organisations provide	Zamzam water services are not provided at this stage of the journey.	1. The Mosque Presidency is responsible for distributing Zamzam water across the Mosque through Zamzam water dispensers. 2. The Presidency is responsible for conducting periodic washing and sterilisation for Zamzam water dispensers. 	3. Zamzam Water Project supplies the Sacred Mosque with Zamzam water. 4. The Project examines samples from Zamzam Water's dispensers round the clock to ensure the water is free from contamination and bacteria. 	Zamzam Water Project is responsible for bottling and packing Zamzam Water's takeaway containers in alignment with the airlines shipping requirements. The project is responsible for providing Zamzam Water's takeaway containers at Jeddah and Al-Madinah international departure airports.	 Zamzam water five-litre container
Communication channels (Online and on-site; social media, website, signage, leaflet, feedback and suggestions, and application)	The Mosque Presidency occasionally tweets about Zamzam water services at the Sacred Mosque.	The Mosque Presidency does not provide on-site communication channels for Zamzam water services.	The Presidency does not provide online or on-site feedback and suggestion channels for Zamzam water services.	Zamzam Water project does not provide online communication channels for Zamzam water services across the Umrah Journey.	Zamzam Water Project collects feedback about Zamzam water's takeaway services through a third party.
Gaps at the services experience	1. Lack of official communication channels that explain Zamzam water services across the Umrah journey	2. Lack of easy access to human assistance 3. Lack of Zamzam water containers and transportation that meet the needs of the participating Umrah visitors.	4. Lack of feedback and suggestions channels that invite Umrah visitors to share their problems, needs and desires relating the services.	5. Lack of a unified and consistent visual language of Zamzam water services across the Umrah journey.	6. Disjointed relationship between Zamzam water service-providing organisations

Figure 65: Visualisation of insights and gaps identified across all the five methods of mapping Zamzam water service-experience.

The gaps in the Zamzam water-service experience are ordered based on the sequence of the experience across Umrah journey, as follows:

1. **Lack of official communication channels that explain Zamzam water services across the Umrah journey**

   Zamzam water services do not explain to Umrah visitors what to expect from using the services or what not to expect and why. Also, the services do not explain what the required steps are, their cost and time from Umrah visitors needed to achieve their goals in using the services, especially their goal of gifting Zamzam water.

   Mapping with Umrah visitors revealed that ten (out of 17) of the participating visitors were not able to learn about Zamzam water services, especially takeaway services, at the pre-visit stage of their Umrah journey. Consequently, this negatively influenced the religious experience of these visitors because they were worried about air-transporting Zamzam water as a gift to their family and friends. Participating visitor one said: 'During my time at the Mosque, I do not want to worry about air transporting Zamzam water. Before I arrive in Mecca, I want to know how I can take Zamzam Water to my parents, sisters and brothers; I searched online and found nothing to guide me' (2021). Participating visitor four said: 'I surfed the internet before I travelled and now but did not find a Saudi official website or platform for Zamzam water services. Can you recommend an official website for me?' Moreover, Zamzam water services do not explain the religious legacy and values of the services. Mapping with Umrah visitors revealed that six of the participating visitors wanted to learn about the historical context and Zamzam water-drinking protocol. One of the participating visitors stated: 'I have never seen the Zamzam well. Where is the well located? What is the historical story of the service and Zamzam water? What is the etiquette of drinking Zamzam water?' (Participating visitor thirteen, 2021).

   Additionally, the lack of communication channels for Zamzam water services was confirmed during the mapping with representatives of the Zamzam Water Project. The representatives explained: 'Explaining Zamzam water services, especially at the pre-visit stage of Umrah journey is the responsibility of other organisations that we do not know about but not the Project nor the Mosque Presidency. We are only

responsible for the service at the airport.' (2021). Furthermore, mapping Zamzam water services during the Covid-19 pandemic revealed that the content of the Presidency's tweets about Zamzam water services was focused on reporting statistical facts and achievements of the services rather than explaining the services (Figure 66). For example, in reply to the tweets about Zamzam water services, nine queries were made about the services: two questions about the availability of the Zamzam water delivery service, one about the authenticity of Zamzam water, and six about the availability of Zamzam water bottles outside the Sacred Mosque (Figure 54). Finally, mapping the services through observation and autoethnography revealed the lack of communication channels relating to Zamzam water services at the Sacred Mosque. However, there were signs that explained the etiquette of drinking Zamzam water. These signs were placed on the top of the movable trolleys of Zamzam water coolers only (Figure 67).

Figure 66: The posts states that the Presidency distributed more than 6 million bottles of Zamzam water during the holy month of Ramadan (The General Presidency, 2021).

Figure 67: Sign explaining the etiquette of drinking Zamzam water (The General Presidency, 2017).

2. **Lack of easy access to human assistance**

Zamzam water services do not provide a clear route for Umrah visitors to access human contact. Mapping with Umrah visitors revealed that ten of the participating visitors did not find a way to access contact with staff members responsible for, or with knowledge about, the possibility of air-transporting Zamzam water. One of the participating visitors mentioned: 'We have been told by a friend that we are not allowed to air transport Zamzam water. Whom should we speak to regarding this issue?' (Participating visitor eleven, 2021). Another visitor said: 'We have been told that because of the new airport policy, we are not allowed to air transport Zamzam water. Could you suggest an official whom we can speak to about this matter?' (Participating visitor fifteen, 2021). Also, this lack of access to human assistance was confirmed by the representatives of the Zamzam Water Project who articulated the Project's responsibilities, mentioning the following:

> As we clarified to you earlier, the Project is only responsible for (1) supplying the Sacred Mosque and Profit Mosque with Zamzam water, and (2) providing five-litre containers of Zamzam water wrapped in leak-proof plastic bags and placed in a cartoon box to comply with national and international airlines shipping requirements. (2022)

3. **Lack of Zamzam water containers and transportation that meet the needs of the participating Umrah visitors**

Mapping with Umrah visitors revealed that 15 of the participating Umrah visitors wanted to be able to buy Zamzam water in different-sized bottles (1.5l, 1l, 330ml and 250ml) and with no quantity limit for personal use and gifting purposes. To deal with the lack of these containers, ten of the participating visitors came up with a solution of collecting and emptying small bottles of mineral water to fill with Zamzam water. According to these visitors, this solution negatively influenced their experience of Zamzam water services and their experience at the Sacred Mosque. There follow samples of the participating visitors' responses to the lack of different-sized bottles of Zamzam water.

