MONASH University

Ready Student One: Investigating the effect of gamification approaches in Chinese international students' cross-cultural adaptation process at Monash University

Xiao Hu

Bachelor of Literature Journalism (Chuzhou University)

Master of Education (Monash University)

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Abstract

Until the Covid-19 global pandemic that significantly limited international student migration for overseas study purposes, the Chinese international student market had become the largest group in the highly internationalised universities of many western countries, including Australia (Department of Education and Training, 2017). When Chinese students arrive in their host country, they usually encounter cultural differences such as language, social structure, behaviour, lifestyle, and ideology (Yan, 2011). Research has shown that due to these cultural differences, Chinese international higher education students face many difficulties to adapt to the host counties' cultural contexts. International education providers were searching for ways to better support Chinese international students to have a successful experience of their overseas university studies. An emerging strategy being trialled was to use innovative technologies, such as gamified or game-like approaches, to support successful transitions. However, research about the effectiveness of such attempts was lacking. This study examines the evidence of how gamification techniques might help Chinese international students to improve their cross-cultural adaptation outcome in Australian university contexts. The main research question is "What are the strengths and limitations of using gamification techniques to help Chinese international students to improve their cross-cultural adaptation outcome in Australian higher education environment?". Using a qualitative methodological approach that employs online survey and face-to-face interview methods, this research explores what adaptation problems Chinese international students predominantly encounter during their overseas study experience in Australia, and how gamified approaches can influence on their adaptation outcome. The results of my analysis indicate that for Chinese international students in Australia, their adaptation problems are now moving from English language proficiency issues to more specific cultural learning and support issues, or at least coexisting with the former issue. Likewise, the result also shows that it can be possible to use gamified approach to benefit Chinese international students' adaptation experience and outcome in the Australian university context, especially in communicative and interactive perspectives.

Keywords: Cross-cultural adaptation, Chinese international students, Gamification, Australian higher education

Declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any other universities or equivalent institutions. To the best of my knowledge and belief, this thesis contains no material previously written or published by another person, except where due reference is made in the text of the thesis.

The rationale, development and composing of the thesis were the principal responsibility of myself, Mr. Xiao Hu, working within my Doctor of Philosophy project for the Faculty of Education, Monash University, under the supervision of Professor Zane Diamond and Dr. Hongzhi Zhang.

Xiao Hu

Date: 30th April 2021

The research for this project received the approval of the Monash University Human Research Ethics Committee (Approval Reference: 16513) on 25th September 2018.

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In this particular time spot of mid-2021, I will embrace the completion of my doctorate study. This journey starts in early 2016, as the global situation was in a less chaotic picture. No one can escape from the impact of the COVID-19 pandemic, including me. My marching towards the doctorate has interfered. I had to take the final stage of research in a distant form, far away from my original institution. Working out from my academic community brings additional challenges to me, yet the support from my family, friends, colleagues, and supervisors is more precious than usual. I want to express my gratitude to all the people who have helped me during the past four years. Without your help, I cannot reach this milestone. For the following paragraphs, please allow me to express my thankfulness to several people and groups who bring exceptional guidance, assistance, or inspiration to my chasing of a doctorate.

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My gratefulness also presents to Monash Education Research Community (MERC). This professional community gives me direct assistant and support for my doctorate study. I have met many knowledgeable colleagues and friends in MERC, the experience I have learned from these outstanding academics means a lot for my career development. No matter when and where I am, I can feel a sense of belonging with the connection to MERC. This supportive effect shines brighter in the current situation. Although I am not physically there with MERC, the message and communication with my MERC friends comfort my emotion and help me concentrate on my research in such a chaotic environment. Wherever I go, I will never forget my identity as a MERC member, and I am looking forward to the reunion with all my MERC friends soon.

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I want to give the most special thanks to my wife, Jenny. Apart from my parents, you are the only person who stands alongside me through all my journey. Your heart-warming support makes me feel no extra concerns and burdens with my study, and I am delighted to have you on the same track that I used to experience. Our memory of all the milestones we have shared creates this unique bond for us. No matter how difficult the situation is, as we stand together, the courage and confidence of achieving every goal in our plan will never fade away. I always believe there is a brighter future for us, and I promise I will hold your hands to the end of the line.

In this very last paragraph, I would like to say thank you to the most critical person in my journey, that is, myself. Thank you for choosing this challenging but spectacular path, thank you for devoting your full belief into this exploration, thank you for not giving up when facing those difficulties and obstacles, and thank you for trusting and insisting on your intention to the end. Without the persona of me, nothing exists for my work, and all the help and support from my family, friends, colleagues, and supervisors will also be meaningless. It is the most appropriate way to show my respect to every person in my life. This completion is another start point for the future, so I want to say to myself, please take good care, eat well, sleep well, keep healthy, and be happy. Tomorrow comes with new challenges, but I will always believe in myself.

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List of Abbreviations

ARGOSI	Alternate Reality Games for Orientation, Socialization, and Induction
CAS	Complex Adaptive Systems
COVID-19	Coronavirus
eMgage	Extended Mobile Gaming Education
FYC	First-Year Composition
HASS	Humanities and Social Sciences
MUHREC	Monash University Human Research Ethics Committee
SCAS	Sociocultural Adaptation Scale
STEM	Science, Technology, Engineering, and Mathematics

Chapter 1: Introduction

1.1 Background

If you are seeking an activity that can create massive fun and a pleasurable experience without large financial costs or any illegal risks, gaming can be the best option. Tracing back into human history, games have been developed and played from the birth of ancient civilisations. Chess, Mah-jong, Solitaire, Shogi – all these games were created and preserved in folk wisdom from each civilisation's early days, bringing endless fun and happiness to humankind, passed down from generation by generation. During particular times throughout human history, games have exerted a force beyond creating pleasure. In the book *Reality is Broken: Why Games Make Us Better and How They Can Change the World*, McGonigal (2011) recounts a story about how an ancient country used a game to divert nationals' attention to pass through the famine disaster. Nowadays, with the rapid growth of the digital entertainment industry, the form of the game has been broadened, even detached from the entity form, and transferred into the virtual realm. Correspondingly, the game's effect in areas of human activity other than entertainment has also been noticed and investigated. In the early 20th century, an American university lecturer used a self-designed tool which implanted basic economy knowledge into a chess-like form to teach business courses. This tool was the prototype of the world-famous board game Monopoly, providing an example to show that the game also has educational value. Through the past century, in the developing trend of game research, numerous scholars, researchers, scientists, and developers have made efforts to discover the secret of the game, trying to bring its advantages to benefit other fields. When I started my first turn in a computer chess game at my father's office in the middle 1990s, I had never expected that one day I would join in and be a part of the game research trend. I did not know what my destination was, but one truth is that my life has been entangled with games for a long time. Engaging with this research, I have

deepened my understanding of its strengths and limitations, making it more valuable than just providing me fun and pleasure.

1.2 My story

It was the early days of the 1990s, that were the doorway to fast economic development for the whole country of China. Thanks to my father's job, I had a chance to experience one of the most fashionable entertainments in my hometown city in the early 1990s, that was computer games. It was enlightening for my childhood years that life could be so enjoyable with those digital games. My parents also supported me to explore the realm of computer games, they even invested a considerable amount of family budget to buy hardware for my gaming activity, although we were not a wealthy family at that time. In general, digital gaming was one of the major activities in my childhood daily life.

However, things changed when I entered the secondary school stage. At the micro level, in my family, the relationship between me and my parents became more and more intense, as the pressure of study grew but I still spent lots of time on playing games. On the macro level, in the year of 2002, a tragic internet bar arson case that happened in Beijing caused 25 deaths and 12 injured. The cause of this case was that the manager of the internet bar rejected two teenagers' entering to play games, and these two teenagers and their friends retaliated by setting fire to the internet bar. Social media amplified the influence of this case by arguing that the teenagers' addiction to gaming and their frustration in being unsuccessful in getting access was the original cause of the arson, and further guiding the public to blame computer games as the source of this tragedy. This criminal event put extra burden on Chinese parents, especially for those who had children who loved computer games, which also included my parents. Due to the influences on these two levels, my parents and I had a tough relationship in my teenage years.

From my personal angle, I admit that playing games created negative influences on my secondary school life as well. Playing games caused me to lose the balance between study and leisure; as I gained more happiness and fulfilment in the virtual space, my school performance got worse and worse. Finally, I failed in Gaokao (Chinese: 高考), the biggest event for Chinese teenagers to display their education success and win the chance to continue chasing their dreams in the higher education sector. That was the first time I had to start to carefully think about what gaming could bring me: a moment of pleasure or a life-long positive spirit. Games had been an important part of my life, embedded into my personality. It was not possible to fix my life by simply removing the gaming part from it. Instead, I needed to find a way to use the game's function of motivating and comforting my mind during the conquering of study tasks was a more reasonable solution for my redemption. Figuring this out, I started to prepare a second try at Gaokao with a more balanced time-distribution in study and gameplay. After many other ups and downs, I finally passed Gaokao in another two years with a more balanced gameplay attitude and earned myself the chance of entering higher education. In terms of this success, my toughest time with digital games had passed.

My unique experience of finding the study-and-gaming balance gave me motivation to think about how to treat digital games with an appropriate attitude. Games should be an aspect of life that brings happiness and recreation to people, but according to my experience, as well as some of my peers' experience, if the bottom line has been crossed into addictive behaviour, then games can become a mental drug and cause a string of problems. I started my higher education journey with these thoughts and tried to find an answer for how to make gameplay activities become a more beneficial part of daily life during my independent days in the university.

When I entered the university, as I had used two extra years of passing the Gaokao, I was a little older than most of my classmates. Possibly because of this age difference, I seemed

to be more capable of noticing other students' concerns and was willing to offer my effort to help them. In Chinese universities, apart from lecturers and sessional tutors that teach professional courses, there is a specific type of tutor whose duty is focused on students' general study issues as well as daily life problems in the university. This position is called Fudaoyuan (辅导员) in Chinese. My university had a special rule for Fudaoyuan, that is they could select several outstanding third-year students to be their assistants. Because I became recognised for my capability in discerning others' problems and offering help, as well as my good academic performance in my second year, I was given the opportunity to be an assistant tutor in my third-year university period.

The duty of being an assistant Fudaoyuan was simple but broad in scope. My duty was helping the first-year students to get adapted to the university life and making their transition smoother and more enjoyable. As the education system requires, Chinese university students will mostly experience a change of daily routine after entering the institution, as they will move out of their family home and into the university dormitory. With this change of daily life, every student encounter study and life problems to a certain degree. My main job was identifying their problems, offering them solutions, or connecting them with resources, and doing some consulting if needed. My colleagues were mostly putting themselves in a position of teacher when doing their job with incoming students, but my strategy was simple: be a friend to these students. Many of my colleagues used this opportunity to showcase their teaching assistant skills. However, I felt my duty was better served in another direction, I did not want my students to simply follow my instruction by just focusing on their university studies. Instead, I wanted them to understand and accept all the experiences they were having during their time of transition and adjustment. It took more effort to encourage my charges to understand their experiences rather than just do things without knowing why they were doing so in such a way and seeing how this would benefit them. I believed that a suggestion from an experienced friend

could be more acceptable than an instruction from a teacher with distant responses. With my effort, most of the first-year students had a successful transition in adapting to university life, some of them even became my true friends and kept their connection with me. Although my job was not perfectly done, as there were still some students who had adaptation issues in their university days, the experience as an assistant Fudaoyuan drew my attention to university students' adaptation and transition issues.

After my graduation, I got the chance to continue my postgraduate study in Australia. In view of my previous working experience as an assistant Fudaoyuan in the undergraduate institution, I knew how important it was for me to have a good adaptation result at the beginning of my overseas study journey. Living in the city of Melbourne, a multicultural metropolis, I had a wide range of ways to experience the new cultural settings and immerse myself more fully into the local social atmosphere. Among all the methods I tried, the most effective way was gaming. My hobby of playing tabletop and digital games allowed me to get in touch with local gaming communities, and further developed my friendships with both residents and people from countries other than China. These friendships helped me to better understand the culture and life habits in the local community and improved my English language proficiency and confidence in my communication skills. This was the first time in my life that games brought not only pleasure but also benefits to the quality of my life.

With the benefits brought from playing games, I had a quite smooth transition process for my overseas study and avoided plenty of adaptation problems, such as the language barriers that research shows were supposed to happen in my cross-cultural adaptation. However, according to my observation, among my peers and fellow Chinese international students, although games were also an important part of their overseas life, there were not many students who were intentionally utilising gaming's positive effectiveness. Based on this experience, I asked myself: is there anything I can do to make gaming a more beneficial activity for Chinese

international students' overseas study journey? This became the reason that I started to develop my research interest on how to use games or related technologies to help Chinese international students' cross-cultural adaptation in Australia.

