HAPPY CHAPPY HEALING HOUSE
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How can the spaces and environments within a children’s hospital be designed to create hope?

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My father had two long years in hospital care before he passed away. He did not enjoy the environment of the hospital ward, or any part of his stay there. The poor design of the hospital itself had a negative impact, both physically and psychologically, on him and the rest of my family. The memories of that hospital are all negative; memories of death, cold rooms, uncomfortable furniture and sadness; memories of sterile white walls, corridors filled with fearful and hopeless families with nowhere else to wait, the same families, day after day, for weeks, or months; memories of the physical discomfort of the patients as they were moved from room to room and building to building to get the treatment they needed in the disjointed and cumbersome layout of the hospital. The experience has often provoked the questions “How could the hospital spaces be designed differently? How could they be places that inspire hope?”

This research project will propose and design a new children’s hospital environment which inspires hope, through creating spaces that feel safe, happy, warm, and even bring joy. The project aims to reduce the fear that manifests in both the patient themselves and the loved ones who visit and stay with them. The architectural psychology of spaces will be combined with design principles of patient-centred architecture, to create environments for physical and psychological healing for younger patients and their loved ones.
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Last, thank you, Dad. For everything. I miss you.
3.1 Project Title
Happy Chappy Healing House

3.2 Research Question
How can the spaces and environments within a children’s hospital be designed to create hope?
3.3 Background of Project

My father lived in the hospital when he was in the last stages of uraemia (terminal kidney failure). The hospital was in the city, which was 860km away from our home, so my family and I stayed with him in the hospital on and off for two years.

In the early stage of his illness, my father was living in a patient room with all white walls and a small window. He hated it every day when he opened his eyes, and would often say “look at me, Suri. Your dad’s trapped in this cage.” As the illness penetrated his immune system, he started to have serious complications: facial paralysis stopped his masticatory function; three strokes stopped his ability to walk; his liver was affected by cirrhosis. At this stage, my father immediately got transferred to single bedroom; however, the dialysis room was two hundred metres away from the ward building and in order to get there his hospital bed needed to travel outside the building and down a steep slope, which had a sharp 90 degrees turn at the end. Transporting my father to dialysis required five people, four nurses to move the bed, as well as myself who held my father in place and stopped him from falling out as he was moved.

My father stayed in the ICU for three weeks till his death, and all I remember about the hospital was hopelessness, fear, cold, and death. The hospital environment did not help the treatment and actually made it more difficult than it needed to be, physically and psychologically, both for my father and our family as we visited and stayed with him.

Since that time, I have often thought about how hospitals could be better designed, to help both the patients and their families through these difficult times. If the hospital environment was one full of hope; happy, warm and joyful, would my father’s treatment have been different? Is there a place for the design of hopeful, positive architecture within the hospital environment? When looking to design a hospital space that inspired hope, a children’s hospital seemed like a natural choice, as, when a child is hospitalised, it is often unexpected and traumatic. Being young and having much to live for, it is hope, and the support of the patient and their family, that is so important in order for them to cope.

3.4 Aims and Objectives

The principal aim for this research project is to create pleasant hospital spaces that provide a sense of hope and provide a better atmosphere for sick children and their families. Creating modern patient-centred health care spaces may allow people in the hospital to forget for a moment that their child is unwell. They will facilitate normal development for young patients, despite the treatment.

The objectives of the project will be to look at the effects of different configurations of spaces, such as the registration hall, corridors, and consultation rooms. The use of a range of materials, textures, and colours will also be explored.

Other objectives include looking into the psychology of hope, and how the spaces can enhance this.

3.5 Scope and Limitations

While a children’s hospital is primarily made up of several medical specialist departments, the implementation of better medical procedures in these areas is not the main goal of this research project. The focus of this project is on the child-friendly environment of public spaces, corridors and non-medical treatment areas of a children’s hospital, and how the interactions within these spaces influence the child’s (age 2-18) and their family’s wellbeing, both physically and psychologically.

Sick children and their families are already under a lot of emotional stress. In order to limit any additional stress or harm, special care will need to be taken when doing any research that involves direct contact with patients or their families.

There has never been a children’s hospital built in Anqing City, China. There is only a paediatric department in the general hospitals in the city and only two specialised children’s hospitals in the Anhui province. Consequently, there is not a large pool of local examples of medical architecture targeted towards children, so other architecture, such as kindergartens and schools, may need to be examined in order to gain the depth of knowledge required to provide a well-researched design of child-centred spaces. Hospitals in China that have international architecture included in their design are able to provide some insight into how hospital architecture can blend with Chinese society and urban fabric.
AN OVERVIEW OF CHILDREN’S HEALTHCARE
4.1 Why Change is Needed

“The image of the hospital as a construction site, coupled with the natural fear of a child in a strange environment, remains ingrained in memory for many of us.”

Stephen Verderber and David J. Fine’s Healthcare Architecture in an Era of Radical Transformation states that the ideal principle of children’s healthcare is first to reduce the fear and distract from the pain before the designer focuses on creating a happy and hopeful environment for patients and their family.

The adjectives used to describe hospitals include dehumanizing, depersonalizing, numbing, frightening, uncaring. I have never heard anyone describe a hospital as beautiful, peaceful, healing, warm, joyous.

---Roslyn Lindheim

The experiences of hospital care will leave a lifelong effect on a human being. How could we transfer the traditional impression of hospitals as places of disease, death, and pain in places of hope, happiness, and life?

In her research promoted the idea of patient-centred care architecture rather than system-centred. The movement for humanization of healthcare began in the late 1950s and started to have influence by the late 1960s.

After this, a rapid development of medical science, technology, and facilities resulted in an architecture that was focused on highly system-centred care where the architecture of the hospital was designed around the machinery and equipment. As the rate of progress in medical science and technology started slowing down, humanization of healthcare architecture and patient-centred design began to return to the forefront of hospital design.

The first step in creating successful medical architecture is creating safety frameworks, in which a patient is both physically and psychologically safe. However, focusing on safety alone could limit the other qualities of the environment.
4.2 A Look to the Past

Hospital History

Historically, a children’s hospital is closely linked with hospitals in general. The first form of hospitals existed in the early civilizations of Greece, Egypt, and Asia. At this early stage, a hospital was a building used to help people in their struggle against illness and injury. Therefore, the idea of a hospital was less like a healthcare building, and more like a shelter. The first documented hospital building that resembled our modern hospitals was in ancient Greece, called the Temple of Aesculapius. Aesculapius is the father of medicine and Hygeia, the goddess of health. The hospital was constructed with spacious halls, high ceilings and a huge sculpture of Aesculapius in the centre of the building. It was run by a religious order.

In ancient times, people sought the miraculous healing skills of the gods. In modern days people are still trying to reach out to the power of the gods for a medical miracle, many relying on religious faith and hope when their health situation is bad.

Hospitals have rapidly changed during revolutions. In the middle ages, the European hospitals were civic, urban buildings established by governments. The first hospital that was designed with the geometric ideas of the Renaissance was founded in Milan in 1456 and called the Ospedale Maggiore. It was a symmetrical building with a big central courtyard, and the wings on both sides of it created four smaller sized courtyards. This layout catered for separate areas for male and female patients. It was the beginning version of corridor type hospitals where all the rooms are placed along the sides of the corridor.

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Children’s Hospital History

In the eighteenth century, hospitals slowly became important public buildings and their religious significance slowly faded away. The hospital was integrated into the street façade and had a symmetrical layout. At the same time, abandoned babies started becoming an issue, and so orphanages started becoming children’s hospitals in society.

Initially, people used converted houses to set up children’s hospitals, not only to help children transition from leaving their home to being in a hospital, but also because they were often the only place available.

Florence’s Hospital of the Innocent (Ospedale degli Innocenti) was a charity-based orphanage which opened in 1445, to nurse sick and abandoned infants back to health. In 1741, Thomas Coram established the goal to help rehabilitate infants and changed its name to The Foundling Hospital. Dispensaries and foundling hospitals were the earliest forms of what would later become children’s hospitals.

Hôpital des Enfants Malades in Paris, which opened in 1802, was the first formally recognized paediatric hospital, and in 1852 the first British children’s hospital, called The Great Ormond Street Hospital, was established in London.
Hospitals in China

Over this same period, on the other side of the world, missionaries started introducing western medicine in China. This changed the traditional Chinese healing place and promoted the development of Chinese medical and health practices.

Before the western idea of hospitals came to China, the Han Emperor, Liu Che, set up treatment sites in various places along the Yellow River, equipped with doctors, drugs, and free treatment for people who got diseases (AD1). In the twenty-first year of the Northern Wei Dynasty (AD 497), Emperor Xiaowen set up a "Binfang" (illness house) in Luoyang (a city in the middle of China) for the medical treatment of the people. However, in 1800 the Qing dynasty government disliked the western world and underestimated the power and rapid development of their science. As a consequence, this led to the downfall of the development of science and medicine in China.

In November 1834, the first Western-style religious and ethnic hospital, the Canton Hospital (better known as the Ophthalmic Hospital) was founded in Guangzhou by a Yale University–trained missionary and physician, Peter Parker. By 1949, there were more than 340 hospitals across the country.