> Zamzam water services is basic. They must provide different sizes of Zamzam water bottles so we can buy it as a gift. I am worried. I want to share the blessed water with my family; the only way to do so is to empty and wash mineral water bottles at the hotel, fill the bottles at the Mosque and finally

> pack the bottles in the luggage. It's an exhausting process. (Participating visitor five, 2021)
>
> All I care about is bringing Zamzam water to my family. Therefore, I empty bottles in order to fill Zamzam water at the Mosque. It's very difficult to carry these filled bottles back to the hotel and pack them in the luggage. (Participating visitor eight, 2021)

Further mapping with the representatives of Zamzam Water Project confirmed and revealed the reason behind the lack of the containers that meet the needs of Umrah visitors. The representatives explained:

> A study conducted in 2012 concluded that each Umrah visitor can air-transport one container of Zamzam water size five-litre or ten-litre. However, the ten-litre size was eliminated by the General Authority of Civil Aviation upon the request of international airlines for technical reasons and for security reasons at other international airports. (2022)

Additionally, mapping the Zamzam water service-experience during the Covid-19 pandemic revealed seven visitors or potential visitors who wanted Zamzam water to be served in different bottles sizes after the pandemic and to be available for purchasing (Figure 68). Finally, mapping the service-experience through autoethnography and observation revealed that five of the observed Umrah visitors brought empty beverage bottles and water bottles of other brands in sizes of 500ml, 330ml and 250ml to fill with Zamzam water. A further 19 of the observed visitors brought in flasks and bottles of different sizes and shapes to drink and fill Zamzam water (Figure 69).

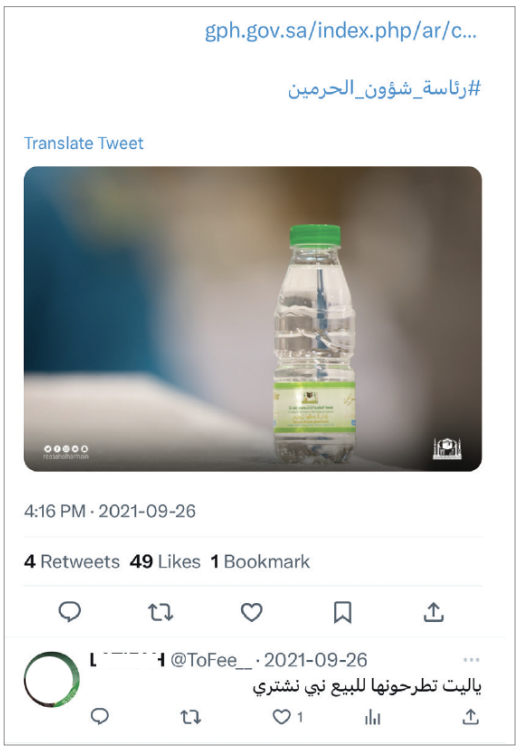


Figure 68: A visitor's reply to the Presidency post about Zamzam water: 'If only you would make Zamzam water bottles available for purchasing, we would like to buy them.' (The General Presidency, 2021).

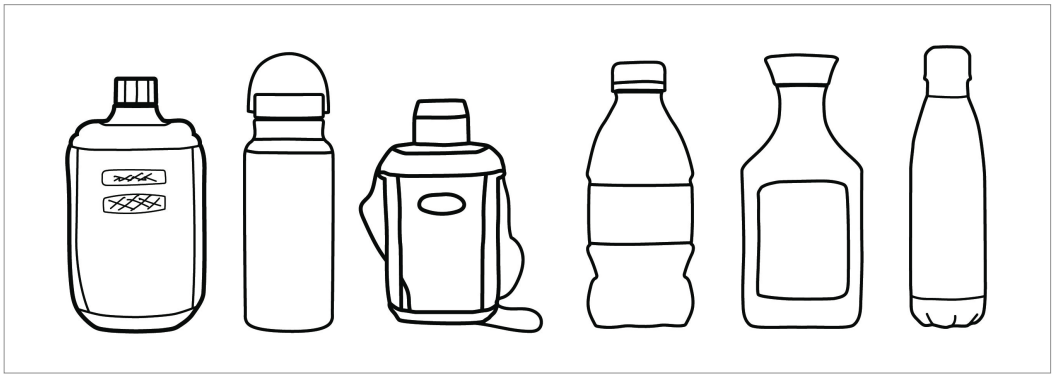


Figure 69: Illustrations not to scale of the flasks and bottles of different sizes and shapes used by Umrah visitors during observation at the Mosque.

4. **Lack of feedback and suggestions channels that invite Umrah visitors to share their problems, needs and desires relating the services**

Mapping with Umrah visitors revealed that 11 of the participating visitors suggested ideas about how Zamzam water services can be improved but the visitors were unable to find channels to submit their suggestions. For example, one of the participating visitors suggested and encouraged the service-providing organisation to establish an international delivery for Zamzam water takeaway services. The visitor asked:

> Why do not they provide a delivery service so I can ship Zamzam Water containers to my home? They should do. It's easier and more convenient, even if it's expensive we will pay for it. How can I submit my suggestion? (Participating visitor ten, 2021).