1.3 Rationale

With the development of international education on a global scale, the Chinese international student market has already become the largest group in the highly internationalised universities of many western countries. For example, according to the Australian government figures (Study in Australia, 2016), there are more than 260 languages spoken in Australian. Apart from English, the most common languages are Mandarin, Italian, Arabic, Cantonese and Greek (Study in Australia, 2016). The 2016 International Student Survey (Department of Education and Training, 2017) result also shows that 27% of the international students who responded to the survey come from China. For any internationally mobile student, study overseas means getting immersed into a different cultural environment. When Chinese students arrive in their host country, researchers have shown that they usually encounter many cultural differences such as language, social structure, behaviour, lifestyle, and ideology (Yan, 2011, in Chinese). Due to cultural differences that are known to exist between China and Western counties, Chinese international higher education students face many difficulties to adapt to the host counties' cultural contexts. Those difficulties are manifested in aspects like academic performance, sociocultural understanding, and personal life (Yan, 2011). While considerable research has been undertaken to clarify the problems of adaptation, universities still search for ways to better support these students in having a successful experience of their overseas university studies.

One of the new approaches is to use innovative technologies to support successful transitions, such as gamified or game-like approaches. Starting from the 1980s, the digital entertainment industry has expanded its influence all around the world. The digital game plays

a significant role in the daily life of many modern societies. In 2011, researchers estimated that people on our planet spent 3 billion hours per week playing digital games (McGonigal, 2011). This expanding trend has shown its influence on people's lifestyles, as well as inspiring the researcher to adopt game theory and game design into non-game contexts known as gamification (Werbach & Hunter, 2012), providing alternative pathways for researchers to deploy their studies. The term of 'gamification' first appeared in 2008, and then showed a widespread adoption after 2012 (Dicheva, Dichev, Agre & Angelova, 2015). As a newly emerging research field, the development of gamification theories is occurring. In fields such as business, education, and public service, gamification is being regarded as an effective tool to reinforce participants' motivation as well as to improve productivity.

Being a Chinese international student in Australia, like other Chinese students in a different culture setting, I have also encountered transcultural difficulties in both academic areas and everyday life when I started my overseas study several years ago. Through communicating with my Chinese peers, I have also observed other Chinese international students' adaptation struggles in Australia. Some of them become well adapted, while some others do not. For myself, as I have a strong identity as a game player, I utilise this trait to build a connection with some of the local communities that share the same hobby, which has helped me to obtain a better cross-cultural adaptation in my overseas study in Australia. Through this experience, my interest in exploring Chinese international students' cross-cultural adaptation problems had been aroused.

After the completion of my master's study, I undertook the Graduate Certificate in Educational Research course at Monash University. The project in that course focused on Chinese international students' cross-cultural problems, and their attitudes towards adopting gamification techniques into Chinese students' adaptation process. By running a small-scale survey with questionnaire and interview, the study has identified Chinese international students'

cross-cultural adaptation problems in two major categories: being more independent and positive in overseas contexts and improving their English language proficiency. This research finding matches some of the previous studies on Chinese international students' adaptation in other overseas countries (e.g., Gill, 2007; Pang, 2007; Spencer-Oatey & Xiong, 2006), and it also illustrates the necessity of finding solutions for Chinese international students in an Australian university context.

Through my previous work experience, the benefit of gamification technique can also be detected. Back in 2016, I started to do a short-term voluntary educational workshop with one of my friends in my hometown city in China. In the workshop we were using gamified activities and tools to help some primary school and early secondary students to learn fundamental social science concepts and skills, such as opportunity cost and life planning. The feedback from participants and their parents was mostly positive, especially in the adaptation of gamified activities and the enjoyment of the learning process. This was my first-time using gamification techniques in practical work, as well as seeing its actual effect in the educational field. Hence it was a consolidation of my research interest in gamification, which also drove me to explore it on a deeper level in further academic study.

As part of my first year of Doctor of Philosophy study, I was preparing a manuscript for publication. This article was based on my previous research project in the Graduate Certificate course three years ago, and this article drew on my re-analysis of the original research data. By re-examining the original data with the same instrument that I used in my last project, the data analysis results again indicated that Chinese international students are faced with a variety of cross-cultural adaptation problems. My re-interpretation of the data revealed that both independence problems and language difficulties still play a major role in causing the hurdles of Chinese students' adaptation in Australian higher education contexts. Therefore, it is still necessary to focus on finding solutions for Chinese international students.

With the practical experience of gamification in the past career journey, it is time for my research to upgrade to a higher level.

Therefore, based on the above experience and consideration, there are two different aspects in preparing this research project: adaptation problems and gamification solutions. My term 'Adaptation problems' stands for identifying and caring about Chinese students' adjustment problems in international contexts, and my term 'Gamification solutions' represents finding solutions by retrieving experiences in the game design field. The chosen direction of the research topic is mainly based on these two aspects.

1.4 Aims

The primary aim of this research is to find out how gamification techniques can help Chinese international students to improve their cross-cultural adaptation outcome in the Australian higher education context. To achieve this aim, there are two aspects that need to be considered. The first is evaluating Chinese international students' cross-cultural adaptation problems in both academic life and daily life aspects during their overseas life in Australia. The second aspect is exploring the benefits and limitations of adopting gamification into Chinese international students' cross-cultural adaptation process in the Australian higher education context.

To complete these two tasks, this research is designed in three parts within two stages. The first stage contains two parts: part one is investigating student orientation programs at Monash University. This part serves for the purpose of understanding the broader context of this research. By contacting relevant university sectors and faculty offices, I have gathered information about how many kinds of gamified student orientation programs are currently used in our university. That information helps to map out the scale of possible sample groups for the research design, as well as giving a possible range of choices to select the sample. The second part of stage one is an online survey. Using a 5-scale questionnaire, this part aims to find out

the level of cross-cultural adaptation problems among Chinese international students at Monash University, as well as to reflect how gamified orientation programs can assist Chinese students to handle their adaptation difficulties. This part also draws experience from educational gamification study in related topics, such as student induction and orientation experiences, in order to provide credibility.

The second stage, which contains part three, is a face-to-face interview. Using semi-structured and open-ended interviews, this part is designed to perform an in-depth evaluation of Chinese international students' adaptation at Monash University and their participation in a gamified orientation program. By comparing designated indexes in Chinese international students' cross-cultural adaptation difficulties, this stage invites participants to talk about their adaptation and orientation experiences, which means collecting empirical data for the research. By analysing those empirical data, this stage aims to provide the result of showing how gamification can affect those students' adaptation outcomes, what aspect is more effective, and what part needs more improvements. Bringing together data analysis results from the previous stage, the design of this two-stage structure is attempting to answer the questions of the strengths and limitations of using gamification techniques to help Chinese international students improve their cross-cultural adaptation outcome in an Australian higher education environment. This is the framework for how I addressed the primary aim of this research.

1.5 Research questions

Based on the aims of this research, I then sketched my project's conceptual framework in a three-level form (see Chapter 2) as a guide to my critical examination of the literature and the development of my research design. According to the research aims and the conceptual framework, to be discussed in greater detail in Chapter 2, the research question was developed as one main question and three sub-questions.

The main question is "What are the strengths and limitations of using gamification

techniques to help Chinese international students improve their cross-cultural adaptation outcome in Australian higher education environment?". The three supportive sub-questions were designed as follows, to elicit specific information:

1. What kind of cross-cultural adaptation problems do Chinese students encounter most often in Australian higher education context?
2. What is the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties?
3. What effect can gamification techniques bring to positively influence Chinese international students' cross-cultural adaptation process in an Australian higher education context?

These sub-questions focus on different aspects of the main research question. The answer of the first sub-question investigated Chinese international students' actual cross-cultural adaptation problems in the context of Monash University, offering a fundamental understanding of the broad context of the research question, as it is the carrier of the research topic. Then by answering the second sub-question, it is examining the research question from an instrumental angle, as well as discovering innovative findings for the research topic. Finally, in finding the answer to the last sub-question, it explores the research topic by combining the two fields together and anticipates finding the answer for the main research question.

1.6 Outline of the thesis

Before detailed illustration of my research in a chapter-by-chapter sequence, it is ideal to first have a quick look at the structure of this thesis. In this first chapter, I have presented a general introduction to my research. By telling about the context of my research topic as well as my personal story, the rationale of how and why I have chosen this topic is revealed. The

explanation of aims and research questions works for a fundamental introduction of research context, and it also plays the role of unveiling the specific process of my research in following chapters.

In Chapter 2, I will first make a presentation of my conceptual framework. Following the theoretical foundations, I will then review literature from each aspect of my research topic. I will go through the sequence of bottom-to-top of my conceptual framework, which means this chapter will first talk about the topic of complexity theory, then move to educational gamification studies, and finally to cross-cultural adaptation studies. A short summary will be made at the end of this chapter to highlight my findings from the critical review of literature. It displays the gaps in knowledge in the dynamic emergent field of this interdisciplinary research, as well as leading into the next chapter of designing of my research.

In Chapter 3, I will introduce the major choice of method for my research design. Starting from the bottom, I will first show the theoretical foundation of my research design, followed by the exact categories of how to locate my research in a methodological perspective. Then, with the introduction of how I will collect and analyse my research data, I will provide a blueprint for finding answers to my questions: what adaptation problems Chinese international students encounter most frequently during their overseas study experience in the Australian university context, and how gamified approaches can influence their adaptation outcome.

In Chapter 4, I will present and analyse my research data. Based on the research design, there are two major sample groups of participants (the non-gamified group and the gamified group), and three main sections of research data (gamified orientation programs that currently run at Monash University, questionnaire feedback from two sample groups, and interview feedback). By analysing research data coming from the questionnaire and interview feedback, I will try to find out what socio-cultural adaptation problems Chinese international students

encounter most often at Monash University and the influence that gamified orientation programs have brought to Chinese international students' socio-cultural adaptation outcome. The demands and expectations for Chinese international students to obtain a better socio-adaptation result from gamified orientation programs will also be analysed. This aims to find out what effect gamification techniques can bring to influence Chinese international students' socio-cultural adaptation process in the Australian higher education context.

In Chapter 5, I will mainly discuss my data analysis results with relevant research literature. I will report the socio-cultural adaptation problems of Chinese international students at Monash University and the gamification in education in the first section. Then I will discuss gamification's impact on their socio-cultural adaptation outcomes, and end with my reflection on the complexity of system theory with data from this research. This sequence is also written in accordance with my research design, which will provide more reliability and credibility to my research findings.

In Chapter 6, which is also the final chapter of my thesis, I will summarise my research and its contribution. I will also discuss the limitations of my research, which have been caused by the restrictions of my research design. Finally, I will also indicate the possible future study direction of my research topic. This is the concluding chapter of my doctorate journey, but it is not the end. In fact, it is the guide to my further exploration in the relevant academic field.

1.7 Chapter summary

In this chapter, I discussed the background information of my research program. With the illustration of my personal experience as a game player, a Chinese international student in Australia, and a researcher in the higher education field, I have shown my rationale for conducting this research. Based on this rationale, I illustrated my aims in doing this research, which will lead to the building of the conceptual framework in the further chapter. The design

of research questions is then followed by an outline of the thesis. This chapter is the beginning of my project. In the next chapter, I will step into the main procedure of conducting my research via a discussion of my conceptual framework and a critical review of the literature based on this overarching guidance.