On the 7th of July 1937, World War II began in China when the Japanese Empire launched a total war against China. In the same year, the Wanguo Red Cross Temporary Children's Hospital and the Shanghai Refugee Children's Hospital were founded. On the 1st of June 1939, these two children's hospitals combined to become the Shanghai Children's Hospital. This was the first children's hospital in China.

In 1903, the first Western-style religious and ethnic hospital was founded in Anqing City, by a medical doctor and missionary Harry B. Taylor. It was called the St. James Hospital. The hospital buildings combined Baroque-style architecture and traditional Chinese architecture. It was the first Western-style hospital in Anhui province at the time.

After 1949, as China began to recover from a decade of war and political instability, the field of medicine began to rapidly progress and develop, quickly catching up with the progress that had been made in healthcare in the rest of the world. The idea of the western-style hospital was established in Chinese minds. It was a medical institution with the main purpose of treating and caring for patients. It was a place with a certain number of beds and facilities, and through the collective collaboration of medical staff, to treat patients.
4.3 Present Day
Problems of current paediatric departments in general hospitals in Anqing City, China

(1) Limited physical hospital spaces. The size of the hospital buildings is limited as they are often spread over a large site. The old designs of space layout no longer fit modern hospital facilities and the increased population. This results in consultation difficulties, and difficulty managing the whole system.

(2) There is not currently a children’s hospital that is specifically designed for children with a child-centred design; there are only departments within the general hospitals. It is not convenient for a child’s family to seek medical treatment, which is not conducive to the development and management of paediatrics as a specialty area.

(3) Hospital staff is over-loaded. From the 1st of July to 17th of July 2018, the outpatient department at Anqing Municipal Hospital had 54,172 patients in total and 3,187 patients per day.

The paediatric department was the most visited department. There is a big shortage of medical staff, and at present, the paediatric strength of the several large hospitals in the city is generally weak. There are not enough doctors and nurses to deal with the increased workload.

Health Resources
There are 770 health institutions in greater Anqing City, including 52 hospitals, 291 health centres, four outpatient departments, four clinics, and nine specialized prevention and treatment stations. In the urban area of Anqing city, there are 14 big public hospitals, including City Mental Hospital, Gynaecology Hospital, Anqing Hospital of Traditional Chinese Medicine Branch and Navy Hospital.
The Number of Beds

Anqing City’s health institutions have a total of 14,971 beds, including 9,735 hospital beds, 3,996 beds in health centres, 500 beds in the specialized prevention and treatment station, and 156 beds in the maternity and child care station. There were 1.95 beds in health institutions per 1,000 population in 2017, which is lower than the recommended World Health Organisation (WHO) hospital-bed ratio of 4.5 beds per 1,000 population. It is also lower than the Chinese average hospital-bed rate of 3.87 beds per 1,000 population.

In the 2018 List of ‘Organisation for Economic Cooperation and Development countries’ Hospital-bed ratio, although China is ranked 55th in the world, which is higher than New Zealand, Canada and a lot of developed nations, there are never enough beds for the number of patients in need. The reason for this is that the Chinese hospital system accepts all patients, no matter how injured or sick they are.

According to the “National Population Statistics of Countries and Cities of the People’s Republic of China”, Anqing City is a “Medium-sized City”, which means it has a permanent population of 500,000 to one million. A “Big City” has a permanent population of one million to five million, while a “Mega-City” such as Hangzhou has a permanent population of five million to 10 million. Shanghai is classed as a “Super City” in China, with a permanent population of over 10 million.

In 2011, China had 79 children’s hospital in total; 30 of these had less than 50 beds, which is 38% of the total amount. There are 13 children’s hospitals with more than 800 beds, which is 16% of the total amount. The average number of hospital beds is 290 beds. The children’s hospitals with 800 beds are mainly located in Mega-Cities, which have a permanent population of five million to 10 million. Japan has an average of 200 beds in a children’s hospital, with a large population but a low birth rate. In the context of Anqing City, around 500 beds are considered a reasonable amount to cater for the needs of the children needing hospitalisation.

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Fig.15
List of Organisation for Economic Cooperation and Development countries’ Hospital-bed ratio from 2011 to 2015

<table>
<thead>
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<th>Rank</th>
<th>Country</th>
<th>Hospital bed</th>
<th>Density (beds/1,000 population)</th>
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<td>2011</td>
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<td>Japan</td>
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Fig.16
List of Organisation for Economic Cooperation and Development countries’ Hospital-bed ratio in 2018

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CURRENT STATE OF HEALTH CARE
5.1 New Zealand GP (General Practice) System

The New Zealand healthcare system is highly decentralised. This decentralisation is by design and aims to reduce loads on hospitals as much as possible. Hospitals are intended to be used as a specialist critical care and emergency service; to achieve this, non-critical and minor procedures must be dealt with elsewhere. If you’re sick and it’s not an emergency, you should visit a family doctor (or ‘general practitioner’—GP).

In New Zealand, anyone needing general medical service will usually visit their local general practitioner (GP) clinic. General practitioners are specialists in generalised medicine. People will often visit the same GP for many years, which enables the doctors to build a relationship with their patients and better understand patient’s health issues over the long term. A general practitioner will refer their patient for laboratory tests, to a specialist or even to the hospital when the patient’s illness requires medical treatment that is outside the capabilities of the clinic. Patients visiting the GP clinic will generally have a set appointment time booked in advance.

Alongside GP clinics in the New Zealand healthcare system are Accident and Emergency (A&E) centres, which provide a GP service as well, but they are generally designed to cater to one-off visits and do not provide the same level of the personal relationship seen in local GP clinics. GP Clinics and A&E Centres play important roles in the New Zealand primary health care system. They ensure reasonable availability to medical services for patients with a range of needs.

In New Zealand, specialist clinics function similarly to GP clinics. Specialists are specialists in generalised medicine; specialists in one specific field and provide more comprehensive care to conditions within their area of expertise. The services provided or those specialist clinics commonly include assessment and diagnosis, which requires specialist knowledge or equipment, such as psychologists who provide specialist diagnosis for mental health or gynaecologists who have specialist knowledge and equipment relating to sexual and reproductive health. It is also common for specialists to perform minor surgeries such as hip or knee replacements for those who do not have the means to get private medical treatment. Specialists can also perform major surgeries for those who are able to pay for them and wish to avoid wait times in the public health system. An example of this could be a hip or knee replacement.

Hospitals in New Zealand are free to visit for all New Zealand residents. Hospitals are fully equipped to deal with the spectrum of health conditions which are provided by the other areas of the New Zealand healthcare system but aim to be reserved for emergencies and major non-urgent procedures. Visiting hospitals for minor and non-urgent conditions is frowned upon and actively discouraged. Visiting hospitals play a primary emergency medical treatment where the patient is in a life-threatening or unstable medical condition. Examples of this include those who have been in car accidents or someone who unexpectedly loses consciousness. These are situations where urgent care and a fully capable medical facility is required to assess and provide treatment to a patient.

The other key role of the hospital is to provide a standard of service that is comparable to the private sector. In order to achieve this, hospitals are generally designed to cater to one-off visits and do not provide the same level of the personal relationship seen in local GP clinics. Patient’s often need to visit facilities which are in different physical locations, which can place an additional burden on those who do not have reliable access to transport. While quality public healthcare is available to all New Zealand residents at no or little cost, there are significant advantages in convenience and outcomes for wealthier patients who can pay for private treatment.

The decentralised model of healthcare is able to reduce bottlenecks in the system, although it requires significantly more infrastructure to implement, in regard to both the physical facilities and the highly skilled medical staff required to operate them. For the decentralised system to work, GP Specialist and A&E centres need to be able to provide a standard of service that is comparable to that received at a hospital.

Benefits and Downsides

There are benefits and downsides to the decentralised medical system seen in New Zealand. The system aims to ensure that all patients are able to receive medical treatment in a timeframe which is appropriate for the nature and severity of their condition. The decentralisation reduces potential bottlenecks and issues relating to the capacity of particular medical facilities, but also tends to increase the overall length of time taken for treatment.

In New Zealand, GP (General Practice) System

Fig.18 New Zealand GP visit process
5.2 Healthcare in China (Chinese Hospital & Health Care System)

The Chinese hospital and healthcare system works in a fundamentally different way to the New Zealand system as it is highly centralised.

There are local community health medical centres, but the hospital is still the first choice when people feel sick. Chinese hospitals function in a way similar to a scaled-up A&E Clinic, with a full range of specialist departments in the one location, rather than the specialist emergency department role seen in New Zealand. Hospitals in China include an outpatients department, inpatients department, specialists, laboratories, emergency department, etc., on the one site.

Most Chinese cities have a range of general hospitals, and all major cities have hospitals that specialise in different fields. All hospitals are operated by the government, which means they all have advanced medical resources.