Additionally, mapping with representatives of the Zamzam Water Project confirmed the lack of feedback and suggestion channels. The representatives said that the Project learns about Umrah visitors' experience with Zamzam water services, particularly the takeaway service, through a third party: 'We learn about Umrah visitors' experience of the Zamzam water takeaway service through communicating with Umrah offices and embassies. We always get good feedback.' (2022).

Further, mapping the service experience during the Covid-19 pandemic revealed that the Presidency did not devote any tweets for the visitors to submit their feedback and share their needs and expectations from Zamzam water services.[43] In replies to different tweets about Zamzam water services, nine visitors or potential visitors expressed their needs regarding the service; two wanted the Presidency to distribute Zamzam water bottles at the Mosque through vending machines and seven visitors wanted the Presidency to serve Zamzam water in different bottles sizes at the Mosque after the pandemic (Figure 54).

Mapping the service-experience through observation and autoethnography confirmed the lack of feedback and suggestions channels. The mapping revealed that the Presidency placed an iPad at the Masa[44] worshipping area as a feedback channel to evaluate certain services at the Sacred Mosque, one of which was the

[43] Particularly after the six-month closure of the Mosque.

[44] Masa is a worshiping area at the Sacred Mosque where Umrah visitors undertake the Sa'i part of the Umrah religious ritual.

hygiene of Zamzam water stations (Figure 70). However, the iPad was only working during the morning visit of the first of the three days of the fieldwork.

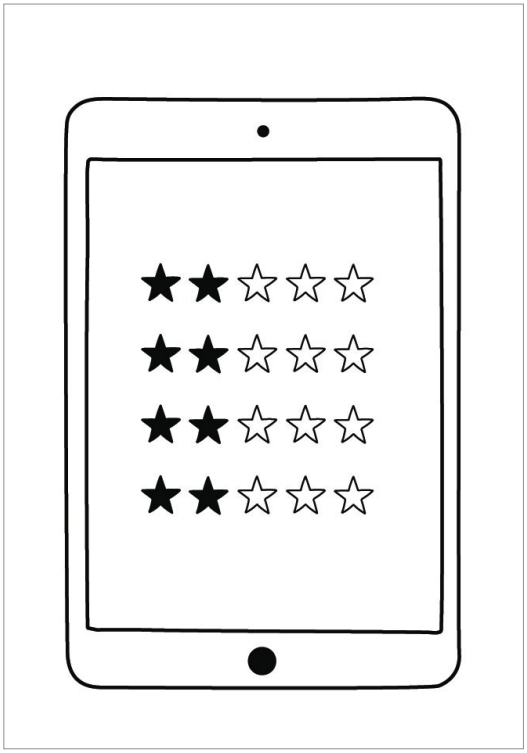


Figure 70: Illustration of the iPad that was working only during the morning visit on the first of the three fieldwork days.

5. **Lack of a unified and consistent visual language of Zamzam water services across the Umrah journey**

Visual language is defined as a consistent visual system (visual mark, logotype, typeface, pattern and colour) that communicates a service's identity, look and feel (Kapferer, 2012, pp.149–50). Mapping Zamzam water services through primary desk research, autoethnography and observation during the Covid-19 pandemic and with Umrah visitors revealed random visual languages of Zamzam water services across the Umrah journey.

Firstly, during the visit stage of the Umrah journey (Sacred Mosque), Zamzam water services did not follow a single and consistent visual language (visual mark, logotype, typeface, pattern and colour) across the Mosque. The service randomly used different calligraphic styles for its logotype and different typefaces, colours and pattern for the signs of Zamzam water containers and dispensers across the Mosque (Figure 71). Also, the random visual language of Zamzam water services was accompanied with the visual languages for other government organisations. For example, the label of the Zamzam water backpack and Zamzam water station showed the visual mark and logotypes of the Mosque Presidency, Zamzam water services, Saudi Vision 2030 and a national campaign (Figure 72). Secondly, during the post-visit stage (at the departure airport) Zamzam water services used a different visual language than the visual languages used at the Mosque (Figure 73).

Thirdly, mapping Zamzam water services during the Covid-19 pandemic confirmed the lack of a consistent visual language for Zamzam water services. During the pandemic, the Presidency introduced two different visual languages with Zamzam water bottles and Zamzam water dispenser trolleys (Figure 74). According to Schneider, encountering disparities in visual communication can evoke negative feelings, make service users uncomfortable and can produce inhibitions (2011, pp.72–73). Also, inconsistency in visual language can create confusion and trust issues during interaction with the service. Mapping Zamzam water services with Umrah visitors confirmed the existence of trust issues that resulted from the lack of consistent visual language of a service. One of the participating Umrah visitors, quoted below, suggested that the Saudi government should create a single visual language to promote the authenticity of Zamzam water.

> How can we be sure this is really Zamzam water? It's especially important for us to know this about the water outside the Sacred Mosque? The Saudi government should provide us with a method of verification. For example, the government can create a mark to communicate the authenticity of Zamzam water outside the Mosque. (Participating visitor two, 2021)

The visitor's use of the term 'a visual mark' confirmed the inconsistency and indicated the importance of having a unified and consistent visual language of Zamzam water services across the Umrah journey.

Figure 71: Two different visual languages used for Zamzam water containers and dispensers at the Sacred Mosque (The General Presidency, 2018).