Chapter 2: Literature Review

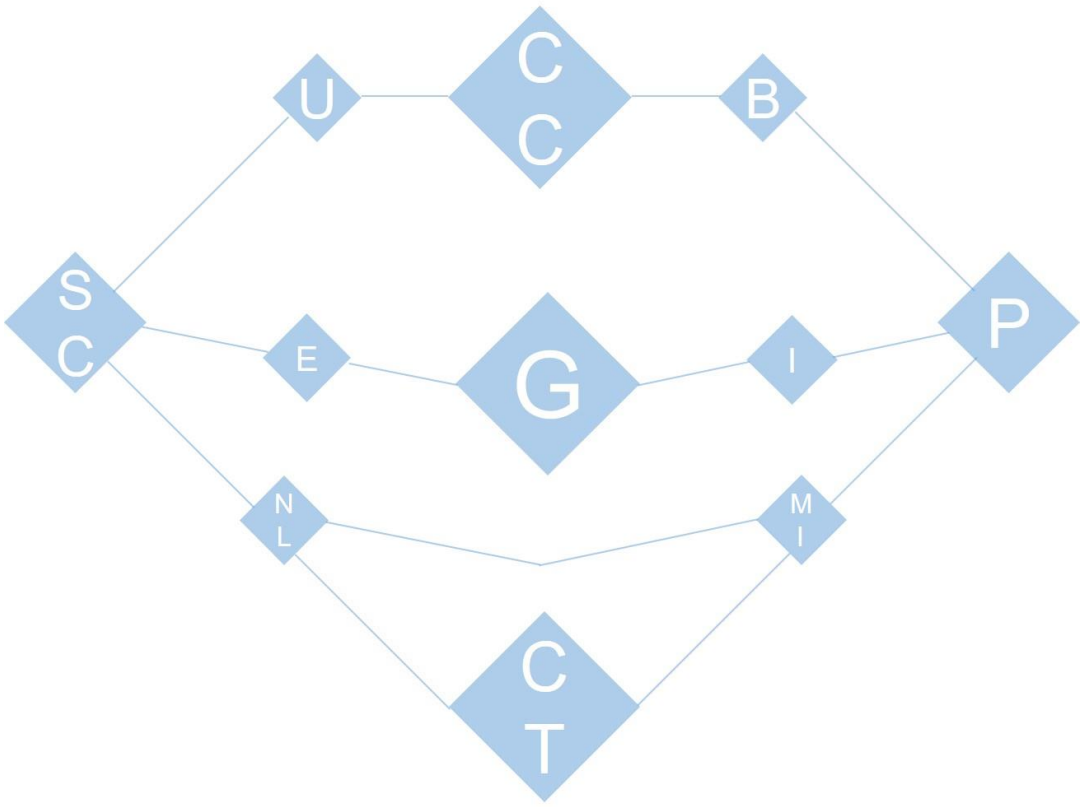
The most appropriate place for me to start my research project was to critically examine research findings of relevance to each aspect of my conceptual framework, especially searching out research that brings the different aspects of my study together. In this chapter, I will first introduce my conceptual framework. I will then undertake a comprehensive review of literature relevant to my research, encompassing aspects of cross-cultural adaptation and gamification. The examination of past studies helped me to build a concrete understanding of the related research areas, as well as providing credible evidence to help deepen and sharpen my research design and data analysis.

Following my presentation of the conceptual framework, this chapter will go through the sequence of reviewing literature from each aspect, including cross-cultural adaptation studies, cross-cultural adaptation for Chinese international students, educational gamification studies, and the gamification in cross-cultural adaptation topic. A short analysis and summary will be made at the end of this chapter, to highlight my findings from the critical review of literature showing the gaps in knowledge in this dynamic emergent field of interdisciplinary research, as well as linking to the next chapter, where I draw on these literatures to inform the design of my study.

2.1 Conceptual framework

Based on the aims of this research (see Chapter 1), I have sketched my project's conceptual framework in a three-level form (Figure 2.1 below).

Figure 2.1. The conceptual framework



These three levels lay in a vertical direction, from the surface to the bottom, which fits with the notion of research design – from the appearance to the essence. In this framework, the surface level is the cross-cultural adaptation problems for Chinese international students. Those specific problems act like a vehicle which connects the instrument with real world context. Regarding the instrument of this research, it is contained in the middle level of the conceptual framework, that is the topic of gamification. This level is the scale of deploying the research, it also serves for connecting practical research approaches with the theoretical foundation. The theoretical foundation, which is embedded in the bottom level of the conceptual framework, is the complexity theory. This level provides the foundational support to build the conceptual framework, as well as the entire research design. By building the data collection and analysis structure on the theoretical foundations, this research's conceptual framework can have a stable

form, and yet provide reliable outcome. Figure 2.1 shows the overall perspective of this conceptual framework. In this conceptual framework, the icon CC stands for cross-cultural adaptation. There are also two parts on the left and right side of CC. The left part, shown as SC, represents socio-cultural adaptation, and the right part of P stands for psychological aspects. There are also two blocks of U and B connecting these three parts, they stand for usability change and behaviour change, which are the two major influences in cross-cultural study in relation with socio-cultural adaptation and psychological adaptation (Searle & Ward, 1990). The central icon G stands for gamification, E and I that are placed in the left and right side represent external influence and internal influence, which are the two major influences for gamification to link to socio-cultural field and psychological field (Werbach & Hunter, 2012). The icon CT stands for complexity theory. The NL on the left side means non-linear, and the MI on the right side means mutual influence. These two interrelated traits are the major elements in a complex system (Bondarenko & Baskin, 2016), as well as the major connection that links together all the other components

The surface level targets Chinese international students' cross-cultural adaptation problems, so it can be related to cross-cultural study. In accordance with Ward and her colleagues' (e.g., Searle & Ward, 1990; Ward & Kennedy, 1999) cross-cultural studies, the theoretical model of cross-cultural adaptation study can be classified into two categories: the psychological adaptation and the socio-cultural adaptation. The psychological adaptation relates to people's psychological wellbeing in a new cultural context, while the socio-cultural adaptation looks at people's social behaviours and interactions with elements in a new cultural context (Searle & Ward, 1990). In general, the two parts of Ward's model reflect both subjective and objective concerns in cross-cultural processes.

The middle level of conceptual framework connects with gamification topics. In the theoretical foundation of gamification, humans' motivation can be classified into two types:

intrinsic motivation and extrinsic motivation (Werbach & Hunter, 2012). Although the gamification techniques are focused on motivating people's intrinsic motivation, it is also possible to give some triggers and actual rewards as extrinsic motivation in gamified application (Werbach & Hunter, 2012). When putting these two theories and models together, the intrinsic motivation works on the psychological side of Ward's model, while the extrinsic motivation shows the effort by the interaction with objective elements on the socio-cultural side. According to the connection between gamification and cross-cultural study, the surface and middle levels of the conceptual framework of this research can be established. My study is designed to focus on participants' empirical feedback regarding their evaluation of the adaptation process and participation in the gamified orientation programs, therefore it predominantly locates on the socio-cultural side, as well as having some connection with the psychological aspect.

The root level of the conceptual framework is the complexity theory. Complexity theory studies have been generated from the field of science and further introduced into the social sciences area. It is mostly used to examine the emergent behaviours that occur in many complex systems, such as the stock market or the human brain (Casti, 1994). The adoption of complexity theory usually begins from the examination of simple behavioural activities, and then linking those pieces into a collective system in a more complex form. There are two major features in complexity theory, which are non-linear and mutual influence (Bondarenko & Baskin, 2016). Considering that the cross-cultural dialogues are interactive between person and person, cluster to cluster, and the nature of gaming activity is also an interactive behaviour, regardless of the players or the gaming environments, the essence of both concepts contains the feature of fragmented activity on time sequence, as well as inter-reaction between subject and object. This is the link to show that the two interrelated traits of complexity theory can be a support to all the other upper-level components in the conceptual framework. Therefore, it

forms the supplement to my research's foundation, which offers the root of my research design. I will now examine the literature of relevance to each aspect of my conceptual framework, starting from the very fundamental position.

2.2 Complexity theory

Before moving to the upper structure of my conceptual framework, it is necessary to take a look at the theoretical foundation, that is, the complexity theory. The origination of complexity theory can be traced back to the early years when World War I ended. At that time, the development of holism and gestalt theories underwent rapid growth. Then the general system theory and cybernetics were born after World War II. It laid the foundation of complexity theory by first generalising it in a single system that was composed with interactive components (Anderson, 1999). In the late 20th century, with the development of the basic science field, a growing amount of complexity theory research has been proposed by the leading scientific publications (Manson, 2001). As the nature and the social science sectors were becoming more entangled by new and different disciplines at that time, the complexity of academic research had been increased. Hence there has been a necessity of upgrading the theoretical foundation of the scientific sector, and complexity theory is a dominant part of this revolution (Lewin, 1999). Complexity theory investigates the emergent behaviour that occurs in many complex systems such as the stock market or the human brain (Casti, 1994). The investigation starts with simple behavioural activities, then links those pieces into a collective system in a more complex entity. The general understanding of complexity theory points out the core feature of complexity theory: studying the patterns that emerge as non-linear and networked systems evolve (Bondarenko & Baskin, 2016). Non-linear refers to the mutual influence between every element within the complexity system, rather than a sequence of causes and results in a linear system. However, although this principle can be treated as a common description of complexity theory, it is still hard to find a single definition for complexity theory due to the large number

of disciplines that share the common feature of complexity (Manson, 2001). However, it can be classified into different categories for the academic to understand and study complexity theory more efficiently.

Manson (2001) proposed a classification of complexity theory definition which breaks it into three major divisions: algorithmic complexity, deterministic complexity, and aggregate complexity. Algorithmic complexity is often connected with mathematical complexity theory and information theory. It concerns the complexity of a system in structural and mathematical aspects, and that requires defining and describing the different components of a system in the first place. This makes the mathematical complexity associated with the growth from holism and gestalt theories to the general system, which are the first and second waves of complexity theory development in the early 20th century (Anderson, 1999). Then, the research into complexity theory has led to the second division: deterministic complexity. This division is rooted in the development of chaos theory and catastrophe theory (Manson, 2011).

With the evolution of computer and cybernetic technology in the middle of the 20th century, organisation scientists became more and more interested in the intrinsic equilibrium of a designated system (Simon, 1996). They noticed that in some deterministic systems, a small change in one parameter can make the system turn towards a very different result. They also found that in some dynamic systems, although the pattern seems to be random, however, it was actually deterministic. Researchers devoted their efforts to explore these phenomena, the study of former topics forged catastrophe theory (Thom, 1975), and the latter one is the source of chaos theory (Thietart & Forgues, 1995).

By reviewing the history of algorithmic complexity and deterministic complexity, one similarity between these two divisions is that they all grew on the foundation of mathematical and computational technology. Hence a limitation of these two divisions has been proposed: it is difficult for complexity theory to be introduced to the social science area. Regardless of

cybernetics and general systems theory, or catastrophe theory and chaos theory, they had all addressed dynamical systems' equilibrium on a designated timing sequence, from time *t* to time *t*+1 (Anderson, 1999). However, social organisations are more loosely coupled than physical systems. The influential factors for a social organisation are not only associated with time sequence, but also affected by other factors such as internal connections and feedback loops (Weick, 2015). From this perspective, it is not appropriate to apply complexity theory straight into the social science area. More research was needed in the late 20th century for the combination of complexity theory and social science subjects, which led to the emergence of the third division of complexity theory.

As previously introduced, the theoretical foundations of algorithmic complexity and deterministic complexity were all built on the sequence of time *t* to time *t*+1. Apart from this perspective, there was another angle to examine the dynamical system. This angle put the stress point at the interaction of individual components in the system, it claimed that "at any level of analysis, order is an emergent property of individual interactions at a lower level of aggregation" (Anderson, 1999, p.219). Based on this notion, complex adaptive systems (CASs) were proposed. This laid the foundation for aggregate complexity's development. According to Gell-Mann (1994), CASs have no universally accepted paradigm to apply, but it has four elemental features that can inspire the organisation theory. These four features are agents with schemata, self-organising networks sustained by importing energy, coevolution to the edge of chaos, and recombination and system evolution (Anderson, 1999). Unlike the traditional thinking, algorithmic complexity and deterministic complexity treat the dynamical system as a general entity and tend to review the systematic equilibrium from a linear perspective, whereas CASs focus on the partial and interactive components in a system. From the CASs' perspective, a dynamical system's outcome is formed by its intrinsic agents that carry particular schemata at a lower level of aggregation (Holland & Miller, 1991). The agents are the components or

collections that structed a system, and the schemata are the information that guides the agent in what action needs to be taken at what time point or period. Both agents and schemata are flexible, meaning that they can be the same or different from each other in their own category. In a system, all the agents are partially connected with each other, and the influence between each of them is in the same condition. In the cybernetic control theory, there is a dominant component that orders the entire system, but in the CASs, all the agents are interwoven and self-organised (Drazin & Sandelands, 1992). Furthermore, their interaction and mutual influence provides co-evolution. As time passes, every agent presents a non-fixed adaptation situation to the environment. The constantly changing adaptation manifests the co-evolution, and the result of such co-evolution is also dynamic: small changes can lead to small, medium, or large change in the outcome (Anderson, 1999), not like in the chaotic theory where small changes can frequently cause large changes (Kauffman, 1993). Finally, the combination of each agent and the connections between agents are also important in CASs. The evolvement of CASs happens every moment, the recombination of elements within an agent can generate new agents, the shifting of connection patterns between agents can also create new functions (Anderson, 1999). It stresses the importance of components in a dynamical system, which brings innovative viewpoints to the study of complexity theory, that is aggregate complexity.

The aggregate complexity concerns the components and relationships within a dynamical system. The key criteria to understand aggregate complexity includes relationship, internal structure, environment, learning and memory, emergence, and change and evolution (Manson, 2001). Like the notion of CASs, aggregate complexity values the relationship between internal components as well. In a complex system, although single components may carry their own functions or goals, due to the complexity of the components' relationship, it is hard to give a unified description for the system. Therefore, from this viewpoint, "a complex system is defined more by relationships than its constituent parts" (Manson, 2001, p. 409).