The hospital is generally the first place someone would go to for healthcare treatment. Upon arrival at a hospital, a patient visits a reception desk where they must present their National ID card or social security information. After registration, the patient will then be directed to the appropriate department for their needs. For example, a person with a broken arm would be directed to the Out-patient Surgery Department; someone with a chest infection or breathing problems would be directed to the Fever Clinic Department. These separate departments have doctors and equipment specialised to that particular health condition.

Benefits and Downsides

The Chinese system is very efficient with respect to the density of medical facilities found in one location where one can get access to a full range of high-quality treatment in the same day or at the same location. Having access to multiple specialist departments and a full range of state of the art medical equipment in the same building is a major benefit.

However, the Chinese system is highly inefficient with respect to the amount of time spent at the hospital, compared to the amount of time spent actually being treated. Much like the experience of visiting an A&E clinic in New Zealand, the Chinese system has long periods of waiting before and after registration and before seeing a doctor. This is termed “dead time” where the patient is waiting around without anything else they can be doing and is found to be very frustrating. Delays because of bottlenecks in the system, such as in the registration areas and insufficient doctor numbers, can easily and commonly further compounded by fluctuations in patient numbers.

A benefit of a centralised system is quality control. Having all the facilities in one location, particularly in a field such as healthcare which is overseen by the government, allows for much easier standardisation and regulation of the quality of treatment, so the public feels confident that they will be receiving a high level of care.

After arriving at the correct department, the patient will wait to be seen by a doctor. If a patient needs to then go to another department, the process of going to the correct area and waiting can be repeated several times.

Due to the large population and highly centralised nature of the system, waiting areas are generally overcrowded. Patients and their families can spend a long time waiting, while their time with the doctor can often be very short. This can lead to people feeling frustrated and disinterested; feeling as though their issues aren’t being given as much attention as they deserve, even if the doctor has done everything from a technical perspective to deal with their problem.
5.3 How the Chinese System Could be Influenced by the New Zealand System

Completely reconstructing the Chinese healthcare system is firstly entirely unachievable and also vastly outside the scope of this project. It is also unclear if such drastic changes would be beneficial. Lower infrastructure requirements and quality control are significant factors in the healthcare system, particularly in developing countries such as China. However, this does not mean that there is nothing that can be learned or gained from applying the ideas of a decentralised system to China and adapting them to work within the existing environment.

Utilising the architecture and the design of the spaces within the hospital facility, there is potential to mimic the effects and results of a decentralised system within a single building.

One theoretical example of this could be to separate the main registration area into two areas, providing one reception area for patients who are just visiting for a regular check-up (e.g. regular blood pressure checks), and having another registration area for all the other patients who have new or more serious conditions. This division would help to disperse crowds and reduce wait times, as well as allow the system to become more efficient, as each area can be specialised towards the types of patients who come to them.
5.4 Precedents

Precedent One
Starship Children’s Hospital
Auckland | New Zealand
Bed 219
1991 | Stephenson & Turner (New Zealand)
2004 | Jasmax (redesign and build) (New Zealand)

Starship Children’s Hospital is located in central Auckland, on the northeast side of Auckland Hospital. It was on the former site of Princess Mary Children’s Hospital which operated between 1919 and 1949, after which there was no children’s hospital in Auckland for three decades. In 1991, the Starship Children’s Hospital was built, and it became the most influential children’s hospital in New Zealand.

The eight-storey high hospital looks like a castle from the outside, painted in tones of pink and blue. The inside has a central atrium that provides maximum natural light and ventilation from the glass roof. It also gives a visual connection for visitors on different levels. The main concept of the hospital is creating a fun and interactive environment that offers some escape from often stressful circumstances for hospital patients, their families, visitors, and staff. There are a lot of small details that reinforce this concept. There are different patterns and textures on the floor; most of the furniture has cartoon-like features; the reception desk has both children’s height and adult’s height counter tops; each level has its own colour, and there are different colour treatments throughout. The wall and floor divide the different spaces for different uses, and the central atrium is used to provide vertical flow, to bring all spaces together to work as a whole.

As one of the most important children’s hospitals in New Zealand, Starship Hospital, in response to what children need, has developed an environment of hope and fun.
The Royal Children’s Hospital was first opened to the public on the present site in 1963 in Melbourne, Australia. As one of the most important children hospital in the state of Victoria, the hospital was redesigned and reconstructed in 2012. The new Royal Children’s Hospital is based on a care model that puts children and their parents at the centre of the facility.

The concept of the new hospital is to use natural and architectural language to create a child centred healing place and a hopeful backdrop for visitors. The design team introduced a “main street” central atrium space to invite the visitors to come through. The glass roof of the atrium provides maximum natural sunlight. There is a six-storey high child-friendly sculpture in the centre of the “main street” to bring a happy feeling and distraction for young patients.

For common areas such as waiting spaces, the hospital uses glass walls to connect the indoor and outdoor spaces, in order to blur the boundary of the hospital and the natural environment.

The design of this building has broken the boundary between internal and external spatial experiences and invites nature, art, and the community to join the healing environment. It provides a sense of psychological healing to young patients, and a relaxed atmosphere for their family, through different forms, materials and colours.
Nanjing Drum Tower Hospital is one of China’s oldest hospitals. It was founded by American missionaries and is one of the most renowned hospitals in China. It is located in the downtown area of Nanjing City. A new extension in 2012 added 32,000 sqm to this hospital, resulting in a site of 230,000 sqm in total. In 2006, the hospital maintained 1800 patient beds, and after the new extension, there were an additional 1,000 beds to service a planned growth of 600,000 residents.

The design inspiration for the Nanjing Drum Tower Hospital was the interpretation of the term ‘hospital’ in traditional Chinese, which when the three parts of the term are translated individually roughly translate to “medical, courtyard, garden”. The core of the design was to ‘gardenise’ the hospital; to create gardens everywhere. Gardens acted as a borderland between home and the outside world in old-time China. By having the green spaces ‘gardenise’ the hospital, it gives a good opportunity to achieve a true healing and relaxing place for patients.

Architects used church elements in the interior design that linked to the history of the hospital. The entry and waiting hall area, consists of white frosted glass and vertical white light, to bring a church feeling, to calm people down and to soften the direct sun-light when they walk through the space. The transparent metal screen façade and glass roof ensure adequate natural light, as well as give the feeling of communicating with God. They also act as a means of noise control and air filtration for the downtown environment.
The Giraffe childcare centre is located in a suburban area of Paris, France. It has 60 beds and a 20-bed day nursery. The building has a giant yellow concrete giraffe sculpture, which links from the ground, though the building to the skyline. The five-storey high giraffe also acts as a supporting column. The long legs are underneath a cantilever and the body of the giraffe is inside the building. The neck extends out from the roof garden to look over the city. The centre is an identifiable feature of the high density rectangular designed neighbourhood. The façade of the building is a simple, straight line designed with white corrugated iron. This makes the building blend in with the surrounding urban fabric, and also helps the unique giraffe pop out. The wild animal has brought children’s imagination and a vivid atmosphere to the site. The playful and dreamlike sculpture introduces a little bit of fantasy into the routine life of the town, in order to inspire lives with a bit of poetry.

Crèche De La Girafe (Giraffe Childcare Centre)
Boulogne, Billancourt | France
60-bed childcare center and 20-bed day nursery | 1,450 sqm
2012 | Hondelatte Laporte Architectes (France)

Fig. 28 Facade of Giraffe Childcare Centre
Fig. 29 View from the balcony
Conclusion and Findings

There are several common elements seen in the design of these four very different but successful buildings. All the buildings put the child/patient at the heart of their design philosophy, and design decisions were made around the idea of making their visit as enjoyable as possible.

In these patient-centred designs, there were lots of natural elements utilised, along with connections between the indoor and outdoor green spaces and natural environment. The use of natural light was also significant in several of the designs.

Child-centred design elements were significant, both in terms of having children and adult scale elements, as well as the playful and engaging design of the spaces through the use of art, colour, and texture. These designs capture the hearts and minds of the children who visit them, transforming the traditionally sterile environments into fantastic, joyous and hope-filled play lands.
LOOKING FORWARD
6.1 How to Create for Patient-Centred Healthcare

Looking at patients as individuals

In Geoffrey Purves book “Healthy Living Centres”, he believes hospital care should be focusing on the care of patients as an individual.

“The view of patients as consumers, linked with the concept of customer care is bringing about many attitudinal changes to how medical services are delivered.”

In his book, he raised the idea that art and environment heal people slowly. According to Ernst Dimnet, “Architecture, of all the arts, is the one which acts the most slowly, but the most surely, on the soul.”

He strongly believes that environment design affects patients’ treatment.

“The ethos of the building will become an important starting point to achieve environmentally well-designed buildings that can offer therapeutic benefits to patients, as well as all of the users of the building.”

The patient is the key, and the architecture design should focus on patients’ need. Therefore, a children’s hospital should be child-friendly and suit different child phase from newborn to eighteen years old.

“The patient is at the heart of the process and thus the environment within which they are cared for critical.”