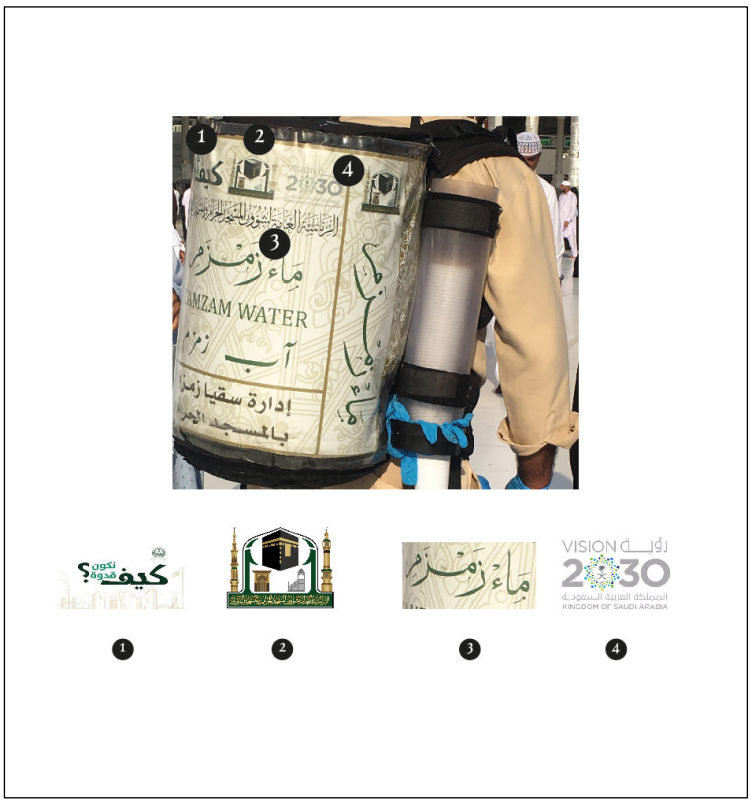


Figure 72: The label of the Zamzam water backpack showing the visual mark and logotypes of the (1) national campaign, (2) Mosque Presidency, (3) Zamzam water services, and (4) Saudi Vision 2030 (The General Presidency, 2018).

Figure 73: Differing visual languages of Zamzam water services used on (1) the label of Zamzam water backpack and (2) Zamzam water takeaway containers (The General Presidency, 2018).

Figure 74: Different visual languages for Zamzam water services at the Sacred Mosque during the pandemic (The General Presidency, 2018).

6. **Disjointed relationship between Zamzam water service-providing organisations**

Mapping Zamzam water's service-experience with the representatives of the Zamzam Water Project revealed a lack of seamless integration between Zamzam water service-providing organisations during the visit stage (the General Presidency) and post-visit stage (Zamzam Water Project) of the Umrah journey. The representatives explained that:

> As we have mentioned earlier, the Project is only responsible for supplying the two Mosques with Zamzam water and providing Zamzam water takeaway containers at Jeddah and Madinah airports. The experience of Zamzam water services at the Sacred Mosque is the responsibility of the Presidency. The Project and the Presidency are different and separate organisations. (2022)

The inconsistent visual language of Zamzam water services – alluded to in the previously identified gap – reflected the disjointed relationships between Zamzam water service-providing organisations. Further, the use of the term 'the Saudi government' by one of the participating visitors confirmed that organisations providing Zamzam water services do not work together to form a seamless and integrated service. In the next section (4.9), the research turns the identified gaps in Zamzam water services into design opportunities that can be pursued for future research. These design opportunities represent part of the design phase of the Zamzam water services case study.

4.10 Turning gaps in the Zamzam water services experience into design opportunities

Reconfiguring the identified limitations in the Zamzam water service experience (Section 4.9)
as design opportunities is devised to improve the services across the Umrah journey. These opportunities represent the future-state experience of Zamzam water's services and can be summarised as follows: (1) to design the services for the wider journey of Umrah visitors, (2) to design a coherent service throughout, (3) to design a unified and consistent visual language for the services, (4) to design a communication strategy for the services, (5) design containers that meet the needs of Umrah visitors, and (6) to design feedback and suggestion mechanisms and channels for the services across the Umrah journey.

These design opportunities are informed by the themes of the service graphic communication framework for Zamzam water services across the Umrah journey: the sequential, holistic, visual-based, multimodal social semiotic communication, human-centred, and evaluative themes. However, these opportunities were not implemented during the PhD research due to the ripple effect of delays caused by the Covid-19 pandemic. This is one of the limitations of the research. An outline follows of the future-state experience of Zamzam water services across the Umrah journey.

1. **Design Zamzam water services from end-to-end and within the wider context and through relevant channels across the Umrah journey**

   This means designing Zamzam water services from when Umrah visitors plan their Umrah journey (in other words, from when they book their flight), during their visit (inside and outside the Sacred Mosque), to when they return home and gift Zamzam water to their family and friends.

   This design opportunity is informed by the sequential theme of the service graphic communication framework for Zamzam water services across the Umrah journey. This theme requires designing the service from end-to end and to fit within the wider Umrah journey of visitors. This is because approaching the service as a whole allows coordination between the service front stage and its back-office operations (Penin, 2018, p.152) and informs how the service can be delivered most effectively

(Downe, 2020, p.81). Also, the sequential theme informs choosing suitable communication channels for the service across its journey. Therefore, the future state experience of Zamzam water services is designed to be part of, and integrated within, the NUSK application, among other services related to the Umrah journey such as booking hotels, transportation and planning Islamic historical site visits.

2. **Design Zamzam water services as a coherent service through its different channels despite its multiple provider-organisations**

This means that Umrah visitors would receive a consistent service and not be exposed to the complexities of the multiple organisations involved in delivering Zamzam water services across the Umrah journey.