This is the reason why the relationship matters in a complex system. Different components' relationships also determine the internal structure of a complex system, which is another key concept for aggregate complexity. The components' property, belongingness, position in the system, even the realignment of different components can influence the structure of a complex system, and further make impact on its manifestation. Likewise, the relationship is not only limited inside the system, its relationship with the surrounding environment also has important value. For a complex system, the boundary between its internal structure and outside environment is blurry and permeable. The system's internal components can exchange information, matter and even energy with the outside environment through communication (Manson, 2001). Through this two-way communication, the system and its surrounding environment creates a mutual influence between each other. This interconnection is also the representation of CASs' feature of interwoven and self-organising.

Apart from the structural aspect, another major criterion for aggregate complexity is the behavioural features, it includes two aspects: learning and emergence (Manson, 2001). Learning and memory is based on the interaction between the system and the environment. Through the exchange of information, the complex system acquires new features while retaining its original property. Like the CASs, the system of aggregate complexity is also flexible, meaning that it can survive in the renewal of environment with the ability of acquiring and adapting, that is, the ability of learning and memory. Similarly, the system also has the ability of emergence as a result of interaction among components (Lansing & Kremer, 1993). It helps the system to process unanticipated situations, that fulfilling the system's capacity is greater than just assembling its components (Manson, 2001). It is the manifestation of complex system's ability of learning and memory in an integrated and functional perspective.

Finally, the aggregate complexity also has the feature of change and evolution. It comes from the same origination of CASs' self-organisation, as it allows the internal structure and

components to change to better fit and interact with the environment. Furthermore, changes and evolution also imbue the complex system with the ability of recovering from dissipative status (Harvey & Reed, 1994), as well as keep the balance between randomness and stasis (Manson, 2001).

From the above of summary of aggregate complexity's evolvement and description, one major difference with algorithmic complexity and deterministic complexity is that it puts the stress point on the component's function and its dynamic relationship with internal and external realms. Unlike the algorithmic complexity and deterministic complexity rely more on the mathematical and computational conjecture within a system's development, aggregate complexity places more value on the partial and mutual effect between the parts of a system. Likewise, the algorithmic complexity and deterministic complexity hold a more holistic perspective. They tend to view the system's function as one dominant sector which guides other parts. However, aggregate complexity holds the opposite viewpoint. It emphasises that the system's function is determined by the synergism of every internal component and relationship, rather than recognises the argument of having a central unit.

All these flexibilities in the concept of aggregate complexity allow it to be more suitable in being applied to social science subjects, such as language, or epistemology (Manson, 2001). The information in these social science subjects is not in a centralised form, in fact it is more distributed and generated by the interaction and discourse among different viewpoints (Cilliers & Spurrett, 1999). This pattern is similar to the aggregate complexity's declaration that structure and relationship play an important role in the functioning of a complex system. Furthermore, social organisations, as the carrier of social science subjects, are dynamic in their constitution and operation (Ostrom, 1990). This is adapted to the aggregate complexity's learning and emergence features. Concerning the relationship and components' mutual influence and impact on each other, the feature of learning and emergence can be introduced

to the investigation and understanding of social organisations' evolving pattern, or even give designated prediction of its development. Based on all this adaptiveness, aggregate complexity is the appropriate branch to be linked with the social science sector.

Now, to take a step backward, is there any possibility to bring the concept of aggregate complexity into my conceptual framework? The answer is definite. According to the structure of my conceptual framework, it is a multi-disciplinary research project that combines the topic of cross-cultural adaptation with gamification studies. From the partial aspect, every single block in the framework has its own dynamic. Both cross-cultural adaptation studies and gamification studies have experienced a continuous development trend, and further generated subsequent topics such as socio-cultural adaptation and psychological adaptation. From the integral aspect, all blocks are being linked by specific themes, which include usability changes, behaviour changes, intrinsic motivation, and extrinsic motivation. These themes are not fixed, as their definitions and manifestations are also evolving with time, and more importantly, the connections they provide to link those major topics in the conceptual framework are also fluid.

The creation of psychological and socio-cultural adaptation evolves from the growth of cross-cultural adaptation studies and is led by behaviour changes and usability changes. Simultaneously, the two aspects of adaptation also reflect its origination, that is the cross-cultural adaptation studies (Searle & Ward, 1990). These retroactions are also carried by the linking themes, meaning that the conjunctions have mutual effects on both sides. Similar relationships exist on the connecting points of intrinsic and extrinsic motivation. These two themes radiate their connectivity to the field of psychological and socio-cultural adaptation, meanwhile receive effects and inspirations from those fields, and further reflect on the development of gamification research. According to the above statements, in both partial and integral perspectives, the upper levels of my conceptual framework are in a dynamic form. There is no centralised and dominant component in the framework, every part is not a fixed

block in its own structure, the connections between each component are also fluid and mutually directed. All the above features give a reasonable precondition to apply aggregate complexity as a foundation of my conceptual framework. There are two major linking points that support the combination of aggregate complexity and the upper levels' structure are non-liner and mutual influence. As mentioned above, in the upper levels of the framework, there is no centralised and dominant component existing, therefore the influence between each component is not following a designated sequence or direction. In fact, each component can make an impact on others, hence the influence is multidirectional. This is also a typical representation of mutual influence. Based on these two features, among all the contemporary social research theories, complexity theory can be introduced as a major foundation into my research, and the conceptual framework is therefore viewed as an aggregate complex system under the general category of complexity theory.

2.3 Gamification studies and gamification in education

After reviewing the foundation of my conceptual framework, the next section is one step ahead: the middle level of my conceptual framework. This section will focus on the gamification studies, their application in the educational field, and further reflections of the educational gamification study on the student induction and orientation topic. But before exploring the realm of gamification, it is important to look at its origination: what a game is.

The origination of game can be traced back to the early stages of human history. As far back as 5000 years ago, the very first game in human history had been invented by the ancient Egyptians, named as senet (Piccione, 1980). The Arizona State Museum first received the senet game board in the year of 1922 and stored it within the Ancient Egyptian Collection till now. Due to the lack of instructional content on the senet game, scholars still have disputes about its exact rules, however the prototype should be a race-kind game: two players move the game pieces on a 30-square game board in a z-shaped path, the moves determined by a random

counter and the first player who finishes the routine wins the game (Romano, Tait, Bisulca, Creasman, Hodgins & Wazny, 2018). Archaeological evidence indicates that the senet game appeared in the wall painting from Pepi-ankh's tomb that can be dated back to about 2300 B.C. (Piccione, 1980). From the above information about how the senet game works, it seemed to be a strategic and competitive game for entertainment.

From the game of senet, the concept of game emerged. To define the concept of game in a single sentence, it is an activity that brings restrictions into the process of finishing a specific task (Werbach & Hunter, 2012). Giving specific examples, like a chess game, the ultimate task for a player is to checkmate his or her opponent. However, to complete this task, each player must move their pieces under specific rules, such as "knight can move one square along any rank or file and then at an angle", or "pawns can move forward one square if that square is unoccupied". These rules are the restrictions that exist in the progress of gameplay for players. Therefore, from the operational perspective, a game is a combined system of both tasks and rules, which guides the direction of gameplay as well as creating fun elements. On the theoretical level, game has more complicated and philosophical definitions. For instance, Mandelbaum (1965, p. 221) argued that a game is potentially an activity of "absorbing non-practical interest to either participants or spectators". This definition describes the fact of gameplay activity, nevertheless it can also be used to depict other activities such as art performance or religious rituals. Caillois (2001) also proposed four rubrics to classify and understand the definition of game. These four rubrics can be generalised as games of pure chance, competitive games, games of make-believe and games of physical exhilaration (Rowe, 1992), which Caillois (2001) himself named as *alea*, *agôn*, *mimicry* and *ilinx* in French. This generalisation provides a panoramic description of classifying a game and inspires further scholars to investigate game's definition in a detailed condition. A typical definition that developed from this foundation was Rowe's (1992) argument, in which he defined game as "an

abstract object (either a sequence or a goal) which is designed to have no instrumental value; the realization or pursuit of which is intended to be of absorbing interest to participants or spectators" (p. 478). This definition combines the essence of gaming activity that was summarised from previous research with the notion of structural game design, and hence offers a more conceptual, but also feasible, definition to understand what a game is.

Early games were mainly used as a social interaction medium in the upper class of social hierarchy, and this function reflects that game simply represents a gentler means of competition in early human history. It was also decided that the theme of game was developed from real-world events, such as commercial activities or war events. From this perspective, game is not only a formation of social interaction, but also a representation of thought or ideology in designated times. It is one of the main reasons for human culture resulting (Huizinga, 1957). As time goes on, games started to spread from upper social classes to the civilian population. This trend leads to it becoming more recreational and to developing variety in themes and categories, which also strengthens its function of human culture representation. Its usage also breached the limitations of entertainment, becoming more valuable in other areas like military or education fields. For example, the famous Egyptian game senet was a purely for entertainment tool in its early days. As the atmosphere of religious faith flourished more and more in ancient Egypt, the meaning of senet game also changed. People started to attach their religious beliefs to the game, and senet then later became a ritualistic instrument (Piccione, 1980). In the modern day, with the development of global social and economic status, the function and meaning of game has become even more diversified. Sand tables are used as a simulative tool in military affairs, sport games act as a bridge to form moderate but also intensive competition between countries. In the last 20 years, digital online games have also undertaken the responsibility of building and maintaining a particular global community, which is beneficial to the general trend of internationalisation (Wang & Singhal, 2009). These

diversifications in the meanings of game have connected it more with industries other than entertainment, and yet lead to the rise of novel interdisciplinary topics. One of these topics is gamification.

Starting from the year of 2012, gamification, a newly emerging research topic, has been showing its influence on many industrial areas. According to Werbach and Hunter (2012), gamification means using game elements and game design techniques in non-game contexts. This definition includes two parts: game elements and game design techniques, and non-game contexts. Game elements and game design techniques represent the components of building a game-like system, while non-game contexts stand for the objectives that utilise gamification theories and designs (Werbach & Hunter, 2012). From this definition, the nature of gamification is not just using game or game elements in other fields. It concerns more than the game itself, such as game design, game techniques, and game thinking (Cheong, Filippou & Cheong, 2014). Based on Werbach and Hunter's (2012) gamification element theory, a completed list of gamification elements (see Appendix E) has been generated and works as a reference for further studies (Kanazawa, 2020).

Using game elements, and even the notion of winning a 'game' in non-game industries, is becoming more common. In many areas like business, marketing, military, management, and education, gamification has been shown to have potential to bring benefits (Cheong, Filippou & Cheong, 2014; Dicheva et al., 2015). For example, airline companies use points and rewards in loyalty programs to keep customers; IT companies use achievement systems to improve their productivity; even the US government has designed a virtual system to help recruiting soldiers for military purposes. Cheong, Filippou and Cheong (2014) have also given examples for gamification implementations in people's daily life, as follow:

> *(1) LinkedIn, which uses progress bars to encourage users to complete their profiles, (2) EpicWin, in which users get points for completing items from their to-do lists, and (3) Fitocracy, in which users*

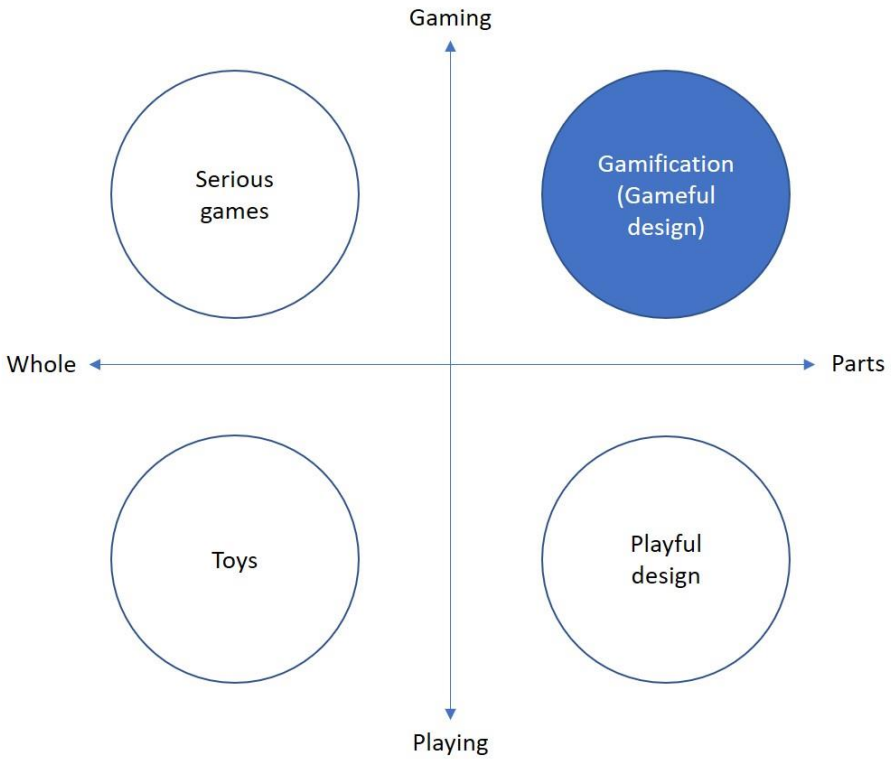
get points for exercising. (p. 234)

To better understand gamification's definition and its boundaries, a distinction between gamification and relevant concepts is needed. One typical discussion of classifying gamification with other relevant concepts comes from Deterding and his colleagues. In their research, gamification has been compared with other related concepts via two dimensions: playing/gaming and parts/whole (Deterding, Dixon, Khaled & Nacke, 2011). The dimension of playing/gaming measures the behavioural scale: gaming is the behaviour of acquiring pleasure and fun while completing a specific task or goal, and playing is, to the contrary, the behaviour that focuses more on the process of entertaining rather than its purpose.

