



2021

THEi Student Applied Research Presentations SARP 2021

Research Office THEi

Technological and Higher Education Institute of Hong Kong, thei-ro@thei.edu.hk

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2021

STUDENT **A**PPPLIED **R**ESEARCH **P**RESENTATIONS

ABSTRACTS

Message from the President



Welcome to THEi Student Applied Research Presentations 2021.

In 2020, due to COVID-19, THEi hosted the Student Applied Research Presentations (SARP) in virtual mode, with over 1,700 visitors to the site. Continuing with last year's success, this year's SARP will again be hosted online with THEi student posters and abstracts in this e-book, as well as video presentations (optional) on the THEi website from 1 August 2021 for public viewing.

As a vocationally and professionally orientated degree-level institution, THEi, in tandem with our industry partners, actively nurtures project-based learning to develop the design thinking, problem-finding and solutions orientation of our students. Fostering awareness and engagement with applied research is therefore a vital part of the learning journey at THEi. It is indeed encouraging that 92 submissions from students completing their Final Year Projects from across THEi Faculty of Science and Technology (FST), Faculty of Design and Environment (FDE), and Faculty of Management and Hospitality (FMH) were received for this 2021 event, more than double the submission number of the previous year!

As you will soon see, the applied research projects use various investigative methodologies, but all are very practically and authentically focused, and importantly, relevant to the needs of Hong Kong and its community. The key themes of the presentations are identified below, many also have broad generalizability as topical areas of investigation internationally.

Application of Technology

Projects demonstrating the application of innovative technologies in diverse areas: construction, facility maintenance, improving 5G network connectivity, creating everyday products, and aircraft ground safety (Civil Engineering/FST, Surveying/FDE, Multimedia Technology and Innovation/FDE, Product Design/FDE, Aircraft Engineering/FST).

Environmental Protection and Conservation

Projects exploring ways to reduce, treat, reuse or even upcycle waste. Projects on conserving nature by improving plant health or soil quality, or by protecting landscape against adverse events (Civil Engineering/FST, Environmental Engineering and Management/FST, Horticulture, Arboriculture and Landscape Management/FDE, Testing and Certification/FST, Landscape Architecture/FDE).



Energy and Fuels

The importance of sustainability has led students to explore alternative energy and fuels including the study of lithium-ion batteries, hydrogen fuel and biodiesel (Environmental Engineering and Management/FST).

Food and Health

Projects on enhancing health through creating food or eating device for elderly with swallowing difficulties. Others include developing special food products or edible cutlery (Food Science and Safety/FST, Culinary Arts and Management/FMH).

Lifestyle and Recreation

Projects designing furniture or products for pets, reviewing the development of Cheongsam, studying public recreational facility usage, sports performance or professional sports coaches. There are also projects that focused on investigating consumer perceptions and behaviours in diverse areas such as food consumption, e-commerce, social media, choice of fashion and clubhouses (Product Design/FDE, Fashion Design/FDE, Public Relations and Management/FMH, Culinary Arts and Management/FMH, Sports and Recreation Management/FMH).

Chinese Medicinal Pharmacy

Projects exploring Chinese medicinal herbs in relation to their cultivation, grading, testing, and non-clinical applications (Chinese Medicinal Pharmacy/FST).

Congratulations to THEi students on completing your applied research projects and poster presentations. Your interest in continuing to develop your professional skill sets as you have analysed, summarised, synthesised, edited, designed, presented and enhanced your communication abilities through the sharing of your work is to be highly commended. All the very best for the future!

Professor Christina Hong, PhD

President THEi
August 2021



Contents

Faculty of Design and Environment

Department of Design	06
Department of Environment	22
Innovative and Information Technology Programmes	43

Faculty of Management and Hospitality

Department of Business Management	47
Department of Hospitality Management	52
Department of Sports and Recreation	61

Faculty of Science and Technology

Department of Construction Technology and Engineering	74
Department of Food and Health Sciences	92

Author Index	106
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Poster Video





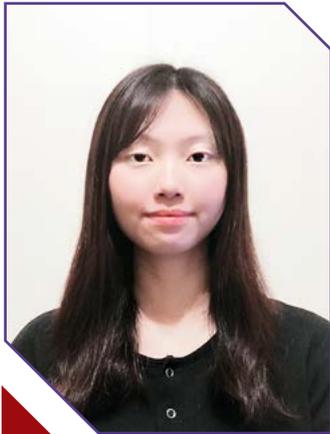
Faculty of Design and Environment

Department of Design



Objectives

Snacky Recipe aims to promote the practice of Chinese dietary therapy (養生) to young consumers and enhance their perception of Chinese dietary therapy as enjoyable, trendy, and fun. It also provides them an accessible choice to cultivate a healthy lifestyle by through Chinese dietary therapy.



YUNG Lok Yin

BA (Hons) in Advertising
Faculty of Design
and Environment

健康工房HEALTH WORKS X 口癢養 SNACKY RECIPE

ABSTRACT

RESEARCH BACKGROUND

Unhealthy daily habits are common among Hong Kong people, especially the younger generation. This may lead to negative long-term health effects and a lack of dietary awareness. However, health preservation is best to start when young. To raise young consumers' health awareness and make health preservation more accessible, a brand called "Snacky Recipe" would propose to Health Works a new series of snack products made of ingredients considered healthy in Chinese medicine.

METHODOLOGY

Data are collected about Hong Kong Generation Z's perception of Chinese dietary therapy through interviews. Insights about how Gen Z thinks about Chinese dietary therapy and their consuming behavior are explored. The branding designs for SnackY Recipe can get references from these insights, and make SnackY Recipe more attractive to young consumers.

FINDINGS

A close-to-life and trendy brand of Chinese dietary therapy is attractive. However, Chinese dietary therapy would be inaccessible to most people because it requires relevant knowledge and understanding of one's constitution type. Therefore, professional inquiry services and information on Chinese dietary therapy are needed. Practicing Chinese dietary therapy in daily diets is favorable among participants if it was convenient and affordable.

Snacky Recipe would be a trendy snack product line of Health Works. The promotion of SnackY Recipe would cover online to offline platforms via trending channels, such as Instagram and YouTube, to reach a large number of the young target audiences, and arouse high public awareness about the products.

About the Investigator

I am Angel Yung. I have great interest in designing packaging, characters, and graphics. Also, I am interested in creating animation and illustrations. I hope to engage in the advertising and design industries in the future. My Final Year Supervisor is Ms. Rachel Chau.

AN INTERPRETIVE STUDY OF SUPPORTIVE UPPER WEARS FOR OBESE MALES

ABSTRACT

RESEARCH BACKGROUND

The problems of obesity remain unchanged and are even becoming more serious. Some obese males have needs and preferences for supportive upper wear to protect and support their chest. Supportive wear can also shape their body into a better or ideal shape. However, the fashion industry has not provided any resources or a few resources on developing male supportive upper wear.

METHODOLOGY

A qualitative methodology was applied in this project. The comfort model theories mentioned by Fourt and Hollies (1970) on the relationship between clothing, person, and the environment was adopted. Factors such as wearing comfort through fitness, style, and aesthetic angles from physical and psycho-physiological by Pontrelli (1977) was used for the evaluation for developing supportive upper wear to fulfill obese males' needs and preferences.

FINDINGS

Factors such as temperature and humidity, breathability, ventilation level, and absorption of moisture were the most important for the outdoor climate. Social wearing expectations, ingrained values, social tolerance level, product image, and difference of social tolerance levels were found to be the essential factors in social norms. In subjective norms, personal tactile impression and personal acceptance affect the wearing comfort of obese males using supportive upper wear. Basic or dark color tones, simple style, a normal design, the fashion level, and an invisible design are emphasized in the aesthetic standard area.



CHAN Ka Lai
Kelly

BA (Hons) in Fashion Design
Faculty of Design and
Environment

About the Investigator

My interest is designing different garments that are inspired by the little things which we find in our daily life. I like finding different elements that can let people pay more attention to the self and the outside world. I hope my future career will still find differences and funny things that can be applied to garments, and give more contributions to Hong Kong people or even the whole fashion industry. My Final Year Project supervisor is Dr Arthur Chan.



Objectives

To identify obese male's views and considerations on choosing supportive wear based on conditions including environment attributes, personal physical activity types or level, and clothing characteristics. The study will analyze and summarize the most effective factors that affect obese males using supportive upper wears.

THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND COLOR PREFERENCE ON FASHION CHOICE



Objectives

The purpose of this research was to study the relationship between personality traits and color preferences on fashion choices. There are different factors affecting a person's choice of clothes. Under the influence of different factors, the color of clothes also reflects the personality traits of the wearer.



CHEUNG Tsz Shan

BA (Hons) in Fashion Design
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

Nowadays in society, different national fashion styles are popular. Everyone chooses the style that is suitable for him/her. Color is the main soul in clothing, with different colors showing different styles. Indeed, each person is an independent individual, and each has completely different personality preferences. Consequently, the feelings and preference for color are also different.

METHODOLOGY

Ten Hong Kong people aged between 18-30 years old were the target interviewees of this research. Semi-structured in-depth interviews were conducted, and in-depth exploratory data obtained from the respondents.

The interviews focused on asking interviewees about their own characters and their color preferences on clothes to understand whether there was a mutual influence between color preference and personality traits. And whether the choice of clothing color could reflect a person's personality.

FINDINGS

Different colors could indeed reflect personality traits and mood. But there were too many factors in daily life that affected people's wearing colors, such as the color restriction in clothing stores, mood, hobby, dressing style, preference, living habits and others. Not everyone would follow their own personality traits. So, color preference on fashion choice did not reflect the personality traits of the wearer.

About the Investigator

I am Sandy Cheung. I have a great interest in fashion and I look forward to becoming a fashion editor or stylist in the future. In recent years, many articles have pointed out the relationship between color and personality traits. Color is the main soul in fashion, so this inspired me to do this project. I am grateful to Ms Jenny Cheung for providing useful suggestions for my project.

INVESTIGATION TOWARDS THE ACCEPTANCE DIFFERENCES ON GENDERLESS FASHION APPAREL CULTURE BETWEEN MALES AND FEMALES

ABSTRACT

RESEARCH BACKGROUND

There are limited studies about the consumer perspective and trend of genderless clothing. The relationship between gender and fashion is only briefly explained in existing studies, and most of these are related to consumer behavior and the evolution of the gender movement instead of the consumers' view on genderless fashion. Compare to other countries, Hong Kong is much more backward on the topic of LGBT+. There are fewer data and information related to gender issues from the public, especially the topic between gender and fashion. Thus, this study focuses on genderless fashion items and analyzes data from interviewees to analyze the acceptance differences in genderless fashion from a psychological view.

METHODOLOGY

Data will be collected using 1) observations from the public and 2) interviews with subjects. First-hand data is necessary for this study to use for analysis.

FINDINGS

The results showed different acceptance levels from three groups, males, females, and LGBT+ members. The acceptance from males is lower than the other two groups. Gender stereotypes and social influence are two factors and concerns that emerged in their buying decision process.



CHOW Tsz Ying

BA (Hons) in Fashion Design
Faculty of Design and
Environment



Objectives

The purpose of this study is to explore the general acceptance levels of genderless clothing. To find out the perceived differences between males, females, and LGBT+ members; and to identify the direct influence of the genderless look and gender stereotype.

About the Investigator

I am Inly Chow. I am interested in the fashion industry and genderless fashion which is trendy in recent years and that inspired me to do this study. My supervisor, Dr. Eve Chan, guided and assisted me from start to finish on this research. Her valuable advice and guideline are important and outside the book. I would like to be a member of the fashion industry after I graduate.



Objectives

This study aimed to find out the factors that made online platform popular and affected the survival of entity stores. It investigated the reasons why customers preferred online shopping instead of traditional brick-and-mortar style of shopping. It also studied the relationship between online platform and entity stores, and how this change influenced the fashion market.



CHOY Zhun Xi
Serbia

BA (Hons) in Fashion Design
Faculty of Design and
Environment

THE IMPACT OF ONLINE PLATFORMS ON ENTITY STORES AND FASHION MARKETING

ABSTRACT

RESEARCH BACKGROUND

In recent years, online shopping has increased dramatically because of the growing use of the internet. People would prefer online shopping activities instead of the traditional style of shopping since online shopping is more comfortable. Hence, the sales of some entity stores have decreased and some stores need to end their business. This effect brings the fashion market to a new state. This study investigates how online platforms affect the continuity of entity stores through their impact on customer behaviors.

METHODOLOGY

A questionnaire was used to collect data from a random sample. The questionnaire encompassed several questions asking participants about their personal information, shopping experiences at entity stores and on online platforms, customer behaviors during online and offline shopping. The questionnaire was completed online by the participants through a link provided to them.

FINDINGS

It found that people agreed that online shopping was a good way to make purchases since it was more convenient. At the same time, the convenience was slowly changing buying behaviors of customers, affecting the survival of entity stores. Although customers preferred online shopping more, they didn't think that it could replace shopping at entity stores which still had their own advantages.

About the Investigator

I am Choy Zhun Xi Serbia, I have a big interest in fashion and shopping. In these years, people are shopping online more and some entity stores in Hong Kong are closed. This inspired me to investigate whether these two were related. Dr. Eve Chan, my supervisor gave me useful advice and direction on the project. After graduation, I hope I can enter the fashion market and contribute to its development.

AN EXPLORATORY STUDY OF FEMALE'S SOCIAL STATUS AND ITS RELATION TO CHEONGSAM DEVELOPMENTS

ABSTRACT

RESEARCH QUESTIONS

- ◆ What factors affect the aesthetics and universal value in ancient China?
- ◆ How can these factors influence Chinese clothing design?
- ◆ What factors lead to the transition of the female status in China?
- ◆ Which and how can the elements from Cheongsam reflect the female status?

METHODOLOGY

Historical research will be the main research method for this study. Examination and comparison will be carried out in various sources, including film, oral history, historical documents, photography, and newspapers. Useful information will be obtained from the case study to discover the relationship between the female status and Cheongsam development.

EXPECTED FINDINGS

This study can reveal the contribution of female status transition through fashion design. As one of the cultural communication systems, costume is always a mirror which reflects humanity. As one of the significant Chinese attires, Cheongsam represented the enhancement of the female position. By investigating diverse historical events, this study can reveal the linkage of the female status and Cheongsam. History and fashion experts can better understand the influence of women's statuses from their costumes.



HUI Nga Sze

BA (Hons) in Fashion Design
Faculty of Design and
Environment

About the Investigator

I am Mandy Hui. My hobbies are drawing and reading. Being a fashion designer is my childhood dream. After practicing in these four years, my design knowledge has been advanced. I want to contribute to the fashion industry continuously in the future. By investigating the relationship between Cheongsam and women's statuses, I recognized that fashion is one of the cultural communication systems closely related to human's daily life. Therefore, being a humanity-based fashion designer is my goal. My supervisor, Ms. Perry Wong, has provided lots of guidance and advice for my project. I want to appreciate her encouragement throughout my research project.



Objectives

- ◆ To investigate the key design features and the value of Cheongsam.
- ◆ To analyse the relationship between the development of Cheongsam designs and the female identity.
- ◆ To discover the transition of women's statuses, that is reflected by Cheongsam development.

AN INTERPRETATIVE STUDY OF THE IMPACTS OF GAME COSTUMES ON FASHION DESIGN



Objectives

In this study, primary ideas and influencing factors about gamers' aesthetic preferences were explored. The aim is to provide a design direction for game-inspired fashion items that can be accepted by gamers.



LEUNG Sze Wing

BA (Hons) in Fashion Design
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

With the quick expansion of the gaming culture, the market value for game fashion has been widely recognized. The rich fashion elements presented in games are considered valuable and full of possibilities to be turned into real fashion products. The possibility of selling game-related fashion products, in reality, is yet to be explored.

METHODOLOGY

Based on the theoretical background of the Design Model suggested by Au (2004), in-depth interviews were conducted with two groups of gamers, fashion experienced and non-fashion experienced gamers.

FINDINGS

Symbolic and meaningful designs are considered to be a relatively important game fashion feature as they represent a game or character well. Design elements that symbolize the game or character's back story, personality, and skills are useful to create game-inspired designs.

Some game fashion features are considered to be not practical, such as unrealistic effects like magic and anti-gravity designs, also some exaggerated silhouettes and decorations. In reality, these are not able to be achieved in production. However, if designers can successfully extract some of those elements and transform them into designs that can be accepted by the mass market, they can be used. Thus, considering the creativity and design skills of the designers, nothing is impossible to be used differently.

About the Investigator

I am Cwing, a Fashion Design final year student. I like doodling, singing, playing games, and reading comics when I have free time. I want to work in the fashion industry in the future, especially designing clothes. With my knowledge about fashion and interest in game fashion, I decided to do this research to find out interesting design elements in games that contain real market value. I want to thanks Dr Arthur Chan, my supervisor, for guiding my work.

A STUDY ON HONG KONG YOUNG CONSUMERS' ATTITUDES TOWARD "MADE IN CHINA" FASHION PRODUCTS

ABSTRACT

Hong Kong is a paradise for consumers. There are countless shopping malls and shops that open daily for long hours, selling goods of different prices and characteristics. Businesses and advertisers often target young people. However, the behavior of the millennial generation is different from others. Millennials do not like mass-produced goods but prefer customized goods for better taste and product quality. The consumption power of young people is also increasing in Hong Kong and calls for research.

Although "Made in China" fashion products have been accused of poor quality and plagiarism, the Chinese fashion industry has been developing, and new brands have emerged. Major luxury brands have also moved their production lines to mainland China and thus lowered people's perceived values. But can Chinese quality really replace the quality of luxury goods made elsewhere?

In the past, products made in China showed a lack of creativity and low quality. Many Chinese designers have studied abroad and returned to China to create fashion design. With their designs, the current Chinese trends are not the same. In recent years, the Chinese trend has risen strongly. Many brand managers and designers have always maintained their enthusiasm for the Chinese trend culture. With their unique vision and design, the designers have created high-quality items and are committed to revitalizing China. Their unique street culture is promoted abroad, and China's cultural output is expanding day by day. Through Chinese entertainment programs and social media e.g., TikTok, Chinese popular culture has expanded abroad. Will the young generation of Hong Kong consumers accept China as the source of fashion goods?

This project studies the consumer behavior, identity, and consumption patterns of Hong Kong youths to understand their acceptance of 'Made in China' fashion products.

About the Investigator

I studied on the BA (Hons) in Fashion Design (Fashion Management stream) at THEi. When I was studying for my High Diploma, I was really into leather crafting because I felt at peace and found the process challenging when making leather goods. I hope to start a handcrafted leather brand for my future career. In my free time, I like spending time watching videos on Youtube and dancing. I usually look for videos on fashion news and tutorials to keep myself updated and learn more new skills. In the coming year, I want to learn more about the fashion industry's production lines, so that I can become a successful designer and have a complete understanding of the operations in the fashion industry. My Final Year Project supervisor is Dr. Eve Chan.



TANG Tsz Ching

BA (Hons) in Fashion Design
Faculty of Design and
Environment



Objectives

This design project suggests a user-friendly aftercare product for tattoos, especially solo travelers, so that they can take care of their tattoos properly during travels. The product can also help to cover the tattoos temporarily so that they can access everywhere easily without limitations.



CHAN Choi Ning

BA (Hons) in Product Design
Faculty of Design and
Environment

ALL-IN-ONE TATTOO AFTERCARE KIT (VAIOT)

ABSTRACT

RESEARCH BACKGROUND

Nowadays, more and more women get their tattoos during their solo travel. However, it is difficult for them to take care of the tattoos on their own if their tattoo placements are in hard-to-reach areas, like on the back of the body. It might even lead to infections if the tattoos do not have proper aftercare and protection. Moreover, it is noted that people with tattoos might be ostracized in some destinations. Therefore, it is important to design a product to solve these problems.

METHODOLOGY

The project will provide two types of case studies, including personal experience and interviews. First, personal experiences would be used as a reference. Interviews will then be conducted with 4 females who had got a tattoo during solo travel in foreign countries. They were asked about what problems they had to face. There will also be an interview with a female who got tattoos in Hong Kong as a comparison. Research about tattoo aftercare products and analysis of the pros and cons will also be conducted.

FINDINGS

Female solo travelers face many aftercare problems after having a tattoo compared to females who got a tattoo in Hong Kong. Respondents do look forward to having a product to solve their problems so that they will no longer have any concerns about getting tattoos in foreign countries when alone; and no need to face any discrimination and limitations because they are female and have tattoos.

About the Investigator

My name is Carolina. I am a product design student, and my FYP supervisor is Mr. Henry Yu. Throughout the design process, he provided me with numerous helpful suggestions and reminders. I am interested in various forms of art, including tattoos and design, and I believe that art should not be limited to a specific field. As a result, I'd like to combine my interests to create a product to assist others to have a comfortable and convenient experience after getting tattoos during their solo travelling in the future.

CARE FOR THE ELDERLY

ABSTRACT

RESEARCH BACKGROUND

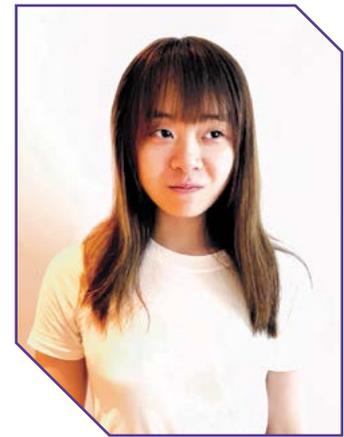
The ageing population problem has become serious in Hong Kong along with the rest of the world. The elderly will face different problems owing to the decline of their body functions. To provide a better later life for the elderly and help reduce the pressure of their caregivers, this project proposes to study the difficulties in medication and identify the solution.

METHODOLOGY

Qualitative research methods including observation and interviews, as well as a quantitative method via a survey will be applied for data collection and analysis. The survey will be distributed to the target audience through an online survey platform. Observations will be conducted to explore some of the general situations among the elderly. The interviews will be conducted for more detailed information from the elderly and caregivers.

EXPECTED FINDINGS

It is anticipated that the elderly would accept to use household appliances with the support of IoT since there are trends of E-seniors in the future. It is expected that the solution has to consider more of the usage for the elderly and those with reminder functions.



CHAN Wai Chi

BA (Hons) in Product Design
Faculty of Design and
Environment

About the Investigator

My name is Chelsea Chan. I have a strong interest in helping the elderly to have a better later life as there are many seniors that live around me. Thus, it inspired me to do this project with this research direction. Mr. Alex King, my supervisor, gave me useful advice in the planning stage. I hope to be able to design a brand new product to help the seniors to have a more convenient procedure during medication.



Objectives

To discover the current situation of the elderly in medication and find out a solution to help cope with the situation. The solution has to ensure the medication procedure is done accurately every day. Also, further research on the technology acceptance and usage of the elderly toward household appliances, and understanding the needs of people with chronic illnesses and their medication.

DESIGNING FURNITURE FOR BOTH HUMANS AND CATS



Objectives

This project aims to design products that are user-friendly for both humans and cats in a small living environment, and that would benefit the owners instead of cats only. The owners would have more cat product options to choose from despite the limitation of living area.



KONG Wing Yin

BA (Hons) in Product Design
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

In recent years, due to the decreasing birth rate and the tendency of late marriage, more and more people are keeping pets instead of having children and treating pets as family members. In Asia including Hong Kong, the number of people who have cats has increased. One of the important reasons for this increase is the trend of decreasing area of living environment. Nano flats have become a trend in the new property market. Therefore, it has become harder for owners to create a comfortable living environment for their cats.

METHODOLOGY

Questionnaire surveys and interviews were conducted to collect data on the lifestyle of owners and their cats. Testing models were also made to test the structure and scale of floor-standing furniture.

FINDINGS

Multi-functional furniture could benefit both humans and cats in a small living environment. Using the vertical space, including floor-standing, wall-mounted and ceiling light, could provide more space for cats to exercise. Different combinations of furniture could be designed depending on the users' preference, the cats' habits and the apartment's condition.

About the Investigator

I like drawing and DIY activities such as making accessories in my spare time. Therefore, I would like to be a designer after graduation. I hope my interest and the skills that I have learnt in the product design programme would help me to pursue my career goals.

My FYP supervisor is Mr Lai Kin Sun, Andy.

THE IMPORTANCE OF TOYS FOR CHILDREN

ABSTRACT

RESEARCH BACKGROUND

Previous studies have shown that E-learning is ineffective in school teaching. Teachers report difficulties knowing the needs of each student in class effectively. This is because they cannot see the students and therefore do not know how to respond appropriately. To help teachers understand students' needs, this project will assist teachers and students to establish a better relationship.