This design opportunity would be informed by the holistic theme of the service graphic communication framework. This theme would require having a shared and consistent identity (values), purpose and vision for Zamzam water services among its different organisations (Down, 2020, p.119). Also, it requires integration of the service-organisations' internal logistics (Penin, 2018, p.153). Consistency is essential to service experience because as Down explains, 'every breach of consistency is a breach of trust … it's a lot harder to regain that trust once it's broken than it is to gain it in the first place' (2020, p.141).

3. **Design a single and consistent visual language of Zamzam water services across the Umrah journey**

This means Umrah visitors would no longer recognise Zamzam water services through its providing organisations such as the General Authority for the Affairs of the Two Holy Mosques (previously the Mosque Presidency) and/or the Zamzam Water Project. Instead, the services would be recognised through a visual language (look and feel) that reflects the identity of Zamzam water (its values and historical context).

This design opportunity is inspired by the holistic theme of the service graphic communication framework for Zamzam water services across the Umrah journey. This is because the services' consistent visual language across the journey would enhance and promote trust while interacting with the service (Downe, 2020, p.141).

Also, Schneider stresses that consistent service visual language ‘acts as an actor that links the users to positive experience’ (2011, pp.72–73). Additionally, this design opportunity would be implemented through the visual-based theme of the framework. This theme employed the visual communication values of graphic design to enable the visual language of Zamzam water services to be designed.

4. Design a communication strategy for Zamzam water services across the Umrah journey

This means designing a tailored communication strategy for Zamzam water services that would meet the needs of Umrah visitors. Also, it means that communication strategy would explain the services across the Umrah journey, especially at the pre-visit stage, without assuming that visitors are familiar with the services.

This design opportunity is inspired by the multimodal social semiotic communication theme of the service graphic communication framework for Zamzam water services across the Umrah journey. This theme requires designing the communication’s content (message), modes and channels to clearly explain the services and meet the needs of Umrah visitors. Designing the communication strategy is an ongoing activity that would be informed and updated constantly by Umrah visitors’ feedback and suggestions. As Down stresses:

> Your service will be more effective, better ranked, more efficient or more profitable if your user knows what they need to know by the time they get to you, and they’re able to achieve what they set out to achieve. (2020, p.77)

Similarly, Schneider explains that communication between the service users and the service provider is integral to the service experience (2011, p.70). Also, Boag states that ‘communication is an essential aspect of customers experience’ (2017, p.619). Further, Frascara explains that the responsibility of the designer includes developing, implementing the communication strategy (1997, p.5). Likewise, Kress stresses that it is the designer’s responsibility to select the mode and medium of the communication that is suitable for the content to be communicated and for the intended audience (2004, p.116).

The future-state experience of Zamzam water services proposes that Umrah visitors learn about Zamzam water services across the Umrah journey through the NUSK

application (Figure 75).[45] This design opportunity is to be implemented through the visual-based theme of the framework.

5. Design Zamzam water containers that meet the needs of Umrah visitors

This means designing containers that enable Umrah visitors to achieve one of their ultimate goals which is gifting Zamzam water to their family and friends. According to the participating Umrah visitors, gifting Zamzam water means sharing part of the religious experience of Umrah and the blessing of Zamzam with family and friends. Penin explains that the material elements of services – in this research Zamzam water containers – embody lived experiences once the experience itself is over (2018, p.152).

This design opportunity is inspired by the human-centred theme of the service graphic communication design framework for Zamzam water services across the Umrah journey. The human-centred theme entails understanding the needs of Umrah visitors as well as the capacity of the service-providing organisations to meet these needs. Down warns that 'failing the needs of the users can create negative consequences that are much more severe than just disorienting and confusing' (2020, p.77). Therefore, the future-state experience of Zamzam water services proposes providing Zamzam water containers in different bottle sizes to enable Umrah visitors to gift Zamzam water (Figure 75). For this design opportunity, graphic design would be employed to design the label of Zamzam water containers in harmony with the services' visual language.

6. Design feedback and suggestions mechanism for Zamzam water services across the Umrah journey

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[45] Through the NUSK application, Zamzam water services are to enable Umrah visitors to learn about the following:

1. What to expect from Zamzam Water services across the Umrah journey, what not to expect and why.
2. The required steps to use the service at the Sacred Mosque.
3. Official channels outside the Sacred Mosque.
4. Places that provide Zamzam water bottles (filled and unfilled) and flasks.
5. Required process to gift Zamzam water.
6. Drinking etiquette and the historical context of the service.
7. Steps required to access human assistance and 24/7 live chat.
8. How to submit feedback and/or suggestions.

This means providing channels that enable and encourage Umrah visitors to evaluate Zamzam water services across the Umrah journey. This design opportunity is inspired by the evaluative theme of the service graphic communication framework for Zamzam water services across the Umrah journey. The evaluative theme requires integrating feedback and suggestions channels within the service journey because these channels enable users to share with the service-providing organisations opportunities to improve the services (Penin, 2018, p.298). Therefore, the future-state experience of Zamzam water services would integrate feedback and suggestions channels across the Umrah journey (Figure 75). Also, the evaluative themes require evaluating the efficiency of the service's communication strategy of the services. For Frascara, evaluating the efficiency of the communication strategy is part of the designer's responsibility (1997, p.5).