The dimension of parts/whole weighs the proportion of a game-like part in the non-game context or product. 'Parts' means a non-game context or product that contains sectional game-like contents, and 'whole' represents that the non-game context or product may has a major manifestation of game-like features. These two dimensions form a cross coordinate system, and gamification is located in the quadrant of gaming/parts. This is because gamification emphasises bringing game design and gaming thinking into a non-game context to improve productivity. On the one hand, it keeps the notion of game design that contains a specific goal or task to achieve. On the other hand, it combines the game design with the product or service, retaining its own property rather than replacing it with game-like content. These two reasons put gamification in the gaming/parts quadrant of the coordinate system, which is also recognised as gameful design. Likewise, the other quadrants also have their own representatives. For example, the gaming/whole quadrant is occupied by the concept of serious games. In general terms, serious games are game products that are used for serious, non-entertaining purposes (Abt, 1987). Specific examples can be raised from the military sector, such as the United States Army employing a computer game called *America's Army* to help in recruiting soldiers (Hu, Zhang & Rhea, 2016). Compared with gamification, serious games

also bring the game-like contents into non-game contexts. The difference is that serious games are actual game products, not like gamification, which keeps the product's original structure as a non-game product. These two concepts are the same regarding the dimension of gaming but differ from each other on the dimension of parts/whole. In another direction, the quadrant of parts and playing is occupied by playful design. It refers a design pattern that brings fun without game-based technologies and practices (Deterding et al., 2011). Reflecting on the coordinate, it shares the same dimension of parts with gamification, meaning they all retain the original form of products. The difference is that playful design focuses on the playing aspect, not like gamification which guides the implementation with the idea of gaming. Finally, the opposite quadrant of gamification belongs to toys. It represents the product with the whole purpose of playing. These four major categories are located in each quadrant respectively (see Figure 2.2), offering a basic classification to better understand gamification and its relevant concepts.

Figure 2.2. The classification of gamification and its relevant concepts (Deterding et al., 2011, p.13)



The usage of gamification techniques can bring benefits to non-game industries. In recent years, gamification approaches have been adopted into many areas such as business, marketing, management, wellness, and ecology (Cheong, Filippou & Cheong, 2014; Dicheva et al., 2015). Business products like LinkedIn, Nike+ and Foursquare have all provided successful examples of using gamification techniques to improve their productivity (Dicheva et al., 2015). According to Rivera and Meulen (2013), gamification technology can be seen a steady development in the next five to ten years. However, this development is mainly focused on the business field, while looking into the educational section, gamification applications and studies are still in their infancy (Dicheva et al., 2015). Researchers have already found that gamification has the potential to benefit educational activities in many aspects, for example, to improve students' engagement (Dicheva et al., 2015), create collaboration in social interaction (Jagoda, Gilliam, McDonald & Russell, 2015) and increase students' self-efficacy (Banfield & Wilkerson, 2014).

One study that has been conducted by Bartel and Hagel (2014) combines mobile

learning and game-based learning together and aims to use gamified designs and mechanics to increase students' motivation and engagement in university education. By adopting a gamification approach named Extended Mobile Gaming Education (eMgage), Bartel and Hagel (2014) find that it is possible for the mobile gamification system to increase the engagement of university students. They have also pointed out that the study of gamification needs to be extended to provide more integrated understandings. Apart from academic studies, there is also a field practice held by Spence and his colleges (2012) in University of Toronto. This practice adopts gamification approaches in a library orientation tutorial session, which aims to solve the engagement problems during the sessions. As a result of the adaptation of gamification techniques, the teaching team reports that gamification has encouraged student engagement via adding personalised and fun elements into the session (Spence, Foster, Irish, Sheridan & Frost, 2012). Even though the upgraded session still needs to be fulfilled regarding other aspects, such as teaching team involvement and content balance, the study provides positive feedback for educational gamification practice.

In the engagement gamification studies that are mentioned above, the results shown are majorly positive toward adopting gamification approaches to improve student engagement. However, researchers have also pointed out that the limitations of those studies are explicit. Validations and developments need to be undertaken by further studies, so as to offer more generalised knowledge.

Apart from engagement, another major study area for gamification in education is motivation (Alsawaier, 2018). Vassileva (2012) mentioned in her study that the components of game mechanics are motivational via creation of user engagement and loyalty. This is also one connection which links together gamification techniques and educational purposes. Simões and his colleges (2013) have conducted a study of social gamification framework’s motivational effect in k-6 stage. In this study, the researchers aim to discover how social gamification can

help educators and schools to motivate students, and how effective is the use of social gamification in education. By designing a social gamification framework via an existing e-learning platform schoooools.com, the researchers claim that the gamification framework can be beneficial for educational purposes, however the validation still needs further studies (Simões, Redondo & Vilas, 2013). Other studies about engagement via gamification such as Bartel and Hagel (2014), and Landers and Callan (2011) have also mentioned that the gamification technologies have the potential to influence participants' behaviour from a motivational aspect, to foster participants' inner motivation of joining by using gamified approaches (Piasecki, 2019). This is to suggest that the educational gamification study can be conducted not only from the outside-world aspect, but also in a psychological direction.

From the literatures of gamification in education, it is obvious to see that the potential of improving engagement and motivation from the game design elements have already drawn researchers' attention. Since the year 2012, the study of gamification for educational purposes has shown a growth in numerical aspect (Hu, Zhang & Rhea, 2016). The benefit of bringing gamification approaches to the education sector is multiple, apart from improving motivation and stimulating motivation, other benefits are also obvious. Wild and Möller (2015) have pointed out that in the education sector, the effort of introducing gamification is to decrease, or at least vary subject's cognitive load, to offer more acceptable knowledge acquisition. Petrovski (2020) also points out that gamification can effectively promote creativity in the classroom, and therefore make school and learning a game worth playing for students. All these arguments have illustrated the possibility of linking gamification with different educational sectors. In fact, the current distribution of educational gamification studies has already been shown by Borges and his colleges (2014). According to their study, the main focus of educational gamification study is located in the higher education field (46.15%, according to Borges, Durelli, Reis & Isotani, 2014), followed by non-specific context/level (23.08%, Borges et al., 2014), training

and tutorial (11.54%, Borges et al., 2014), language and elementary education (7.69% for each, Borges et al., 2014), and with lifelong education (3.85%, Borges et al., 2014) at the last position. From those statistics, it is clear to see that gamification technology has already been universally adopted into the research within different educational sectors.

2.4 Cross-cultural adaptation studies

After the examination of the middle level in the conceptual framework, the next part of the literature view will then move to the surface level, which is the cross-cultural adaptation studies. This section will first examine the development of cross-cultural adaptation theories. Cross-cultural adaptation has been studied as a formal subject for more than a century (Kim, 2000). Depending on the cross-cultural sojourner's stay period in another country, cross-cultural adaptation studies can be classified into two main categories: long-term adaptation and short-term adaptation (Jiang, 2010). Long-term adaptation studies tend to focus on immigrants and refugees living in a new cultural context permanently (Jiang, 2010). Normally, these studies employ traditional anthropological and sociological methods to examine problems in cross-cultural adaptation such as acculturation and assimilation (Kim, 2000; Marden & Meyer, 1968). Short-term adaptation studies mainly focus on the temporary psychological problems experienced by the cross-cultural sojourners. The study of short-term adaptation has revealed contrary aspects: the problematic aspect of psychological adjustment to a new context and the developmental and growth-facilitating potential of these experiences (Jiang, 2010). Studies that focus on the problematic nature tend to examine the sojourner's negative experience in cross-cultural contexts (e.g., Anderson, 1994), and the developmental and growth-facilitating nature focuses on positive and enhancing aspects of cross-cultural adaptation (e.g., Adler, 1987; Kealey & Ruben, 1983).

Studies presenting positive temporary cross-cultural adaptation showed more continuous and ascendant trend since the 1960s. Scholars such as Oberg (1960) and Dodd

(1987) were influential because their research about the developmental and growth-facilitating opportunities of cross-cultural adaptation promoted the idea that psychological discomfort would, in the end, lead progressively to more positive psychological adaptation during the temporary period in the unfamiliar context. Their arguments in support of a theory of positive progressive adaptation have meant that linear hypotheses and models are quite common in this field. Oberg (1960), for example, presents a four-stage model of adjusting to culture shock. This sequence of cross-cultural adaptation includes four parts that he labels as the honeymoon – crisis – recovery - adjustment sequence. Extending Oberg's model, Austin (2007, pp. 240-241) describes the stages of people's cross-cultural experience as moving from a "clash of different cultures" to "resolved in new cultural context", and finally to "adjust in new culture".

Such stage model theories can also be summarised as proposing a psychological adjustment sequence of fascination, frustration, resolution, and adaptation, which offers a standard model type for cross-cultural studies (Austin, 2007, pp. 240-241). Given the limitations of the simple linear approach, researchers then began examining the impact of time on the process of cross-cultural adaptation. To make the stage model more comprehensive and specific, scholars such as Lysgaard (1955) and Gullahorn and Gullahorn (1963) combined learning curve theories with cross-cultural adaptation studies. Lysgaard (1955) presents the curvilinear relationship between the psychological reactions of cross-cultural sojourners, and the length of time the sojourners reside in the context of target culture setting. This curve theory is called the U-curve. According to Jiang (2010), the U-curve theory "starts with the initial optimism and elation for being in a new culture, a subsequent dip precipitated by difficulties in adapting to the new culture, followed by a gradual recovery to higher, positive attitudes as the sojourner becomes acclimated" (p. 36). Furthermore, Gullahorn and Gullahorn (1963) extend the U-curve to a W-curve theory that contains a re-entry phase during the sojourner's cross-cultural experience.

The concept of culture shock that comes from Oberg's (1960) four-stage model also plays a significant role in guiding the theoretical cross-cultural studies in the late 20th century. As in Oberg (1960), an individual is not born with culture, however everyone has the capacity of learn the culture and turn it into further use. Culture is something that can be learned by adolescents and children in their cross-border experiences and becomes a solid way of life that appears as an automatic way of getting what they want from the environment. This becomes a concept of value in cross-cultural sojourners' further lifespan (Oberg, 1960). This explanation of value shows a connection with Hofstede's (1984) value and culture theory. According to Hofstede (1984), culture is formed as a collective viewpoint system which is used to identify people's belongingness, and 'value' is the basic building block of a culture system. If the culture is a programmed mental system, then the value is playing as the 'software' of this system. The value can be reflected by people's behaviour, hence if people's value has been influenced by other external viewpoints, it may lead to possible behaviour changes (Hofstede, 1984). When put into a cross-cultural situation, if a cross-cultural sojourner's value has been influenced by the new social context's culture, then the sojourner's behaviour can also be changed in degree. This behaviour change can further lead to either a positive or a negative cross-cultural adaptation outcome, which is the connection of value theory and cross-cultural adaptation study. Furthermore, the value is not the only an influence for people's behaviour change, the social element in different social environments can also lead to behaviour change (Hofstede, 1984), and the behaviour change can even make a retroaction to the mental system change itself (Bem, 1970). Due to those traits, it is also suitable to link the value theory to cross-cultural study, as it also has a socio-cultural aspect which can provide comprehensive viewpoints to understand the theory.

Based on the value and culture theory, Hofstede (1984) develops a cultural dimension model, which first contains four dimensions: power distance, individualism vs. collectivism,

uncertainty avoidance and masculinity vs. femininity. After combining his theory with further developments in the contact of Eastern culture and Western culture, Hofstede (1994; 2011) upgrades his theory by adding two dimensions into the model. These two dimensions are long-term orientation vs. short-term orientation (Hofstede, 1994), and indulgence vs. restraint (Hofstede, 2011). Within this 6-dimension model, individualism vs. collectivism and long-term orientation vs. short-term orientation are frequently seen in cross-cultural research. The model has also inspired scholars in further study of cross-culture topics such as Berry, Poortinga, Segall and Dasen's (2002) cross-cultural psychology, and Berry's (2005) acculturation model.