METHODOLOGY

A questionnaire was designed to ask the public about children, children's toys, and how they get along with children. Videos of how people get along with children from social platforms, such as Facebook and Instagram, were also analyzed. The research subjects were people over 18 years old and with experience in caring for children. The target sample size was 90 respondents.

FINDINGS

The results identified how important toys are for children, how designers should design toys, and what criteria and directions to use for designing the toys. The toys should fit the children's needs, improve their lives and the relationship between children and caregivers, avoid disadvantages, and have more educational functions.

Based on the findings, an educational tablet was designed for primary school students. Tablets can meet more of the children's needs. E-learning is becoming more popular, and online teaching is more difficult than traditional face-to-face teaching for teachers. Teachers cannot get instant responses from students in online teaching, and usually, only see a few active students in the lesson. Many students hide, turning off their mics and cameras. Teachers cannot know the learning process and needs of their students, especially for students with Special Educational Needs. However, the tablet can enable teachers to see their students' faces in meetings or online lessons.



LAM Hok Chun

BA (Hons) in Product Design
Faculty of Design and
Environment



Objectives

To examine how students perceive online learning and design an electronic device suitable for their learning according to their educational needs.

About the Investigator

I am Lam Hok Chun Peter. My interests are basketball and drawing. I love getting along with children and want to help them. Mr. Tang was my primary school teacher when I was a primary school student. He gave me a lot of idea and useful advice about children learning. He also shared with me some experience about E-learning. I was a tutor that helped primary school students to complete their homework. My Final Year Project Supervisor is Mr. LEE Kwok Lang.



Objectives

The purpose of this project is to design a product for pet owners to monitor their pets while they are at work. The product would allow users to monitor their pets with real-time videos and a health report analysis using an app. This way pet owners can be reassured that their pet is well by using this product to keep track of the status of their pet.



TANG Yuet Sze
Macy

BA (Hons) in Product Design
Faculty of Design and
Environment

A HEALTHCARE ASSISTANT DESIGNED FOR PETS - MEDiRiNG

ABSTRACT

RESEARCH BACKGROUND

Since the living costs are relatively high in Hong Kong, more people prefer raising pets instead of children. A major concern of pet parents (someone who owns pets) is the health of their pets, as pets are not able to tell their owners that they are suffering from illness or diseases. In the market, there is a lack of smart gadgets for pet parents to keep track of the status of their pets.

METHODOLOGY

Data will be collected through face-to-face interviews with 10 pet owners. They will be asked questions about the means that they use to look after their pets when they go out to work, and the obstacles faced while taking care of their pets or using other smart devices for help.

FINDINGS

It is predicted that pet owners would rely on a security camera when they have to leave their pets alone at home, meaning there would be blind angles not visible on the camera as their pets would move around. Pet owners would be interested in a smart device that enables them to track their pets without blind angles and to be able to see their pet's health status.

About the Investigator

I am Macy Tang. My interests are sketching with different forms and structures and petting dogs, which inspired me to design a smart device for pets. My supervisor, Mr. LEE Kwok Lang, has guided me along the path of this whole project, giving useful advice for this project and also for my future career. My career goal is to become a product designer after I graduate, as I enjoy conveying my creativity through graphics or designing products.

MUSIC WITH LATTE - A HEADPHONE WITH SUSTAINABLE MATERIALS

ABSTRACT

RESEARCH BACKGROUND

Annually, the world generates over 2 billion tons of urban solid waste. 12 percent of all urban solid waste is plastic waste, accounting to a total of 242 million tons according to figures from 2016. Since waste problems become a concern, product designers need to think sustainably when designing products.

METHODOLOGY

The design project focuses on designing a product – headphone, which would be liked by young adults. Research on young adults’ persona, sustainable materials, and the market for headphones have been done. Based on those researches, experiments on the production of bioplastic are done to find out if it is possible to produce and process. Also, some improvements on the headphone are identified to make it more user-friendly.

FINDINGS

A headphone, called “Music with Latte,” is designed. It uses biodegradable materials, which are NeCycle (a bioplastic invented by a Japanese company, NEC) and coffee grounds bioplastic. It can be connected to Bluetooth and is easy to carry, suitable for indoor or outdoor use. As coffee grounds bioplastic is used, the design theme has been linked to the coffee culture to show the image of young adults - energetic, likes trendy things, and emphasizes on personal taste.



YEUNG Man Ting

BA (Hons) in Product Design
Faculty of Design and
Environment

About the Investigator

I am Mandy Yeung. In my senior form of secondary school, one of my electives was visual arts. I like drawing which makes me interested in product design. Also, I am interested in doing experiments which inspired me to use sustainable materials as a topic in my Final Year Project. Mr. Sonny Choy, my supervisor, gave me a lot of advice in the design process. I hope to have the chance to take part in designing projects using sustainable materials in the future.



Objectives

The objectives are to explore the opportunity of using more sustainable and biodegradable materials in product design, explore ways of producing bioplastic, and encourage sustainable design in the future.

EXPLORE THE STRESS SITUATION OF HONG KONG PEOPLE AND THE EFFECTIVENESS OF RELAXING METHODS



Objectives

- To research different stress symptoms and relaxing products.
- To find out the effectiveness of the products and their usage rate in the market.

The project will compare different relaxing methods and interview professionals to find out the more feasible methods for the public.



YU Mei Fung

BA (Hons) in Product Design
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

Nowadays, Hong Kong's average happiness level is lower than the passing grade and in the long-term, high levels of stress will make people have trouble sleeping, easily feel tired, and have difficulty concentrating, which affects their life and health. This research will seek to understand the most common stress symptoms, and examine the most popular relaxing activities and their reasons for use.

METHODOLOGY

The research will investigate the common relaxing methods, and review and clarify the definitions of stress in a literature review. The research will use two qualitative research method techniques, open questionnaires and professional opinions. An open questionnaire will collect respondents' relaxing activities and their feedback of after activities. The professional opinions, from Community Mental Health Special Service, would find out the major differences between patients with mental health problems and the public.

FINDINGS

According to the findings, unhealthy sleep quality, feeling tired and difficulty concentrating are common symptoms of stress. All products and activities are the ancillary properties and improve sleep quality in a short time. For long-term considerations, developing a fixed sleep time and stopping all stimulating activities half an hour before sleep to prepare for bed is the best method to improve sleep quality.

About the Investigator

My name is Christy Yu. My interests in reading and sketching inspired me to do this project. Mr LEE Kwok Lang, my supervisor, gave me useful advice in the planning stage. I hope I can my design and research can help improve the problem of stress. I want to be a product designer after graduation and use all my skills in design to give back to society.



Faculty of Design and Environment

Department of Environment



Objectives

- To discover thermal duration treatment effect on *L. leucocephala* germination and growth performance;
- To discover different temperature thermal treatments effect on *L. leucocephala* germination and growth performance;
- To suggest a practical composting treatment method to minimize the livability of weed seeds *L. leucocephala*.



AU-YEUNG Sen Mei

BSc (Hons) in Horticulture,
Arboriculture and
Landscape Management
Faculty of Design
and Environment

THE EFFECT OF COMPOSTING TREATMENT ON *LEUCAENA LEUCOCEPHALA*

ABSTRACT

RESEARCH BACKGROUND

Compost is an organic matter widely applied to improve soil quality. *Leucaena leucocephala* is an invasive tree species with a high ability to spread and reproduce. When compost is mixed with living *L. leucocephala* seeds, it can become a source for dispersing invasive weeds. Currently, there is still no research on the effects of composting treatments on *L. leucocephala* seed germination and growth performance. More specifically, composting treatment methods to effectively reduce the livability of *L. leucocephala* are currently unknown. This study addresses this issue by analyzing the germination and growth performance of *L. leucocephala* seeds after composting treatment.

METHODOLOGY

The seeds were divided into compost material (woodchips) applied group & no applied group. In the first experiment, seeds underwent different temperature thermal treatments (20°C, 30°C, 40°C, 50°C, 60°C and 70°C) for 5 days which simulated the thermophilic phase of compost treatment. In the second experiment, the seeds underwent thermal duration treatment for 60 days which simulated the composting heating process according to Chen (2017). In the last experiment, the germinated seeds after the temperature thermal treatment were planted for 60 days to observe growth performances.

FINDINGS

SPSS analyses showed that the thermophilic phase of compost treatment with temperatures reaching 70°C for 5 days, and composting heating process according to Chen (2017) is an effective method to minimize the livability of weed seeds *L. Leucocephala*. A practical composting treatment method to minimize the livability of weed seeds can be practically conducted in a large-scale composting plant setting as determined in this research project.

About the Investigator

A debt of deepest gratitude is owed to my supervisor Dr. PAN Min, Livia, for her valuable suggestions and professional guidance during the development of this research. I extend my thanks to Dr. Lee Shing Him, Louis, for his help on the statistical analysis. I would also like to extend my thanks to research assistant Miss. Gladys Yau for her help in conducting experiments smoothly, and the laboratory of Horticulture, Arboriculture and Landscape Management Program of THEi for offering me a venue and the resources to run this research.

EFFECTS OF SEWAGE SLUDGE-CHINESE MEDICINAL HERBAL RESIDUE-BIOCHAR AMENDMENT ON AGRICULTURAL SOIL AND PLANTS

ABSTRACT

RESEARCH BACKGROUND

The population of Hong Kong is escalating yet the average daily production of fresh vegetable is difficult to fulfil the demand for vegetables in Hong Kong. Sewage sludge (SL), Chinese medicinal herbal residue (CMHRs) and Biochar (BC) can be used as soil amendments to improve soil properties and increase yields. However, the effect of SL-CMHR-BC on seed germination, plant growth, soil physico-chemical properties and nutrient abundance in the soil is unknown.

METHODOLOGY

Greenhouse experiment and phytotoxicity tests were conducted to find out the effect of mixing different ratios (5%, 10%, 20%) of SL-CMHR-BC with soil. Carrot (*Daucus carota*) and tomato (*Solanum lycopersicum*) were the tested crops. The procedure was as follows:

1. Plant selection: Carrot & Tomato
2. Material preparation: SL-CMHR-BC
3. Greenhouse experiment: Plant growth
4. Soil nutrient test: Physico-chemical properties
5. Phytotoxicity test: Germination & elongation
6. Statistical analysis: Excel, SPSS & SigmaPlot

FINDINGS

Soil physico-chemical properties were affected by the interaction of SL, CMHR and BC on soil structure, microbials, enzymes, bulk density, particle density and porosity. Different ratio of applied soil amendments would cause different levels of phytotoxicity to plants. 5% and 10% of amended soil for tomatoes were proven to have no phytotoxicity on seed germination. A higher proportion of soil amendment negatively effects on shoot and root elongation. The overall results showed that 5% SL-BC and 5% SL-CMHR-BC were the best proportion of soil amendment for tomatoes and carrots.

About the Investigator

I would like to express my sincere gratitude to the Technological and Higher Education Institute of Hong Kong (THEi) and my supervisor, Dr PAN Min, Livia for accepting me on this project. I would also like to express my sincere gratitude to the Research assistant, Miss Yau, for giving me technical support during the project. Her research knowledge, experience and professional expertise in experimental machine running and statistical analysis have enabled me to complete this project successfully. Finally, I would like to express sincere thanks to my family for their financial support, which enabled me to complete my BSc degree study successfully.



FUNG Yu Shun

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment



Objectives

This study evaluates the potential impacts of SL-CMHR-BC on seed germination and plant growth and its effect on soil physico-chemical properties and nutrient levels.



Objectives

To re-invent Protech's LAMP technique into an effective and low-cost early warning protocol to prevent and mitigate the impacts of BRRD. The popularization of this mobile protocol can contribute to Hong Kong's biosecurity, OVTs preservation, and area-wide BRRD surveillance.



HO Man

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment

ASSESSING THE EFFICACY OF PROTECH'S LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) IN THE EARLY DETECTION OF *Phellinus NOXIUS*, AND THE POTENTIAL OF "POINT OF CARE" APPLICATIONS IN HONG KONG

ABSTRACT

RESEARCH BACKGROUND

The prevention and curing of *Phellinus noxius* (*P. noxius*) has gained attention in Hong Kong. It causes Brown Root Rot Disease (BRRD), which affects tree stability and public safety. Current detection methods using polymerase chain reactions and culturing techniques are both expensive and time-consuming. They do not facilitate "point-of-care" (POC) decision-making and treatments. However, Protech's loop-mediated isothermal amplification (LAMP) technique has a high potential for POC use. This research investigates the efficacy of Protech's LAMP technique on detecting *P. noxius* and its efficiency in the field.

METHODOLOGY

The methodology involved four stages:

- Stage 1 – Sampling trees belonging to 10 species growing on 10 SIMAR slopes.
- Stage 2a – Isolating and purifying *P. noxius* in PN3 agar and PDA agar, and perform morphological diagnosis (Ann et al., 2002).
- Stage 2b – Diagnose root tissue samples suspected with *P. noxius* using the Protech LAMP technique in THEi's Laboratory.
- Stage 3a – Reinvent the Protech LAMP technique into a POC LAMP (field use protocol) suitable for field detection of *P. noxius*.
- Stage 3b – Validate the developed field protocol in five field tests.
- Stage 4 – Conduct data analysis using a nonparametric Mann Whitney U test.

FINDINGS

The Protech LAMP technique showed reasonably good efficacy in detecting *P. noxius*. The results of the POC LAMP tests were encouraging. The "positive" test rate was 60%, and the negative tests were resultant from concentrated DNA fluid with inhibitors. Overall, the POC LAMP method is proven practicable for field detections.

About the Investigator

I am a mature student aiming to establish a career in urban forestry. My ultimate goal is to own a small business providing quality services to clients. The new protocol facilitates the launch of BRRD detection services in the future. Meanwhile, detection results can be relayed to the government for making control strategies for BRRD, which is a win-win situation. My interests include hiking, observing tree works, and small garden formulation. My FYP supervisor is Miss. Leung Zoen Wing, Gabriella.

THE EFFECTS OF BIOSOLID ON SCHEFFLERA HEPTAPHYLLA AND SOIL

ABSTRACT

RESEARCH BACKGROUND

Biosolids are considered a successful soil amendment for better plant and crop growth by increasing soil fertility and plant nutrition. *Schefflera heptaphylla* is a native species in Hong Kong that is widely planted for ornamental and greening functions. However, the fertilization value of biosolids compared with other commercial soil amendments and fertilisers on the growth of *Schefflera heptaphylla* is poorly understood. This research aims to investigate the effects and nutrition value of commercial fertilizers and biosolid applications on the growth of *Schefflera heptaphylla* through soil physical-chemical properties.

METHODOLOGY

Four types of fertilisers, biosolid (BS), biochar (BC), chicken manure (CM) and wood waste compound (WWC), were compared for the growth of *Schefflera heptaphylla*. The application doses were designed with 0%, 5%, 10%, 15% and 20% dry weight. The growth of *Schefflera heptaphylla* was measured by the total number of buds, increased height and stem diameter as the indicators. A total of 24 weeks of plantation and observation were carried out for soil temperature, humidity, and shoot and stem growth. Total and available NPK, pH value, water holding capacity, total organic carbon (TOC) and heavy metals were measured before the application and after the planting experiment.

FINDINGS

There was an increase in bud number, height and stem diameter in all proportion in all soil amendments at 20% BS, 5% BC, 5% CM and 15% WWC. 20% BS had the best growth performance with the highest bud number, growth increase and stem diameter. The nutrient levels of BS were also the highest. Biosolid could be good organic fertilisers for the replacement of commercial fertilisers.



LAI Cheuk Yi

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment



Objectives

This research investigates the effects of commercial fertilizers and biosolid application on soil physical-chemical properties and plant growth.

About the Investigator

Special thanks are due to my supervisor Dr PAN Min, Livia and my lecturer Dr Allen Zhang for the project guidance.

THE EFFECTS OF NULLAH IMPROVEMENT WORKS ON HONG KONG'S AVIAN ECOLOGY



Objectives

This project aims to:

- Analyse the changes of the nullah in terms of wildlife habitat after improvement works.
- Determine the basic needs for birds in their habitat.
- Explore how the changes made to the nullah affect avian ecology.



LUK Yi Kwok

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

Nullahs, a common feature of Hong Kong's urban engineering, were originally intended for use as rainwater channels and to minimise flooding. However, most nullahs have turned into polluted wastewater channels due to common misuse by members of the public. This project investigates the impact of the nullah improvement works on the local bird ecology.

METHODOLOGY

This project involves a 9-month avian ecology survey at Kai Tak Nullah, Jordan Valley Nullah, and Tsui Ping Nullah from August 2020 to April 2021. The data will include bird activities, locations, ambient temperature, humidity, and the number of improvement features.

FINDINGS

The analysis of avian ecology and nullah environmental data led to the identification of fundamental features in improvement works that benefits avian ecology. The results showed that there is a highly significant correlation between the location and activity of the 10 most common species of birds. It also found that nullah, which provides more variety of revitalisation elements, can attract more birds. The findings of this research can inform future ecologically friendly planning of nullah designs, construction, and use.

About the Investigator

Hello, I am LUK Yi Kwok. My passion for the environment and landscape has motivated me to work on this project and explore the relationships between nullah and bird ecology. Dr LEE Shing Him, my research supervisor, has provided unlimited support on my project and uncountable advice, which helped me improve. I hope this project can provide some useful advice for future nullah development projects. My goal is to gain more experience and knowledge about the landscape and eventually become an arborist and contribute to society.

A FUNGICIDE COCKTAIL BASED ON MODE OF ACTION TO CONTROL *Phellinus noxius*

ABSTRACT

RESEARCH BACKGROUND

Brown root rot disease (BRRD) has been a severe urban risk for a long time due to its ability to rapidly cause tree failure. Since the introduction of fungicides, these chemicals became worldwide tools to cure or prevent fungal infections, such as blight. Given the increasing usage of drugs in horticulture and agriculture, the development of resistance and other non-target effects due to the abuse or overuse of fungicides have been reported.

METHODOLOGY

In this culture study, potato dextrose agar was enriched with different mixtures of fungicides (mancozeb, chlorothalonil, and propiconazole) and their effectiveness to inhibit the growth of *Phellinus noxius*, the causing agent of BRRD, were tested. The study hopes to find a better formula to combat the disease using a lower concentration of chemicals.

FINDINGS

Our results show that propiconazole alone is very effective against *Phellinus noxius*, and the inhibition ability of any mixture largely depends on its concentration. On the other hand, mancozeb is generally ineffective and also appears to hinder the function of chlorothalonil. When chlorothalonil was combined with propiconazole, the results suggested this mixture could be a viable and effective way to reduce the concentration needed against *Phellinus noxius*, as well as being a practical solution for controlling the development of resistance.



MO Kai Chung

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment



Objectives

To lower the impact of fungicides by reducing the dosage and mixing different drugs that has been proven effective.

About the Investigator

Since young, I have been interested in nature and wanted to understand how the world works. Through my 4 years of study on the BSc (Hons) Horticulture, Arboriculture and Landscape Management degree programme, I have gained a lot of valuable knowledge and experience, equipping me to become a professional arborist. I want to say thank you my lecturers, and especially to Miss Leung Zoen Wing, Gabriella, my Final Year Project supervisor.



Objectives

The aim of this study is to observe the effectiveness of phytoremediation of two selected heavy metals, cadmium and lead, on *Lemna minor*. Field data including the record of absorbing rate of heavy metal; the plant health throughout the whole experiment period, and the optimal dose or concentration of the technology will be studied.



TANG Tsz Kiu

BSc (Hons) in Horticulture,
Arboriculture and Landscape
Management
Faculty of Design and
Environment

PHYTOREMEDIATION EFFICIENCY OF LEAD AND CADMIUM USING *LEMNA MINOR* WITH DIFFERENT LIGHT DURATIONS AND CONCENTRATIONS

ABSTRACT

RESEARCH BACKGROUND

Heavy metal has been a pollutant that costs huge social expenditure for the whole world ever since the industrialization, urbanization and over population. Traditional heavy metal treatments such as chemical precipitation and oxidation are costly, complicated, and causes excessive negative ecological effects. Phytoremediation provides an economical and environmental-friendly alternative remediation method for contaminated sites. The effects of cadmium and lead on *Lemna minor* (duckweed) under different light durations and concentrations were tested in this study.

METHODOLOGY

By exposing a single dosage of lead and cadmium to *L. minor*, the vegetative uptake rate can be observed under different concentrations and light durations. Light duration would be in an all-dark setting, sunlight and full-time artificial lighting for the *L. minor*. Concentrations of heavy metal was recorded throughout the experiment. Indicators of plant health and transpiration rate would be recorded during the experiment period and after the experiment.

FINDINGS

The experiment showed that *L. minor* could tolerate certain levels of stress with heavy metals within a few days. Within all groups, duckweed, with the lowest concentration of lead (2mg/L), can tolerate the stress and process more than 95% of lead. The removal rate for *L. minor* was not distinctive among different light durations in the lower concentration groups of cadmium.

About the Investigator

I am TK. My interests in aquatic plant and environmental protection inspired me to study this topic. Dr. Chen Si, my supervisor, gave me invaluable advice throughout the project. As I also like to study new technological investments, I hope to learn and study more about how new technologies can be applied and assist in arboricultural and agricultural practices in urban and suburban areas, and help improve the quality of the local arboricultural services.

WATERFRONT DESIGN WITH ANTI-FLOODING, ECOLOGICAL AND CITY-CLASS LEVEL

ABSTRACT

RESEARCH BACKGROUND

There is indications that the typhoon's rainfall, storm surge, and wind power have become stronger than in the past. This situation brings financial losses. Some studies showed that an ecological waterfront design can effectively reduce damage and the level of loss after a typhoon, since the plants can recover and disperse water flow. Selecting Tseung Kwan O as a testing location, the main aim of the project to reinforce the protection of waterfronts.

METHODOLOGY

This project selects the storm surge black point, Tseung Kwan O, as a testing location. The data is collected by on-site research and desktop research. On-site research is for data about current situation of the site. Desktop research concerns data for water-resisting methods.

FINDINGS

The protection of Tseung Kwan O waterfront area should be enhanced. New open spaces for citizens should be created. The connection to the park and the urban area should also be boosted.



CHAN Tap Chak

BA (Hons) in Landscape Architecture
Faculty of Design and Environment

About the Investigator

My name is Billy Chan. Watching the process of making a nice, comfortable space is my interest. Besides, I would like to learn or record the nice design methods about different protection methods. Hopefully, I can be part of the industry of spatial design. I was very glad to have designed a waterfront area in this project. My supervisor, Ms Sanny Ng, gave a lot of connection methods and modeling skills to help me finish this project. I genuinely want to thank my supervisor.



Objectives

This projects focuses on harbourfronts with frequent flooding problems for reinforcing the protection of the coastline, establishing the ecological relief zone for education, and creating a metropolitan park for the residents' daily use and as a tourism destination. The result is to be the city's top class metropolitan and ecological park that can resist flooding.

ENHANCE GREEN INFRASTRUCTURE FOR A RESILIENT WATERFRONT COMMUNITY



Objectives

Through green infrastructure, a new type of promenade in Hong Kong can be created. Waterfront infrastructures and open spaces can feature breakwater and tidal to dissipate wave action from storm surges. This can increase resilience and provide habitat shelter to the biodiversity, and create a safe area for water recreation.



CHIU Wai Leong

BA (Hons) in Landscape Architecture
Faculty of Design and Environment

ABSTRACT

RESEARCH QUESTIONS

Studying the changes over the last decade, there have been several valuable studies on flood prevention and urban farming by green infrastructures. However, none of these studies looked at the food production coexisting into the waterfronts to enhance the community by green infrastructures.

METHODOLOGY

Data collection for a survey was by snowball sampling through a chain referral, a simple and cost-efficient way that requires little planning and fewer workforce compared to other sampling strategies. The research sample was local citizens and visitors who live in Hong Kong to share their opinions and to collect the data for planning the development in Kwun Tong Tsai Wan in the future.

FINDINGS

Most of the interviewees hoped that the government provides more open space areas, ecological restoration, improve the air and water pollution, and the design is more functional and natural. Moreover, most respondents disagreed on developing private housing and preferred to participate in open space planning and design.