Future-state experience of Zamzam water services across Umrah visitors' journey

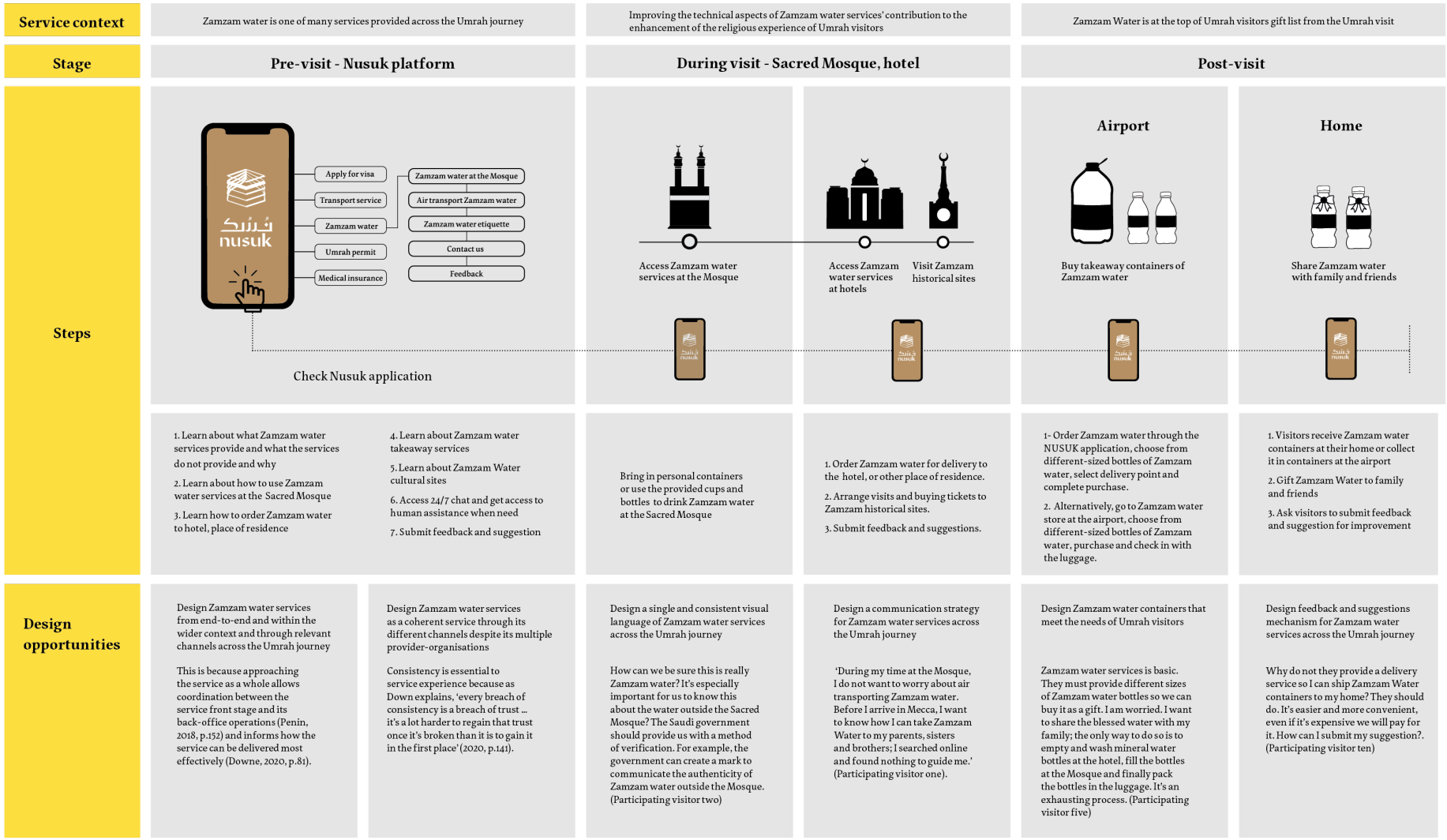

Figure 75: Visualisation of the design opportunities of Zamzam water service-experience.

4.11 Case study next steps

In future research, I aim to continue the design phase of the Zamzam water service case study by collaborating with Umrah visitors and Zamzam water service-providing organisations. My intention is to present the Zamzam water service case study to the Pilgrim Experience Programme. To do so, I am planning to develop the design opportunities into a prototype to be tested by both Umrah visitors and Zamzam water service-providing organisations. This is because prototyping an experience enables individuals to see the proposed experience and recognise how it might feel. Prototyping provides insights on how the proposed experience can be refined (Penin, 2018, p.316). I am also planning to prototype a financial model for the proposed future-state experience. This is because making a case for investment return is likely to convince decision-makers of the benefits of the proposed design opportunities to improve the service-experience.

4.12 Summary of key contribution to knowledge

This chapter presented the methodological framework for the Zamzam water services case study. The development of the methodology was informed by the service graphic communication framework for Zamzam water service across the Umrah journey. Through the application of five methods to map Zamzam water service-experience, this research identified the following deficits in the services experience:

(1) lack of communication channels;
(2) lack of direct contact with Zamzam water services staff;
(3) lack of containers that enable Umrah visitors to gift Zamzam water;
(4) lack of feedback and suggestion channels;
(5) lack of single and consistent visual languages for the services; and
(6) disjointed relationships between the service-providing organisations.

The chapter introduced the possibility of using evidence-based design as a means to improve the services. In addition, the chapter presented the policy design process that could inspire the Saudi government to achieve the Saudi Vision 2030 objectives of improving the experience of services related to religious rituals. The next chapter concludes the research with a summary of its main questions, its contribution to knowledge, its limitations and future applications.

Chapter five: Discussion and conclusion

5.0 Chapter introduction

This chapter returns to the research question and outlines how this question has been addressed and also the limitations of the research (Section 5.1). The chapter summarises a reflection on future research opportunities and application (Section 5.2). Chapter five concludes with the resulting contribution to new knowledge (Section 5.3).