Following Hofstede's (1984) value and culture theory, in the last ten years of 20th century and the early years of the 21st century, cross-cultural adaptation studies show more and more depth in specific topics and breadth across different disciplines. Searle and Ward (1990) present a cultural adaptation model that contains the two main types of adaptation outcomes that appear to better support our research questions: psychological adaptation and socio-cultural adaptation. In this model, the psychological adaptation concerns the physical and psychological wellbeing in the cross-cultural adaptation procedure, while the socio-cultural adaptation represents the intercultural sojourner's degree of getting involved in the new environment. Based on the initial cultural adaptation model, Ward and Kennedy (1999) developed the Sociocultural Adaptation Scale (SCAS, see Appendix B). The SCAS offers a full-scale items table to examine both psychological and socio-cultural adaptation outcomes over time. This scale initially contained 16 items and later was increased to 41 items (Ward & Kennedy, 1999). The SCAS is designed to measure different aspects of socio-cultural adaptation outcomes and it is adaptable to various situations (Ward & Kennedy, 1999).

By examining the elements of intercultural contact, such as tourists, international students, immigrants at group level and timespan, purpose, culture distant at individual level, Ward and her colleges (2005) have depicted the general process of cross-cultural contact. The

process of cross-cultural contact can be summarised in four stages, which follow the sequence of cross-cultural transition, then stress and skill deficits, and then responses, and at last the outcomes. The cross-cultural transition is the fact that brings cross-cultural sojourners from one cultural context to another, which includes life changes and intercultural contact. More specifically, the intercultural contact includes two levels of manifestation. At the intergroup level, intercultural contact can be seen in the following four different forms: genocide, assimilation, segregation, and integration. These forms are proposed by the attitude and strategy with which one culture group treats another culture group. At the individual level, intercultural contact can also be classified into four forms: 'passing', exaggerated chauvinism, marginality and biculturality. These forms are introduced according to the intercultural sojourner's relationship and strategy towards the host culture. The four different forms on both intergroup and individual levels have inspired further research in order to build more specific models of acculturation, such as Berry's (2005) acculturation model, which includes four dimensions: assimilation, integration, marginalisation and rejection.

The second stage of Ward's acculturation process model is the stress and skills deficits, which stands for the crisis stage in Oberg's (1960) Culture Shock model. The third stage is the responses, it includes the manifestations in affective, behaviour and cognitive aspects, as known as the ABC model. The last stage of acculturation process is the outcomes, which contains both psychological and socio-cultural aspects. The acculturation process can be measured through variables at both societal level and individual level. The societal level is reflected in the transfer process from society of origin to society of settlement, via social factors, political factors, economic factors, and cultural factors. The individual level relates to characteristics of person and situation, the personal characteristics include personality, language fluency, cultural identity, values etc., and the situational characteristics contain length of cultural contact, amount of intra- and intergroup contact, cultural distance, social support

etc. All these factors are the influential elements that can determine a cross-cultural sojourner's acculturation outcome.

The ABC model in the responses stage is another focus point, due to its influence connecting the acculturation model with different theoretical approaches of intercultural contact. The different aspects of ABC model – affect, behaviour and cognition – can be linked to different approaches that measure a cross-cultural sojourner's intercultural transition and adaptation. The affect can be linked to the stress and coping approach, which depicts cross-cultural transition as a series of stress-provoking life changes (Ward, Furnham & Bochner, 2005), and can be seen in more psychological tendency in cross-cultural studies. The behaviour is related to the approach of culture learning, which manifests as a cross-cultural sojourner's intercultural problems during their everyday social encounters (Ward, Furnham & Bochner, 2005). This approach can be seen between as different culture-group people's daily communication, including their coded and decoded messages, their interpreting skills, their cultural background knowledge and even their non-verbal expressions. Due to the content of this approach, the behaviour aspect is more related to the socio-cultural. The cognition can be further developed with the social identification approach. Compared with culture learning and stress and coping approaches, the social identification theories are just side influences in the cross-cultural study field (Ward, Furnham & Bochner, 2005).

Extending the linear and curvilinear stage models of cross-cultural adaptation theories, Gill's (2007) research indicates that language proficiency can be a further challenge for overseas students in their cross-cultural learning process, adding weight to the importance of the SCAS approach. Likewise, by drawing on the Searle and Ward's (1990) model, from their research Zhou, Jindal-Snape, Topping and Todman (2008) found that better pre- and post-departure preparation might lead to adaptations that are more fruitful. These findings support the suitability of the SCAS to study Chinese international higher education students' cross-

cultural adaptation issues.

2.5 Chinese students' cross-cultural adjustment problems in Australia

Becoming one of the major international student group in Australia, the Chinese international student has already drawn attention of researchers to study their cross-cultural difficulties in Western culture settings (e.g., Spencer-Oatey & Xiong, 2006; Yan, 2011). The Chinese cultural tradition is different to Western culture in many aspects, such as language, social structure, and ideology (Yan, 2011). Due to these differences, Chinese international students might experience acculturative problems such as English language-related issues, psycho-social-cultural issues, ideological stances and future aspiration issues when socialising within local students' contexts (Gao, 2017). Although Australia and China are regional neighbours, China maintains its distinctive ancestral culture within the modern nation and its political system, but Australia is a new nation, relatively speaking, that has a foundation of ancestral indigenous cultures overlaid by British colonial culture and systems, and the development of a modern nation of immigrants from many countries in the world, including China.

Cross-cultural difficulties such as lack of social interactions and deficit in language skills have already been discovered by researchers. Ward, Furnham and Bochner (2005) have pointed out that the international student faces three major categories of problem in cross-cultural experience, which include difficulties that are common to other cross-cultural travellers, pressures associated with the role of "foreign ambassador" in relation to host culture students, and problems similar to local students. When Chinese students come to Australia, they will experience much that appears to be Western, derived from its British colonial past. This can create a particular conflict that happens during their sojourn: the identity of "Eastern culture ambassador" versus the host culture's ideology. Due to this conflict, Chinese students will experience acculturative problems such as Australian English language-related issues, psycho-social-cultural issues, and possibly even financial issues in the overseas context (Pan

& Wong, 2011). However, although studies have been conducted in countries (Gill, 2007; Pang, 2007; Yu & Moskal, 2019), research about the situation of Chinese international higher education students' cross-cultural adaptation in Australian social context is still scarce (Singh, 2019). When examining the themes of cross-cultural adaptation, adjustment, and acculturation for Chinese higher education students in Australia, only nine articles can be found since 2008, which aims to fulfil the timeliness of research outcome. Within these articles, there are only two articles that include the Australian social context (Belford, 2017; Pan & Wong, 2011), as well as two articles that specifically focus on a Chinese international higher education students' group (Pan & Wong, 2011; Tian & Lowe, 2013). Figure 2.3 and Figure 2.4 illustrate a general summary of the search result, in different indexes.

Figure 2.3. Cross-cultural adaptation studies by target country and region

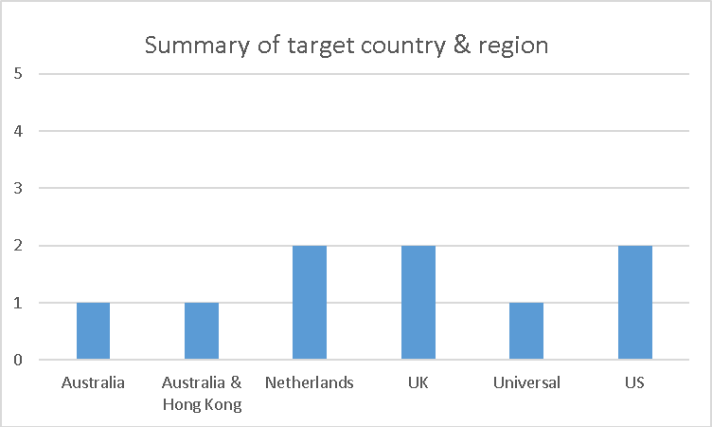
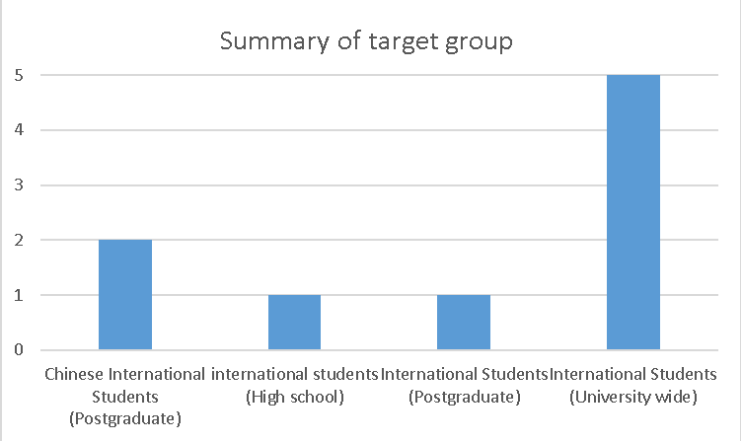


Figure 2.4. Cross-cultural adaptation studies by target group



The study by Belford (2017) is the only one that specifically examines the Australian context

for international higher education students, as well as examining the experiences of outbound Australian international higher education students. In this study, Belford (2017) focuses on international students' cross-cultural transition experience, such as culture shock, social interaction and friendship development while living and studying in Melbourne. Using the method of semi-structured interview, this study collects data from a participant group of eight international students coming from various cultural backgrounds and study areas. Among the eight participants, there is only one Chinese student who has spent five years of life in Melbourne. According to participants' responses, Belford (2017) points out that social interaction and friendship development plays a significant role in international students' adjustment process, as well as providing them a sense of confidence and feeling well-adjusted in the host cultural context. The findings also support Gill's (2007) viewpoint that intercultural competence and friendship is important for international students to promote cultural dialogue with co-nationals, host nationals and multinationals. The major limitation of this study is the sample scale which focuses only the context of Melbourne.

The only other study that included Australia was undertaken by Pan and Wong (2011) and examines Chinese international higher education students' cross-cultural adaptation strategies in Australia. By recruiting students to take a cross-sectional survey in Melbourne, and setting up a comparative participant group in Hong Kong, the study reflects that Chinese international student will face an array of acculturative difficulties. The most obvious problem for Chinese students in the Australian cultural context is a higher level of acculturative stressors when compared to their counterparts in Hong Kong. According to the findings, the authors have pointed out that if Chinese students experience a greater cultural distance in the host society, then it is more possible for them to encounter cross-cultural adaptation problems (Pan & Wong, 2011). However, Pan and Wong's (2011) study is still limited by its sample scale and resources, therefore it is necessary for fellow researchers to broaden their pathways.

Therefore, as these are the only two research articles examining the problem it shows the importance and necessity of our research on Chinese international higher education students' cross-cultural adaptation in Australian cultural context. Given the paucity of focused research undertaken in Australia, the analysis of the available research evidence about specific aspects of Chinese international students' cross-cultural adaptation issues will be based on studies undertaken in other English language speaking countries, specifically America and the UK, where the experiences can be somewhat similar and try to offer some insights to fill the gap in the Australian literature.

Pang's (2007) study of Chinese students' cross-cultural adaptation in the US finds that the linguistic, cultural, and social differences of American society can be problematic for Chinese students. Among those problems, poor English language ability has posed the greatest difficulty for Chinese students to adapt to daily life in America. If not solved quickly, this problem can cause significant delay in academic achievements (Collier & Thomas, 1989), or even discrimination in further career development (Singh, 2019). This finding accords with the SCAS's theory that language can be an important factor affecting Chinese students' cross-cultural adaptation. Important to note for our study, this study is about cross-cultural adaptation to the society. Arguably, Chinese international higher education students might be expected to have better English language for specific study purposes, even if their confidence in colloquial American English is poor.

Yan (2011) analyses another cross-cultural adaptation difficulty for Chinese international higher education students. This difficulty comes from the contradiction between Chinese students' unrealistic expectations of the American culture and the actual reality awaiting them in American society (Yan, 2011). Yan's (2011) finding fits with Jenkins and Galloway's (2009) research, which illustrates that even in familiar social environments for Chinese students, such as Taiwan, the incorrect assumptions around social conditions can cause

adaptation problems. This impact happens in several aspects, such as social cognition, social behaviour, and stress coping, which can lead to the macro level of culture shock problems. It also indicates that the pre-departure preparation is an important factor for the Chinese international students and their families to consider if they hope to reduce their adaptation problem after travelling abroad (Zhou et al., 2008). According to Yan's (2011) finding, the culture shock problem also influences Chinese students' adaptation to the American society. Based on this finding, it is suggested that Chinese international higher education students and their parents should undertake comprehensive and accurate pre-departure preparation before they start their overseas life (Yan & Berliner, 2011).