About the Investigator

This is Rayz Chiu. I love the higher quality of life and environment after I experienced lots of natural disasters, and this inspired me to do this project. Mr. Valter Viera, my Final Year Project supervisor, is one of the best supervisors with great patience to explain and give me useful advice when doing my project. Aside from my work experience and academic background, I wish to design and provide high-quality open spaces for Hong Kong residents to improve their quality of life.

FINDING THE LOST PIECES OF POK FU LAM: REVITALISING AN ABANDONED CULTURAL SITE BY LANDSCAPE APPROACH

ABSTRACT

RESEARCH BACKGROUND

In the wake of the rapid development of the city, the history of Hong Kong is disappearing. The purpose of this design project was to explore how to revitalise the Old Dairy Farm into an Eco-historical park by landscape approach. The project seeks to answer the following research questions: (1) How Hong Kong conserves heritage? (2) How to consider history and ecology when revitalising an abandoned site?

METHODOLOGY

To understand the methods and problems to conserving cultural landscapes or heritage sites in Hong Kong, this project researches the conservation methods, the existing and abandoned heritage sites and the evaluation of these sites. The research methodology includes: Assessments, Mapping, Phenomenological Experience and Case Studies.

FINDINGS

To revitalize the Old Dairy Farm, people should consider a landscape approach rather than an architectural approach. Revitalising abandoned cultural sites using a landscape approach can be beneficial to the Old Dairy Farm and helps with reviewing the conservation policies in Hong Kong. The concept to explore is for connections between Pok Fu Lam village and urban areas to reveal the history to the public. The site can be developed into a self-sustain eco-park.



KWOK Sin Yan

BA (Hons) in Landscape Architecture
Faculty of Design and Environment



Objectives

This project may serve as a guide for future management of cultural landscape and heritage revitalisation projects. It can also act as a case study on how to revitalise a historical site approached from a landscape perspective instead of an architectural perspective. Along with the theories by J.B. Jackson and Carl O. Sauer, the conservation methods and design would be provided.

About the Investigator

Hello, I am Yanice. I recently graduated from THEi with a bachelor's degree in Landscape Architecture. I believe landscape design is generated not only by the material needs of people but also by their need for spiritual fulfilment. Landscape design is not just about creating space but also bringing a more sustainable and well-living environment to people. So, toward a Landscape Architecture! My Final Year Project supervisor is Dr Chan Yin-Lun.



Objectives

It explores the possibility of combining surfing tourism and coastal protection to restore the coastline against frequent occurrence of extreme weather events and to provide a stronghold for the surfers on the surf break area.



NG Ho Kwan

BA (Hons) in Landscape
Architecture
Faculty of Design and
Environment

THE RISING SUN OF THE SURFING BAY: PROPOSING NATURAL-BASED SOLUTIONS FOR COASTAL PROTECTION

ABSTRACT

RESEARCH BACKGROUND

- What are the requirements and limitations of surfing activities and coastal protection?
- How does coastal management help coastal areas to withstand and recover from extreme weather events, to balance the use of coastal areas, and to provide services to the public?
- Can surfing tourism and coastal protection coexist?
- Is there sustainable surfing tourism that reflects the surfers' lifestyle?

METHODOLOGY

Data will be collected by sending out questionnaires to and interviewing 90 surfers participating in this study. They will be asked questions about their lifestyles and views of the selected site for further design. For the space analysis, data will be collected by using GIS, Government reports, and site visits.

EXPECTED FINDINGS

The surfing industry has developed into a multi-billion-dollar industry. Also, people's awareness is increasing including an understanding of the threats to marine and coastal environment, and the value of surfing which brings cultural, economic, and social values. It is anticipated that surfers would prefer to have natural surfing environment instead of a convenient commercial beach. This study focuses on the needs and limitations of surfing tourism and coastal protection. It argues that surf breaks should be protected not only for their value to surfers but also for the ecosystem services they provide and other benefits for marine conservation.

About the Investigator

I am Layla Ng. I never forget the beautiful sunrise on a short surf trip in 2018. However, because of Typhoon Mangkhut, the beautiful beach was destroyed and it took two years for it to slowly reopen to surfers. It was then that I began to think about how to protect this fragile and beautiful beach. Ms. Claudia Juhre, my supervisor, gave me useful advice during the year. I hope I can continue to study related topics in the future.

EVERGREEN LAND: CO-EXISTENCE BETWEEN HUMANS AND NATURE

ABSTRACT

RESEARCH BACKGROUND

With the development of the economy and the continuous growth of the population, there are more problems with land use in the present day. The excess development of human-use land damages the ecological environment and pollutes high ecological areas. We need to prevent the situation from becoming irreversible in the long-term. The project aims to achieve a design that strikes a balance between humans and ecology.

METHODOLOGY

Information collected from websites, books and documentaries will be used to integrate the potential of a co-existing environment between humans and ecology to achieve sustainability. The steps in this project are:

- I. Review the literature review and case studies to understand the different perspectives, and understand stakeholders' point-of-view using online questionnaires;
- II. Discover the common interests of humans and ecology;
- III. Set the criteria of for site selection and propose the potential site;
- IV. Decide the site and study the background with site photo and analysis;
- V. Find the potential elements and location of the site to strike a balance between humans and ecology;
- VI. Study the main elements of construction for the future design.

FINDINGS

The approach involved different features to create a co-existing environment for society and the ecology. Other than exploiting recreational space for humans, we should also consider the ecological environment conservation of sustainability. We should create a situation in which both wins between environment and community.



TANG Tsz Yuen

BA (Hons) in Landscape
Architecture
Faculty of Design and
Environment



Objectives

The focus of the project is to create a green and health space to improve the community's health and quality of life, while achieving the needs of the locals and promote outdoor healthy lifestyles, character and responsible sports for local recreational needs. Also, ecosystem concerns are an important factor for co-existence and substantiality. By protecting the high-value species, a design with habitat creation and conservation areas should maintain the natural environment and enhance the biodiversity, strengthen the interactions between humans and nature with new features.

About the Investigator

I am interested in landscape design and land art creation, and I am passionate about outdoor activities. I enjoy art and nature and like to create collages and drawings. Everyone deserves a chance to be closer to nature and learn about local fauna and flora to realize our symbiotic relationship with nature. I hope this project can be inspiring and improves the living environment. My supervisor is Ms. Claudia Juhre.



Objectives

- To figure out the relationships between 3D laser scanning, BIM, AM, and facility management;
- To investigate the operation of integrating Scan-to-BIM and AM system into O&M;
- To explore the approach on tracking and extracting various asset-related data;
- To study how integrating Scan-to-BIM with AM system can achieve more efficient facility management O&M; and
- To study the limitations and barriers of integrating Scan-to-BIM with AM system for O&M in facility management.



CHAN Man Kwan

BSc (Hons) in Surveying
Faculty of Design and
Environment

A STUDY ON INTEGRATING SCAN-TO-BIM WITH AM SYSTEM FOR IMPROVING FACILITY MANAGEMENT AT O&M

ABSTRACT

RESEARCH BACKGROUND

This study investigates if integrating Scan-to-BIM (Building Information Modeling) with Asset Management System (AM) is an effective tool for Operation and Maintenance (O&M) in Facility Management (FM). Desktop study involving a literature review, interviews, and case study will be conducted on this research. The literature review will be based on Trimble X7 Laser Scan, BIM and AM. The case study takes the mechanical, electrical, and plumbing system of the plant room in THEi Chai Wan Campus as the trial model to investigate the operation of integrating Scan-to-BIM with AM system into FM.

METHODOLOGY

This research uses interviews and creates a case study. Interviews with experienced facility management personnel on the integrated Scan-to-BIM with AM system into FM were conducted. The conclusions of this report can be more clearly verified by analyzing the views of professionals. The differences are analyzed to draw the conclusion. The case study involved conducting in-depth research on projects for implementing Scan-to-BIM with AM system. Through exploring real cases, the process of O&M after using the technologies of Scan-to-BIM with AM system can be summarized.

FINDINGS

Five key areas for integrating Scan-to-BIM with AM system into FM were identified and should be taken into consideration for implementing Scan-to-BIM with AM system. These are: (1) Choice of equipment, (2) Time to develop as-built drawings, (3) Reduce operation and maintenance cost, (4) Procedures to find out the breakdown, and (5) O&M workflow management.

About the Investigator

My name is Adeline, and my study subject is in surveying. My interest is to study new things, so the theme of this Final Year Project is to investigate new technologies. My supervisor is Sr Ir Dr. Ken H. C. CHAN. My career goal is to get my certificate for a surveyor and contribute to the engineering field.

THE APPLICATION OF AI AND IoT TECHNOLOGIES IN ADVANCED SHOPPING MALL - TODAY AND BEYOND

ABSTRACT

RESEARCH BACKGROUND

The property management industry in Hong Kong is facing numerous challenges. To name two: reducing energy for cooling and shortage of labour. As we are in the age of innovation, innovative technologies such as Artificial Intelligence (AI) and Internet of Things (IoT) should be adopted to answer the challenges and enhance the efficiency of the industry. It is important to evaluate the performance of these technologies and whether they should be promoted in the society.

METHODOLOGY

Literature, Interview and Case Study were mainly used during the research. APM and V City were invited to participate in the research. Besides, several specialists and professionals were interviewed to collect their valuable opinions.

FINDINGS

Several findings were obtained after the interview. 22% & 20% decrement on electricity consumption and expenses were recorded in V City air-conditioning respectively. More than 1,000,000 electricity (in kWh) and cost (in HKD\$) was saved and at least 500,000 CO₂ was reduced yearly. Smaller variance of indoor temperature was achieved after adopting the technologies (i.e., 2°C)



CHAN Ming Tat

BSc (Hons) in Surveying
Faculty of Design and
Environment



Objectives

The main purpose of the current study is to examine the efficiency and compare the differences after adopting the technologies in the shopping mall, including aspects of Time, Cost, Energy and Labour, as well as finding out the barriers that clog the technologies development in Hong Kong. Some improvement areas will also be suggested.

About the Investigator

I am Terry Chan and my interest is to explore new things that can be beneficial to the society and enhance the quality of living. Sr Ir Dr. Ken H. C. CHAN, my supervisor, gave me lots of support and teaching continuously, especially giving me some marvelous idea and instruction as well as reviewing my draft patiently. For my future, I would like to become a chartered surveyor and contribute to the society with my utmost.



Objectives

- To explore the use of a drone, the process of photographic to reality building models and the solar analysis software;
- To investigate any factors that may affect the effectiveness and accuracy of drone scans;
- To find out the efficient and accurate method of establishing a 3D reality model;
- To analyze and simulate the daylight of the campus through the software; and
- To analyze the impacts of daylight for the landscaping design.



CHAU Man Hing

BSc (Hons) in Surveying
Faculty of Design and
Environment

DAYLIGHT ANALYSIS ON EXISTING BUILDINGS BY INTEGRATING DRONE AND PHOTOGRAMMETRY TECHNIQUES

ABSTRACT

RESEARCH BACKGROUND

Daylight plays a key role in the thermal and visual comfort of occupants and the sustainable development of the environment. This project explores the sunlight and shading of the THEi Campus in Chai Wan through a daylight simulation software, and then decide what type of plants or trees to plant in the building area to improve the landscape design.

METHODOLOGY

Interviews

- Target to interview 4 to 6 people who have participated in daylight analysis research or project, to learn more about the application and research of daylight analysis.

Case study

- To explore and simulate daylight on the THEi Chai Wan campus. Drone scanning, reality model building, and daylight simulation are applied to obtain the research data.

FINDINGS

Uncertain building modelling time:

- Depends on the quality and the scale of the model
- The more detailed the building model, the longer it will take to build
- Drone photo re-capture

Location of the plants:

- Landscape site survey
- Depends on the plant's growth requirement and the solar exposure model
- Proposing landscape distribution plan

About the Investigator

I am Winky Chau, my interests are doing some handicrafts and learning new things. I learnt a lot from this Final Year Project, such as drone technology and modelling software, as well as the use of these applications in the construction industry. My research supervisor, Sr Ir Dr. Ken H. C. CHAN, gave me warm encouragement and useful constructive feedback on this research. After graduation, I hope to be a Quantity Surveyor and obtain a professional license in the future.

INTEGRATION OF BUILDING INFORMATION MODELLING, INTERNET OF THINGS AND FACILITIES MANAGEMENT: CHALLENGES AND OPPORTUNITIES

ABSTRACT

RESEARCH QUESTIONS

- How to conceptualize the framework of Building Information Modelling (BIM), Internet of Things (IoT) and Facilities Management (FM) integration?
- What are the limitations and barriers of developing BIM-IoT-FM system and applying IoT?
- What are the benefits brought from integrating BIM, IoT and FM in shopping arcade?

METHODOLOGY

The research design is comprised of observations, literature review, problem identification, data collection (expert interviews & case study), data analysis, findings and discussion, conclusions, and recommendations.

The challenges and opportunities of the integration were unearthed by interviewing two experts in the subject. The self-developed Centralised BIM-FM Platform used in the revitalization project is studied in depth to get a picture of the system architecture and the principles of integration.

FINDINGS

Based on the interviews and the case study, an integration framework showing the input-process-output cycles was proposed. It found that the benefits brought by the integration may not be quantified at the moment, however, they can make daily operations and maintenance easier. The Application Programming Interface (API) is the key and most challenging part of the integration. Developers have to modify APIs to allow the exchange of data between devices and databases.

About the Investigator

My name is CHENG Ho Yin Eli. My supervisor is Sr Ir Dr Ken H. C. CHAN. His immense knowledge and enthusiasm helped me a lot on my project. I would introduce myself as a seeker for interests. It is because I love to learn and investigate different styles of martial arts. My short-term career goal is to be a chartered quality surveyor within 3 years after graduation. The long-term goal is to open a quality surveying consultant firm.



CHENG Ho Yin
Eli

BSc (Hons) in Surveying
Faculty of Design and
Environment



Objectives

- Investigate how to integrate BIM, IoT technology and FM software in technical aspect of shopping arcade operation and maintenance;
- Identify the challenges and opportunities of applying BIM, IoT technology and FM software in an integrated approach; and
- Recommend proposals to improve and promote the BIM-IoT-FM system in the AEC industry.



Objectives

This dissertation aims to explore the controversial issues raised by different stakeholders and to synthesize key barriers influencing the enactment of SOPL. By the use of comparative studies and policy Delphi method, this research aims to find out the most effective regime and recommendations for implementation.



CHEUNG Hau Yin

BSc (Hons) in Surveying
Faculty of Design and
Environment

A STUDY OF THE ENACTMENT OF SECURITY OF PAYMENT LEGISLATION IN HONG KONG'S CONSTRUCTION INDUSTRY

ABSTRACT

RESEARCH BACKGROUND

The problem to be examined is *"How to enact the Security of Payment Legislation (SOPL) in order to ameliorate the outstanding payment problems in Hong Kong's Construction Industry?"*

The status of SOPL has been pending for over 10 years. Indeed, the construction industry is facing a serious outstanding payment problem worth over 20 billion dollars annually. Subsequently, an array of management and operational problems arise. Currently, the contractual and administrative measures are not competent to cope with the existing issues.

In consideration of the merits of this powerful and enforceable legislative measure, SOPL should be widely adopted in the Hong Kong construction industry for a brand-new revolution and transformation.

METHODOLOGY

Academic papers, legislations, case law, etc. were firstly reviewed to understand the philosophy and operation of the four selected jurisdictions. This was supplemented with interviews with construction and legal experts to solicit their views and perceptions in order to test the workability of the new amendments and recommendations of SOPL.

FINDINGS

Conflicting issues in particular ambit and timeframe of the legislation should be further amended. The imbalance of equitable interests and insufficient judicial resources were the key barriers impeding SOPL from full implementation. Propagation and education were determined to be the most desirable and feasible solutions in resolving the impacts of barriers.

About the Investigator

My name is Cheung Hau Yin, Sherry. I am a surveying student. My short-term goals are to become a Chartered Quantity Surveyor as early as possible and to continue further studies to secure my future. My strong interests are in dispute resolution and contractual matters, which inspired me to do this project. Sr Prof HO Chi Wing, Daniel, my supervisor, gave me useful advice and great encouragement.

INTEGRATION OF 3D LASER SCANNING, UAV AND BIM IN DIGITAL CONSTRUCTION

ABSTRACT

RESEARCH BACKGROUND

This research aims to investigate how the adoption of 3D laser scanning and Unmanned Aerial Vehicle (UAV) technologies together with Building Information Modelling (BIM) integration would enhance surveying in the construction field.

METHODOLOGY

(a) Literature Review

The literature was reviewed on the challenges of implementing construction innovations and their principles.

(b) Interview

Interviews are conducted through meetings with two experienced stakeholders. They shared their experience about the maturity of developing 3D laser scanning and BIM in Hong Kong and challenges on UAV adoption.

(c) Cases Studies

Two cases are explored and investigated from the real-life construction industry. Case 1 shows the application of scan-to-BIM applied on two 64-year-old buildings in No.37-39 Kai Ming Street, while Case 2 integrates 3D laser scanner, UAV and BIM technologies for the redevelopment work of a hospital project in Hong Kong Island.

FINDINGS

Case 1:

- The accuracy of the BIM model is estimated about 20mm.
- The total time spent is 5.5 days.

Case 2:

- There can be alternative logistics plan with the aid of UAV, 3D laser scanning and BIM.
- The whole surveying process includes 60 million points scanning by 3D laser scanners and UAV.

About the Investigator

I am Percy HAU, I am interested in construction surveying. In this Final Year Project, I hoped to analyze the application and integration of these technologies to enhance digital construction. I would like to express my appreciation to my dissertation supervisor, Sr Ir Dr. Ken H. C. CHAN, for his valuable and constructive suggestions during the planning and development of this research. His willingness to give his time so generously has been very much appreciated.



HAU King Him

BSc (Hons) in Surveying
Faculty of Design and
Environment



Objectives

- (a) To comprehend the principles of 3D laser scanning, UAV and scan-to-BIM integration;
- (b) To collect and analysis the possible areas of enhancements of 3D laser scanner and UAV during the construction surveying process;
- (c) To explore the synergy effects of these technologies in the context of data capturing; and
- (d) To study the limitations, obstacles or barriers of 3D laser scanner and UAV in construction field work scanning.



Objectives

The project aims to explore to what extent the BIM-DWSS technology can be applied to enhance site performance. There are four objectives to achieve the project:

- 1) To identify the strengths and roadblocks for implementing DWSS;
- 2) To observe the traditional way of site supervision and compare it with BIM-enabled DWSS;
- 3) To substantiate the practicality of DWSS to enhance site management for higher efficiency; and
- 4) To advise the potential directions on DWSS for future advancement



LIN Chak Kwan

BSc (Hons) in Surveying
Faculty of Design and
Environment

BIM-ENABLED DIGITAL WORKS SUPERVISION SYSTEM (DWSS) TO ENHANCE SITE PERFORMANCE

ABSTRACT

RESEARCH BACKGROUND

Among all industry sectors in Hong Kong, the construction industry has the highest accident rate and is unsatisfactory in terms of quality. Improper site supervision, manpower shortage, inadequate communication among stakeholders and low safety awareness are the probable causes of poor site performance. In the time of Industry 4.0, using and integrating modern smart technologies in industrial practices is increasingly common; this is also the case in the construction industry. Building Information Modelling (BIM) and Digital Works Supervision System (DWSS) are more widely adopted in construction project management to enhance site performance.

METHODOLOGY

A DWSS pilot project was conducted to examine DWSS in a real-life setting, specifically the good and bad sides of DWSS to the project and the project team. In-depth interviews were also conducted with BIM experts and experienced construction professionals.

FINDINGS

Traditional work supervision is inefficient and passive, and respondents viewed DWSS positively as an effective remedy to manage site records and monitor and improve site performance. With the advancement of cloud document management platforms, the use of paper-based documents can be reduced. BIM-based DWSS can enable users to search for target components by discipline and associate it to the RISC for inspection to help visualize the site status. More proactive site inspection can be predicted as the inspection procedures can be customized to suit every construction project's needs, and the productivity of construction can be higher.

About the Investigator

I am Ason Lin, a student who is studying on the BSc (Hons) in Surveying degree programme. I hope to contribute my knowledge to society by applying relevant academic knowledge and experience to practical job duties. I am proactive, persistent and willing to accept new ideas and suggestions. Challenges have enriched my life in the past few years. I believe that every challenge enhances my working ability and problem-solving skills. I would like to thank my Final Year Project supervisor, Sr Ir Dr. Ken H. C. CHAN, for his assistance.

CAN THE SUPPLEMENTARY LABOR SCHEME (SLS) SOLVE THE SHORTAGE OF PLASTERERS IN HONG KONG? PERSPECTIVES FROM PLASTERING SUBCONTRACTORS

ABSTRACT

RESEARCH BACKGROUND

The chronic shortage of skilled plasterers persisted in Hong Kong's construction industry for the past six years and exacerbated in late 2019. The acute shortage of local plasterers caused manifold adverse effects on plastering subcontractors. This study aims to identify and offer the Labor Department (LD) pragmatic solutions to the chronic shortage of local plasterers.

METHODOLOGY

An online questionnaire survey was conducted in collaboration with the Association of Plastering Subcontractors (APSC) in which APSC assisted in the delivery of questionnaires to their members for completion. Subsequently, a qualitative analysis was adopted to analyze the outcomes of this survey in response to each research objective.

FINDINGS

The results of the questionnaire revealed that a majority of plastering subcontractors in Hong Kong have experienced great difficulty in recruiting locally registered plasterers sufficiently over the past twelve months. Four alternative measures were found impracticable for plastering subcontractors to mitigate the adverse effects of chronic shortfall in local plasterers. The dissatisfaction of plastering subcontractors with the LD was identified owing to the lengthy application process of the SLS.



YUEN Tsz Hin

BSc (Hons) in Surveying
Faculty of Design and
Environment



Objectives

- To evaluate the degree of difficulty for plastering subcontractors to recruit a sufficient number of locally registered plasterers.
- To assess the practicality of alternative measures adopted by local plastering subcontractors when alleviating adverse effects from the chronic shortage of local plasterers.
- To assess local subcontractors' satisfaction with the efficiency of the LD when processing applications for the recruitment of imported plasterers under the SLS.
- To give recommendations which can fine-tune the SLS as a means to replenish and solve the shortage of plasterers.

About the Investigator

My name is Calvin Yuen. I have a genuine interest in reading different sorts of books. Dr. Elvis Lau became my project supervisor and provided me with unremitting guidance throughout this research project. After graduation, I would like to start a rewarding and satisfying career as a Quantity Surveyor in the construction industry.



Faculty of Design and Environment

Innovative and Information Technology Programmes

AI-ASSISTED DURATION-AWARE HANDOVER FOR 5G NETWORK

ABSTRACT

With the increasing usage of 5G network connection, 5G network has become a hot topic in society and the technology community. However, we may face various connection efficiency issues. When user equipment is looking for a better base station to connect with, under the ultra-dense-network context, frequent handover occurs due to the existing signal-strength oriented base station selection mechanism. It may cause the equipment to switch to other base stations after a short period, producing handover redundancy.

This study aims to analyze if artificial intelligence could be used to help reduce handover redundancy.

For the handover analysis, the study focused on the received signal strength of the user equipment but also taking into account the dwelling duration the equipment remained in, in the base station's coverage.

Data was collected on the received signal strength from all visible base stations using a traffic simulator developed by Unity, through which realistic transportation traffic and wireless fading channels were simulated. The collected data were then used to train a neural network model, using Tensorflow - an end-to-end open-source platform for machine learning, to predict the optimal base station for selection to minimize handover redundancy. The neural network model achieved a validation error of 0.15.



AU Man Fung

BSc (Hons) in Multimedia
Technology and Innovation
Faculty of Design and
Environment

About the Investigator

Hello, my name is Au Man Fung Michael. I am a student of the BSc (Hons) in Multimedia Technology and Innovation programme. I love playing video games and my career goal is to become a board game or video game designer. My Final Year Project supervisor is Dr Aileen Hou.



Objectives

This project aims to develop an eCommerce website with the use of Ecommerce Technologies at the lowest cost to investigate whether eCommerce technology can be universal among eCommerce websites.



LAM Chun Kit

BSc (Hons) in Multimedia
Technology and Innovation
Faculty of Design and
Environment

ABSTRACT

RESEARCH BACKGROUND

The application of e-Commerce Technologies in online shops is currently unpopular among small and medium enterprises. The effectiveness of applying e-Commerce Technologies like eWallets and big data technology in small and medium enterprises is questionable because of the costs and benefits. To help promote the use of e-Commerce Technology this project aims to apply these technologies at a cost that small enterprises can afford.