5.1 Discussion

The overarching research question – How can graphic design contribute to improving the experience of Zamzam water's services across the Umrah journey? – is answered through the service graphic communication framework that has been developed to improve the experience of Zamzam water services for Umrah visitors. The framework demonstrates the capacity of graphic design to identify evidenced-based gaps and opportunities for improving services' experience. Both gaps and opportunities are recognised on the basis of the needs of Umrah visitors and within the Saudi government cultural values for religious services. Moreover, the framework has the potential to be adapted and applied in the context of other public services in Saudi. For example, the framework could be transferred to improve Zamzam water services experience across the Hajj journey. Additionally, the framework provides a starting point for exploring the experience of digital services as part of the strategic objectives of Saudi Vision 2030. A key limitation of the framework is that it does not provide themes that help in budgeting time and resources necessary for implementing the proposed design-led approaches.

The methodology demonstrates that graphic design requires understanding of various theories and methods to design for public services. As a result of adopting the human-centric and culturally sensitive design-led approaches, graphic design is positioned at the intersection of three fields: visual communication design, social design and service design. These fields compliment and draw from each other to inform the practice of graphic design for Zamzam water services. Firstly, visual communication design informs viewing graphic design as a process and a method of thinking and analysis, instead of solely producing visuals. Secondly, social design provides a cultural approach to the design context and methods to produce a robust design intervention. Thirdly, service design provides methods and tools to understand services experience. The

overlap of these fields informs the service graphic communication framework for Zamzam water service across Umrah journey. The framework prioritises the experience and the needs of Umrah visitors and is sensitive to the religious nature of the services. Therefore, the adopted design-led approaches are unique when compared to the adopted service management approach of Zamzam water services at the time of this research. Also, the design-led approaches contribute to the graphic design field and profession in Saudi which often practice under branding and marketing. Particularly, the design-led approaches enable graphic design to produce a theoretically informed, culturally sensitive and critical practice. This culturally sensitive and critical practice supports the research aim to enhance the values design brings to public services in Saudi.
Also, these new approaches to graphic design may open opportunities for new design models to evolve in response to the Saudi local needs and be inspired by western design models. Fields of social design and service design may not thrive in Saudi as both fields evolved and are evolving in response to specific western ideology, needs and challenges.

It should be stating that findings from the research methodology cannot be generalised beyond the scope of this research. Despite efforts to include a diverse sample of local graphic designers, the analysis sample did not encompass the breadth of practice found in local graphic design studios and the perception of Saudi officials in relation to the research fields. This is due to limited resources being available at the time of this PhD research.

Finally, it needs to be acknowledged that my education abroad has made this entire research project possible. Being educated in the School of Communication at the RCA afforded me with opportunities to to view my culture from outside and through new lenses that I have become familiar with. I learnt to reposition graphic design as a process and method for designing for public services rather than simply a tool for producing aesthetically pleasing visuals.I learnt also to make adaptations according to western design models so that its ideas could be seamlessly incorporated to improve Zamzam water services.

5.2 Impact and future application of the research

The devised design opportunities of Zamzam water services case study are likely to provide visitors with a coherent experience that fit within their wider Umrah journey from end-to-end. Also, the design opportunities have been formulated to enable Umrah visitors to reach their ultimate goal of using Zamzam water services such as gifting Zamzam water. The impact of these opportunities are projected to alleviate the physical and emotional burden of using Zamzam water services and consequently to enhance the religious experience of Umrah visitors. In addition, the devised design opportunities are likely to enable Zamzam water services provider to deliver a holistic and effective services experience for visitors. These opportunities, moreover, invite the services provider to rethink their existing approach in favour of a more human-centric approach. From the view of the service graphic communication framework, the effectiveness and potential economic values of the design opportunities cannot be determined. This is because these opportunities are to be prototyped and tested by Umrah visitors.

Being equipped with the immense amount of knowledge developed through my PhD research, I have gained the confidence to continue the design phase of Zamzam water services. Firstly and most importantly, I will be collaborating with the Pilgrim Experience Programme to explore the possibility of integrating Zamzam water services within the NUSK platform and mobile application. Furthermore, I aim to prototype a communication strategy for Zamzam water services and test the developed prototype with Umrah visitors. On top of this, I aim to improve my capability to prototype both a financial and an operational model to strengthen the case for my design interventions. These kinds of capabilities are essential for convincing decision-makers in the Pilgrim Experience Programme to invest in adopting design approaches to improve the experience.

Additionally, the next steps involve making the knowledge and insights of this PhD accessible to the local and regional design communities. I intend to develop the key themes and transferable methods into guidelines on design for public services. These will of necessity change and evolve according to site and circumstance and they will thus be open to continuous feedback and iteration. They will also be accessible online and shared with design practitioners, educators and students and, it is intended, with policymakers. Further, these guidelines will inform my design teaching toolkit and help

me demonstrate to my students the concept of designing for public services. My intention through sharing is to bridge the gap between design and public sectors by opening up new opportunities for practicing graphic design in Saudi, but also to encourage designers to be cognisant of possibilities for expanding the context and form of their practice beyond the commercial services industry. Sharing can additionally serve as a catalyst to inspire policymakers in Saudi to apply the service graphic communication framework as an approach to policymaking and for public sector reform and innovation.

Further to this PhD, the next steps involve investigating the Saudi environments policy for Zamzam water services from a design perspective. This investigation will aim to provide Umrah visitors with environmentally friendly containers for Zamzam water, both at the Sacred mosque and the airport. As Ann Thorpe, a pioneer in design for sustainability, has stated '90% of a product's environmental impact is fixed during the design stage' (2019, p.244). This investigation will also invite the Zamzam services provider to consider environmental impact in relation to the logistics of distributing and air-transporting Zamzam water. In terms of the present study, whilst the design sustainability agenda is acknowledged as important, the main aim of the research lay with creating design capacity to improve the experience of public services.