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Kenneth C. Calman

In Christopher Day’s book “Place of the Soul Architecture and Environmental Design as Healing Art”, he emphasized how children need different environments to adults. “Harsh, immobile, imagination suppressing surroundings are hardening and damaging to children. They need soft, fluid and wonder-filled places for their imaginative world to blossom. (a play alcove, with coloured glass window, for four to six-year-olds)”.

Day believes children have different needs of environmental design, based on their different ages. “Younger children (new-born to twelve-year-olds) and older children (thirteen-year-olds to eighteen-year-olds) will be different not just physically but also the way they think about the world. They have different needs of the spaces. One needs things to be lower and more vibrant colour. Another needs more explanation, rich sensory experiences and delightful spaces. Younger children subconsciously connect with their surroundings and experiences; therefore, nature, art, and colours are important and attract children’s attention.

“Natural, living surroundings stimulate their creativity unconstrained by category thinking. They recognize how cycles are renewed, hopeful even in death.”

The Patient is Not Just the Child

When thinking about the design of a children’s healthcare facility it could be logical to think only of the specific needs of the patient. In this case the patient is a child and therefore one would design specifically for the needs of children. However, this line of thinking is overlooking one major factor: Children (particularly younger ones) are dependent on their families; dependant on the food, shelter, protection, and loving care that families provide. This bond is even more significant than just healthcare, it is core to the very survival of humanity.

When considering the positive effects and design implications of patient-centred care in a children’s hospital, it therefore seems only logical that to receive the maximum benefit from this style of design the scope of the “patient” should be broadened to include the child’s immediate family. If a child patient is happy but their family is exhausted, worn out, uncomfortable, helpless, and full of fear, this would not be expected to achieve the desired result, especially when considering the role that family plays in the long-term health outcome of a child.
In Mark Dudek’s book “Children’s Spaces,” he suggests listening to what children have to say about their daily life, then getting important details from them as the key to designing their spaces. In his research, he mentions that children have a limited knowledge of space, so experiences, visual connection, and their physical engagement with the environment impact on their sense and understanding of the places. One example he gave was in a nursery house, where the children’s favorite room was a multi-purpose music room. “The room was the largest gathering space in the nursery. It had low windows allowing an open view of a courtyard and garden.” Individual children made up different names for the room depending on the past experiences they had within the room. Some of them called it “the dancing room” or “the listening room” and the children could all recall past experiences on their next visit. Dudek suggests children have preferences for spaces where they can use their own imagination to determine the use of the space, as well as spaces linked to activities. These spaces do not need to be complex; they can be as simple as a corner, or a small open space near a play area. The important aspect is that they stimulate the imagination of the child, and there is a range of space and design elements for different personalities, abilities, and ages of children.

Teenagers may often need to break out from the protective claustrophobia of home life and find adventure in the real world. They need a place to develop their inner freedom. Allowing for flexibility does not necessarily mean providing a big empty place; it could be a place with various spaces with different styles, materials, textures, colours, and natural/artificial lighting, as long as they all link together. In Christopher Day’s book, he suggested focusing on three elements to create a space to encourage older children. First is natural light, and providing a view of things going on that is not fully private from the main space. Second is no simplistic forms; curved and open spaces not only use architectural methods but also could use lighting and colours to create openness. The third is different textures, patterns and music to give “ownership” to its user.
Hope is an optimistic attitude of mind based on an expectation of positive outcomes. More than just being something that is nice to have, research has shown that hope has a range of significant and powerful benefits. Highly hopeful individuals have been found to perform better in athletic, academic, occupational and health outcomes. It is thought that this is likely due to a positive relationship between hope and mood. It has been well documented that one’s mood has a direct effect on physical health, such as immune system response and cardiovascular function.

Hope has a positive relationship to higher overall life satisfaction, with hope also acting “as a buffer against the impact of stressful life events” resulting in people being happier overall and staying happier for longer in adverse situations.

In terms of the connection between hope and children’s healthcare, a relationship has been seen between children’s experiences with the healthcare system as a child, and how their hope and optimism as well as overall health outcomes as an adult. Those who had negative experiences as a child were found to be less optimistic and have poor healthcare behaviour as adults.

Children who have high levels of hope have also been shown to tolerate pain better and be more likely to follow the instructions of a doctor.

Children have different perspectives when it comes to observing their surroundings and environments. They can be sensitive when they are in a bad medical position, and in this situation, we need to consider the relationship between the surrounding environment and the child’s psychological processes. Also, because parents will be with their child when the child has a medical consultation, the parents’ energy and reactions have a huge impact on the child.

The situation of healthcare for children is unique and differs from other healthcare services in that children are dependent on others. The strong relationship children have with their families is core to their development and very survival. With the bond between a child and their parents being essential, in a children’s hospital, it is important that the patients maintain this strong connection and relationship with their family in their daily life. It is also important to understand that if a child gets sick or injured, it requires the attention of the whole family. The effect that hope can have extends not only to the child patient but also to their parents and siblings. Hopeful parents and sick children possess positive thinking that is reflective of a sense of optimism, as well as the belief that they can obtain their desired goal of having a healthy child. Hope can exist even in the context of a life-threatening health condition and can perhaps lead to better outcomes.

It is clear the optimistic attitude inherent in hopeful individuals plays a key role in successfully coping with a medical illness and its prognosis, as well as in improving health-related quality of life. It is therefore important to take hope into consideration when designing health care facilities. Consideration must also be given to the knowledge that having a hopeful outlook has a significant effect both during the child’s treatment as well as into their adult life.
Reducing Hopelessness and Creating Hope

Designing spaces that are patient-centred can be quite straightforward as there is a physical and a mental element; providing facilities that cater to the physical needs of the patient, can result in a change of mental state. Designing spaces that create hope can be more difficult as hope is an entirely mental state. Like the medical mantra of ‘first do no harm’ and as also discussed by Steven Verderber and David J Fine in their book Healthcare Architecture in an era of radical transition, to create a happy and hopeful environment first one must reduce fear.

To effectively create spaces that make people feel hopeful one must understand the elements which make people feel hopeless, and how to limit these feelings. Only then can the focus be turned to maximizing the feeling of hope.

Hope is the optimistic attitude of the mind based on the expectation of positive outcomes. Broadly speaking, the factors that prevent a person from having an expectation of a positive outcome can be divided into categories:
- A perceived lack of support
- A perceived inability to effect change

These two categories can then be broken down further into sub-categories by looking at whether the perceived hindrance is internal (one’s own actions) or external (factors outside of one’s control), as well as whether the perceived hindrance is a physical or mental limitation.

Lack of Support to Achieve Positive Outcomes

The feeling of being unsupported can manifest itself in a variety of ways. This project will use the terms “Alienation” and “Forsakenness” to further define these feelings.

Alienation

Alienation describes the sense a person has of feeling separate or “other” from those around them, as well as the idea that they do not feel they have people who “have their back”. This can be from having strained relationships with the person’s family or friends, but can also result from not being able to build sufficient personal relationships with their medical professionals due to feeling dismissed or not taken seriously.

Forsakenness

Parallel to the idea of alienation is forsakenness. Where alienation is the separation a person feels from other people, forsakenness is the separation they feel from their own spirituality. This could be a feeling that God has abandoned them, or more simply just a feeling that life or the universe is working against them. Forsakenness is intangible and can make pinpointing the exact causes difficult and subjective, but the resulting hopelessness can still be powerful.
The person might think ‘if only I had a job with more flexible hours I could go to the gym more and I would be healthier’, or ‘if only I made more money and could afford new medical treatment then that would solve my problem’. It is a belief that a personal failing is limiting personal failings, but the limiting factor is not the control the person’s own lack of ability. The person might think they lack the will power required or are just not talented enough.

Doom

Doom is a real or perceived presumption that a person’s life is over. People who have feelings of doom believe that no matter how much ability or control they have, the result in their death. This can be caused by a physical illness such as cancer, where they have a real or perceived feeling that they will never recover. Feelings of doom can be seen in someone who has an accident and becomes paralysed and unable to walk. They may feel that no matter how much ability or control they have, due to their physical disability they will never be able to achieve the positive outcomes they desire.

Captivity

Captivity is where a person has a real or perceived feeling of being physically or mentally trapped in a situation or location. They believe that they will never be able to escape their current situation. This can be in the form of someone who is confined to bed rest and is physically confined by their room and the limitations of their body. This can also be seen in people who are in abusive relationships and feel emotionally trapped in a situation of domestic violence which is physically and/or emotionally damaging to them.

Creating hope for the hopeless

The first step to creating hope for the hopeless is reducing the feeling of being physically or mentally trapped in a situation or location. They believe that they will never get better. This can be caused by a physical illness such as cancer, where they have a real or perceived feeling that they will never recover. Feelings of doom can be seen in someone who has an accident and becomes paralysed and unable to walk. They may feel that no matter how much ability or control they have, due to their physical disability they will never be able to achieve the positive outcomes they desire.

While powerlessness, limitedness, and helplessness all share a similar result and symptom in the person feeling they will never able to achieve the positive outcomes they desire. When powerlessness, limitedness, and helplessness all share a similar result and symptom in the person feeling they will never able to effect change on their situation, they are distinct and have been separated because the root cause of the issue is different and therefore different solutions are required to resolve the underlying issue.