METHODOLOGY

To ensure that the eCommerce website can be developed by a small enterprise, all the developing tools used in this project only requires a small amount of using fee. With these developing tools, several e-Commerce Technologies were trailed to be added onto the website.

FINDINGS

The results showed that within a limited amount of time and cost, an eCommerce website with basic functions like payment, authorization and advanced e-Commerce Technologies like a chatbot and product recommendation system can be successfully created. The achievement of the website suggests that it is possible to apply e-Commerce Technologies onto the eCommerce website for small enterprises. Therefore, I expect that with the website created in this project as a reference, small and medium enterprises can start applying e-Commerce Technologies to their websites to gain the benefits that can be brought by these technologies.

About the Investigator

I am Dicky Lam. I am interested in developing websites, and I would like to become a software engineer in website development. Since I am also a lover of online shopping, I hope to promote the use of eCommerce technologies in online shops with the results from this project. During the development of my project, my supervisor, Dr Aileen Hou, gave me useful advice in designing the structure of the website, making my final product more successful.

SMART ISOLATION BRACELET

ABSTRACT

RESEARCH BACKGROUND

This project is about developing a smart isolation bracelet to supervise those in quarantine more effectively. The government has created a bracelet for quarantine use to make sure people stay in their place of quarantine. However, it has been reported that some people do not stay in quarantine obediently, and some even removed their bracelet when going out.

METHODOLOGY

Two sensors were used to detect whether the bracelet has been taken off. The first is a temperature sensor to detect the normal body temperature. If it cannot be detected, it suggests that the bracelet was taken off. The second is an accelerometer sensor for checking the standard deviation of the user's movement data. The movement data patterns for various activities, such as sleeping, sitting, walking, and exercising, as well as when taken off, will be analyzed. If the standard deviation is smaller than a pre-configured threshold, the device is likely taken off. Through experiments, it can be successful to find the threshold of the standard deviation to judge whether the bracelet is taken off.

FINDINGS

After the temperature sensor was put on the table for simulating, the bracelet was taken off, and the ambient temperature was around 32.17°C to 32.24°C, and the object temperature was 31.91°C to 33.03°C. The object temperature subtracts the ambient temperature less than 2°C, and if the object temperature is more than 41°C or less than 35°C, the serial terminal will show the temperature is abnormal.

After the acceleration sensor was put on the table for simulating, the bracelet was taken off. The total acceleration vectors were very stable. The standard deviation (0.0828) and the data was concentrated, meaning the vibration was stable and suggests the patient has taken the bracelet off.



LEUNG Ming Ho

BSc (Hons) in Multimedia
Technology and Innovation
Faculty of Design and
Environment

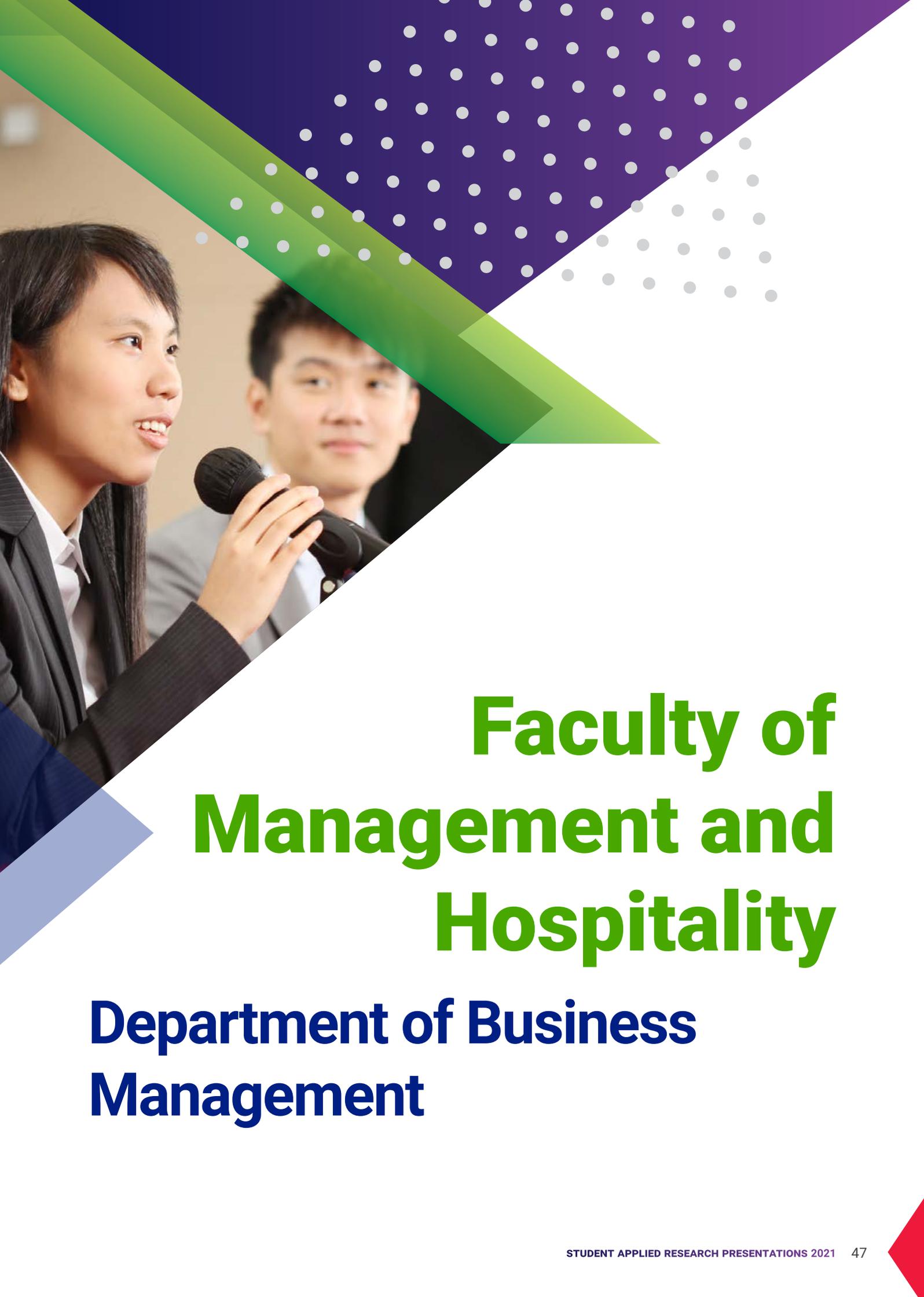


Objectives

The existing bracelet uses "Bluetooth", "WiFi", "location service", and QR code to check if someone is at home. However, it is easy for people to cheat their way out of the system. For example, someone could take the bracelet off at home, ask friends to help scan the QR code, and then they escape. This system makes the supervision slow to respond to when a person has escaped. Therefore, the existing version needs to be improved in terms of being able to detect whether the bracelet has been taken off.

About the Investigator

My name is Leung Ming Ho. My interests are reading about coding such as Java and Python, and learn how to invent things from YouTube. Dr Aileen Hou, my supervisor, gave me encouragement and very useful suggestions for my project during the planning stage. I hope my Final Year Project can help the society, and I hope to start a company of my own and make remarkable inventions.



Faculty of Management and Hospitality

Department of Business Management

A CASE STUDY OF TOWER OF SAVIORS (TOS): CRISIS MANAGEMENT AND IMPACT ON ITS REPUTATION AND CUSTOMER ENGAGEMENT

ABSTRACT

RESEARCH BACKGROUND

- I. Identify and evaluate TOS's team crisis-handling strategies, according to Image Restoration Theory
 - A. Categorize actions adopted during different incident stages with the use of the Six Stages of Crisis Management
- II. Analyze the impact (if any) of:
 - A. TOS's Reputation
 - B. Player's engagement after the measures had been carried out in each crisis between 2019 & 2020.

METHODOLOGY

Two hypotheses were made before the project was initiated:

- I. When there is a crisis, the team can address the core issue with a valid response.
- II. The reputation of TOS, and/or the player's engagement improves after crises have been resolved or responses were raised by the team.

After the hypotheses were made, content analysis would be adopted to explore the research, after conducting a literature review as well as secondary data search. The results are drawn in a table format, indicating the process of the incidents and how they are related to the theories and the literature.

FINDINGS

Three cases were recorded regarding the crises that occurred from 2019 to 2020:

- I. TOS Girls Crisis
- II. 2020 Jumbo Lucky Draw Bug Crisis
- III. 'The Backdoor Incident: Special Privileges and Connives at Gamer Cheating.'

The team had adopted relevant strategies to minimize the reputational damage. However, it was observed that the reaction time is much longer than as mentioned in the literature.

About the Investigator

I am Tony Poon, a keen player of Tower of Savivors. As of my observation, the public relations effort of the TOS team is far from a desirable state. Hence, I wanted to investigate what TOS, or myself (if could work there), can do to protect and keep the brand strong and going. My supervisor, Dr Liane Lee, had offered me advice on how to evaluate the crisis-handlings in an integrated way.



POON Pak Hong

BA (Hons) in Public Relations and Management
Faculty of Management and Hospitality



Objectives

This project aims to provide insights on how to handle crises effectively in the digital era with the investigation of an outstanding app game created in 2013, TOS's crisis handling strategies and tactics.



Objectives

This project analyzes the effectiveness and potential drawbacks of using a celebrity in Clubhouse. As a reference for practitioners in marketing, media, or the communication industry, results from this project could establish an effective strategy plan on audio-based social media to build long-lasting relationships and interactions with customers.



TANG Chung Sze

BA (Hons) in Public Relations and Management
Faculty of Management and Hospitality

A CASE STUDY OF CLUBHOUSE: THE EFFECTIVENESS AND POTENTIAL DRAWBACKS OF USING INFLUENCERS IN SOCIAL MEDIA

ABSTRACT

RESEARCH BACKGROUND

Clubhouse, an invitation-only social media launched in April 2020, promotes real-time auditory communication through a virtual room. It brings an opportunity to marketing, public relations, and other relevant industries using influencers as the latest communication tool and strategy to achieve integrated communication and business goals. This project investigates how industry practitioners use influencers in Clubhouse based on its effectiveness and the potential drawbacks.

METHODOLOGY

Content analysis

Determined the conceptual relationships and analyzed content patterns by reviewing Clubhouse by other researchers or editors' content as the secondary data which allows a closeness to data.

Case study

Comparing the characteristics and competitiveness between Clubhouse events, based on the target demographic profile to ascertain the purpose and the potential comment drawback under the strategy

FINDINGS

To make better use of Clubhouse as a communication tool:

- Influencer
 - The biggest incentive to use Clubhouse
 - The recommended strategy to use in Clubhouse's marketing
- Content Marketing and Infused Analysis
 - As supportation against shortcomings and improve efficiency
 - Create narrowed content with reduced effort, lower threshold and simpler infrastructure
 - Choose suitable influencer as the speaker with promotion tools, keyword marketing of topic, relevant social media account share and well-organized content, to maximize the source's effectiveness and create larger benefit

About the Investigator

I am Faith Tang, an outgoing and proactive person who is interested in planning and organizing events. My interests inspired me to do this project, to establish an effective strategic plan for audio-based social media events. The only standard in my goal, being an outstanding PR person who will not be knocked out, is to contribute my talents, and to keep learning and growing in a satisfying and meaningful way. My supervisor, Miss Stephanie LEE, gave me helpful advice and provided insights into this trending and latest research topic.

CRISIS RESPONSE BETWEEN PROFESSIONAL SPORT LEAGUES IN HANDLING THE DEATH OF GEORGE FLOYD

ABSTRACT

RESEARCH QUESTIONS

This project aims to apply Image Restoration Theories to analyze and compare the responses from two different professional sports leagues on the George Floyd incident, and how to handle this PR crisis. The research questions are as below:

- Q1. How do the responses of the NBA and NFL affect the image of the sports leagues?
- Q2. How do the previous PR crisis strategies affect the public's opinion regarding an organization's reputation?

METHODOLOGY

Data will be collected using secondary data about the reactions and responses from different stakeholders and collect the most accurate information about the whole incident, including time, place, and people. Twitter would be the most important social media channel to collect these information.

FINDINGS

This research illustrated the strategies for diminishing the attribution for the responsibility of a PR crisis, especially when the damage to reputation comes from outside. It emphasized the temporary response of the organization and the experience of addressing similar incidents. Therefore, this study stressed the analysis of past records of the NBA and NFL in addressing incidents of racial discrimination. In this case, the NFL should take practical measures to rebuild trust in the relationship between the public, rather than only announcing a statement.



YIP Hui San

BA (Hons) in Public Relations and Management
Faculty of Management and Hospitality

About the Investigator

My name is Louis, Yip Hui San, I will be graduating with a BA (Hons) in Public Relations and Management in June 2021 from the Technological and Higher Education Institute of Hong Kong. My interests are basketball and photography, which inspired me to study this project. My supervisor is Miss Stephanie LEE. I have completed all the courses and the internship as a requirement for my degree certification. I have been working at a Lego-certified store this year, and I am excited to land my first marketing and PR position from my internship. I hope to develop my career in the PR marketing industry in the future.



Objectives

This research proposes to find out an appropriate solution for a PR crisis. The purpose is to help larger enterprises to address sudden reputation crisis, especially caused by seemingly unrelated relationships. Results of this research can help sports league organizations to repair their image and make references of similar situations to prevent similar incidents from happening. Also, the results of this research provide sports leagues organizations an effective PR strategy for reputation management.



Objectives

This study aims to reveal whether the paid model is feasible, what factors can motivate consumers to pay for online news, and what are the reasons they do not pay for online news.



ZHU Cheng Bin

BA (Hons) in Public Relations and Management
Faculty of Management and Hospitality

CONSUMERS' WILLINGNESS TO PAY FOR DIGITAL NEWS: EXPLORING THE REASONS TO ELIMINATE CONSUMERS' PAYMENT BARRIERS FOR ONLINE NEWS TO INCREASE MEDIA SURVIVAL

ABSTRACT

RESEARCH BACKGROUND

Nowadays, people do not need to spend any money to obtain online news because the news media provide free content. These media need to maintain traffic to obtain the benefit of advertising. However, the media are trying to launch the paid model which asks audiences to pay for online news. Once the online news media changes to the paid model, it would become a challenge. The media may lose their audiences so the media may not have enough funding to maintain their survival. This study aims to provide a reference to the media industry for the development of the paid model.

METHODOLOGY

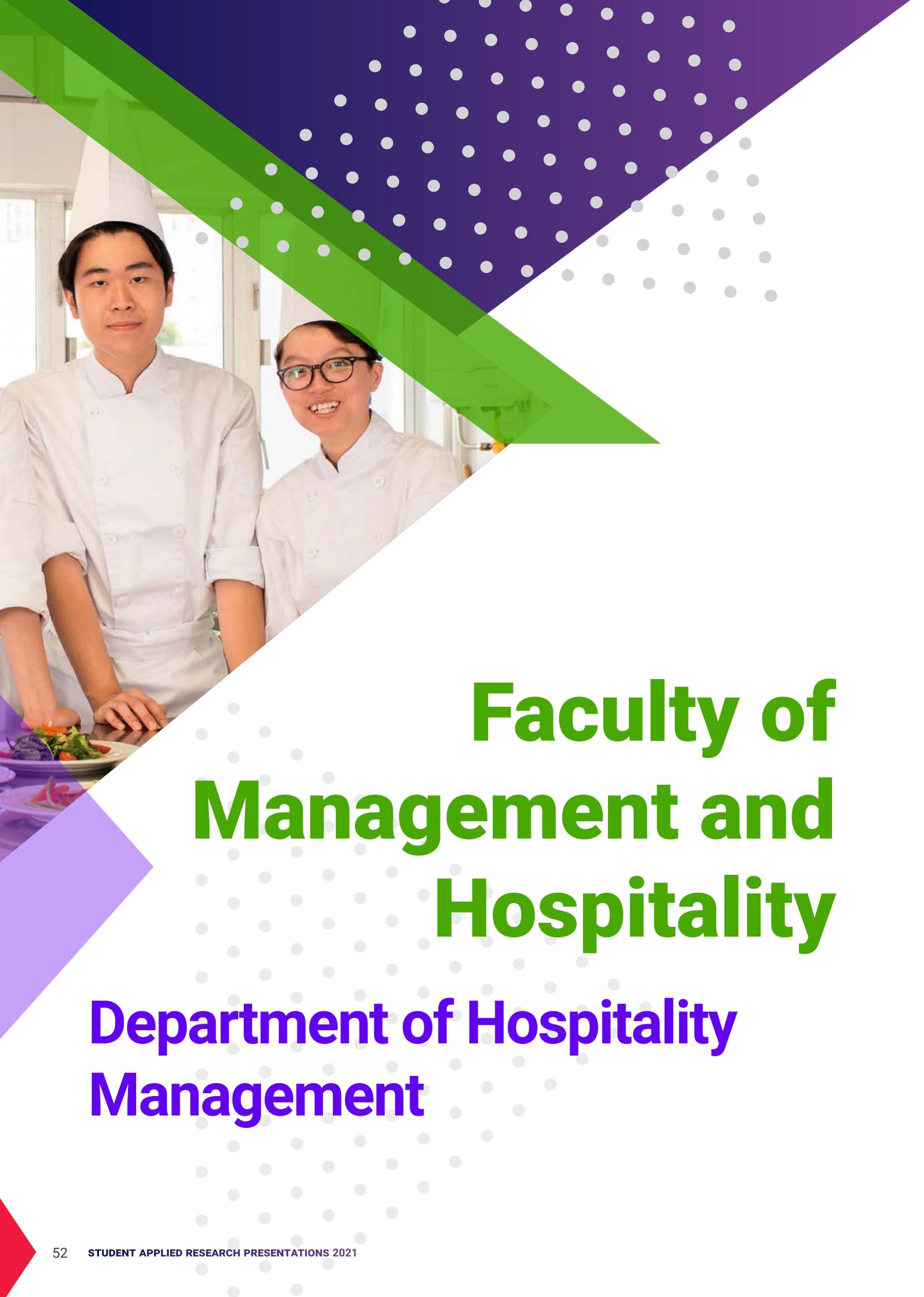
The study adopted textual analysis. Several academic articles which discuss paying willingness for online news were studied. Reports and posts were searched to find out the readers' attitudes towards paying for online news and the trend of paying for online news.

FINDINGS

The paid model is feasible for online news media. A person's individual feelings and evaluation can predict purchase intention of online news, and interpersonal influences can increase free users' purchase intention. The paid users mainly consider the content and brand when they pay for online news, for example, unique content, brand value, writing style and job application. Plenty of free online news is the main barrier to pay for online news which reduces the purchase intention.

About the Investigator

I am John Zhu. My interests are in social media, entertainment culture, and observation of human behavior and society. I hope to find contradictions in society through observation. I hope my observation can be combined with creativity and be presented in the audience's views. I want to engage in media-related work after graduation. I want to thank my supervisor, Miss Stephanie LEE. She gave me useful advice for my Final Year Project.



Faculty of Management and Hospitality

Department of Hospitality Management



Objectives

This research investigates a new phenomenon in the surge of demand for food delivery services, due to the Covid-19 pandemic, by analyzing customer satisfaction towards e-service quality and food quality, and their continuous purchase intention from OFD platforms. With comprehensive data analysis and literature reviews, several insights can be provided to OFD platforms for improving their business strategies.



LAU Hiu Wan

BA (Hons) in Culinary Arts and Management
Faculty of Management and Hospitality

THE IMPACTS OF E-SERVICE QUALITY AND FOOD QUALITY ON CUSTOMER SATISFACTION AND PURCHASE INTENTION

ABSTRACT

RESEARCH BACKGROUND

With the development of the technology and the influence of social-distancing measures due to the Covid-19 pandemic, customers tend to, or even be forced to, either order takeaways or food from Online Food Delivery (OFD) platforms rather than enjoy their meals in restaurants. This shows a crucial change in the business operation mode of restaurants, therefore, related research about the current situation of delivery services is important for further improvement.

This project focused on the following research questions:

How does e-service quality (EQ) and food quality (FQ) provided by OFD platforms affect customer satisfaction (CS)? How does the EQ, FQ, and CS affect the behavioral intention towards OFD platforms (i.e., continuous purchase intention)? Are there insights that can be provided to OFD platforms for improving their business strategies?

METHODOLOGY

Questionnaires were used to collect data from 122 respondents for analysis. The focus was on studying customer satisfaction towards the quality of e-service and food quality provided by OFD platforms, especially on those who used OFD services in Hong Kong in between 2019 and 2021.

FINDINGS

Based on the survey results with support from the literature, the quantitative evidence confirms there are significant impacts of e-service quality and food quality on the customer satisfaction. Food quality directly affects continuous purchase intention towards the service from OFD platforms; and e-service quality affects the continuous purchase intention through customer satisfaction indirectly.

About the Investigator

I am Rita Lau. My interests are to explore and experience different cultures. My internship experience in Shanghai inspired me to do this project as I found that food delivery services are better developed in the mainland than in Hong Kong. Dr. Vicky T.Y. Leung, my supervisor, provided lots of insights, suggestions, and support to me during my project. I hope to provide insights for management in the F&B industry regarding food delivery service in Hong Kong.

AN EXPLORATORY STUDY ON SUSPENDED MEAL PRACTICES IN HONG KONG: OPERATION FLOWS, PUBLIC AWARENESS AND DONATION INTENTIONS

ABSTRACT

RESEARCH QUESTIONS

“Suspended meal” is a practice initiated by restaurants. It encourages the public to prepay for meals that will be served afterwards to those in need. However, there is limited research on the recent operation flows of suspended meal practices (SMP), public awareness and people’s donation intentions, and the affecting variables. Therefore, this study will explore more on this topic.

METHODOLOGY

Two studies were conducted with a mixed-method design. Study 1 investigated the operation of SMP through interviews and secondary data collection, while Study 2 explored public awareness of SMP and the behavioural intentions of SMD using an e-survey. Descriptive and statistical analyses were adopted for data analysis.

FINDINGS

Four evolved operation flows of SMP were identified in Study 1, whereas in Study 2, half of the respondents were not aware of the practice. Attitudes towards the donation and perceived social responsibility significantly influenced the donation intention of respondents. Females and people with Master/Doctoral degrees were found to have a higher tendency to donate and perceived a stronger sense of social responsibility, respectively.



LOK Ming Sum

BA (Hons) in Culinary Arts and Management
Faculty of Management and Hospitality

About the Investigator

My name is Alice Lok. Cooking for others brings me satisfaction and I have a heart for those in need, which drives me to do this project and investigate how the catering industry could contribute to the community. I want to thank you Dr Vicky T.Y. Leung, my supervisor, who offered me full support and valuable advice throughout my project. My career goal is to be a catering manager in a non-government organisation.



Objectives

The objective of this research is to explore the operation flows and public awareness of SMP in Hong Kong. It also aims to investigate the effects of attitudes and perceived social responsibility on behavioural intention of suspended meal donations (SMD) among Hong Kong citizens.

ASSESSING HONG KONGERS' LEVEL OF ENVIRONMENTAL AWARENESS AND ITS EFFECT ON WILLINGNESS TO PAY AND INTENTION TO USE EDIBLE CUTLERY



Objectives

This project aimed to study individuals' perspective towards using edible cutlery as an alternative to conventional plastic cutlery, and the potential of encouraging Hong Kong people to switch from using conventional plastic cutlery to edible cutlery in future. The findings could provide insights for policymakers, entrepreneurs and marketers when considering a wide promotion of edible cutlery in Hong Kong as a measure to eliminate the plastic waste issue generated by an overuse of plastic cutlery in the food catering sector.



MAK Chun Pong

BA (Hons) in Culinary Arts and Management
Faculty of Management and Hospitality

ABSTRACT

RESEARCH BACKGROUND

This research focused on studying edible cutlery as a potential alternative or even replacement for conventional inedible cutlery. Waste plastic is one of the main sources of domestic waste, and disposable cutlery contributed to a significant portion of waste plastic generated every day.

METHODOLOGY

This research explored the level of environmental awareness of Hong Kong people by questionnaires. The collected data were analysed using descriptive analysis, frequency analysis, correlation analysis and regression analysis to reveal the positive effect environmental awareness has on impacting individuals' willingness to pay and intention to use edible cutlery. A durability test was done on edible spoons made of flour, okara and water to understand whether edible cutlery made using simple methods and resources were durable for use.