Apart from these studies of Chinese students in America, there are also research projects that have been carried out in the British context to examine Chinese students' adaptation problems. A study conducted by Spencer-Oatey and Xiong (2006) investigates Chinese students' psychological and socio-cultural adjustment experience in British universities. Their study adopts Searle and Ward's (1990) cultural adaptation model to explore the Chinese students' life experience in British universities. Within this study, the researchers noticed that Chinese students tend to identify as a national group that mainly socialises with fellow nationals or other international students on campus rather than with local residents. According to Ward and Kennedy (1993), greater social interaction with host nations leads to fewer social difficulties, improved communicative competence, and facilitates general adaptation to life overseas. Ng, Tsang and Lian (2013) concurred with Ward and Kennedy's (1993) theoretical finding that social support from local friends and society can create benign effects for cross-cultural sojourners. Spencer-Oatey and Xiong (2006) argued that Chinese students' lack of interaction with British nationals has caused adaptation problems, especially in language and communication aspects. They further reported that "interviewees reported clash of values and lack of things in common as reasons for their low level of social interaction with British people"

(Spencer-Oatey & Xiong 2006, p. 50).

Research by Gill (2007) explored Chinese postgraduate level students' experience in academic and socio-cultural contexts in the UK. The author found that most Chinese students have experienced a three-fold process of cross-cultural adaptation in the UK: first, the stress and anxiety, then the adaptation and lastly the change in perception of self and other. This is similar to Oberg's (1960) four-stage model of culture adjustment, as discussed above. In addition, Gill (2007) also found that the low level of English language proficiency and the lack of subject knowledge also posed a burden on Chinese students' adjustment processes. These findings indicate that for Chinese international higher education students in British universities, a poor level of English language proficiency can be a key problem for their adjustment in the local context.

All the studies have indicated that Chinese international higher education students will face an array of cross-cultural adaptation problems in the Western university and social contexts, especially in English language difficulties and cultural learning aspects. English language problems may lead to a greater language barrier and further problems such as loneliness and isolation (Yin, 2013). If not solved quickly, English language problems cause significant delay in academic achievements (Collier & Thomas, 1989), or even discrimination in further career development in Australia (Singh, 2019). Cultural learning problems relate to cultural distance and cultural differences. For example, Hofstede's (e.g., Hofstede, 1984; Hofstede & Bond, 1988) seminal research has found that Eastern cultures show more tendency in collectivism. This mainly manifests in close and supportive networks (Gudykunst, Nishida & Schmidt, 1989). This is contrary to Western cultural values that are found to be more individualistic (Hofstede, 1984). For international students that come from an Eastern cultural system, such as Chinese students, their adaptation from a more collectivist to an individualistic culture requires a targeted process of transition, but this is not without its own challenges to psychological

adjustment because of the challenges such a process poses to one's sense of identity. As Berry (2005) argues, good socio-cultural adaptation depends on positive intercultural attitudes. If Chinese international higher education students want to have a better socio-cultural adaptation outcome, the available research suggests that they need to be positive about such uncomfortable processes of adjustment and engage in cultural interaction, to get better understanding of cultural differences, and avoid the negative influences from cultural loneliness (Sawir, Marginson, Deumert, Nyland & Ramia, 2008).

However, the findings from past studies also suggest that it is not enough for Chinese international higher education students to get better adapted to overseas cultural contexts only by their own effort. Tong (2014) argues, for example, that 'schools' function as a microcosm of the larger society and create opportunities for Chinese international students to try out the socio-cultural adaptation strategies they employ to make sense of the similarities and differences between their primary (native) and second (school/mainstream) cultures' (p. 94). This means international education providers can offer content such as cross-cultural disciplinary inquiry projects, which are helpful to promote students' intercultural awareness (Spires, Paul, Himes & Yuan, 2018). Gao (2014) argues that institutions and governments need to foster and sustain close connections between local students and sojourner students, to increase those cross-cultural groups' satisfaction and adaptation. Moreover, Scally and Jiang (2019) suggest that it is helpful for international students to get support if the university staff have more international awareness, especially with similar backgrounds to the incoming students. This is in accordance with Dai's (2018) suggestion that it is helpful for international students to get support if the university lecturers have more cross-system communications with their colleagues in overseas partner institutions. Likewise, from another angle, if international students can keep a positive attitude and focus on the ultimate value of completing their study tasks, it can also be helpful for them to get adapted in an overseas learning environment (Gan,

2009). With effort from both students and education providers, available research suggests that it is possible to offer better cross-cultural adaptation experiences to Chinese international higher education students entering an Australian university.

In summary, what is known from the critical review of research is that Chinese international higher education students will face several cross-cultural adaptation issues, especially with aspects of English language and culture shock, when they come to an English language context, into a Western university, and are living medium-term in an unfamiliar society. Among all the elements of impact, language barrier plays a vital role. This can be traced from Hall's (1997) argument that language develops from the social environment, and acts as the medium of transmitting thoughts, ideas, and feelings in the cultural context. Kramsch (1993) also states that with the help of all verbal and non-verbal signals, language reflects the revolution of culture elements in human system, which provides support to make language factor an important and considerable measurement in studying cross-cultural adaptation issues. Despite growing Chinese international student numbers in the global higher education sector and an awareness by universities of their financial vulnerability if they fail to attend to these issues, there is a relatively small number of studies which have been conducted about the general problem. In the case of Australia, there remains a lack of research in either the Australian university or broader Australian cultural contexts. Hence, this research study aims to investigate Chinese international higher education students' cross-cultural responses in the Australian context to identify what aspects can be optimised in their cross-cultural adaptation processes towards successful completion of their university studies.

2.6 Gamification and cross-cultural adaptation studies

The discrete review of the two major topics in my research has finished, now it is necessary to link these topics together. Between the fields of gamification and cross-cultural adaptation studies, while specific interdisciplinary research is lacking, there are still some potentials that

connect these two topics together. As mentioned by Vassileva (2012), the web-based social applications, a technological production which is related to gamification approach, could motivate users to participate and even change their behaviour at a certain level. This effect is related to behaviour economics' view of motivation and can be linked to psychological theories such as Maslow's need-based theories or Alderfer's acquired need theories (Vassileva, 2012). Simultaneously, Spong and Kamau (2012) have pointed out that in the cross-cultural impression management system, the nonverbal cues such as eye contact and facial expressions play an important role. Beneath the surface of those manifestations, the driving force for people to use those nonverbal cues is the desire to gain social rewards in a new cultural context (Spong & Kamau, 2012). This social reward hypothesis can be linked to behavioural psychology as well. Through the connection of behavioural psychology, there is a possibility to put gamification approaches into cross-cultural studies and contribute more to the development of gamification research.

Using a gamified system and program, even game itself, in studying cross-cultural topics is not rare to see in the academic field. For example, Ward, Furnham and Bochner (2005) have mentioned six different techniques in the training techniques for culture-crossing purposes, and one of those techniques is the simulation method. The simulation stands for operating imitations of real-life processes (Sisk, 1995), the manifestation of this technique is mainly found in simulation games. Ward and her colleagues (2005) have introduced four simulation games, which includes the BAFA BAFA game (Shirts, 1973), the Bamga game (Steinwachs, 1995), the Markhall simulation (Blohm, 1995) and the Ecotonos (Saphiere, 1995). Although none of these games and simulations are digitally based, it is still strong evidence that the early scholars have already used the form of game to help intercultural sojourners to overcome cross-cultural problems. Early simulations suffer from limitations to be used effectively, however they still show positive traits for simulations, such as creating highly involved environments

and having an immediate effect (Ward, Furnham & Bochner, 2005).

By adopting gamification techniques in areas like student induction and orientation, language and cultural education, or physical education, researchers such as Whitton and Wilson (2009), Piatt (2009), and Sierra and Stedman (2012) have already presented positive findings on using gamification programs to enhance students' orientation experience and outcome. However, when looking into specific research contexts in Australia, the gamification research is still in its rudimentary stages. Therefore, the potential and necessity of studying gamification in the education sector in an Australian context have emerged. By illustrating the current situation regarding educational gamification studies, the gap that exists between the specific student group and cultural context will be proposed, in order to show the possibility and necessity of combining gamification studies with cross-cultural studies. According to Hamari, Koivisto and Sarsa (2014), by searching the terms of gamification, gamif*, gameful and "motivational affordance" in databases including Scopus, ScienceDirect, EBSCOHost, Web of Science, ACM Digital library, AISel, Google Scholar, and Proquest, the result shows the general situation of gamification research and publications in various areas such as commerce, education, health, work, innovation etc. (Hamari, Koivisto & Sarsa, 2014, p. 3026). After refining the search result, 24 peer-reviewed, empirical research papers on gamification were identified for the review (Hamari, Koivisto & Sarsa, 2014). Among the results, there is only one article studying the topic of gamification in the education sector in Australia, which is the Fitz-Walter, Tjondronegoro and Wyeth's (2011) study *Orientation passport: using gamification to engage university students*.

The study conducted by Fitz-Walter and his colleges (2011) designed a gamified mobile application which aims to improve new university students' orientation experiences in an Australian university. Through the investigation, researchers found that the overall results provide a positive suggestion of using gamification methods to improve students' orientation

experiences (Fitz-Walter, Tjondronegoro & Wyeth, 2012). Although issues have been found that need further investigation, such as choosing the appropriate game elements to enhance the outcome, the study still offers a supportive viewpoint of using gamification to create student engagement.

Due to the deficit of academic literature in gamification study of student induction and orientation in Australian context, it is possible to retrieve experiences from gamification in student orientation studies that have been conducted in other countries. When expanding the range of review, more gamification studies with specific focus points can be found. Scholars such as Whitton (2009), Piatt (2009), and Sierra and Stedman (2012) have all presented positive findings with regard to using gamification in the student induction and orientation aspect.

Whitton (2008) led a research project based in the United Kingdom called the Alternate Reality Games for Orientation, Socialization, and Induction (ARGOSI) project at Manchester Metropolitan University in 2008 (Zhou & Fang, 2014, in Chinese). The ARGOSI's main aim was to provide a novel and engaging alternative to traditional student induction (Whitton, 2009). By offering a gamified program called Viola Quest, the project aimed to improve students' induction experience. The purpose of this program was to help students to develop basic library study and information skills, create social networks, and have an enjoyable induction experience during the orientation period. According to Whitton (2009), the entire project achieved its aim of developing and piloting a program with alternate reality game features for student induction. For some students, the game provided an effective and appropriate chance for them to meet library learning outcomes and offered an enjoyable induction experience. However, Whitton found that the purpose of helping students to create and support social networks, or the purpose of helping them to navigate the campus and city had little supporting evidence and needed further research.

Piatt (2009) presents another research project at the University of Brighton in the

academic year 2006/2007. This research project aimed to help the first-year students at the University of Brighton get more involved in the higher education environment. The purpose of the project was to help new students make better use of online and offline resources, to provide information to students who missed induction content, and to enhance students' social activity in their school life (Piatt, 2009). The research project used a gamified program called Who is Herring Hale? This program was mostly delivered via e-mail and online blogs to students who participated in the project. Through the entire project, the author pointed out that this program has helped students' engagement, through aspects such as offering tasks that require students to work together and help each other. The feedback from participants confirms the helpfulness from the game, as they have mentioned that playing the game helps to figure out missing information, offer new perspectives, and provide fun as well (Piatt, 2009). However, the program also showed some limitations such as material and facility accessibility, teamwork task design, and web system usability. The author has also mentioned that these limitations will need further investigation and plans to repeat this project in another academic year in order to deepen the research (Piatt, 2009).

Sierra and Stedman (2012) present another research project at the University of South Florida. Their research contains two progressive parts. In the first part, they develop a program using simple role-playing features, called C's the Day. This program runs as a part of the Conference on College Composition and Communication (Sierra & Stedman, 2012). According to the authors, the program is "a collaboratively developed game designed to engage people, particularly newcomers, at the Conference on College Composition and Communication" (Sierra & Stedman, 2012, p. 3). The program is inspired by the concept of large-scale alternate reality game and tries to encourage participants to explore more at the conference, in order to expand and enhance their conference experiences. The creators of the game believe that this project can provide better guidance and social interaction to conference

attendees, and even has further positive influence in the research field of games and learning (Sierra & Stedman, 2012). According to the participants' feedback, this program has provided a better environment of social interaction, as well as motivating positive emotional experience. Based on the experience of running C's the Day, the scholars conducted a further research project at the University of South Florida in the 2011 orientation period. This time, they created a game called FYC's the Day, which is developed from the design of C's the Day and was used to provide better orientation experiences to their new and returning First-Year Composition teachers (Sierra & Stedman, 2012). The gamified system shows the important aspect of flexibility in being able to adapt the game design and focus from the highly successful C's the Day, with more game elements, like tasks and rewards, and more flexibility for attendees to arrange their own schedule. This program ended with a result that was not as ideal as anticipated, but it still provided useful data for researchers in their developing understanding of gamification applications, and for game designers for future improvement. From this project, the researchers summarise that this kind of gamification implementation can make participants more engaged in orientation events, but it is not easy to create and improve the game design (Sierra & Stedman, 2012).