Creating hope & resilience

A study that reviewed the literature on hope and resilience found key factors that contributed to and predicted levels of hope were:

- self-esteem
- internal locus of control
- optimism
- mastery
- social support
- empowerment
- personal Growth
- personal growth
- self-esteem
- spirituality

In a study by Rousseau it was found that three successful methods or strategies effective in creating hope were:

- strengthening interpersonal relationships
- exploring one’s faith
- gaining control

Inability to Effect Change towards Positive Outcomes

People who feel alienated or forsaken believe they would be able to achieve positive outcomes but lack the support to do so. Other forms of hopelessness come from the perception that the person is unable to effect change towards positive outcomes. These feelings can be further broken down into internal and external factors.

Internal inability to effect change because of one's internal failures

Powerlessness

Powerlessness is when the person believes they lack the power or control required to change a situation. The person might think ‘if only I had a job with more flexible hours I could go to the gym more and I would be healthier’, or ‘if only I made more money and could afford new medical treatment then that would solve my problem’. It is a belief that a personal failing is limiting personal failings, but the limiting factor is not the control the person’s own lack of ability. The person might think they lack the will power required or are just not talented enough.

Helplessness

Helplessness is the belief that the person is unable to change a situation due to an external factor that is out of their control. Helplessness is again similar to powerlessness and limitedness but the feeling is not a result of a personal failing, rather the introduction of a real or perceived external limiting factor. This type of hopelessness can be seen in someone who has an accident and becomes paralysed and unable to walk. They may feel that no matter how much ability or control they have, due to their physical disability they will never be able to achieve the positive outcomes they desire.

Limitlessness

Limitlessness is the belief that the person lacks the ability required to change a situation. It is similar to powerlessness, but the limiting factor is not the control the person’s own lack of ability. The person might think they lack the will power required or are just not talented enough.
6.3 Special Considerations for China

When designing architecture in China there are specific issues that have special or increased importance when compared to how one might design in the west. These issues range from specific medical requirements to dealing with cultural differences, family structure, and cultural norms.

Why Children’s Health is so Important in China

In China, there is currently a specific focus on children’s healthcare. China is still a developing nation and, despite making rapid improvements and advancement in economic prosperity and healthcare, there are still issues that disproportionately affect developing nations, which need to be addressed.

In 2018 China still has children under five years old dying because of a lack of nutritious and sufficient food, along with other reasons such as poor sanitation, poor hygiene, and poor healthcare. After economic reform in 1978, the Chinese market economy started growing and then stabilised around 2000. People began to put a high premium on child development. They realised health was fundamental to human existence, especially for economic development. In addition, they understood that physical and psychological development has a direct effect on the younger generation's overall growth, and on the person, they will become.

In Anqing City, poor child health is significant. Compared to other large cities in China, lack of hygiene and health education has made the Anqing children’s health situation lower than the national average. Anqing City is an area with the rare incidence of schistosomiasis (Col. Snail fever, generally known as Bilharzia). Anqing is a city with a strong culture, where parents attach great importance to children’s education and healthcare.

Family Structure

From 1979 until 1 Jan 2016 China had a strict family planning policy, commonly referred to as the One Child Policy. The result of this is that now there are commonly two generations of the population who only have one successor to continue their family lineage. It is historically and culturally typical and important for the older generation to move in with their child or grandchild as they reach retirement age. This places additional importance on ensuring the good health of the child.

Not only is there significance in the emotional connection of the child carrying on the family name and lineage, there is also economic significance, as the working child is expected to support their retired family members. While these ideas and cultural norms are changing over time, they still create additional emotional and financial pressure and stress on the situation. The whole family is often very involved with the upbringing of a child, so the design of hospital facilities and spaces needs to consider all parties.

Doctor Safety and Working Spaces

Recently in China, there have been several frustrated patients who have attacked doctors in hospitals. These attacks were due to the patients or their family feeling dismissed and that they had not been given suitable care and attention from hospital staff. Looking out for doctor safety is something that needs to be taken into consideration in the design process.

Further to this idea, by improving the quality of spaces used by medical staff (both patient rooms and other staff areas), as well as improving the quality of the spaces used by patients such as waiting areas, both parties are more likely to be in a good mood coming into their consultation meeting. Having both parties in a good mood makes it more likely they will have a positive interpersonal connection, which makes for a better overall experience. Medical staff is the ones who spend the most time within hospitals so the quality of their spaces has a significant effect on them over the long term.

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Feng Shui

China is officially an atheist country, but it has a long history of cultural spirituality. The teachings of Confucius are not as actively practiced as they once were, although the ideas and principles are a strong part of Chinese society and cultural identity, particularly amongst the older generations. This cultural spirituality is seen in the form of Feng Shui.

For over three thousand years, Feng Shui has developed a design theory that involves ecology, natural phenomena, biophilia, conservation, spatial design, and architecture. There are four fundamental philosophies in Feng Shui: Ying Yang (complementary and balance), Bagua (Eight diagrams), Wuxing (five elements), and Chi (flow of energy).

Feng Shui is traditional Chinese geomancy (a way of interpreting divine patterns). It is literally translated into wind-water and considers the power of nature and the magnetic energy of the universe. The core of Feng Shui is to achieve harmony between humans and nature, and the spiritual engagement and integration of the environment. If Feng Shui rules are applied to people’s life objects, it will improve their wealth, health, luck, fame, relationships, and knowledge.

Feng Shui has its roots in the religious and divine. As in many other parts of the world historically, early scientific and religious practices were closely linked. Feng Shui was often used to explain the unknown, and to give credibility to theories and design practices that were seen to be beneficial, yet could not be explained fully by those who discovered them. There are many examples of good practices for design and healthy living intertwined into the ideas of Feng Shui.

One such example is the idea that buildings should face south (China is in the northern hemisphere so it is equivalent to buildings facing north in New Zealand). We now know that facing buildings south is beneficial for a range of health conditions, as well as physical comfort. The increase in light and heat helps to keep buildings warmer and drier, reducing the negative health impacts commonly seen when living in damp environments. The practice of positioning living spaces towards the sun is now a fundamental part of good architectural design and there is a wide range of research backing this up. Historically in China, this is was linked to the benefits of Feng Shui.

There are many other examples of good design practices becoming intertwined with the ideas of Feng Shui, which is why it has continued to be a useful design tool up until the modern day.

In this project, two of the four fundamental philosophies will be explored and used. They are Ying Yang and Bagua. Wuxing and Chi are out of scope for this project.

Fig. 36 Cheng, Halley, Feng Shui Furnishing VS TAOIST PRIEST, FENGSHUI ADDRESSING MASTER, 2013
Ying Yang (Complementary and Balance)

Ying Yang are the two opposing principles in nature; the former feminine and negative and the latter masculine and positive. The symbol of Ying Yang is a circle that is separated by a curved line to black and white or solid and void; black represents Ying and white represents Yang. The black part has a white dot in it, and there is a black dot in the white part. This shows that Ying has Yang inside of it, and Yang also has Ying inside of it. The two elements are a unity of opposites and interconversion; they complement and balance each other. In ancient China, people used Ying Yang to explain and describe objects because things were created in pairs. Ying Yang creates the balance and harmony of the natural environment and atmosphere.

Bagua (Eight Diagrams)

Bagua is a system linked to the change of objects within the environment. The two symbols of Ying Yang are combined to create eight diagrams which explain natural phenomena. The eight diagrams are (Qian) Sky, (Kun) Earth, (Xu) Wind, (Zhen) Thunder, (Kan) Water, (Li) Fire, (Gen) Mountain, (Dui) Lake. Each of the diagrams has its own direction, colour, number, and element, which can be matched and combined to become 64 terms that symbolize everything in the world.

Bagua claims that if directions, materials, colours, and shapes are used correctly, this will improve a person’s wealth, health, reputation, relationships, family, fertility, skills, and career.
6.4 Designing Patient-Centred, Hope-Filled Spaces

**Spaces that Create Hope**

Creating and maintaining strong interpersonal relationships is key to fostering hope. In turn, designing spaces that assist and encourage these personal connections is key to creating a hope-filled healthcare centre.

**Family-friendly**

The bond and relationship between a child and their family are special and powerful. This bond is also critical to the mental and physical well-being of a child, so providing facilities that make it easy for families to connect and spend time together within the hospital is essential.

While the connection between the patient and their caregivers is most important, the connection between the caregivers and their other children and family members is also important. Consideration needs to be given, for example, to provide places for other children to play while caregivers discuss important information with doctors. As children are dependent on their families, it is important that feelings of hope extend not only to the patient but also to their caregivers and wider family, for maximum benefit to the child’s well-being.

**Doctor / patient rooms**

The relationship between a patient and their doctor has a significant impact on a patient’s perspective of their overall experience, so creating spaces that facilitate a positive connection between the two will enhance this positive relationship.

**Social Spaces**

Having spaces that don’t limit patients and their families to sitting in rows of seats, but instead allow them to relax and socialise, is beneficial to creating positive experiences within a hospital.