FINDINGS

The findings of the descriptive test on individuals' environmental awareness indicated that Hong Kong people shared a higher than average level of environmental awareness. The results of the frequency test revealed that a significant portion of participants were willing to pay for edible cutlery. This group also had a higher mean score in environmental awareness as shown by the One-way ANOVA test done to the 3 categorized groups under the "Willingness to pay" section.

The overall results showed that the participants would remain neutral towards edible cutlery unless more information about the product and availability could be given in the future. The findings also showed that standardizing the size, shape and ingredients were necessary in order to produce edible cutlery that were durable for use. A standardized production process with modern machines and strict quality control was suggested to ensure that the quality of edible cutlery was consistent.

In conclusion, Hong Kong people shared adequate level of environmental awareness and the majority of individuals would remain neutral towards using edible cutlery since there was not enough information about product availability and knowledge on edible cutlery.

About the Investigator

I am a year 4 CAM student who is interested in cooking and learning new information that are beneficial to my career. I enjoy cooking through which I gain a sense of achievement and use it as a way to relieve stress.

I plan to work in the F&B industry. I am open to both practical and administrative positions that can contribute to the industry. My FYP supervisor is Dr Vicky T.Y. Leung who has given me important insights and assistance throughout this FYP.

RESEARCH ON CUSTOMERS' BEHAVIOUR IN MILK CONSUMPTION

ABSTRACT

RESEARCH BACKGROUND

Milk acts as an important role in the immune system. It also contains the necessary minerals and vitamins for the human body. Thus, knowing the intention behind milk consumption can help to improve the consumption of milk products.

METHODOLOGY

In this research, a survey will be conducted to examine customers' behaviour in Hong Kong. The survey will be an online survey built in Google forms, and the sampling method of the participants will be by random selection as the link will be shared in different media with Hong Kong people only.

FINDINGS

The results provided in this research provide insights for both practical and academic users to understand the situation of milk consumption in Hong Kong. After analysing the data, there are more than 68% of the participants consume milk 5-6 times or more per week, where nutrition was the most considered factor when choosing a milk product. The results also showed that more than 71.2% of respondents state that whole milk is the most preferred choice. On the other hand, the least favoured choices were Lactose-free skimmed milk and Lactose-free semi-skimmed milk.



NG Ngon Chung

BA (Hons) in Culinary Arts
and Management
Faculty of Management and
Hospitality



Objectives

This study aims to examine customer's behaviour in consuming milk products. It asks the following questions:

- How regularly will customers consume milk products?
- What are the motivations and barriers of consuming milk products?
- What are their preferences when choosing milk products?

About the Investigator

My name is Michael Ng. Milk was an inevitable part of my childhood, and my parents kept forcing me to drink while I think it tastes disgusting. Therefore, I have a great interest in understanding why other people will consume milk products. Dr Vicky T.Y. Leung, my supervisor, gave me useful feedback throughout the whole final year project. It is the first time I have worked on a research project, and all of her feedback was helpful. After graduating from THEi, I hope to work in the culinary industry.



Objectives

The purposes of this project are to analyze the nutritional value of ketogenic food ingredients available in Hong Kong. Then, to replace the traditional dessert ingredient with a ketogenic food ingredient while maintaining the quality. Next, people's acceptance of a ketogenic-styled dessert is compared with the traditional dessert to identify their preferences.



TSE Hiu Yu Phoenix

BA (Hons) in Culinary Arts
and Management
Faculty of Management and
Hospitality

KETOGENIC DIET IN HONG KONG: ACCEPTANCE OF KETOGENIC- STYLED DESSERTS

ABSTRACT

RESEARCH BACKGROUND

Quick weight loss is the alternative nowadays. The popularity of the ketogenic diet in Hong Kong is still unknown due to limited research and data. This project develops a ketogenic-styled dessert from a traditional recipe and identifies people's acceptance of ketogenic-styled desserts.

METHODOLOGY

This project used a mixed-methods approach. Qualitative analysis of an experiment is first conducted to explore how ketogenic food ingredients affect a dessert compared to one made with traditional food ingredients. Vanilla cream puffs with different percentages of cake flour (100%, 75%, 50%, 25%, 0%) are replaced with almond flour. Image analysis is used to analyze their color, texture, odor, and flavor profile. A ketogenic cream puff with the minimal difference compared to a traditional cream puff is then selected to do a sensory evaluation with 50 respondents, which aims to identify which type of cream puff is more accepted by respondents.

FINDINGS

Full replacement of the traditional ingredient with a ketogenic ingredient in cream puffs is not feasible in terms of quality maintenance. The structure needs to be supported with gluten, hence only a 50% replacement of cake flour to almond flour can be made. The best ratio of cake flour to almond flour is 50:50, where a maximum of 10 cream puffs can be consumed a day based on a daily carbohydrate limit of 50g/day. The acceptance of ketogenic cream puffs is also significantly lower than the traditional version, especially for texture and taste.

About the Investigator

I am Phoenix Tse. I liked to explore different flavor combinations in desserts. I aspire to work in a pastry kitchen and gradually develop my brand. The project has inspired me to experiment with different types of ingredients. My supervisor, Dr. Watson Baldwin, has guided me through my research progress on converting a traditional recipe to a ketogenic one. This research provides me a clear background on people's preferences in desserts. I will continue to experiment with ketogenic desserts in the future.

CUSTOMER SATISFACTION OF TAIWANESE DRINKS TAKEAWAY SHOPS IN HONG KONG

ABSTRACT

RESEARCH QUESTIONS

Due to intense competitiveness in the Taiwanese drinks industry in Hong Kong, companies need to find effective ways to attract and retain customers to achieve sustainable development of the business and create profits. A customer satisfaction survey can be conducted to understand their needs and wants meanwhile also find the factors that need to be improved. Therefore, this project investigated the relationship between customer satisfaction, customer loyalty and profitability, meanwhile examining the influence level of five service quality factors on customer satisfaction.

METHODOLOGY

Customer satisfaction is studied by reviewing previous literature and a conducting survey. A total of 100 anonymous questionnaire responses were collected via Google Form. Descriptive analysis, independent sample t-tests and ANOVA analysis are adopted to analyse the survey data.

FINDINGS

Reliability and assurance were found to be the most influential factors, whereas empathy and tangible factors were the least influential. A close positive correlation between customer satisfaction, customer loyalty and profitability were also found.



WONG How Yau

BA (Hons) in Culinary Arts and Management
Faculty of Management and Hospitality



Objectives

The major factor to retain customers in takeaway shops is to provide a satisfactory ordering service. Therefore, the study will evaluate Hong Kong residents to investigate how their satisfaction can affect customer loyalty to takeaway shops. The relationship between satisfaction and price acceptance level is studied to show the importance of customer satisfaction management which helps generate profits consistently in the long term. Finally, based on the findings, advice for future studies or conducting customer satisfaction surveys by shops providing takeaway services are outlined.

About the Investigator

My name is Yolanda Wong. I am interested in studying human behaviour and management systems, especially in the catering industry, which inspired this project. Ms. Carol Lee, my project supervisor, gave me guidance and encouragement in conducting the research. I have found my interests and strength to research people and their behaviours when doing this project. It provides me with a sense of direction for applying for jobs in management or marketing after graduation.

THE INFLUENCES OF CORPORATE SOCIAL RESPONSIBILITY IN THE FOOD AND BEVERAGE INDUSTRY



Objectives

There are two main objectives in this research:

1. To investigate the role of CSR in the F&B industry is related to consumers' decisions making.
2. To investigate the elements' levels of importance of CSR that influence consumers' decision making in the F&B industry.



LAU Siu Yan

BA (Hons) in Hotel
Operations Management
Faculty of Management and
Hospitality

ABSTRACT

RESEARCH BACKGROUND

Corporate Social Responsibility (CSR) is one of many the factors that affect consumer consumption. The Anti-Extradition Law Amendment Bill Movement caused customers even more concern with the CSR unprecedented. The Food and Beverage (F&B) industry is one that is linked closely with CSR. Therefore, it is essential to conduct a study to find out how CSR affects consumers' decision-making and corporations could use the findings as references to develop strategies.

METHODOLOGY

This research uses a quantitative methodology. A total of 250 Hong Kong citizens aged 18 or above, and who have dining-out experiences in the previous 12 months are targeted. The respondents are required to indicate their feelings on a five-point Likert scale where "1" is defined as strongly disagree and "5" being strongly agree on provided statements.

FINDINGS

The results showed that legal responsibility is the most important CSR factor that respondents are concerned with. Other factors in order of importance were economic responsibility; philanthropic responsibility; ethical responsibility; and last but not least, environmental responsibility. The findings reflect that the results are not affected by the movement and Hong Kong citizens do not have a high awareness of CSR. Education and government support are needed to improve the awareness of CSR.

About the Investigator

I am Victoria Lau. I enjoy searching for information about new restaurants which inspired me to do this project. My supervisor, Ms Vance Lam, gave me lots of suggestions and ideas during the process. I hope this research could help corporations better plan their business strategies. For my career goal, I would like work in Human Resources.

INVESTIGATING HONG KONG RESIDENTS' POST-COVID-19 PANDEMIC TRAVEL INTENTION TO INDIA: APPLYING THE EXTENDED THEORY OF PLANNED BEHAVIOUR

ABSTRACT

RESEARCH BACKGROUND

Hong Kong's outbound tourism market has remarkable characteristics and tremendous potential. However, research regarding outbound travel intention from Hong Kong remains limited. Countries like India have a diverse mix of architecture, festivals, landscapes, spiritual beliefs, and traditions, but it does not meet the expected number of tourist arrivals. This research investigates Hong Kong residents' post-pandemic travel intention to India using the extended Theory of Planned Behaviour, which has been used successfully to explain and predict behaviour in a multitude of behavioural domains. This research may help tourism stakeholders understand the predictors of Hong Kong residents' post-pandemic travel intention. Also, an understanding of travel intention during health crises like the pandemic may help tourism stakeholders manage crises more effectively.

METHODOLOGY

A quantitative research methodology was adopted. 200 valid questionnaires were collected from Hong Kong residents from February to March 2021, by self-administered online questionnaires via Microsoft Forms. The collected data were analysed by jamovi, a free and open statistical software.

FINDINGS

The findings revealed that attitude, subjective norm, and health risk have an impact; while the perceived behavioural control, financial and physical risks have no impact on travel intention. Also, the higher the health risks, the lower the travel intention. These findings were consistent with most of the previous research.

About the Investigator

I am Cyrus TAM. I enjoy travelling and experiencing different cultures around the world. I am curious about people's travel intentions to different countries, which inspired me to conduct this research. I would like to thank my supervisor, Dr Monica CHOY, for her encouragement and support throughout the different stages of my research. I hope this research can give me insights for my future work in the hospitality industry, and into the factors affecting people travel behavioural intentions.



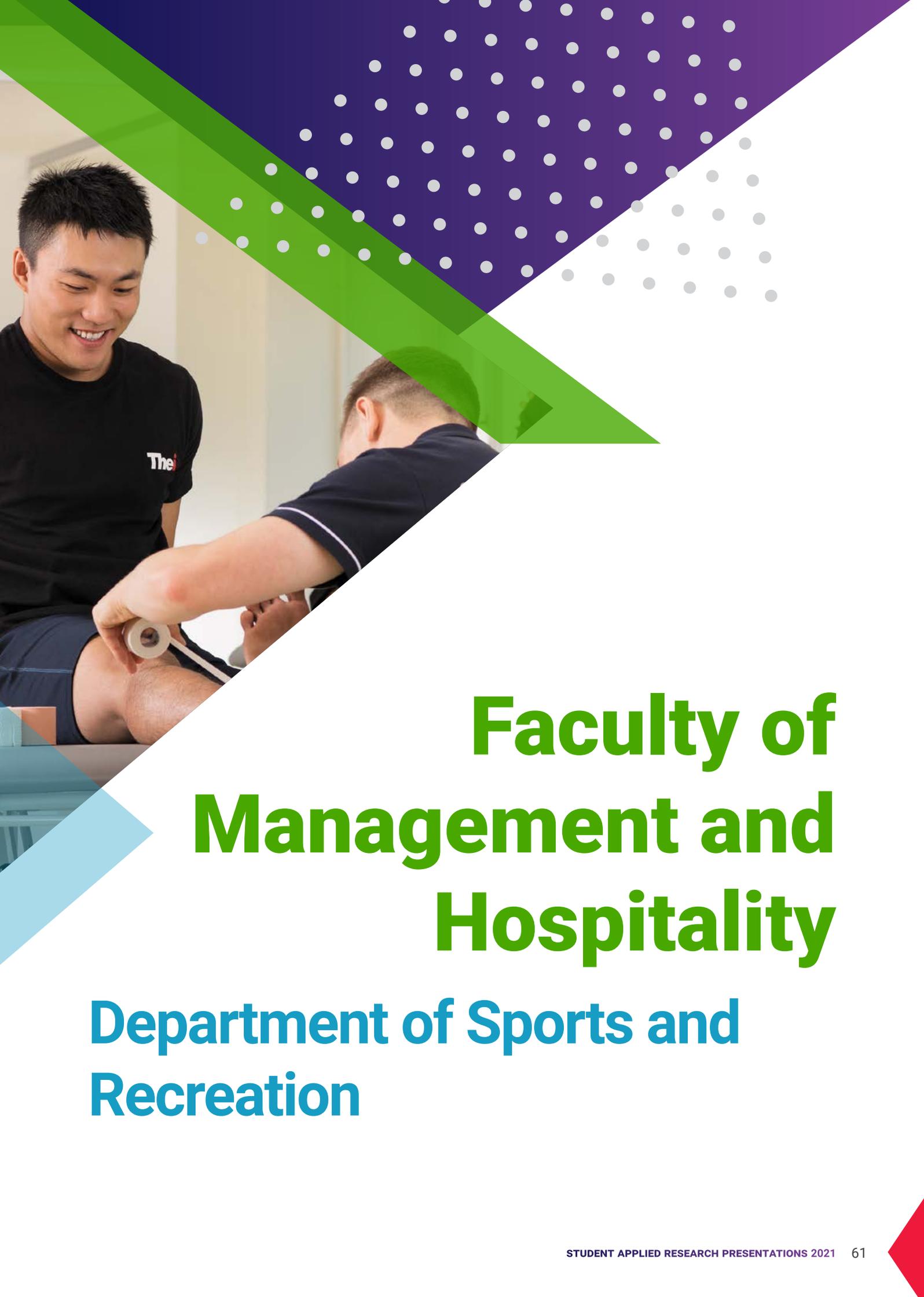
TAM Lok Yin
Cyrus

BA (Hons) in Hotel
Operations Management
Faculty of Management and
Hospitality

Objectives

This research addresses two objectives:

- Investigate the predictive force of attitude, subjective norm, and perceived behavioural control on Hong Kong residents' post-COVID-19 pandemic travel intention to India.
- Examine the effect of perceived risks: financial, health, and physical risks correlated with Hong Kong resident's post-COVID-19 pandemic travel intention to India.



Faculty of Management and Hospitality

Department of Sports and Recreation

JOB AND LIFE SATISFACTION OF SWIMMING COACHES IN HONG KONG

ABSTRACT

RESEARCH BACKGROUND

Sports coaches are valuable; they develop training programs, teach players relevant skills and techniques, monitor and enhance performance, and support players. In Hong Kong, over 5,000 full-time and part-time swimming coaches work in swimming clubs or teach privately. Every year, there are coaches who leave their coaching career, which affects the athletes and the sports programs. It is therefore vital to recruit and retain quality coaches to maintain the numbers.

This research aims to better understand the factors affecting swimming coaches by identifying if coaching experience affects job satisfaction, and if coaching work influences life satisfaction.

METHODOLOGY

A questionnaire was distributed, and 152 respondents completed the survey. The questionnaire had three parts, including 25 questions about job satisfaction, 5 questions about life using a satisfaction scale, and 5 demographic questions. The data received was analysed using SPSS.

FINDINGS

The key findings identified were:

1. Salary and promotion are the main factors affecting job satisfaction.
2. There is a small correlation between the job and life satisfaction of swimming coaches in Hong Kong.

There was no significant difference between coaching seniority and job satisfaction.



AU Chun Lok

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality



Objectives

1. To investigate if there are any correlations between job satisfaction and life satisfaction of swimming coaches in Hong Kong.
2. Understand what elements contributes most to the job satisfaction of swimming coaches in Hong Kong.
3. Find out if coaching experiences affect the job satisfaction of swimming coaching in Hong Kong.

About the Investigator

I am Au Chun Lok, Anson, a final year student studying Sports and Recreation Management. I am active in sports and currently work as a swimming coach at a swimming club. Coaching is not easy as teaching requires lots of patient and knowledge. Researching swimming coaches helped explore other coaches' thoughts and views. I wish to develop myself in the sports and coaching area; apply and share the knowledge that I have learned and keep my passion for swimming coaching going. My research supervisor was Mr Jason Mak.



Objectives

This study aimed to compare HOP and HUD plyometric training. By measuring subjects' Peak force, Mean force, Ground contact time, and flight time, the difference between the two types of plyometric exercises can be identified.



CHIU Cheuk Fung

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

COMPARING THE DIFFERENCE BETWEEN LATERAL ALTERNATIVE HOPPING AND SIDEWAY ALTERNATIVE HURDLES HOPPING IN COLLEGE SOCCER PLAYERS

ABSTRACT

RESEARCH BACKGROUND

Lateral alternative leg hopping (HOP) and sideway alternative hurdles hopping (HUD) are both common lateral plyometric training in football. This project will use a force plate and high-speed camera to test the difference between the two types of plyometric training.

METHODOLOGY

Data will be collected from 12 THEi students participating in this study. They will conduct two plyometric training: lateral alternative leg hopping, and sideway alternative hurdles hopping. Subjects will have a warm-up session to familiarize themselves with the exercise movement. Three successful trials will be recorded, and appropriate rest periods will be given between each trial.

FINDINGS

The study found that the HOP training gave a significantly longer ground contact time and flight time than the HUD training. However, after comparing the two exercises, the Mean force and Peak force in the ground reaction force had no significant difference. HOP is suggested to improve jumping ability, and HUD is suggested to improve agility and a small step of footstep frequency.

About the Investigator

I am Chiu Cheuk Fung, a BSocSc (Hons) in Sports and Reaction Management student. I am interested in sports and especially in football which is what inspired me to do this project. Dr. Jim Luk, my supervisor, gave me useful advice throughout this project. I have a coaching license from Hong Kong Football Association since 2018 and got my qualification for coaching. I hope to be a full-time soccer coach in the future and apply what I have learned from my degree to practice.

A COMPARISON OF BOUNCE DROP JUMPS AND COUNTERMOVEMENT DROP JUMPS WITH BASKETBALL REBOUND JUMPS USING ELECTROMYOGRAPHY AND FORCE PLATFORMS

ABSTRACT

RESEARCH BACKGROUND

The importance of basketball rebound affecting the game has been explored in the literature. However, more studies are required to show the difference between two kinds of drop jumps: the bounce drop jump (BDJ) and countermovement drop jump (CDJ). The research seeks to find out the differences between BDJ and CDJ when compared to the basketball rebound jump (BRJ).

METHODOLOGY

EMG was used to measure the maximal voluntary contractions (MVC) of the vastus lateralis and medial gastrocnemius muscles in both of the participant's legs before carrying out the drop jump tests. The data in the concentric phase of the muscles will be collected. Participants (n=12) performed a drop jump from a 0.3m height drop-box down to a force platform. The variables of flight time, ground contact time, and ground reaction force were measured. A within groups repeated measures ANOVA was used to analyze the data and Pairwise Comparisons for comparing the variables.

FINDINGS

The results showed no significant difference ($P=0.61$) in the CDJ and BRJ at ground reaction force. The CDJ had the largest MVC ($67.2\pm 4.1\%$) in the vastus lateralis muscle of the dominant leg, and the BDJ had the largest MVC ($65.7\pm 3.5\%$) & ($62.3\pm 3.3\%$) in the medial gastrocnemius muscles in both legs. Coaches may use the CDJ for basketball players to adapt the speed and time of the BRJ stretching-shortening cycle. Also, coaches can use the CDJ to increase the muscle strength in the vastus lateralis muscle in the dominant leg and use the BDJ to increase muscle strength in the medial gastrocnemius muscles in both legs for a BRJ.

About the Investigator

My major is in Sports and Recreation Management for sports coaching. I am a korfbal player, but I am also interested in playing basketball and handball. As I love playing sports, I am interested in gaining more knowledge about sports and teaching sports. The next step for my career is to study for a Postgraduate Diploma in Education Programme and achieve my career goal of becoming a primary school physical education teacher. Also, I want to promote korfbal to let more people know about this sport. My FYP supervisor is Dr. Jim Luk.



CHONG Pok Ho

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality



Objectives

The study aims to compare and find the differences between BRJ, BDJ, and CDJ using electromyography (EMG) and a force platform.

THE ACUTE EFFECT OF WEARABLE RESISTANCE TRAINING ON MAXIMAL VELOCITY OF SPRINT RUNNING



Objectives

The objective of the research is to increase understanding of the usage of WRT and identify the best placement of wearable resistance (WR) on the body to achieve the greatest training effects.



HUNG Ka Long

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

ABSTRACT

RESEARCH BACKGROUND

This study aims to identify the relationship between Wearable Resistance Training (WRT) and sprint running performance. To investigate this relationship, sprinting tests will be conducted where an extra weight load, approximately 3% of the body weight, would be attached to the anterior or posterior sides of subjects' lower limbs during sprinting tests.

METHODOLOGY

Subjects will complete seven 20 meters sprint running tests in the following sequence: unloaded sprinting, two times anterior loaded sprinting, unloaded sprinting, two times posterior loaded sprinting, and unloaded sprinting. WR will be placed on the anterior (quadriceps and tibias anterior muscles) and posterior (hamstring and gastrocnemius muscles) sides of the subject's lower limbs. To ensure consistency for the loading and testing conditions, all subjects will wear Lila Exogen compression shorts and calf sleeves as the WR for sprint running. A SMARTSPEED Timing Gates will be used to quantify and record the sprinting time over 20 meters.

FINDINGS

Twenty-four university students volunteered to take part in this study. A repeated measures analysis was adopted to discover the mean differences ($p < 0.05$) between conditions. Significant differences (-6%) were found between the first sprint and the post-test of the WR conditions. There was also a significant difference (-8.282%) between the first sprint and the sprint after the anterior WR condition.

About the Investigator

I am Hung Ka Long, a student on the BSocSc (Hons) Sports and Recreation Management programme for Sports Coaching. As an elite Karate athlete, I always find ways to improve my karate skills and physical ability. The use of WR is becoming popular in Western countries. I am interested to see if we could find similar results for WRT. It would be great if our findings could provide insight for local coaches and also help athletes improve. I want to thank my FYP supervisor, Mr. PANG Siu Chuen, for his guidance and teaching.

THE EFFECT OF WEARABLE RESISTANCE TRAINING IN 20M SPRINT AND CHANGING DIRECTION 25M IN SOCCER PLAYERS

ABSTRACT

RESEARCH BACKGROUND

The project explores if there would be an increase in speed and agility from wearable resistance training from a 5 weeks training program. Speed is a 20m sprint; agility is the change of direction 25m, and resistance is 4% of body mass (BM) on the thighs. The study hopes to improve players' soccer performance so that they can increase their ability and enable them to train effectively in soccer.

METHODOLOGY

A total of 14 soccer players aged 20-25 were recruited to take part in this study. The subjects were divided into 2 groups, a testing group and a control group with 7 subjects each. All subjects had 2 years of experience and were recruited from THEi and Lingnan University. They completed a 5 weeks training program, which included 20m sprint and agility (change of direction 25m). The testing group attached an external load of 4% BM to their thighs, whereas the control group did not. Both groups had Pre-tests and Post-tests for the 20m sprint and agility (change of direction 25m).

FINDINGS

The results showed:

- There were significant differences between the Pre-test and Post-test in the testing group ($p < 0.001$).
- There was no significant difference between the Pre-test and Post-test in the control group ($p > 0.05$).
- There was no significant difference between the testing group and control group in both tests ($p > 0.05$).
- Comparing the testing group and control group, the progress time of the testing group was more than the control group. For the agility of the changing direction, the testing group was also greater than the control group.

About the Investigator

As a soccer coach or player, I would like to increase player's performance and training effectiveness. This project let me understand and enhance the use of wearable resistance in sports training. In this study, I put the wearable resistance on the thigh since it is a new study, and I wanted to see the effects on soccer players. Most importantly, wearable resistance is not well-known in Hong Kong, but it can be added to training programs to increase the speed and agility of soccer players. My FYP Supervisor is Mr. PANG Siu Chuen.