5.3 The research contribution to knowledge

This practice-led research offers two key contributions to the perception and application of graphic design field and profession in Saudi. Firstly, the research has contributed by introducing graphic design as a method for improving the experience of public services in Saudi. To do so, the research proposed expanding the field of graphic design in Saudi to include graphic communication design. This means that graphic design may be envisaged as being responsible for organising, implementing and evaluating the impact of communication. In addition to this, the research contributed a multimodal social semiotic approach to the perceived communication values of graphic design. This contribution thus occupies a unique position when it is considered how the communication value of graphic design in Saudi has previously been limited to the mode of the visual.

This contribution is presented through the service graphic communication framework for Zamzam water service across the Umrah journey which consists of ten themes: human-centred, culturally sensitive, rooted in multimodal social semiotic communication, collaborative, mixed-methods, sequential, holistic, interdisciplinary, visually-based and evaluative. This framework is conceived to evolve continuously as related disciplines and fields evolve and intersect and as the design context and societal challenges change. For example, a theme of sustainability could be introduced to improve the experience of Zamzam water services in an environmentally friendly way. Further, the service graphic communication framework can be transferred to improve Zamzam water services experience at the Prophet's Mosque in Madinah.In addition to these considerations, the service graphic communication framework invites graphic designers to adopt and prioritise human-centric approaches when designing for public and cultural spaces and holy sites in Saudi.

Secondly, the research has contributed through its Zamzam water services case study and methodology. The systematic process and methods implemented in the case study may be adapted and transferred to improve the experience of other public services in Saudi.

It is important to acknowledge the small sample size of the participating Umrah visitors in the Zamzam water case study when compared to the daily number of visitors. This was owing to security and ethical considerations relating to the religious and sensitive nature of Zamzam water combined with the effect of Covid-19 pandemic in terms of what was possible. Nonetheless, the sample was deemed suitable and sufficient to pilot the value of the service graphic communication design framework for the water service. An additional point to note is that the Zamzam water service case study did not in the event prototype its identified design opportunities to improve the future-state experience of the services because of the delay imposed by the Covid-19 pandemic.

Finally, Zamzam water services case study has contributed design opportunities for improving the services' experience in the form of the Zamzam water services' future-state experience. The services future-state experience - as the name suggests - communicates what the Zamzam waters services experience should be like. Equally, the services' future-state experience demonstrates to graphic designers and policy makers the capacity of graphic design to improve public services. Consequently, the services'

future-state experience contributes to the research aim of enhancing the value that graphic design brings to improving the experience of Zamzam water services. In the wider context of Saudi Vision 2030, the future-state experience provides a point of reference for how design might inform policymaking.

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Appendices

Appendix 1 - Design conversation guiding questions

Question one:

Part one

How would you describe graphic design within the Saudi context? What are the benefits, limitations and challenges of graphic design?

Part two

What is your perspective on the possibilities of human-centred graphic design to improve the experience of public services?

Question two:

Part one

How would you describe social design? And how prominent is social design within the Saudi design context?

Part two

How can social design bring benefits to the practice of graphic design to improve the experience of public services?

Question three:

Part one

How would you describe service design? And how prominent is service design within the Saudi design context?

Part two

How can social design bring benefits to the practice of graphic design to improve the experience of public service?

Appendix 2 - Mapping with Umrah visitors guiding questions

Pre-visit

Before arriving to Saudi, how did you learn about the Zamzam water service?

What were your needs and expectations from the Zamzam water service before you arrived in Saudi?

What was your experience of the communication channels of the Zamzam water service at this stage of the journey?

What are your suggestions to improve the water service at this stage? And did you submit these suggestions to the Zamzam water service-providing organisations?

How would you describe your emotions at this stage of the journey?

During the visit

How would you describe your experience of the Zamzam water service at the Sacred Mosque? And what are the highlights of this experience?

What are your needs and expectations from the Zamzam water service at the Sacred Mosque?

What are the communication channels of the Zamzam water service at this stage of the journey?

What are your suggestions to improve the water services at the Sacred Mosque? And did you submit these suggestions to the Mosque Presidency?

How would you describe your emotions at this stage of the journey?

Post-visit

If you have experience with the Zamzam water service at Jeddah or Madinah airport, how would you describe this experience?

What are your needs and expectations from the Zamzam water service at Jeddah or Madinah airport?

What are the communication channels of the Zamzam water service at this stage of the journey?

What are your suggestions to improve Zamzam water takeaway services? And did you submit these suggestions to the Zamzam Water Project?

How would you describe your emotions at this stage of the journey?

Appendix 3 - Mapping with representatives of the Zamzam Water Project guiding questions

What approaches have you taken to design and iterate the Zamzam water service across the Umrah journey? And what informed your decisions?

What are the backstage processes that ensure the Zamzam water service runs effectively across Umrah journey?

Do you have any evaluation measures or indicators that you need to deliver on and use to evaluate the service?

Which organisations are involved in the development and delivery of the Zamzam water services across Umrah journey?

How would you respond these issues raised by the participating Umrah visitors about their needs and expectations:

> Ten of the visitors that I mapped the service-experience with wanted to learn about the Zamzam water takeaway service from official Saudi channels before they arrived in Saudi: how much it costs and how the service works. What official distribution channels are there relating to the Zamzam water service?
>
> Ten of the visitors wanted access to human assistance to get information about air-transporting Zamzam water services.
>
> Six visitors wanted to know about the cultural heritage and drinking etiquette of Zamzam water.
>
> Seven of the visitors want to drink Zamzam water during their stay in Mecca, outside the Mosque, but they did not know where to find the water outside the Mosque.
>
> Fifteen visitors want to buy Zamzam Water in different size bottles (1.5l, 1l, 330ml and 250ml) and with no quantity limit for personal use and gifting purposes.
>
> Seven visitors questioned the authenticity of the five-litre ZamZam water container filled by the King Abdullah Zamzam Water Project.