**Exploring Faith**

**Feng Shui**

As the principles of Feng Shui are an important aspect of Chinese culture, having spaces that are designed using these principles will help to set the minds of hospital visitors at ease. The layout of the whole site will need to consider Bagua, while the building itself will use the Yang colours and design elements due to the hospital intrinsically being Yin.

**Nature**

Deborah Schein, in her paper *Nature’s Role in Children’s Spiritual Development*, examined the connection between exposure to nature and increased spirituality and found a positive correlation between the two.

“Theis what nature seems to do for humans of all ages. It nurtures our spiritual side—our sense of self, our basic dispositions of wonderment and joy, and our complex dispositions of caring, kindness, empathy, and reverence that are capable of guiding us to becoming kinder human beings.”

To provide the opportunity for patients and their families to explore and connect with their faith, having a connection to nature is important. This can be done in the form of access to outdoor green spaces, as well as the introduction of plants and greenery indoors. Having windows and areas that look out over these green spaces also creates a connection, as does introduce natural elements, such as timber, into the architectural design.

**Gaining Control**

When people feel that they have no control over a situation, it is easy for them to quickly begin to feel hopeless. Introducing design elements and spaces that give a real or perceived feeling of control is important to encourage people to feel hopeful.

**Triage and reception area**

The long lines and wait times at the reception areas in Chinese hospitals have been a major frustration for those who visit them. Redesigning this process and the spaces around it is a major opportunity to make people feel that they have a sense of control.

Many ideas relating to “gaining control” and their application to architectural design overlap with ideas and applications of “patient centred care”. These ideas both revolve around providing solutions that are better suited to the individual and moving away from a one-size-fits-all approach.

The spaces should be in a range of locations and sizes. Within any particular space, there should be a range of scales and areas for children of different ages, as well as areas for parents. Having these different options and elements within a space gives people a greater sense of ownership over the spaces.

The spaces need to be flexible.

The spaces should not confine people to using them in one specific way. They should be able to be adapted to fit the needs of any individual or family. For children, this allows them to better use their imaginations, for parents, this helps to make families of all shapes and sizes feel included.

**Gaining Control & Patient Centred Care**

It is important to have a range of spaces

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7.1. Site Selection

Location

Anqing City is on the southeast side of Anhui province, which is on the eastern side of the People’s Republic of China. At the end of 2017, the population of Great Anqing City was 4,643,000, with 1,953,000 people living in the metropolitan area.

Fig.40 Anqing City in Chinese map
Site
The site for this project is on the east side of Anqing City, in the central part of the Dagan economic development area. It is in the same location as the new Anqing Municipal Hospital.
The site is located on the east side of Duxiu Avenue, which links to Anqing Airport. The block sits north of Yeci Road (west of Qinglan Road) and on the southern side of East Tianzhu Mountain road, which links to the main city centre.

Fig.41 Streetviews of selected site
Important Buildings Around

The Daqiao economic development area contains key civic and government buildings, schools, public leisure facilities, community buildings, a transport system, and newly developed high rise apartment blocks.

- Daqiao Community Health Service Centre
- Anqing City Tennis Court
- Anqing City Sport Stadium
- Anqing City Swimming Centre
- Yingjiang District Youth Sport Club
- Daqiao Centre School
- Kai Yuan Zhi Zhi Kindergarten
- Anqing 916 High School
- Anqing Ludi School
- Anqing Municipal Government
- Anqing Municipal Intermediate People’s Court
- Anqing City Police Station

Fig. 42 Important buildings around selected site
7.2 Methodology
Design Methodology and Design Philosophy

Many people have negative memories of hospitals, therefore the design of a children’s hospital needs to be focused around medical advancements and with children central to the design. For this research project, a large amount of professional medical spaces are noted but they are not the main design driver. The focal point for this project is to provide children and families with a friendly, fun, warm, social environment, to bring psychological healing and a sense of hopefulness when they step into the hospital.

The secondary aim is to shorten the outpatient visitors’ waiting time and give medical staff individual spaces. Traditional Chinese Feng Shui principles will be included to enhance connection with local residents. As well as having facilities for medically treating the ill, the hospital environment will include art and architecture for patients to enjoy. The registration hall in the Outpatient Department building will be the main design section of this research project, using architectural elements to give the patients and medical staff ‘ownership’ of the hospital and a sense of belonging, thus creating a hopeful atmosphere.

Hope
The purpose of creating a design for hope is to provide an environment that eases the distress of patients, allows them to get to their treatment area as soon as possible, and encourages an optimistic attitude. From the moment the patient and their family enter the hospital, the process will start. Dependent on the duration of time that visitors need to be in the hospital, they will be classified into short-term stay (outpatients, visitors) and long-term stay (hospital staff, ward patients and their family). The process needs to be clear and quick, with clear directions to link hospital areas and enhance the flow of people. Long-term stay people will require a convenient, relaxed and private environment.

Site plan

Outpatient

powerless clear direction
hopeless speed up the process
limitedness distract attention

Inpatient

alienation connection to the nature
captivity family living space
doom children fun place

Site plan

Forsakenness connection between patient/ family and hospital
get god bless

Fig. 43 Strategy of design through hope
Having facilities that allow people to connect with their spirituality has been shown to improve levels of hope. The connection between spirituality and hope, combined with the significant cultural importance of Feng Shui, has led to the principles of Bagua being used to address the overall site layout as Bagua is the ancient Chinese methodology used to locate different spaces. Health is in the centre of Bagua, which dictates that the main Outpatient Department and Medical Surgery Technology Department are located in the centre of the site. Yellow is the representative colour of health. The south side represents fame and reputation, which is perfect for the main entry. Red is the representative colour of fame and reputation. The wards will be located on the north side, which represents life paths. Black is the representative colour of the life path.

There will be one main entrance on the south side of the site, which will go directly to the Outpatient Department. If the patient’s illness requires further treatment, they will be directed to the Medical Surgery Technology Department; therefore, the connection is needed between these two departments. On another side, the Emergency Department will have its own entrance and it will also require quick access to the Medical Surgery Technology Department. A link between the wards and the Medical Surgery Technology Department is important also. Considerations has been given to the young patients in the wards, who have different requirements to those in the Outpatient Department. They need safe, fun, relaxing environments and the parents need relaxing spaces too. On the North side, there is an entry for visitors for the wards, and close by is a motel for long-term visitors and families. A dining hall will be open to the public. The colours used in the different departments are related to Bagua.
Addressing the Site through Connection to Nature

Experiencing a connection with nature is another method which has been shown to have a significant and positive effect on a person’s spirituality and their levels of hope.

The design will incorporate a range of green spaces around the buildings. These green spaces will include social spaces for families to gather, as well as for social visits of others.

Having a range of outdoor areas provides patients with options of where they can and want to spend their time.

Strategy used

- Exploring faith
- Strengthening interpersonal relationships
- Gaining control

Type of hope/ hopelessness effected

- Forsakenness
- Captivity
- Alienation
- Powerlessness
7.4 Building Design

Exterior of Building

Addressing the Buildings Through Achieving the Balance of Ying Yang

While newborn babies and children are healed in a hospital, which can be considered Yang, overall most patients who stay are sick, which is why hospitals are generally considered Ying environments. The architecture of the hospital should, therefore, have a greater number of Yang attributes to create balance within the environment.

A few of the elements that can bring Yang energy to the building include stone, concrete, steel, and wood; all solid materials. Natural sunlight is directly from the sun, and “sun” is pronounced “yang” in Chinese. This is the key of Yang energy buildings. Even numbers, along with sharp edges and clean-cut design are considered aggressive in Feng Shui, and will also bring Yang energy to the building.

Stone carving on the building, or sculpture, is a way to represent long life, happiness, luck, health, and Yang. Symbolic patterns can bring different meanings to the building. In ancient China, an architect would carve symbolic patterns into the stone façades and give a good blessing to space. Ancient Chinese people used the imagery and metaphors of stories, fables, and their buildings, through carving. In traditional Chinese storytelling and mythology, the connection between elements and/or beings who share similar traditional characters and/or pronunciations is important. The connection in pronunciation is considered to be a link between the ideas or concepts and whatever they share this pronunciation with.

For example, the pronunciation of the word for bat in Chinese is the same as the pronunciation for the word for fortune and happiness. Therefore, the bat has become a symbol for these attributes.

This kind of connection is significant and important in traditional Chinese storytelling and wordplay and continues to be important today.

In Chinese, Sheep is pronounced “Yang” which shares the same pronunciation as the word sun. Therefore sheep and sun-related patterns are considered Yang energy.

An auspicious metaphor “san yang kai tai” literally translates to “three sheep open the harmony world”. The content of this image is three sheep looking up at the sun. It symbolizes the beginning of spring when all the flowers bloom, farmers start planting rice, the cold winter is gone and there is a fresh start to the year, with happy endings.

In this research project, the design will use the concept and pattern of “san yang kai tai” (three sheep looking up to the sun) for the three main departments; Outpatients, Medical Surgery Technology and Ward. Yang elements will be included maximally in the building design. Additionally, bat, deer, sheep and peach patterns will be used for the building’s interior design, for different functional spaces.