LAU Wing Kin

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality



Objectives

- To train with resistance in the thighs for increasing speed and agility
- After the training, players enhance their muscle strength to avoid injury



Objectives

1. What is the accessibility of parks for observing specific family groups?
2. What are the patterns of their physical activities?
3. What is the usage of specific facilities (i.e., open area, children's playground)?



LEUNG Hoi Ting

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

INVESTIGATING THE USE OF HONG KONG PUBLIC PARKS THROUGH OBSERVING FAMILY GROUPS AND THEIR PHYSICAL ACTIVITIES

ABSTRACT

RESEARCH BACKGROUND

This study examines the usage of public parks. It observes the physical activities of family groups in several parks in Hong Kong using the System for Observing Play and Recreation in Communities (SOPARC) tool. No Hong Kong study has focused on family groups. The data collected and observed will be useful for planning park facilities and substantiating priorities to promote physical activities. Furthermore, this study can show the accessibility of selected parks during the COVID-19 epidemic prevention period. Lastly, the study will mention the risks, effects, and the situation of Hongkongers physical activity level. It can encourage Hongkongers to increase their physical activity.

METHODOLOGY

Observations in selected parks were conducted from 14th March to 25th April 2021, on Sundays from 12 p.m. to 6 p.m. The target groups included:

1. Parent(s) with children
2. Grandparent(s) with children
3. Parent(s) and grandparent(s) with children
4. Parent(s) and grandparents(s) with children and foreign domestic helpers

The instruments used was an Apple iPad application called iSOPARC from the System for Observing Play and Recreation in Communities (SOPARC). The SCAN-1 version was used in this study.

FINDINGS

Firstly, park location, neighbourhood, and transportation related directly to the usage of parks. Secondly, the amount of surface doesn't represent numerous visitors. Thirdly, physical activities and the use of parks are related to the type of park.

About the Investigator

I'm Leung Hoi Ting. I'm interested in sports and recreation which inspired me to do this project. Dr. Peggy Choi, my supervisor, gave me valuable advice in the planning stage. I hope to discover more current park situations for park planning. As an intern, I have worked for two clubs, however, I would like to learn more about this industry. It is a sense of accomplishment to provide recreation activities for fulfilling customers' needs. I want to gain more experience in events planning or facilities managing in the future.

THE EFFECT OF WEARABLE RESISTANCE TRAINING OF $\frac{3}{4}$ BASKETBALL COURT SPRINT

ABSTRACT

RESEARCH BACKGROUND

The aim of the study is to probe the effect of wearable resistance training on the agility and speed performance of basketball athletes to identify if the effects are positive or negative.

METHODOLOGY

The study used a $\frac{3}{4}$ basketball court sprint and land agility test to find out the effect of the wearable resistance training. After a pre-test, there were 4 weeks of wearable resistance training for half of the participants. After the 4 weeks of training, they did a post-test to find out the difference after the training.

FINDINGS

The result showed a significant difference for the wearable resistance training group in the $\frac{3}{4}$ basketball court sprint and land agility test. The results of participants in the wearable resistance training group are (3.54 ± 0.24) for the $\frac{3}{4}$ basketball court sprint and (14.07 ± 0.73) for the lane agility test after the training. From the results, coaches can use wearable resistance training to enhance the agility and speed of athletes.



NG Chi Kit

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

About the Investigator

My major study is in sports coaching on the BSocSc (Hons) in Sports and Recreations Management degree programme at THEi. I am interested in playing basketball and football. I enjoy playing sports and want to have more knowledge about the sports industry. My career goal is to become a football or basketball coach or have a job related to fitness. My Final Year Project supervisor is Mr. PANG Siu Chuen.



Objectives

The first objective is to probe the effect of wearable resistance training on agility and speed performance. The second objective is to find out if the effect of wearable resistance training for basketball athletes is positive or negative.

JOB AND LIFE SATISFACTION OF BASKETBALL COACHES IN HONG KONG BEFORE AND DURING THE PANDEMIC



Objectives

This study aims to investigate the job and life satisfaction of basketball coaches before and during the pandemic in Hong Kong and provide suggestions to improve their satisfaction.



NG Hin To

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

ABSTRACT

RESEARCH BACKGROUND

This study seeks to find out the change in job and life satisfaction of basketball coaches before and during the pandemic; and the dimensions that they were dissatisfied with. To help improve job and life satisfaction and decrease turnover rate, this study proposes to give suggestions to the government and basketball coaches.

METHODOLOGY

Data collection involves sending out an online questionnaire to 150 basketball coaches. They will be asked questions about their job and life satisfaction. Respondents will give ratings on their job and life satisfaction of the PRE (before the pandemic) and POST condition (during the pandemic). Additional questions will be added for them to explain their reasons for dissatisfaction.

FINDINGS

The results indicated that job and life satisfaction in the POST condition was significantly lower than in the PRE condition. The most dissatisfied job dimension was fringe benefits followed by operating conditions, contingent rewards, communication, pay, and nature of work. For life dimensions, financial situations had the biggest difference, followed by self-worth, social relationship, health, leisure-time, and family. The respondents mentioned that the government could do better to support them during the pandemic.

About the Investigator

I am Amber Ng. My interest in sports had inspired me to do this project. My Final Year Project supervisor is Mr Jason Mak. He helped me develop my topic and gave me some advice in each stage to finish this project. I have been playing sports since I was a child so I have many ideas on this topic. I hope to promote the importance of sports in Hong Kong, and the Hong Kong government can provide more support in the future.

STRENGTH AND CONDITIONING PRACTICES IN FIELD HOCKEY: A COMPARISON BETWEEN COACHES AND PLAYERS IN HONG KONG

ABSTRACT

RESEARCH BACKGROUND

The study aims to discover the different strength and conditioning (S&C) perspectives and practices of field hockey coaches and players in Hong Kong. Results from the research will determine if S&C practices and perspectives align with S&C studies and guidelines.

METHODOLOGY

Two surveys were conducted. One survey was for field hockey coaches containing 25 fixed-response questions and 25 opened-ended questions. Another survey was for field hockey players, which contained 24 fixed-response questions and 25 opened-ended questions. The surveys consisted of 6 parts, (a) written informed consent; (b) background information; (c) education, qualifications, and prescription; (d) views on S&C; (e) exercise selection and preferences; and (f) issues and improvements.

FINDINGS

In each group, there was one participant that possessed an S&C certification. Both coaches and players had perceived S&C to be highly important for injury prevention, rehabilitation, and return of play.



TSANG Kin Kan

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

About the Investigator

I have an interest in field hockey. My career goal is to coach field hockey players and progress to a high level with more qualifications in coaching and strength and conditioning. My Final Year Project supervisor is Mr. Anthony Weldon.



Objectives

This study aims to provide insight to gain further understanding of S&C practices and perspectives of field hockey coaches and players.



Objectives

The research studies the differences of customers' satisfaction of the LCSD based on the following four classifications: age, education level, gender and occupation. The research also studies the relationship between participation rate and satisfaction, and the relationship between service quality and satisfaction.



WONG Chun Fei

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

CUSTOMER SATISFACTION OF THE LEISURE AND CULTURAL SERVICES DEPARTMENT ON SPORTS AND RECREATION FACILITIES

ABSTRACT

RESEARCH BACKGROUND

The Leisure and Cultural Services Department (LCSD) provides Hong Kong citizens with sports and recreation facilities to promote sports for all, so it is necessary to explore customer satisfaction of the LCSD's sports and recreation facilities.

METHODOLOGY

Surveys in a quantitative design I used to collect data through online questionnaires. The targeted participants are LCSD users over 18 years old. Participants include those who use any of the LCSD sports and recreation facilities. The research invited approximately 120 participants to participate in the survey. The questionnaires used multiple choice questions and 5-point Likert scale questions. The data collected from the survey is analyzed using the social science statistical software package (SPSS statistical program).

FINDINGS

Users who expressed higher satisfaction with the LCSD's sports and recreation facilities were females, 30 years of age or younger with college or above education levels. The staff attitude factor had the highest correlation with customer satisfaction of the LCSD. The correlation between the frequency of facilities used and customer satisfaction was strong. Due to the emergence of COVID-19, only parts of the participation rate in the study appeared.

About the Investigator

I am Wong Chun Fei, a student on THEi's BSocSc (Hons) in Sports and Recreation Management degree programme. My interest is to communicate with people. I like to talk to people about different activities to understand their personalities and make them be more involved in the sport. I hope that being an event planner in my future career can give people a chance to relax and allow them to understand themselves better. I would like to develop different themes for different people so that they can complete the challenges while making progress. My Final Year Project supervisor is Dr. Peggy Choi.

THE RELATIONSHIPS OF SERVICE QUALITY AND CUSTOMER SATISFACTION OF CLUBHOUSE MEMBERS IN HONG KONG

ABSTRACT

RESEARCH BACKGROUND

In today's society, more and more leisure sports and entertainment facilities are emerging, and clubhouses are one of these leisure sports and entertainment facilities in Hong Kong. With numerous leisure sports and entertainment facilities, the club industry must maintain its development. Therefore, the service quality of clubhouses and customer satisfaction are the main research focus of this research; to explore whether service quality and customer satisfaction can be the main directions to maintain the development of the club industry.

METHODOLOGY

Online questionnaires were sent to 120 randomly selected respondents from private clubhouses and non-government clubhouses to collect data. The age of respondents needed to be above 18 years old in this study. The questionnaire used the SERVQUAL questions and a 5-Point Likert Scale. Part A of the questionnaire was about respondents' expectations of clubhouse service quality, and part B was on their perception of clubhouse service quality and customer satisfaction of the clubhouse.

FINDINGS

Customers have high expectations for all aspects of the clubhouse's service dimensions. Also, customer satisfaction is related to the overall service experience, and the responders with higher satisfaction had a higher willingness to reuse the clubhouse.

About the Investigator

I am Wong Hiu Laam. My interests are leisure activities and sports. I have worked in different leisure placements when I need to finish my internship. The different services I have witnessed from different placements are the reason I chose this study topic. My FYP supervisor, Dr. Peggy Choi gave comments on my work that helped me a lot in my Final Year Project. After acquiring different knowledge of leisure management, it increased my interest in the leisure management industry. I want to work in the leisure management industry and be able to hold activities for the public.



WONG Hiu Laam

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality



Objectives

The purpose of this research is to explore private clubhouses and non-profit clubhouses. The importance of the service quality of government clubhouses and target customer satisfaction and explore whether the service quality of different clubhouses will affect guest satisfaction.



FACTORS INFLUENCING FEMALES TO PARTICIPATE IN PHYSICAL ACTIVITIES

Objectives

This study aims to understand the factors that influence Hong Kong females to participate in physical activities (PA). When the reasons are understood, the sports and recreational industry can improve their services to promote their facilities and programs, or help females to eliminate the barriers.



WONG Ho Yi

BSocSc (Hons) in Sports and Recreation Management
Faculty of Management and Hospitality

ABSTRACT

RESEARCH QUESTIONS

1. What factors influences females to participate physical activities?
2. Will there be any possible methods to minimize or eliminate the barriers?

METHODOLOGY

Participants completed either a hard copy questionnaire by face-to-face, or a soft copy questionnaire via Google form from 1 January to 1 March 2021. The Google form link was sent through different social media, such as WhatsApp, Instagram or emails. Each questionnaire took 5 minutes to complete. The data were analyzed using Statistical Product and Service Solutions (SPSS). The Mann-Whitney test and Spearman's correlation were used to analyze the data in SPSS.

FINDINGS

The data showed that 64.5% of females did not participate any PA in the near past. Only 13.3% of females conducted the recommended time of PA from the WHO. Females have insufficient PA and the case is worse in nowadays. Death and catching diseases will be easier if they have inactive PA. Factors such as time, economy ability, motivation, psychological problem, and peers are the common reasons of inactive PA.

About the Investigator

I enjoy playing sports and holding events. Sports in Hong Kong are not valued. There are little resources for people who are sport lovers. Also, people are not willing to put many resources into promoting sports. Due to this situation, I want to promote some unpopular sports to people for them to understand and enjoy the sports through events. My Final Year Project supervisor is Dr. Peggy Choi.



Faculty of Science and Technology

Department of Construction Technology and Engineering



Objectives

This aim is to use various sensors to develop an intelligent system to control the irrigation system on green roofs. The sensors will review the data from the green roof, followed by the judgment by artificial intelligence for the operation and management of the green roof.



BAT Hoi To

BEng (Hons) in Civil
Engineering
Faculty of Science and
Technology

DEVELOPMENT OF ARTIFICIAL INTELLIGENCE MAINTENANCE SYSTEM FOR GREEN ROOFS

ABSTRACT

RESEARCH BACKGROUND

Green roofs provide significant stormwater detention and retention in rainfall events. The vegetation and substrate layers also play important roles as a water filtering system. Air contaminants such as NO_x and SO₂ are retained in the soil and absorbed by the vegetation as nutrients. As a result, the contaminants are removed from rainwater. Green roofs bring lots of benefits to the environment and buildings. Maintaining a well-performing green roof costs a certain amount of money. Developing an intelligent green roof maintenance system will greatly reduce the operation costs of green roofs.

METHODOLOGY

An irrigation system will be controlled by a small computer called Raspberry Pi, using C language as the programming language. Data will be collected by various sensors to Raspberry Pi. The data can be analyzed to understand the plants or the green roof situation. The program can control the system to irrigate by data analysis.

FINDINGS

Raspberry Pi provides the requirements for artificial intelligence control and operation. Users can use the computer to build the maintenance system for green roofs. There are various sensors for Raspberry Pi, which lets users or clients analyze the situation and manage the green roof.

About the Investigator

I am Bat Hoi To. My interests in engineering and innovation inspired me to do this project. Dr. Keane Yaohui LIU, my supervisor, gave me useful advice in the planning of my project. I hope to achieve self-satisfaction by completing the program. I feel excited and successful when in the process of making and trying the system. The completion of the system is like the successful establishment of a building. I want to be a civil engineer or work in related jobs after graduation.

A REVIEW OF HONG KONG'S DRAINAGE SYSTEM IN THE ADAPTATION OF CLIMATE CHANGE AND ITS FUTURE DEVELOPMENT

ABSTRACT

RESEARCH BACKGROUND

Due to climate change, more intense and frequent extreme weather events are occurring. The existing stormwater management and drainage systems are now frequently defunct causing serve to flood in low-lying coastal areas (e.g., Hong Kong (HK)). Flooding events caused by typhoons have been reported more frequently, associating with huge economic losses.

METHODOLOGY

The study reviewed HK and four other coastal cities' (New Orleans, London, Singapore and Tokyo) stormwater management and drainage systems in the adaptation of climate change, and recommended the potential strategies to be adopted in HK for its future stormwater management and drainage system development.

FINDINGS

The results suggested that the studied cities are also suffering from the impact of climate change. The potential stormwater management strategies for HK are recommended. For the structural approach in minimizing flash flooding risks, there should be an improvement and upgrade of the design of the existing underground storage tanks. While for coastal flooding, upgrade existing seawalls and construct wetlands in Tai O, and construct a movable sea barrier across Siu Sai Wan and Sai Kung. For the non-structural approach, the roles of responsibility in the flood risk management for each department should be clarified and organized in joint cooperation.



DAI Wing Nam

BEng (Hons) in Civil Engineering
Faculty of Science and Technology

About the Investigator

I am a fresh BEng (Hons) in Civil Engineering graduate. I am a hardworking person who is eager to learn and expand my knowledge in the field. I am ready for any challenging tasks. By overcoming difficulties, I can find personal satisfaction and feel happy that I have given something back to the community. I like to solve problems and apply the best solutions to improve communities for future generations and make the world a better place to live. My Final Year Project supervisor was Dr. Keane Yaohui LIU.



Objectives

The aim is to help out and provide ideas for HK's future drainage development and minimise the impact of climate change on HK.

A CRITICAL REVIEW OF BRIDGE CONSTRUCTION METHODS



Objectives

The main purpose of the study is to investigate which construction method(s) best suit(s) the three viaduct projects (one of which is hypothetical and the other two are real projects in Hong Kong) as per the unique site constraints encountered. By achieving this purpose, construction costs and time can be substantially minimized, bringing more tangible and intangible benefits to society.



FUNG Chun Ming

BEng (Hons) in Civil Engineering
Faculty of Science and Technology

ABSTRACT

RESEARCH BACKGROUND

This research conducts a comprehensive study on various bridge construction methods classified in the "Bridge Engineering Handbook, Second Edition". Every construction project has its uniqueness, thereby inducing distinct levels of constraints. By magnifying the benefits and diminishing the drawbacks of each construction method, the most viable method could be adopted, which could enhance the completion rate of a project.

METHODOLOGY

The research is divided into 5 stages. Stage 1 is to plan the project holistically and prudently. Stage 2 is to conduct a literature review of the characteristics of various bridge construction methods, and how lifting equipment affects the bridge construction method(s) to be adopted. Stage 3 will impose a hypothetical viaduct project for discussion. Stage 4 examines two viaduct projects in Hong Kong – Island Eastern Corridor Eastbound Bridge and Heung Yuen Wai Highway (viaduct part). Last but not least, stage 5 is about the integration of data collected and refinement of the results.

FINDINGS

The construction methods suggested for the hypothetical viaduct project best suited the project as per the constraints encountered. The results also found that the two viaduct projects, in reality, have adopted the most viable bridge construction methods.

About the Investigator

I am Ken Fung. My supervisor, Ir Dr Cliff Leung, gave me professional advice in refining my research throughout the entire project. I hope that new bridge construction methods, with the help of more advanced technology, can be established in the future to further boost the efficiency of different viaduct projects. I have an interest in Taekwondo and participated in a competition in 2018. Upon graduation, I want to become a competent civil engineer who tightly upholds professional dignity.

A STUDY OF PRODUCING ECO-BRICKS USING OYSTER SHELLS

ABSTRACT

RESEARCH BACKGROUND

Eco-bricks have been an environmentally friendly concept for many years. Eco-bricks uses some recycled materials to replace the traditional concrete to reduce the amount of solid waste in the environment. Oysters are one of the popular foods in Hong Kong. The consumption of oysters in Hong Kong is high, and the shells are directly disposed of as rubbish after the oyster inside is eaten. Reusing the disposed oyster shells could significantly reduce the amount of solid waste generated.

METHODOLOGY

A sample of oyster shells was taken from Lau Fau Shan. The sample was crushed like natural sand. Compressive strength and water absorption tests were conducted since both of these factors directly affect the ability of eco-bricks, and it would show whether they are safe enough to use during construction and after.

FINDINGS

Sieve test, dry bulk density, particle density, compressive strength and water absorption tests were conducted. The results showed that oyster shells are a good filler material when mixing concrete. In conclusion, HK, Britain, Germany, and China are recommended to try using oyster shells to replace the use of natural sand to produce bricks in order to provide a sustainable society for the next generation.



HON Po Kwong

BEng (Hons) in Civil Engineering
Faculty of Science and Technology

About the Investigator

I am Hon Po Kwong, Jason. I am interested in problem-solving. My supervisor, Dr. Keane Yaohui LIU, a distinguished scholar and an excellent educator inspired me a lot during my Final Year Project. I have joined the HKIE and ICE as student members, and I am the internal vice chairman for CSCE THEi Student Chapter. Through their activities, I learnt more about engineering. For my future career, I want to be a civil engineer.



Objectives

The aim is to combine and analyze the literature and experimental studies to identify the most environmentally friendly and reasonable mixture ingredient to produce eco-bricks from oyster shells under the standards for paving blocks from different countries and cities.



Objectives

This research examines the current state and awareness of lean management by contractor companies in Hong Kong. It will identify the key barriers in adopting lean management and provide recommendations for improvement and suggestions for future actions to implement lean management for Hong Kong contractor companies.



LAU Wing Hang

BEng (Hons) in Civil
Engineering
Faculty of Science and
Technology

BARRIERS TO LEAN MANAGEMENT IN CONTRACTOR ORGANIZATIONS

ABSTRACT

RESEARCH BACKGROUND

This project explores the barriers to lean management in contractor companies. Lean management appears to be increasingly important and has been implemented in construction organizations in recent years. However, it can be difficult to implement in some companies.

METHODOLOGY

A quantitative research design is adopted, using a structured questionnaire survey. Comparative analysis will be conducted on the frequency of the barriers that emerged. The results will be compared by their Mean from high to low to identify which barrier is more important.

FINDINGS

The barriers to lean management are related to the productivity and reduction of waste resources in the project. The key barriers include aspects like main barriers, economic barriers, planning barriers, management barriers and construction barriers. The main barriers proved to be the main problem for implementing lean management. Recommendations and measurements for increasing the adoption rate of lean management are suggested to advise how stakeholders and clients can use lean management in their company.

About the Investigator

I am Lau Wing Hang, a year 4 student on the BEng (Hons) Civil Engineering programme at THEi. My interests are reading novels and building models. My career goal is to become an engineer capable of building something that can do well for others. My FYP supervisor is Dr. Memon Shoeb Ahmed. He gave me a lot of good ideas when I was working on my Final Year Project.

REINVESTIGATION OF BUILDING DRAINAGE SYSTEMS IN HONG KONG

ABSTRACT

RESEARCH BACKGROUND

Hong Kong adopts a seawater flushing system for about 85% of the population. Nowadays, a new flushing system using greywater as the water source has been introduced as another option for urban areas. The SARS and COVID-19 epidemics raised public concerns over the sanitation safety of the drainage system design, as leakage of gases from the drainage pipes can spread diseases among floors in buildings.

METHODOLOGY

Case studies are carried out to study the drainage system in Hong Kong housings. Online questionnaires were conducted within two periods, and each survey aimed to receive 100 responses. The overall results of the two surveys are compared using graphical methods with explanations. An experiment was also carried out to discover the relationship between the pressure, volume, and leakage distance from u-trap drainage pipes.

FINDINGS

A one-pipe partially ventilated system is most commonly used in Hong Kong housings. When the drainage system fails, there are two significant reasons including improper modification and faulty pipework. On the other side, Hong Kong residents have a lack of awareness for regular maintenance of their drainage pipe systems. The experiments proved that the mode of gas leakage was different between the blockage and without blockage and it is a potential risk to users.



LEE Tsun Ming

BEng (Hons) in Civil Engineering
Faculty of Science and Technology

About the Investigator

I am Thomas Lee. I will be a Civil Engineering graduate of the Technological and Higher Education Institute of Hong Kong in June 2021. Dr Keane Yaohui LIU, my supervisor, is an excellent educator. His broad knowledge and insightful thinking gave me lots of support and guidance to complete this research. After graduation, I hope to be a successful civil engineer to contribute to society.



Objectives

This study aims to identify better solutions to improve water and sanitation safety by analyzing seawater and greywater for flushing use and comparing examples from different countries. It also analyzes the Hong Kong standards of sanitary fittings, plumbing, and types of drainage system design to find better designs.

DEVELOPMENT OF A HYDRAULIC RAM PUMP FOR GROUND WATER REUSE



Objectives

The aim is to develop an optimum design with a multiple-stage hydraulic ram pump system for elevating groundwater from the sub-soil for irrigation. Moreover, apply the modified design pipe elements in a ram pump system. The success of the project will significantly reduce wastewater produced in the system, save water resources and increase the use of groundwater.



TSOI Kam Wai

BEng (Hons) in Civil Engineering
Faculty of Science and Technology

ABSTRACT

RESEARCH BACKGROUND

In Hong Kong, freshwater resources are precious. Reserving natural water resources and reusing groundwater for irrigation is very important to save freshwater.

METHODOLOGY

Collect data on time, beat frequency, delivery water, and wastewater after applying the modified design elements in an experimental setup, and changing the parameters. The optimum design would be determined by two equations.

FINDINGS

The application of the modified design elements was successful. It fits and is adjustable when there is a difference in air chamber size, net supply head, and angle of the clap check valve. Moreover, the distance of U in the modified design elements does not affect the efficiency of the hydraulic ram pump system much, as long as it triggers the clap check valve to function. The size of the air chamber also does not affect the efficiency of the hydraulic ram pump system, as it can run with a rigid air chamber. Moreover, the modified elements can allow the ram pump system to run at different angles, while 90 degrees would be the most optimum degree. The study gives evidence that there is a positive relationship between the net supply head and the efficiency of the hydraulic ram pump system.

About the Investigator

I am Kenneth TSOI. My interest is thinking about innovative ideas. I will soon graduate from the Technological and Higher Education Institute of Hong Kong in Civil Engineering in June 2021. I hope I can think of more practical innovations during my career path. Dr. Keane Yao Hui LIU is my supervisor, an excellent supervisor. He gave a lot of support to me, such as for the research direction of my project and ideas for the experimental setup design.

BUILDING INFORMATION MODELLING, NEW ENGINEERING CONTRACT, AND INTEGRATED PROJECT DELIVERY: A WAY FORWARD OR ADHOC MEASURES?

ABSTRACT

RESEARCH BACKGROUND

The Hong Kong construction industry is known for constructing megaprojects. Even though the industry has constructed some exceptional projects; it has acquired the reputation of becoming adverse. Recent review report points to an integrated approach in project delivery.

Thus, the Hong Kong Development Bureau issued a circular for the adoption of New Engineering Contract (NEC) & Building information modeling (BIM) in capital works projects. BIM and NEC aim to improve integrated project delivery (IPD) in construction.

METHODOLOGY

In order to complete this project, this study adopted a quantitative research methodology. An online questionnaire survey was conducted to collect the data from the construction industry.

The survey questions were aimed at identifying BIM and NEC factors that facilitate IPD in the construction industry.

FINDINGS

This study identified ten factors for BIM and NEC that facilitate IPD in Hong Kong's construction industry. Most of the BIM related factors assist inaccurate information sharing for better collaboration among partners, whereas NEC related factors contribute to an open and trustworthy environment for partners. Thus, contributing towards the ultimate goal of IPD in the construction industry.

About the Investigator

I am WU Wing Ho, a graduate of Bachelor of Engineering (Honours) in Civil Engineering. My interests are reading and listening to music when I have time. As a fresh graduate engineer, I would like to find a construction company to put my knowledge into practice. Also, I want to join Scheme "A" to keep improving myself. Moreover, I want to express my gratitude to my Final Year Project supervisor - Dr. Memon Shoeb Ahmed, who shared his knowledge and gave me a great hand when I was facing difficulties.



WU Wing Ho

BEng (Hons) in Civil Engineering
Faculty of Science and Technology



Objectives

NEC and BIM are professed as a means for achieving ideal integration among partners and the promotion of IPD. There is a lack of evidence justifying the claim. There are fundamental differences in the understanding & implementation of such approaches in the industry. Thus, the purpose of this study is to identify BIM, NEC related factors that may facilitate IPD implementation in Hong Kong's construction industry.



Objectives

It is important to study the emission analysis of different ratios of biodiesel. The study can provide data analysis references for the control of biodiesel emission pollutants and further promote biodiesel and control the sources of fine particulate matter pollution.



HO Kit Sing

BEng (Hons) in Environmental Engineering and Management
Faculty of Science and Technology

THE EFFECT OF BIODIESEL BLENDS ON VEHICLE EMISSIONS OF ORGANIC CARBON/ELEMENTAL CARBON

ABSTRACT

RESEARCH BACKGROUND

With increasing demands for energy and the depletion of fossil fuels, biodiesel is an alternative fuel to oil and can secure energy resources. Biodiesel can be directly used in diesel vehicle engines. Many studies show that the emission levels of diesel vehicle engines can be significantly reduced by using biodiesel, and most of the conventional emissions are reduced by different degrees. However, burning biodiesel in diesel engines produces a variety of pollutants, including particulate matter. Organic Carbon (OC) and Elemental Carbon (EC) are the main components of fine particulate matter. These non-conventional emissions of pollutants are harmful to both the human body and the environment.

METHODOLOGY

A tailpipe exhaust emission test is performed on a new Euro-VI light-duty diesel vehicle to study the impact of ultra-low sulfur diesel fuel and 5% biodiesel fuel with 95% ULSD on the tailpipe exhaust emission of OC and EC. The ULSD fuel was tested first, followed by the B5 fuel in the driving cycles. The test include transient test, steady-state test, and idling test.

FINDINGS

The overall results show that total carbon emissions in particulate matter decreased with the increasing biodiesel blending ratio. The use of biodiesel emits a larger percentage of organic content than diesel, which has a less harmful extent of particulate emission.

About the Investigator

I am Sing, a final year student on the BEng (Hons) Environmental Engineering and Management programme who wants to be a professional engineer for a career. Engineering is something that inspired me to do this project. Dr WANG Bei Helen, my supervisor, is a distinguished scholar and an excellent educator. She gave me useful advice in the planning of my Final Year Project.

A COMPREHENSIVE REVIEW OF CURRENT PROCESSES AND TECHNOLOGIES FOR RECYCLING OF SPENT LITHIUM-ION BATTERIES

ABSTRACT

RESEARCH BACKGROUND

Previous studies indicated that the common usage of lithium-ion batteries (LIBs) has produced many discarded LIBs, which has become a ubiquitous problem worldwide. In view of the serious environmental effects of spent LIBs and the valuable materials contained in LIBS that can be reused, many technologies have been developed to recycle spent LIBs and improve environmental pollution. This project proposes to provide an outline of the current knowledge of leaching of LIBs in related aspects.

METHODOLOGY

Data will be collected by reviewing various leaching studies in a literature review. The results of leaching efficiency factors will be found. A comprehensive understanding of the technologies, leaching factors, kinetics, and recycling means will be helpful for recycling all valuable components of LIBs and reduce environmental pollution.

EXPECTED FINDINGS

It is anticipated that there are six factors that will affect leaching LIBs. Also, regenerating products can be used to further treat leaching solution.



HO Ying Tung

BEng (Hons) in Environmental Engineering and Management
Faculty of Science and Technology

About the Investigator

I am Stephy Ho. My interest in the battery recycling problem inspired me to do this project. Dr. Helen Lu Xiaoying, my supervisor, gave me useful advice in the planning stage. I hope to share more about my engineering knowledge. I have joined the Hong Kong Institution of Engineers, and I have been an environmental intern since Year 2 of my studies, so I have a lot to share about recycling technologies. I want to be an assistant environmental engineer after graduation.



Objectives

The main purpose is to discuss leaching technologies and various factors that affect the leaching efficiency of spent lithium-ion batteries. Also, the leaching kinetics of LiCO_2 samples from LIBs is investigated. It also aims to present recycling strategies, such as further treatment of leaching solutions by regenerating battery materials into new products.

REMOVAL OF TEXTILE AZO DYES BY NEWLY SYNTHESIZED MAGNETIC BIOCOMPOSITES



Objectives

The main purpose of the study is to investigate if azo textile dye can be removed after the biosorption of magnetic biocomposites, and explain why it can be done.



LO Cheuk Ling

BEng (Hons) in Environmental Engineering and Management
Faculty of Science and Technology

ABSTRACT

RESEARCH BACKGROUND

Previous studies have shown that magnetic biocomposites (for example, adding magnetic nanoparticles to biomass) can separate azo textile dyes in wastewater. However, an overview explaining the reasons is lacking. Therefore, it is necessary to show the decolorization patterns of azo dye in textile wastewater by using magnetic biocomposites.

METHODOLOGY

Several experiments were studied and five of them were selected. Fourier transforms infrared spectroscopy, X-ray diffraction, and ultraviolet-visible spectroscopy were used to characterize the synthesized nano-adsorbents. Three other aspects were also studied: decolorization rate, adsorption isotherm, and kinetic adsorption. To determine the function of nanoparticles, a test of enzyme activity, surface area analysis, and reusability test were carried out.

FINDINGS

Biocomposite materials are already biodegradable. The results found that nanoparticles can enhance the absorption capacity of biosorption, which depends on the surface area, enhance enzyme activity, and reduce mass transfer limitation. All the tested biosorption methods can achieve significant decolorization of the dye solution within the incubation time. It indicates that the magnetic biocomposite has a high absorption capacity and can decolor the textile dye solution. For the case of nanoscale zero-valent iron particles, it provides a chemical degradation to azo dye's structure rather than the biodegradation.

About the Investigator

I am Charlie Lo. My interests in biological technology and waste treatment technology attracted me to do this project. Dr. CHAN Cho Yin, my supervisor, gave me useful advice when planning my Final Year Project. I hope to work in an industry that inspires me to contribute to environmental protection. On the other hand, curiosity led me to become engaged with learning new things, even willing to spend time for research. Hence, I also want to do a postgraduate degree.

DEVELOPMENT OF NOVEL SINGLE-ATOM SUPPORTED COBALT CATALYST FOR EFFECTIVE HYDROGEN PRODUCTION

ABSTRACT

RESEARCH BACKGROUND

With the same zero-emission characteristic, compared to electric vehicles, studies of the technical and economic feasibility of using hydrogen fuel cell-powered vehicles in Hong Kong are limited. To solve the safety issues concerning the transport of hydrogen fuel, numerous solid and liquid hydrogen storage materials have been widely investigated, in which ammonia borane (AB) is a promising candidate due to its high H₂ weight percentage content (19.6%). Current obstacles relating to the use of heterogeneous non-precious metal catalysis for hydrogen production from AB include sluggish reactivity and low stability. Designing an effective catalyst to quickly release hydrogen from AB is thus quite challenging.

METHODOLOGY

Catalytic materials are prepared by the facile pyrolysis method using cobalt metal precursors. The rate of hydrogen production was measured volumetrically at regular time intervals by a water displacement method, where the specific generation rate is:

$$r_B(\text{Specific Generation Rate}) = \frac{\Delta V_{H_2}(70 \text{ ml})}{t_{70} \cdot \omega_M(g)}$$

FINDINGS

Catalyst pyrolyzed at 800°C exhibited the best performance. Catalysts first undergo an activation period due to the formation of an active single atom intermediate HO^{*}-(Co-N₂)- at optimal pH for fast H₂O adsorption kinetics and eventually reached a maximum r_B of 7833.4 ml H₂ gCo⁻¹ min⁻¹ at 40°C.

About the Investigator

My name is Desmond. My interests in renewable energy and sustainability inspired me to do this FYP project. I aim to become a professional Energy Engineer in the future, and my supervisor, Dr. Alex Tsang, gave me a lot of useful advice to achieve these goals. Dr. Tsang also gave me many opportunities to learn when completing this project, including in the literature review, experimental designs, implementation of the agreed experimental pathways, and interpretation of the obtained results. Eventually, I finished the project in a year with fruitful results, which can even be published in a peer-reviewed journal.



POON Pui Ching

BEng (Hons) in
Environmental Engineering
and Management
Faculty of Science and
Technology



Objectives

Single-atom catalysts are known to boost the catalytic performance of many reactions, such as electrochemical reaction, due to their higher surface energy and more efficient atomic utilization. However, their function in the hydrolysis of AB for hydrogen generation remains elusive. This project is to unravel their role in this type of reaction to lay the foundation for further improvement in catalytic performances.



Objectives

This project aims to (1) study the feasibility of AlN/PET composite separators for advanced lithium-ion batteries; (2) evaluate and optimize the structure characterization and performance of AlN/PET membranes; and (3) compare them with the porous polyolefin commercial separator. The findings are expected to improve the thermal runaway issue, and lower the production cost by introducing recycled PET as the nanomaterial of separator.



WONG Yu Lam
Marco

BEng (Hons) in
Environmental Engineering
and Management
Faculty of Science and
Technology

ELECTROSPINNING SYNTHESIS OF AlN-PET COMPOSITE SEPARATORS FOR ADVANCED LITHIUM-ION BATTERIES

ABSTRACT

RESEARCH BACKGROUND

"The future of the auto industry is electric," said Joe Biden. With the rapid development of mobile devices and electric cars, related energy transportation and storage system have aroused public concern. Lithium-ion battery is considered to be a promising power source for portable electronic devices, but its electrochemical performance has been challenged, and the safety concern of thermal runaway is also raised. Separator influences the performance, life, and safety of battery, and is accounted for 20% of the cost of battery.

METHODOLOGY

Literature review of lithium-ion battery, electrospinning technology, requirements and characteristics of separator was carried out. Six measurements of structure characterization and performance evaluation were conducted after electrospinning synthesis, including porosity test, SEM observation, electrolyte uptake test, EIS, DSC, and thermal stability analysis.

FINDINGS

The results showed that AlN-PETs with lower AlN content had better performance in porosity and liquid electrolyte uptake while AlN-PETs with higher AlN content had better performance in thermal dimensional stability. The AlN-PETs were found to be randomly oriented, had a highly porous fibrous structure, and high thermal property. When comparing AlN-PETs with the commercial separators (Celgard® 2400), AlN-PETs generally had better performance than commercial separators in terms of ionic conductivity and thermal property. Portions of AlN-PETs also had higher porosity and uptake capacity than the commercial separators.

About the Investigator

I am Marco Wong. I hope to improve my knowledge, gain experience in engineering and become an environmental engineer in the future. It has been my lifelong goal to promote harmonious development between human and nature. I agree with Taoism that we should always follow nature and go with the flow. Also, I enjoy group activities including various sports, games, and music.

I would like to thank my supervisor Dr. Helen Lu Xiaoying for the support provided.

A CONJOINT ANALYSIS OF CONSUMER PREFERENCES FOR ATTRIBUTES OF DESK LAMPS

ABSTRACT

RESEARCH QUESTIONS

The COVID-19 pandemic has changed people's work/study patterns. Work from home/online learning at home has become a trend. People work at desks for a longer period of time at home. Appropriate task lighting should be provided by desk lamps to improve the lighting quality at home. There is an increasing importance for the appropriate design of desk lamps, however, design guidelines of desk lamps are currently inadequate.

METHODOLOGY

Desktop research

In order to select the attributes of desk lamps, catalogs of different brands of desk lamps and the guidebook of task lighting design from EMSD were considered. These attributes include price, angle adjustability, dimmability, colour temperature changeability, light distribution, anti-blue light hazard ability and special functions other than illumination.

Questionnaire survey

The choice-based conjoint analysis was applied to find the importance of each attribute. An online survey was used to conduct the conjoint experiment. The questionnaire may be completed and submitted online by any participants. Participants were required to rank the profiles A to J, which were various combinations of characteristics.

FINDINGS

Results of conjoint analysis showed that the seven attributes have importance levels in terms of consumer preferences in the order of 'price', 'anti-blue light hazard ability', 'dimmability', 'colour temperature changeability', 'angle adjustability', 'light distribution' and 'special functions other than illumination'.



KONG Hoi Leung

BEng (Hons) in Building Services Engineering
Faculty of Science and Technology



Objectives

The study aims to identify the importance level of seven selected attributes, realize the necessary design considerations of desk lamps and provide useful information for luminaire companies to design consumers' preferred desk lamps.

About the Investigator

My name is Eric Kong. I participated in a LED lamp lantern design competition organized by EMSD in 2020, so it inspired me to do this research. Ir Dr Ng Tsz Ho, Roger, my supervisor, gave me a lot of useful advice for the research direction. I hope I can provide some useful information on desk lamp designs to lighting designers. I want to be a lighting engineer after graduation.



Objectives

The primary objective of this project is to simulate the cable sizes for different electrical equipment in residential flats, so they carry the expected current load without exceeding the cable's temperature limit, and determine the cable size is at the current carrying capacity for continuous loading.



YEE Chun Man

BEng (Hons) in Building
Services Engineering
Faculty of Science and
Technology

COMPUTATIONAL SIMULATION OF CABLE SIZING IN RESIDENTIAL FLATS

ABSTRACT

RESEARCH BACKGROUND

This project aims to use computation design software to enable users to have easier cable selection in residential flats to fulfill regulation requirements.

METHODOLOGY

The research conducts a literature review on cable sizing, residential flat electrical design, and different usage of electrical devices for flats. The study will first review the cable sizing and voltage drop, as well as the electrical wiring regulations. Based on the literature review, the cable type, copper loss, cable length, and voltage drop will be included for finding the recommended values of the cable sizes for residential flats.

FINDINGS

The final results of this research will identify a new function for users to calculate the cable size easily, as well as identify the conductor material, voltage drop, and protective devices by entering the loading current, room dimension, and number into the software. To prevent overload and overcurrent conditions, the project needs to follow the Code of Practice for the Electricity (Wiring) Regulations. The simulation results could maintain good energy efficiency and electrical safety in flats.

About the Investigator

I am Yee Chun Man, Arthur. I am a student on the BEng (Hons) Building Services Engineering programme. My interests are hiking, cycling, and reading. My career goal is to be a successful engineer. My FYP supervisor is Ir Dr Chan Tai Wai, David.

AERODYNAMIC AND ACOUSTIC PERFORMANCE OF ROTOR BLADES WITH THE DEVICE OF SERRATED GURNEY FLAP

ABSTRACT

RESEARCH BACKGROUND

During the operation of an Unmanned Aerial Vehicle (UAV), also called a drone, the desire is to use rotor blades that generate a stable and continuous output thrust with less power consumption and noise generation. Therefore, it is important to improve the performance of rotor blades so they achieve the goal of having great aerodynamic and acoustic performance, factors required in applications, especially for medical and military operations.

METHODOLOGY

A load cell assembly with a motor for installing the rotor blades was designed to collect data on the rotor blades' output thrust. A certified sound level meter was used to measure the acoustic operations. The data was analysed to identify whether the performance had been improved by applying the Gurney Flaps on rotor blades.

FINDINGS

The rotor blade with a serrated Gurney Flap can obtain a 90% increase in output thrust without increasing noise levels. This finding meets the goal of reducing power consumption and noise generation for the many uses of rotor blades.



LEE Shek Man

BEng (Hons) in Aircraft Engineering
Faculty of Science and Technology

About the Investigator

I am Richard Lee. I have the enthusiasm and working experience in aviation. I want to improve technology to provide an enjoyable journey for those who choose air transport for travelling to their destinations. Mr. Jack Lo, our programme leader for the BEng (Hons) in Aircraft Engineering and my supervisor, has inspired me and given me directions for pursuing a career in aviation. My career goal is to be part of the technical services for maintaining the safety of aircraft operations.



Objectives

The aim is to investigate the aerodynamic and acoustic performance of rotor blades between the original rotor blade, rotor blades with Gurney Flaps and rotor blades with serrated Gurney Flaps to find out which ones have the abilities for greater output thrust and silent operation.



Objectives

This project aims to analyze the causes of accidents and deficiencies of existing ground towing protocols. Based on these analyzes, a ground anti-collision system between towed aircrafts and other objects is proposed to reduce the chance of collision, which would improve safety for the aviation maintenance industry. A prototype would be built to demonstrate the concept and to determine the efficacy of the proposed system.



WONG Hiu Fung

BEng (Hons) in Aircraft
Engineering
Faculty of Science and
Technology

DESIGNING AN AIRCRAFT GROUND COLLISION AVOIDANCE INSPECTION SYSTEM

ABSTRACT

RESEARCH BACKGROUND

With a rapidly developing aviation industry, airports around the world are getting more congested. Aircraft ground collisions are occurring frequently in busy airports which causes significant economic losses. These accidents also create extra safety issues for maintenance workers, cabin crews, and passengers.

METHODOLOGY

A device capable of mutual detection is tested using radio signal transmission technology. The radio signal coverage area, strength, and usable range are tested with actual prototypes in a series of ground based and drone-mounted tests. The relationship between the range and the signal strength would provide the data. Finally, it can determine whether there is another device within the specified range based on the value of the signal received by the device.

FINDINGS

Multiple proof-of-concept prototypes were designed and produced. These were used in radio signal coverage tests in which the usable ranges were determined. The Micro:bit system-on-a-chip (SoC) microcontroller was programmed using the Microsoft MakeCode platform. The proposed anti-collision system was tested in simulated functional tests, which showed to be effective with commercially available narrow-body aircrafts.

About the Investigator

I am Ken Wong. My interests in product design and R&D have inspired this project. I am convinced that innovation and technology can improve and help mankind in any industry. I have joined my school's design and technology club since my 3rd year. I have also participated in many robot competitions and acted as a designer of the robots. I hope that innovative R&D and design can help current workers in the aircraft industry. My supervisor is Dr. Frank YUEN.



Faculty of Science and Technology

Department of Food and Health Sciences

NON-ALCOHOL ANTISEPTIC HERBAL ESSENTIAL OIL HAND SANITIZERS



Objectives

The purpose of the study is to examine one formula of non-alcohol herbal essential oil hand sanitizer by testing eight kinds of natural antiseptic herbals (cinnamon, thieve oil). It also aims to test the inhibition of microbial activity by comparing commercial hand sanitizers and non-alcohol herbal essential oil hand sanitizers.



**LI Wing Nok
Esther**

BSc (Hons) in Health Care
Faculty of Science and
Technology

ABSTRACT

RESEARCH BACKGROUND

Alcohol hand sanitizers became a public concern in the COVID-19 pandemic. The supply of alcohol hand sanitizer was scarce, and the demand was large. Long-term use of alcohol-based hand sanitizer may cause alcohol allergies or side effects.

METHODOLOGY

Firstly, data were collected by sending out questionnaires. Respondents were asked questions about their habits and opinions of commercial alcohol-based hand sanitizers and non-alcohol antiseptic essential oil hand sanitizers. Secondly, in-vitro susceptibility testing was conducted to investigate and compare the sensitizing ability levels in the targeted single essential oils, namely single essential oil hand sanitizers, essential oil blends, and WHO-recommended hand rub formulations hand sanitizer, by disc diffusion method. Lastly, in-vivo sensitivity testing was conducted to collect the feeling and skin reaction to the final two formulations.

FINDINGS

Nearly 20% of respondents may have allergies to alcohol-based hand sanitizers. More than two-thirds of respondents considered alcohol is necessary for hand sanitizers in acting the sanitizing effect. Half of the respondents thought that herbs have antibacterial abilities and could replace alcohol in hand sanitizers. This study found that low concentrations of cinnamon oil have a higher antibacterial activity and a stronger antibacterial activity with the largest inhibition zone when compared with alcohol.

About the Investigator

My name is Esther Li. My interests are in pet care, traveling, and caring for teenagers. Dr. Cris Liu, my supervisor, gave me valuable advice from the initial to the final stage of my project. I hope my study results build a base for producing non-alcohol herbal antiseptic essentials oils and provide an alternative to hand sanitizers. I have worked in a family clinic, a Chinese medicine clinic, and daily at an elderly center. I want to be a registered nurse after graduation. Therefore, I am going to study for a Master's in Nursing this year.

UNDERGRADUATE'S KNOWLEDGE, ATTITUDE AND PRACTICE ON ANIMAL ANTIBIOTIC CONSUMPTION AND ANTIMICROBIAL RESISTANCE, AND THE PREVALENCE OF ANTIBIOTIC-RESISTANT SALMONELLA IN PORK

ABSTRACT

RESEARCH BACKGROUND

Antimicrobial resistance is one of the biggest problems worldwide, while scientists have proved that agriculture originated antimicrobial resistance threaten human health. This study aims to investigate undergraduates' knowledge, attitude and practice towards animal antibiotic consumption and antimicrobial resistance, and identify the prevalence of Salmonella contamination in pork in Hong Kong.

METHODOLOGY

Data was collected by sending out online questionnaires to undergraduates. They were asked questions about their knowledge, attitude and practice towards agriculture originated antimicrobial resistance. Buffered peptone water and Xylose Lysine Deoxycholate agar plate were used for selective cultivation while the Kirby-Bauer disk diffusion susceptibility test was used to measure the susceptibility rate.

FINDINGS

The results showed that although undergraduates understood the seriousness of antimicrobial resistance, they showed a passive attitude at solving the problem while their knowledge and practice towards antimicrobial resistance were limited. Moreover, the prevalence of Salmonella contamination in Pork was high.

About the Investigator

I am Jane Mok. My interest in cooking inspired me to choose this research topic. Dr Ivy Sy, my supervisor, gave me lots of inspirations and useful advice when I was doing this project. I want to find a job related to administrative management after graduation.



MOK Kit Yu

BSc (Hons) in Health Care
Faculty of Science and
Technology



Objectives

The main purpose of this study is to explore undergraduates' knowledge, attitude and practice on animal antibiotic consumption and their views on potential prevention measures against antimicrobial resistance resulting from the food chain. It also aims to investigate the prevalence of antibiotic-resistant Salmonella in pork.



Objectives

The purpose of this study is to identify the needs and preferences of Hong Kong's elderly for assistive eating devices. Different factors for a better assistive eating device will also be explored to develop a new design of eating devices suitable for the Hong Kong aging community.