Strategy used

- Exploring faith
- Type of hope/hopelessness effected
- Forsakenness

Yang Elements

Sheep
Yang energy, fresh start with happy ending

Deer
Long-life

Peach
Long-life

Bat
Happiness

A bat and peach combination means good fortune and long life. Bat (Fu) shares the same pronunciation as happiness (Fu). In an old Chinese story, the peach was the Queen Mother of the West’s (goddess in Chinese religion and mythology) fruit, which was planted in heaven. It can bring anyone who eats it an additional extra six hundred years of life.

In this research project, the design will use the concept and pattern of “san yang kai tai” (three sheep looking up to the sun) for the three main departments; Outpatients, Medical Surgery Technology and Ward. Yang elements will be included maximally in the building design.

Additionally, bat, deer, sheep and peach patterns will be used for the building’s interior design, for different functional spaces.

Fig.46 Outpatient, Emergency, Medical Technology Department layout inspired by San Yang Kai Tai “three sheep open the harmony world”

Fig.47 Graphic design through Feng Shui
7.5 Interior of Building
Registration Area

Key issue
The registration process in Chinese hospitals has traditionally been a major concern and bottleneck in the system. The process is slow, difficult and frustrating, and creates a range of feelings, including hopelessness, for patients.

Powerlessness
The lack of control over the situation leaves patients feeling powerless and at the mercy of the system.

Limitedness and helplessness
Due to the physical or mental limitations of some patients, they may find it difficult or entirely unachievable to clearly communicate their condition with those at the registration desk. Similarly, the process of standing in a queue of people for extended periods of time is something that may be difficult or unachievable for some patients.

Captivity
Even for the able-bodied person, being forced to stand in large crowds of people for extended periods of time is an unpleasant experience.

The current system is not patient-centred, it is system-centred. There are no options or scales, nor any degree of flexibility designed into the system. It is a “one size fits all” approach.

Solutions

Street style
There are three different styles of registration hall:

Street style
A street style hall provides basic services and commercial areas along the sides of the hall. It provides large spaces for visitors and multiple visual connections. It brings the community into the hospital setting, reducing the hospital-like feeling. For a child’s hospital, it can provide a distraction for children and relax them. The street style registration hall makes it easy for patients and families to follow directions.

Courtyard style
A courtyard style registration hall has all the basic services in one lobby area and all the different clinical departments around the four sides. It is clear to see where the department is that the patient needs to go to, but this layout does not create any sense of entry space and it is easy for the main area of the hall to become overcrowded.

Wings style
A wings style registration hall has different clinical departments on the left and right sides of the main hall area. This provides a good visual reference for visitors when they enter the hall, but if the visitor goes to the wrong place, it requires a great deal of walking for them to get to the correct area.
Self-registration
Providing a range of self-registration facilities along with the traditional registration facilities will give a much greater degree of flexibility. Self-registration facilities can be designed to accommodate a range of scales and physical abilities. The machines can also be positioned over a larger area which will assist in dispersing crowds of people.

Strategy Used
- Gaining Control

Type of Hope/Hopelessness Effected
- Powerlessness
- Limitlessness
- Helplessness
- Captivity

Initial Triage area
Providing this facility on the ground floor would assist in allowing patients to be more quickly and accurately assessed at the beginning of their visit.

This facility would also allow those who are unsure or have difficulty communicating their condition to have a greater opportunity to be examined and understood.

Strategy Used
- Strengthening interpersonal relationships
- Gaining control

Type of Hope/Hopelessness Effected
- Alienation
- Limitlessness
Outpatient Clinics

Key Issues

Peer flow of large population

Despite China having the world’s largest population, the typical Chinese hospital is not architecturally well-equipped to deal with the large volume of people who visit every day. Hospitals typically only have one pharmacy and one payment area. This is not efficient or convenient for large, complex, multilevel buildings such as hospitals. It results in excessive wait times and contributes to the feelings of helplessness seen in these hospitals.

Strategy Used

- Gaining control
- Alienation
- Limitlessness
- Powerlessness
- Helplessness

Type of Hope/ Hopelessness Effected

- Helplessness
- Powerlessness
- Limitedness
- Alienation

Result

Unpleasant waiting areas

Patients and their family spend a lot of time waiting for treatment, and the waiting areas are usually very unpleasant. They generally consist of little more than a few rows of uncomfortable metal chairs in a room with sterile white walls, often they aren’t even separate areas and the chairs just run along the sides of a hallway. These unpleasant waiting areas are dull, uninviting, and provide little to no accommodations for the different ages and abilities of people, nor do they make any accommodation for families to socialise. Children’s scales and abilities are not provided for, and there are no spaces for the children who visit the hospital to play or have any kind of fun while they wait. The children have nowhere to go and nothing to do, other than sitting quietly on their uncomfortable metal seat. These waiting areas are depressing and deeply unpleasant to spend time in; they make the patients and their families feel unhappy and hopelessness.

Captivity

Navigating through a building that is unintuitive and confusing is unpleasant. This can lead to people feeling trapped and confused. Particularly young children whose sense of navigation and special awareness isn’t fully developed yet. With all the basic and medical services separated onto different levels and different areas, this necessitates people having to travel around and then start another waiting queue.

Captivity

Being confined to wait in a dull sterile environment is a very unpleasant experience especially for young children.

Limitlessness and helplessness

The types of environments commonly seen in Chinese hospitals are not accommodating to a range of ages and abilities. This can make hospital visits more difficult and unpleasant than they need to be. It can also make navigating the spaces difficult or unachievable for some patients. The current system is not patient-centred, it is system-centred. There are no options or scales, nor any degree of flexibility designed into the system. It is a “one size fits all” approach.

Alienation

As there are not spaces that cater to young children or their families in these waiting areas makes it more difficult for families to look after their children and keep them calm and happy is what is often a difficult and stressful time. This makes maintaining positive social interactions between families more difficult.
Key Issues
Staff spaces and doctor safety

Doctors and nurses and other medical staff are the ones who spend the most time in hospitals so over time the quality of the architectural environment will have the largest effect on them. Medical staff need to have spaces that are of high quality for them to perform at their best over the long term. This also needs to include provisions to keep medical staff safe.

Results
Captivity
Medical staff often work long hours so facilities are unpleasant and they don’t enjoy working in them, this will lead to them feeling trapped within a negative environment.

Alienation
If doctors and patients both have more pleasant facilities the likelihood of positive interpersonal interaction between the two parties improves as they will both be in a more positive mood coming into the visit.

Key Issues
Staff spaces and doctor safety

Doctors and nurses and other medical staff are the ones who spend the most time in hospitals so over time the quality of the architectural environment will have the largest effect on them. Medical staff need to have spaces that are of high quality for them to perform at their best over the long term. This also needs to include provisions to keep medical staff safe.

Solutions
Clinic on one floor
This research project will bring the idea of one clinic to each floor. Each level will act as a specialist clinic, Individual areas for triage, payment, pharmacy, and clinics on each level, to provide special medical consultation and treatment stations that are designed to reduce vertical travel time and shorten the overall process.

The design will create a horizontal treatment system, to ensure each patient can finish the whole outpatient process on one level. This will give the patients and their families a positive experience and enhance their sense of hope.

Strategy Used
- Strengthening interpersonal relationships
- Gaining control

Type of Hope/Hopelessness Effected
- Alienation
- Limitedness
- Powerless

Fig.53 Different clinic Departments on each floor

Fig.55 Horizontal outpatient process

Outpatient Area
1. Urgency
2. Outpatient surgery
3. 2 Pediatric Internal Medicine / Specialties
4. Neonatology (new born 1-3 month)
5. 6 Pediatric ENT (Ear Nose Throat) / Pediatric Otorhinolaryngology
6. 5 Pediatric Infectious Diseases / Pediatric Dermatology
7. 4 General Medicine / Pediatric Gastroenterology
8. 3 Pediatric Infectious Diseases
9. 2 Pediatric Infectious Diseases / Immunology
10. 1 Rehabilitation / Physical / Injection Room / Infusion Room / Dialysis

OUTPATIENT AREA
1. Urgency
2. Outpatient surgery
3. 2 Pediatric Internal Medicine / Specialties
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7. 4 General Medicine / Pediatric Gastroenterology
8. 3 Pediatric Infectious Diseases
9. 2 Pediatric Infectious Diseases / Immunology
10. 1 Rehabilitation / Physical / Injection Room / Infusion Room / Dialysis
Having clear delineation and functional divisions of spaces and departments are important to hospital design. They will provide for simple and fast processes for medical staff, as well as give clear pathways for patients and their families. The efficient design of the environment will result in shortened processing times throughout the entire hospital, which will help medical staff have contact with the patients as soon as possible, minimizing waiting time and giving parents hope. Clear colour difference and theme to give the correct direction for patients and their family.