NG Siu Long

BSc (Hons) in Health Care
Faculty of Science and
Technology

RESEARCH AND DEVELOPMENT OF A NEW TYPE OF EATING DEVICE FOR THE HONG KONG AGING COMMUNITY

ABSTRACT

RESEARCH BACKGROUND

Nowadays in elderly care, assistive devices are commonly used in rehabilitation treatments and to help compensate for the degeneration by aging. These assistive devices play an important role in dealing with the elderly's eating problems, especially those with weak gripping problems. This project investigates designing an assistive eating device for the elderly.

METHODOLOGY

This study used questionnaires and eating tests to collect data on the elderly's needs and preferences of eating devices. Questionnaire Set 1 investigated the preferences of the elderly. Questionnaire Set 2 was conducted with eating tests in which the participants were asked to eat two of the same sets of meals, one using common utensils (the control set up), and the other meal with utensils with grip cover on the handle (the experimental setup). The design of the assistive eating device was further developed from the data to solve the elderly's gripping problems.

FINDINGS

A new design was developed by combining various characteristics: 1. Use flexible materials for the handle e.g. silicon and nylon plastic; 2. Apply the structure with a thin stainless-steel strip covered by nylon plastic at both ends and silicon covering the whole strip; 3. Use a vertebral or wave shape handle design, and apply the folding patterns on the handle surface to increase surface friction; 4. Apply changeable ends to increase mobility.

About the Investigator

I am Gordon Ng. My interests in healthcare for the elderly and observing the difficulties faced by elderlies inspired me to do this project. Dr. Cris Liu, my supervisor, gave me useful suggestions and improvements on my methodology and the design stage of the project. I hope to use my methods and knowledge in healthcare to help Hong Kong's aging community. I realized that the aging population is a trend for which society may not have enough care and facilities to help them.

THE COMBINATION OF GREEN TEA AND CITRUS ON MOOD IMPROVEMENT

ABSTRACT

RESEARCH BACKGROUND

Many people in this global world are suffering from anxiety. Apart from medication, people are seeking alternatives that can help to release pressure and anxiety naturally. Green tea and citrus are well known foods that have functionalities of relaxation and relieving stress. However, the effect to combine these two foods for mood improvement is unknown.

METHODOLOGY

Online questionnaires were sent out to assess Hong Kong citizens' sleep quality and stress levels. 60 volunteers with a high score in anxiety levels joined the diet treatment experiment. Participants were divided into 4 groups and each group was assigned with different diet treatments for 30 days (Group A: intake at least 200ml of green tea and an orange per day; Group B: intake at least 200ml of green tea per day; Group C: intake an orange per day; Group D: maintained their original eating habit).

FINDINGS

It was found that 80.3% of people in Hong Kong were suffering from anxiety. Group A had the most significant result on reducing anxiety levels from very serious levels of anxiety to mild and moderate levels. The diet also enhanced their sleeping quality and declined their insomnia at the same time. Group B and C also had a slight effect on improving anxiety levels, but the effect was not as significant as Group A. Therefore, the Synergic Effects of Green tea and citrus are tenable and able to improve sleep quality and mood situations.



WONG Chui Ying

BSc (Hons) in Health Care
Faculty of Science and
Technology

About the Investigator

My name is Yuki Wong. My interests in studying psychology and food inspired me to do this project. Dr. Emily Tam, my supervisor, gave supportive and encouraging guidance from the initial stage of my project all the way to the final stage. She assisted my project with full patience. When I had trouble and was afraid to continue finishing the project, she always tried to figure out what was the root cause was. Since I studied community health for the elderly in the previous two years, I have developed an interest to contribute to the health care industry. As a result, I want to be a clinic assistant or hold a position in the health care industry.



Objectives

The aims of this study are to investigate the mental health situation in Hong Kong and to find out the synergistic effect of green tea and citrus on mood improvement.



Objective

To develop a tasty mousse food with the incorporation of various thickeners for producing an acceptable new product with a soft texture.



CHAN Shuk Man

BSc (Hons) in Food
Science and Safety
Faculty of Science and
Technology

APPLICATION OF THICKENERS AND MOUSSE FOOD DEVELOPMENT FOR THE ELDERLY AND DYSPHAGIA PATIENTS

ABSTRACT

RESEARCH BACKGROUND

The elderly and dysphagia patients may have swallowing problems which can cause severe choking. Mousse foods with a soft texture can help to prevent such incidents. Modified recipes for making a range of mousse foods rich in protein with thickeners is the aim of this project. The quality of the finished mousse food is assessed by residents of the Chuk Yuen North Jockey Club Elderly Home.

METHODOLOGY

A literature review and laboratory experiments were employed for conducting this project. A range of thickeners for mousse foods was examined. Eight types of thickeners, including citrus fiber with guar gum, water chestnut flour, agar agar powder, xanthan gum, corn starch, carboxymethyl cellulose sodium (CMC), gelatin, and natural egg white were used to mix with minced meat at different concentrations to produce a mousse food in the form of meat cubes. Corn starch was the control thickener. Textural analysis for the chewiness of the meat cubes, with attributes of springiness and cohesiveness, etc., were evaluated.

FINDINGS

The results showed that the natural egg white mixed with minced meat achieved the best softness and chewiness quality, followed by the addition of citrus fiber with guar gum, which resulted in satisfactory water binding ability to preserve its juiciness. More than 80% of the target residents in the elderly home responded that the meat cube mousse food tasted good and was well accepted in terms of its soft texture.

About the Investigator

I enjoy reading books and hiking, and I am delighted to do voluntary work to help those in need. I will keep hard at working and learning to equip myself with work-ready skills to become a professional practitioner in the food industry, thus contributing to society. My Final Year Project supervisor is Dr. FONG Lai Ying, Associate Professor, Programme Leader of BSc (Hons) in Food Science and Safety.

A STUDY ON ACRYLAMIDE REDUCING BEHAVIORS OF PROBIOTICS IN CHEMICAL SOLUTION

ABSTRACT

RESEARCH BACKGROUND

Food safety is important to be maintained to protect consumers. Food products could be contaminated with harmful substances, posing risks to consumers. Acrylamide (AA) is a process-induced food contaminant formed during the heat processing of food. This contaminant is associated with neurotoxic, mutagenic and carcinogenic effects, which raises health concerns all over the world. Dietary intake is one of the major routes of exposure to AA. Stir-fried vegetables and snacks such as biscuits and chips contribute to a significant dietary source of AA in Hong Kong. In this regard, different mitigation strategies to reduce AA in food have been explored. Probiotics are a potential method in lowering AA as they exhibit the detoxification effect towards contaminants.

METHODOLOGY

Pure culture (1000 μ L; 1.2×10^8 CFU/ml) or co-culture (500 μ L for each strain; 2.4×10^8 CFU/ml) with AA chemical solution (200 μ L; 350, 750, 1250 ng/ml) were incubated for 4 hours at 37°C with gentle rotation (55rpm). The mixture was centrifuged to collect supernatant after the completion of incubation. The supernatant was filtered and injected into an HPLC vial. AA in samples was quantified by LCMS.

FINDINGS

Acrylamide reducing behaviors in pure and co-culture were proven in this study. Synergistic effects in AA reduction was found in certain combinations of probiotics. The results confirmed that probiotics studied in this project could act as an AA reducing tool.

About the Investigator

I am Mollie Chung. I studied on the BSc (Hons) in Food Science and Safety programme. My interest in food science and research inspired me to do this project. Dr Emily Choi, my supervisor, gave me guidance and useful advice throughout the process. My enthusiasm for food science has never stopped. I hope to make contributions to the food industry in the future.



CHUNG Wing Ki

BSc (Hons) in Food Science and Safety
Faculty of Science and Technology



Objectives

This project chooses six probiotics to study the AA reducing behaviors in pure and combined culture(s). The synergistic effect of combined probiotics in reducing AA will also be analyzed. All the studies of the detoxification effect will be conducted in the condition of AA chemical solutions.



Objectives

This project aims to study the thickening and gelling property of xanthan gum (XG) and guar gum (GG) under freezing and heating conditions by using a texture analyser. It also aims to select the most preferred soft food formulations by undergoing sensory tests and creates a nutritious soft food lunchbox by including the nutritional requirements for elderlies.



FUNG Yuk Ting

BSc (Hons) in Food
Science and Safety
Faculty of Science and
Technology

SENSORY EVALUATION AND TEXTURE ANALYSIS ON NEWLY DEVELOPED SOFT FOOD LUNCHBOXES FOR LOCAL ELDERLIES

ABSTRACT

RESEARCH BACKGROUND

Dysphagia is a swallowing difficulty that is a common worldwide problem that occurs among elderlies due to aging. Pureed meals are provided in Hong Kong hospitals and care centres in hopes of minimizing their chewing efforts and difficulties. However, patients may still suffer pain and develop distaste on the less unappealing foods. To address the issue, this project aims to create a nutritious and appealing soft food lunchbox by formulating with two commercial food thickeners, xanthan gum and guar gum.

METHODOLOGY

A preliminary consumer research was conducted by sending questionnaires to 60 elderlies to understand their eating habits and perception on soft foods. Consequently, a series of food formulation were developed based on the collected preferences. The most preferred food formulations were then screened by conducting texture profile analysis and sensory tests among 20 panelists.

FINDINGS

Cooked and minced food was mixed with various concentrations of food thickeners. Pork with 2% XG, broccoli with 1:1 XG:GG, rice with 3% XG, pumpkin with 2% XG and shrimp with 1% XG concentration are the most preferred in terms of the texture and sensory attributes. The rationale behind this could be explained by the structural changes between food and thickeners, leading to the variations in sensory acceptance.

About the Investigator

I am deeply interested in food research and sensory analysis which inspired me to work on this project. My project supervisor, Dr. MAN Ka-mun, Carmen, has given me full support and assistance during the whole research process. In the future, I hope to utilize all my skills and knowledge to investigate more on food technologies and contribute to the society. I wish I could be a professional in the food industry who can help people in need.

PLANT-BASED FOOD PRODUCTS AND HEALTHY EATING STUDY

ABSTRACT

RESEARCH BACKGROUND

Nowadays, more people become vegetarians to have a healthier eating lifestyle since consuming too much meat would cause different side effects. However, some people, especially meat lovers, might think vegetarianism is monotonous. As a result, plant-based meat has been developed. The main nutrient of plant-based meat is plant protein, which can replace meat protein. Besides, plant-based meat can also help solve food crisis and environmental problems. However, plant-based meat in the market may have too much food additives, seasoning and saturated fat, which might be even worse than real meat. As a result, I would develop a healthier homemade plant-based meat and identify the trend of healthy eating in Hong Kong.

METHODOLOGY

For the development of the plant-based meat, different ingredients would be added at different stages of development, then conduct food evaluation tests to figure out the best combination and ratio of the ingredients. A survey would then be conducted to further explain the trend of this healthy eating study.

FINDINGS

The final recipe is 10g soy okara, 15g gluten, 4g chia seed, 4g textured vegetable protein, 0.5g coconut oil, 1 teaspoon of salt, white pepper, 1 demitasse spoon of black pepper, sucrose, mixed herbs, star anise, Sichuan Peppercorn, paprika, 1/4 plant-based egg and 3.5g onion. The seasoning can be adjusted by the cook to tailor the product to their preference.



LEE Yat Hei

BSc (Hons) in Food Science and Safety
Faculty of Science and Technology

About the Investigator

I am Alfred Lee, a student on the BSc (Hons) in Food Science and Safety degree programme. My project supervisor is Dr. FONG Lai Ying. She gave me a lot of support and guidance in my Final Year Project. I would like to work in the food industry after graduation to apply what I had learnt at THEi to practice.



Objectives

1. Develop a homemade plant-based meat with soy okara
2. Identify how to make plant-based meat closer to real meat
3. Identify how to make plant-based meat common

LIGNIN EXTRACTION FROM BREWERY SPENT GRAINS AND GANODERMA LUCIDUM SUBSTRATES



Objectives

To assess the availability of soda pulping and OrganoCat methods for lignin isolation from food wastes as a secondary material for production. The extraction of lignin is used for high value-added chemical conversion for promoting the circular economy.



LEE Po Yin Donald

BSc (Hons) in Testing and Certification
Faculty of Science and Technology

ABSTRACT

RESEARCH BACKGROUND

Hong Kong's quantity of waste continues to increase. More than 10,733 tonnes of municipal solid waste is noted daily, including food, paper, and plastic wastes were disposed of in landfills since 2017. This project explores how to reduce the amount of solid waste disposed of and the burden on landfills. It looks at lignin extraction from brewery spent grains and *Ganoderma lucidum* and converts its cellulosic substance for polymer components to provide better waste valorization.

METHODOLOGY

Soda pulping and OrganoCat methods were performed for each batch of spent grains and *Ganoderma lucidum*, respectively. Qualitative and quantitative analyses were used for the assessment of their availability.

The qualitative analysis examined the functional group of lignin, determined by Fourier-transform infrared spectroscopy, and the degree of structural modification determined by Nuclear magnetic resonance.

The quantitative analysis examined the isolation yield, purity, and S/G ratio. Data of the lignin isolation yield was gravimetrically determined after the lignin solid was completely dried. The ratio of monolignol units was determined by Liquid chromatography–mass spectrometry, and purity was determined by absorbance under a UV-vis-spectrometer.

FINDINGS

Spent grains from the brewery were successfully isolated by both methods and determined the functional group apart from the *Ganoderma lucidum* substrate.

About the Investigator

I am Lee Po Yin Donald, and I am interested in organic chemistry. Dr. FONG Lai Ying is my supervisor. She provided support in providing the food by-products of spent grains and *Ganoderma lucidum* samples and the required chemicals to make this project successful under the harsh times of the pandemic period. I aspire to achieve a career working on in-depth research to develop a polymer made with bio-degradable lignin.

RESEARCH AND DEVELOPMENT OF A CHINESE HERBAL MEDICINE HYDRATION FACIAL CREAM

ABSTRACT

RESEARCH BACKGROUND

Two types of skin moisturizers are occlusive agents and hygroscopic agents. They provide moisturizing ability but only on the skin surface. This project combined the Chinese medicine external treatment theory to make moisturizing creams absorb more deeply and efficiently.

METHODOLOGY

Twenty healthy participants applied the cream on their right forearm with a marked area of 5x5cm. A skin moisture analyzer (T-Combi SM) tested the skin moisture content before and after 60 minutes of applying the cream. After testing, all participants filled out a skincare products questionnaire that used a 7-point Likert scale to evaluate the moisturizing ability of the facial cream. The skin moisture content and the moisturizing ability before and after facial cream application were analyzed by SPSS. The Mann-Whitney U test or paired-sample t-test as a test method was used to determine the significance of the results.

FINDINGS

Most of the participants strongly agreed with the cream's moisturizing effect. Participants' average skin moisture content after 1 hour of using the cream was significantly different from before usage. There was a significant difference ($p < 0.001$) for the short-term (immediate) moisturizing effects.



HO Mei Fong

BSc (Hons) in Chinese Medicinal Pharmacy
Faculty of Science and Technology



Objectives

This study sought to use common Chinese herbal medicine moisturizing ingredients available in the market to develop a Chinese herbal medicine hydration facial cream. *Aloe vera*, *Lycium barbarum*, *Glycyrrhiza uralensis*, and *Polygonatum odoratum* were screened and selected as the ingredients based on the Chinese medicine external treatment and the 'monarch, minister, assistant and guide' theory to evaluate the moisturizing effects.

About the Investigator

I am Alice Ho. My hobby is designing skincare product formulas, and the BSc (Hons) Chinese Medicinal Pharmacy programme inspired me to make a cream combined with Chinese herbal medicine. My Final Year Project supervisor, Dr. Dawn Au Ching Tung, and my working supervisor, Mr Chan Tsui Sang, gave me helpful guidance and recommendations to complete the project. To create my brand and develop more Chinese herbal medicine skincare products are my career goals.



Objectives

The project aims to establish a Near Infra-red Spectrum (NIRS) model from Astragali Radix standard and develop a similarity analysis method to distinguish the species of Astragali Radix in the market.



LAU Yuk Yu

BSc (Hons) in Chinese
Medicinal Pharmacy
Faculty of Science and
Technology

NEAR INFRA-RED SPECTROMETRY DATABASE DEVELOPMENT FOR ASTRAGALI RADIX (*HUANGQI*)

ABSTRACT

RESEARCH BACKGROUND

Two species of Astragali Radix are legally available in the market, and both have slightly difference uses as ingredients. After processing or powdering, Chinese medicine (CM) species are hard to authenticate. The existing methods for species determination are expensive and need multiple pre-treatments. Therefore, this study investigated a convenient and efficient near-infrared spectroscopy to distinguish Astragali Radix species to improve the medicine quality and stability.

METHODOLOGY

A portable NIR spectrometer was used to scan Astragali Radix (2 standards and 13 market samples) to collect spectrum data. For each sample, the NIR spectrum was compared to standard models to check for similarities, using R-studio and Python. A similarity rate of over 95% will confirm an extremely high similarity chemical structure of the specific Astragali Radix to determine the species correctness for Chinese medicines.

FINDINGS

Two standard models, *Mojia Huangqi* and *Menggu Huangqi* were clearly distinguished using NIRS, which was valid for the similarity check. According to the results, *Mojia Huangqi* and *Menggu Huangqi* were the dominant species in the China and Hong Kong market, respectively. The result showed that some samples had a high similarity rate but did not meet the 95% confirmation line. Those Astragali Radix samples were of bad quality, such as substandard or stained products. Corresponding chemical testing methods can further prove the results and validate the methodology in future studies.

About the Investigator

I am Lau Yuk Yu. Listening to music and watching variety shows to relax are my hobbies. Dr. Wesley Chow is my Final Year Project supervisor. His encouragement, guidance, and support from the start of my project to the final stages enabled me to better understand the subject and complete my project. I want to work in a pharmaceutical factory or as a researcher after graduation and improve my professional skills in the future.

THE COMMERCIAL GRADE COMPARISON OF CHINESE METERIA MEDICA BETWEEN HONG KONG AND CHINA

ABSTRACT

RESEARCH BACKGROUND

China had released "The guideline for the commodity grading system of Chinese materia medica (CMM)", including decoction pieces. However, the appearance of the decoction piece of CMM is different between Hong Kong and China. There were no systematic commodity grading studies for the decoction piece of CMM in Hong Kong. This study carried out a systematic measurement of the decoction piece and its specifications. The differences in commodity grading systems between Hong Kong and China were compared based on the guideline.

METHODOLOGY

1. The grading method was based on "The guideline for the commodity grading system of Chinese materia medica".
2. Identification of the decoction of CMM was referred to as macroscopic authentication based on the Chinese Pharmacopoeia 2020 Edition, Volume I.
3. Classification method:
 - 3.1 The method of length grading is generally used
 - 3.2 The method of weight grading is generally used
 - 3.3 According to the actual situation, it will be adjusted based on traditional experience.

EXPECTED FINDINGS

The commodity grading system in China was based on the species, plantation regions and relied on the size and thickness of CMM. However, Hong Kong highly relied on the size and thickness of CMM.

About the Investigator

I am WEN, Jianzhong, a Chinese Medicinal Pharmacy student from THEi. I am a good listener and very kind to people. My supervisors, Dr. Wesley Chow and Mr. Tsang Chiu Hing (Director of Tsang Fook Kee Med. Co.) gave me suggestions and encouragement. Being a Chinese Medicine Pharmacist is my dream. I hope I can contribute more to the development of Chinese medicines in Hong Kong.



WEN Jianzhong

BSc (Hons) in Chinese Medicinal Pharmacy
Faculty of Science and Technology



Objectives

- To understand the specifications and commercial grading system of the decoction pieces of CMM in the Hong Kong market.
- To distinguish the differences in specifications and grades of the decoction pieces of CMM between China and Hong Kong; and provide a basis for the commodity standards of CMM in Hong Kong.

STUDY ON APPLICATION OF HYDROPONIC TECHNOLOGY ON CULTIVATING CHINESE MEDICINES



Objectives

The main purpose of the project is to apply hydroponic technology in cultivating Chinese Medicine and compare the differences between hydroponic farming and traditional farming of Chinese Medicines.



WONG Wai Lam

BSc (Hons) in Chinese Medicinal Pharmacy
Faculty of Science and Technology

ABSTRACT

RESEARCH BACKGROUND

The traditional agriculture of Chinese Medicine faces many problems, including heavy metal issues, pesticide residues, and soil depletion. These problems are affecting the safety and quality of Chinese Medicines. Hydroponic technology allows plants to grow without weather and location limitations and avoids pesticide and heavy metal pollution.

For the pilot study for the hydroponic technology on Chinese Medicine, *Anredera cordifolia* and *Portulaca oleracea* were chosen because of their short growing period. Also, these two herbs need a moist growing environment, which is preferable for the hydroponic system.

METHODOLOGY

The original plant of *Anredera cordifolia* and *Portulaca oleracea* were collected in the Hong Kong region. The plants were authenticated by Dr. Dawn Au, a Chinese Medicine Pharmacist, and seeds were collected to conduct cultivating experiments using hydroponic technology. The morphology, growth status and its parameters, and environmental data were recorded weekly.

FINDINGS

Through the cultivation experiments, it proved that *Anredera cordifolia* and *Portulaca oleracea* can successfully grow in hydroponic systems. There are still some morphological differences between hydroponic farming and traditional farming, and the amount of active ingredients of *Anredera cordifolia* and *Portulaca oleracea* using different farming still needs further studies.

About the Investigator

I am Wong Wai Lam. I love to draw and watch movies in my leisure time. Since participating in this project, I have cultivated different small plants as a hobby. Dr. Dawn Au, my Final Year Project supervisor, gave me lots of useful advice during this project and helped me find a clear direction when completing this project. My goal is to pursue a career in Chinese Medicines, especially a Quality Assurance related post.

Author Index

- AU Chun Lok 62
AU Man Fung 44
AU-YEUNG Sen Mei 23
- BAT Hoi To 75
- CHAN Choi Ning 15
CHAN Ka Lai Kelly 8
CHAN Man Kwan 35
CHAN Ming Tat 36
CHAN Shuk Man 97
CHAN Tap Chak 30
CHAN Wai Chi 16
CHAU Man Hing 37
CHENG Ho Yin Eli 38
CHEUNG Tsz Shan 9
CHEUNG Hau Yin 39
CHIU Cheuk Fung 63
CHIU Wai Leong 31
CHONG Pok Ho 64
CHOW Tsz Ying 10
CHOY Zhun Xi 11
CHUNG Wing Ki 98
- DAI Wing Nam 76
- FUNG Chun Ming 77
FUNG Yu Shun 24
FUNG Yuk Ting 99
- HAU King Him 40
HO Kit Sing 83
HO Man 25
HO Mei Fong 102
HO Ying Tung 84
HON Po Kwong 78
HUI Nga Sze 12
HUNG Ka Long 65
- KONG Hoi Leung 88
KONG Wing Yin 17
KWOK Sin Yan 32
- LAI Cheuk Yi 26
LAM Chun Kit 45
LAM Hok Chun 18
LAU Hiu Wan 53
LAU Siu Yan 59
LAU Wing Hang 79
LAU Wing Kin 66
LAU Yuk Yu 103
LEE Po Yin Donald 101
LEE Shek Man 90
LEE Tsun Ming 80
LEE Yat Hei 100
LEUNG Hoi Ting 67
LEUNG Ming Ho 46
LEUNG Sze Wing 13
LI Wing Nok Esther 93
LIN Chak Kwan 41
LO Cheuk Ling 85
LOK Ming Sum 54
LUK Yi Kwok 27
- MAK Chun Pong 55
MO Kai Chung 28
MOK Kit Yu 94
- NG Chi Kit 68
NG Hin To 69
NG Ho Kwan 33
NG Ngon Chung 56
NG Siu Long 95
- POON Pak Hong 48
POON Pui Ching 86
- TAM Lok Yin Cyrus 60
TANG Chung Sze 49
TANG Tsz Ching 14
TANG Tsz Kiu 29
TANG Tsz Yuen 34
TANG Yuet Sze Macy 19
TSANG Kin Kan 70
TSE Hiu Yu Phoenix 57
TSOI Kam Wai 81
- WEN Jianzhong 104
WONG Chui Ying 96
WONG Chun Fei 71
WONG Hiu Fung 91
WONG Hiu Laam 72
WONG Ho Yi 73
WONG How Yau 58
WONG Wai Lam 105
WONG Yu Lam Marco 87
WU Wing Ho 82
- YEE Chun Man 89
YEUNG Man Ting 20
YIP Hui San 50
YU Mei Fung 21
YUEN Tsz Hin 42
YUNG Lok Yin 7
- ZHU Cheng Bin 51