**Strategy Used**
- Strengthening interpersonal relationships
- Gaining control

**Type of Hope/Hopelessness Effected**
- Alienation
- Limitedness

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**Doctor’s office**

Doctors and nurses spend most of their time in the hospital, give the relax hospital working environment back to them while they are working under high stress is important. Design a separation system for doctors and patients can give doctor and medical staff a little bit quietness and avoid the conflict between the patient’s family and doctor. Doctors have their staff-only corridor, patient and their family have a patient activity area. Two sides of the parties only met in person in the consultation room. Each independent clinic unit connected by the corridor, which connect to staff support services area (staff restrooms, showers, lockers, lounge, elevators).

**Strategy Used**
- Strengthening interpersonal relationships
- Gaining control

**Type of Hope/Hopelessness Effected**
- Helplessness
- Limitedness

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**Waiting areas & Family areas**

Providing a different play area to satisfy the different needs of children of different age groups will bring joy to children and free up the parents’ hands while they are waiting for the treatment. This area will be child-focused - bright colours and child-scaled furniture and equipment will be applied. The main idea is to bring children’s imagination and a vivid atmosphere to the hospital, to make children forget about their sickness and the long waiting time for a moment in time.

Different choices of waiting areas near the children’s areas will be included for the patient’s family. A hopefulness design, with soft materials, will bring relaxing feelings for the patients and their families. Natural lighting is also fundamental to bringing a sense of hope.

**Strategy used**
- Strengthening interpersonal relationships
- Gaining control

**Type of hope/hopelessness effected**
- Limitedness
- Helplessness
- Alienation
7.4 Hospital Happiness

Key issue

Typical Chinese hospitals at the best of time are dull and uninspired and at the worst of times are deeply unpleasant and scary places to spend time. The sterile environment and highly functional architecture do little to inspire hope or joy. We know that hope and the effect and connection it has with mood have significant effects overall wellbeing and health outcomes. However, the current hospital designs do little to improve the mood of those who visit them, and usually, the opposite is true with hospitals leaving people in a worse mood than when they entered. This negative shift in mood and hope likely has significant negative effects on the patients’ effects overall wellbeing and health outcomes.

Solution

The building will aim to make the visit of patients and their families as enjoyable as possible. The design will include a range of colours, textures, art, and sculpture that will capture the imagination. As well as a range of spaces and design elements that will aim to create a feeling of wonder and joy. The architecture of the building through its design will aim to make sure that everyone who visits leaves happier and more hopeful than when they arrived.

Strategy used

- Strengthening interpersonal relationships
- Gaining control
- Exploring faith

Type of hope/hopelessness effected

- Alienation
- Forsakenness
- Powerlessness
- Limitlessness
- Helplessness
- Captivity
- Doom

Fig.56 Examples of fun area for children
The Outpatient Department will aim to provide:

- Courtyards that have a visual connection for infusion patients and medical staff.
- Street-style registration hall to keep people flowing, bring the community in, minimize the look of the hospital-like environment.
- Separate visitor and medical staff entrances, to give them their own spaces and ease of access.
- Children’s play spaces on each floor to provide distraction and relaxation for different age groups of sick children.
- Façade that helps to utilise direct sunlight, connects with Feng Shui elements and provides for a relationship with the natural surroundings.
- Soft material to reduce the harshness and cold feeling of hospital.
- Difference colour and theme to category different area and clear way finding.

This project proposes an Outpatient Department and site plan for the first children’s hospital in Anqing City. The Outpatient Department contains doctor consultation rooms, nurse services, infusion rooms, injection rooms and simple laboratory testing for walk-in patients. It does not involve a surgery room or any further medical checks and treatments. The layout of the Outpatient Department will focus on the Registration Hall and Outpatient Clinic, and the design will incorporate natural elements. This proposed Department will be located on the north side of the site, next to the main gate of the hospital. It aims to reduce the hopelessness for patients and their family, providing healthcare architecture that will feature nature, culture, and art for both patients and medical staff areas.
Outpatient Clinic

Design for patient-centred care

Spatial requirement: Outpatient Department

The outlined functional design requirement has been extracted from "Design guide: OUTPATIENT CLINIC Satellite/Outpatient Clinic: Community-Based Outpatient Clinic" and in this, research project areas will be allocated to different levels for different needs:

- **Registration Hall (Level 1)**
  - Walk-in Patient Spaces
  - Reception Area
  - Registration Area
  - Triage Area
  - Information desk
  - General Waiting
  - Public Restroom Facilities
  - Visitor Elevator/ Escalator/ Stairs
  - Infusion Lounge
  - Injection Lounge
  - Examination/Treatment Rooms
  - Family Room
  - Pharmacy
  - Police and Security Service

- **Staff Spaces**
  - Café
  - Nurse/ Communication Station
  - Offices
  - Clean/Soiled Utility
  - Multi-purpose Rooms
  - Support Services (staff restrooms, lockers, lounge)
  - Staff Elevator/ Stairs
  - Volunteer Service

Outpatient Clinics (Levels 2-8)

Walk-in Patient Spaces
- Reception Area
- Registration Area
- Triage Area
- General Waiting
- Children’s Play Area
- Public Restroom Facilities
- Visitor Elevator/ Escalator/ Stairs
- Infusion/ Injection Room
- Examination/Treatment Rooms
- Family Rooms
- Pharmacy Service
- Education Rooms
- Day-care Bed Area

Staff Spaces
- Staff Elevator/ Stairs
- Nurse/ Communication Station
- Consultation Office
- Offices
- Clean/Soiled Utility
- Multi-purpose Rooms
- Telemetry Alcove
- Medication Room and Nourishment Station
- Support Services (staff restrooms, shower, lockers, lounge)
- Meeting Room
- Volunteer Service
- Storage
- Equipment and Medical Storage

Fig. 58 Layout of Outpatient Clinic (level two – level eight)
Summary and critical appraisal of research

This Research Project is an example of how the spaces and design elements of a hospital, alongside the decentralisation of a centralised healthcare system, can work to provide patient-centred care that ultimately makes hospitals more hope-filled environments.

Models of successful patient-centred hospitals and joy-filled children’s facilities were explored, as was research into Chinese cultural and medical history to understand better the roles these could play in making improvements and finding solutions to problems found in the Chinese healthcare system.

The project aims to create a hospital that better fits the needs of its patients through having design elements and spaces that are able to cater to a range of ages and abilities as well as making these spaces flexible enough to be used by all in a way that is comfortable.

As research on this project progressed, it became apparent how significant but underutilised the power of hope is to medical outcomes. The project uses strategies for creating hope, such as strengthening interpersonal relationships, exploring faith and gaining control, and then applies these to the design of the hospital’s architecture.

Design challenges initially included identifying and finding ways to reduce the factors that typically make hospitals unpleasant environments, as well as redesigning them in such a way that they would become positive factors that inspired hope. If this project was able to move from the theoretical into a project that actually was completed, it is the author’s belief that this would have significant positive impacts for children, families, and the wider community in Anqing City. The project could become a case study for the positive effects of hope and patient-centred care on the wellbeing of children, and how the existing Chinese healthcare system could be modified to achieve this and better fit the needs of the Chinese population.

Future discussion and dialogue

The effects of hope and patient-centred care are well documented, but further research and long-term studies into the effects and efficacy of this area, particularly concerning the optimal way to marry the theory with the design elements and spaces of hospital architecture is worthy of further investigation. A better understanding of the fine details of how architecture effects these ideas, and which elements and spaces make the most significant differences will lead to further improvement of hospital design in the future.

This project has explored improvements to registration and outpatient departments. Looking into how the same ideas explored in this project could be applied to the design of inpatient departments is a distinct area of further exploration.

Gaining a better understanding of the factors that have significant adverse effects on hope within a hospital would be valuable research. This project has addressed many of the obvious factors, but as hospitals begin to be designed in a way that deals with the obvious and apparent factors and the new design eliminates them, it is likely a range of moderate negative effects would become apparent.

The ideas of this research project could then be applied to address these new problems.

Healthcare is something that is continually evolving. This project is far from the final destination in this development, but merely a stepping stone in moving towards a world with more effective, efficient, and hope-filled hospital environments.
Walk Way + Shops


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Fig. 55: Separate area for different age groups children

Fig. 56: Examples of fun area for children

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Fig. 57: Layout of Registration hall (level one)

Fig. 58: Layout of Outpatient Clinic (level two – level eight)
Declaration

Name of candidate: 

This Thesis/Dissertation/Research Project entitled:

HAPPY CHAPPY HEALING HOUSE

is submitted in partial fulfillment for the requirements for the Unitec degree of

Master of Architecture (Professional)

Principal Supervisor: ANNABEL PRETTY.

Associate Supervisor/s: DANIEL IRVING

CANDIDATE'S DECLARATION

I confirm that:

- This Thesis/Dissertation/Research Project represents my own work;
- The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
- Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: 

Candidate Signature: ___________________________ Date: 11 OCT 18

Student number: 1411506
Full name of author: Rui Su (Suri) 1411506.

ORCID number (Optional): .................................................................

Full title of thesis/dissertation/research project ('the work'):
HAPPY CHRAPPY HEALING HOUSE

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Practice Pathway: ARCHITECTURE

Degree: Master of Architecture (Professional)

Year of presentation: 2018

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