All these studies reflect that gamification has positive influence for educational purposes, and as the implementation area is still expanding, the benefits will be more explicit in further development. In the past ten years, more and more scholars have paid attention to gamification's benefits for educational settings. For example, research has shown the potential of gamification elements to be supportive to the social learning activity (Gianetto, Chao, & Fontana, 2013; Simões, Mateus, Redondo & Vilas, 2015). The usage of interactive response systems can also be helpful to enhance emotional engagement and provide more satisfying and exciting learning experiences to students (Sun & Hsieh, 2018). Furthermore, there is no doubt that gamification can bring excitement, entertainment, and challenging processes to classic

pedagogy to create enhancement (Piasecki, 2019). However, the shortage of literature in the designated gamification study field is still reminding researchers of the fact that there is a long way for gamification to go in educational studies. Hence for the educational gamification study in student induction and orientation area, it is necessary to focus on a distinguished target group such as Chinese international students, as well as a specific context, like the Australian higher education sector.

2.7 Sketching the groundwork

Drawing experience from previous literature, although numerous findings have been discovered in the field of Chinese international students' cross-cultural adaptation issues, gamification application in educational sector, as well as their conjunction areas, there are still gaps for further studies. In this section, I will locate the gaps between my study and previous research outcomes on relevant topics. This section will be presented in the following sequence: first, talking about what can be inferred from previous studies to address the main research question, then moving to the sub-questions; second, discussing what gaps exist from previous studies that can be referred to the main research question and sub-questions respectively. The main purpose is to build my research on a solid academic foundation and try to reflect the value of my project in further scope. To achieve this goal, an ideal starting point is to re-exam the research questions. By linking the questions with previous research findings, it will be more possible to see the position where my research rational is located, and yet also offering insights for depicting the gap.

As mentioned in Chapter 1, the research questions contain one main question and three sub-questions. The main question is "What are the strengths and limitations of using gamification techniques to help Chinese international students improving their cross-cultural adaptation outcome in Australian higher education environment?". The three supportive sub-questions are:

1. What kind of cross-cultural adaptation problems do Chinese students encounter most frequently in the Australian higher education context?

2. What is the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties?

3. What effect can gamification techniques bring to positively influence Chinese international students' cross-cultural adaptation process in Australian higher education context?

The main research question aims to investigate an interdisciplinary topic, which combines Chinese international students' cross-cultural adaptation problems with the effect of educational gamification application. The sub-questions are focused on different sides of the main question. Sub-question one investigates Chinese international students' actual cross-cultural adaptation problems in the context of an Australian university, sub-question two explores the design principle of a gamified program that is aimed at the adaptation problems for Chinese international students, and sub-question three answers the major concern of research topic: what is the influence that gamification can bring to improve Chinese international students' cross-cultural adaptation process in Australian higher education context? It is a step-by-step design for discovering the answers to the research questions. By bringing in relevant research findings from previous literature, the current status and possible gaps for each question can be revealed.

Regarding the main research question, it is positioned in the conjunctive zone between the two research fields of cross-cultural adaptation and gamification study. Although the topic of cross-cultural adaptation has been treated as a formal academic subject for more than one century (Kim, 2000), to combine it with novel technologies such as gamification, is a revolutionary trend that is still in its early stage, because the burst of gamification research only starts to appear in the first decade of the 21st century (Dicheva et al., 2015). Theoretically, it is

compatible to bring gamified technologies into the field of cross-cultural adaptation studies, as Ward, Furnham and Bochner (2005) have proposed that simulation game is one of the six techniques that can improve training results for cross-cultural purposes. Simultaneously, researchers in the gamification sector also make efforts to seek the inspiration of adopting this novel technology to the cross-cultural adaptation studies. Vassileva (2012) investigates the game-like web-based social applications and argues that it could be beneficial to affect users' behaviour in a certain level. This argument is adapted to the principle of social reward hypothesis in the cross-cultural research field, as it also focuses on cross-cultural sojourners' behavioural changes in a new cultural context (Spong & Kamau, 2012). Through all the above connections, it is obviously useful to find the potentiality of linking these two areas together. However, the actual research project that combines these two topics together is still absent in the current academic sector. One representational research project that is close to this topic can be found in the study of international higher education students' orientation experience. Researchers such as Whitton and Wilson (2009), Piatt (2009), and Sierra and Stedman (2012) have proposed relevant projects that aim to discover how gamified technologies can affect higher education students' orientation and engagement in university contexts. Their research has pointed out that introducing gamified technologies can improve students' orientation and engagement in the higher education environments to a certain extent. It offers the possibility and necessity of combining gamification studies with cross-cultural studies. Nevertheless, this is also the furthest point that previous gamification research can achieve. The edge also marks the limitation and gap for deploying further studies, which I will discuss later in this section. After examining what can be inferred from previous studies to address the main research question, in the next paragraph I will go through the sub-questions about what has already been identified in previous studies.

The first sub-question asks what kind of cross-cultural adaptation problems Chinese

students encounter most frequently in the Australian higher education context. This question aims to find out the most common difficulties that currently exist in Chinese international students' cross-cultural experiences, to provide a contextual view towards the research topic. Because Chinese culture is different from Western culture in various aspects like language, social structure, or ideology (Yan, 2011), researchers raise assumptions that Chinese international students may encounter acculturative problems in overseas context. Those problems include, but are not limited to, English language-related issues, psycho-social-cultural issues, ideological stances, future aspiration issues (Gao, 2017), and even financial issues in their daily-life aspect (Pan & Wong, 2011). Among all the studies, the most common acculturative problem for Chinese international students in overseas context is the language barrier issue. The incapability of practically using English language as a communication tool in Western countries posts the major interruption for Chinese international students' success in their overseas study. Scholars such as Pang (2007), Spencer-Oatey and Xiong (2006), and Gill (2007) have all pointed out that language difficulties play a major role in Chinese international students' intercultural transmission process, as this has become the major barrier for this student cohort to gain a satisfying overseas study result. The insufficient English language skill level can further lead to problems such as loneliness and isolation (Yin, 2013), significant delay in academic achievements (Collier & Thomas, 1989), or even discrimination in further career development in those English-speaking countries (Singh, 2019). Apart from the language barrier issue, other typical problems for Chinese international students in overseas higher education context include unrealistic expectations for target country at the pre-departure stage (Yan, 2011), passive interaction with local and other non-Chinese cohorts (Spencer-Oatey & Xiong, 2006), getting familiar with local cultural traditions (Gill, 2007), etc.

All these problems are reflected on a more factual and contextual level. Although they are all reflected in different aspects such as daily life, academic performance, or even

understanding towards the target country's social conditions, when tracing back to their roots, it is all still connected with the incapacity of foreign language skills. As Hall (1997) has argued, language develops from the social environment, and acts as the media of transmitting thoughts, ideas, and feelings in the cultural context. This argument confirms that language can be the root of problems that happen in cross-cultural adaptation situations, as well as further inspires the belief that the essence of Chinese international students' cross-cultural adaptation problem is most closely related to English language proficiency issues.

The second sub-research question asks what the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties might be. This question examines the basic design principal of educational gamification implication, as well as linking the topic of gamification with cross-cultural adaptation studies from in relation to purpose. Although the concept of game has a long history, the technology that brings the idea of game design and game thinking to non-game industries is still in the early stages of development. According to previous research, gamification's basic principle reflects on the adoption of game elements and game design techniques in non-game contexts (Dicheva et al., 2015; Werbach & Hunter, 2012). Based on this game element theory, a completed list of gamification elements (see Appendix E) has been generated by further research (Kanazawa, 2020). The nature of gamification concerns more than the game itself, it emphasises the usage of game design, game techniques, and game thinking (Cheong, Filippou & Cheong, 2014), while keep the original product's composition and function (Dicheva et al., 2015). This offers a distinction between gamification and some relevant concepts such as serious games and playful design, as those concepts have all been vastly applied in non-game industries (Dicheva et al., 2015). The major industries that bring in gamification include business, marketing, military, management, wellness, ecology, and education (Cheong, Filippou & Cheong, 2014; Dicheva et al., 2015), the main benefit that gamification can offer is stimulating the motivation

of users. By creating self-voluntary, gamification improves the productivity and engagement for people in various industries in a more pleasurable way. Specifically, in the education field, the effect of introducing gamification for revolutionary purposes is still in progress (Dicheva et al., 2015). Researchers have already discovered that the implementation of gamified elements in educational activities can be helpful to improve students' engagement, create collaboration in social interaction, and increase students' self-efficacy (Banfield & Wilkerson, 2014: Dicheva et al., 2015; Jagoda et al., 2015). These areas are the major aspects that can reflect gamification's benefits in the education sector. The use of gamification elements for educational purposes is mainly acting on the student engagement aspect. With the help of elements such as mobility and personalisation options for participants, gamification can increase the fun experience and further motivate participants to better engage with target products or contexts (Bartel & Hagel, 2014; Spence et al., 2012). However, although gamified elements have proved to positively influence the productivity and engagement, it is still in a limited range of settings in the education field. This limitation posts the necessity of further exploration in more broadly selected areas of gamified elements, as it also fits the purpose of the second sub-question.

The last sub-question asks what effect gamification techniques can bring to positively influence Chinese international students' cross-cultural adaptation process in Australian higher education context. This question stands on the nexus of cross-cultural adaptation and educational gamification studies, trying to discover the knowledge that can substantially answer the main research question's concern. Due to the lack of interdisciplinary research between these two areas, the current research findings that can reveal answers towards this question are still limited.

As Chinese international students normally encounter their first major inter-cultural transmission experience during their orientation stage, the best penetration point for

introducing gamification research into cross-cultural adaptation studies is in areas like student induction and orientation, or language and cultural education. In these areas, researchers have already presented positive research findings. For example, Fitz-Walter, Tjondronegoro and Wyeth's (2011) study introduces a gamified mobile application into incoming university students' orientation process in an Australian university context. This research's results show positive influences on using gamification to improve students' orientation experiences. The result positively argued that for the current Australian education sector, gamification research can be helpful to create student engagement, however it is still in the rudimentary stage. Due to this deficiency in the amount of research in Australian higher education context, similar study in other English-speaking countries should also be considered, as the language and cultural context between these countries has similarities. When expanding the range of review, research conducted by Whitton (2009), Piatt (2009), and Sierra and Stedman (2012) have all shown the benefit of using gamification in student induction and orientation. Whitton (2009) discovers that for some students, the implementation of gamified approach provided an effective and appropriate chance for them to meet library learning outcomes and offered an enjoyable induction experience, achieving the aim of developing and piloting a program with gamification features for student induction. Piatt (2009) points out that through the feedback of research participants, the helpfulness of applying gamification approaches has been confirmed. Participants have mentioned that the gamified program helps them in acquiring information, offering new perspectives of thinking, and even providing fun elements. This has also strengthened the view that the gamified program can help students' engagement in different aspects. Sierra and Stedman's (2012) research outcome are not as ideal as anticipated; however, it still generates valuable insights for further studies. They summarise that introducing game elements like role-playing and social interaction can improve engagement for participants of the orientation events. Nevertheless, the implementation of these gamified

elements requires better understanding and practical skills in game design. If those elements are not implanted appropriately, the effect of such gamification attempts may be weakened. All the above studies explored the influence of gamification technology on higher education students' induction and orientation experiences.

Apart from this area, recent studies have also focused on other topics that can be linked to cross-cultural adaptation. For example, Simões, Redondo and Vilas (2013) and Gianetto, Chao and Fontana (2013) have both claimed that gamified elements can be helpful for social learning purposes. Sun and Hsieh (2018) point out that gamification application is beneficial to enhance emotional engagement and provide more satisfying and exciting learning experiences to students. All these research outcomes also potentially support the impact that gamification approach can bring to the cross-cultural adaptation studies. Although the shortage of literature in the interdisciplinary zone of gamification and cross-cultural adaptation is evident, potential benefits can still be found to prove that gamification approach has positive influence on topics such as student induction and orientation, social learning, and emotional engagement, which all have indirect connection with cross-cultural adaptation studies.

To sum up, previous literature has displayed findings towards main and sub research questions in various aspects. In the current market of overseas study, Chinese international students are still facing acculturating problems in many respects. The incapability of English language skill issue still occupies the major proportion of Chinese international students' adaptation problems, while other minor problematic aspects include unrealistic expectations for target country, passive interaction with local and other non-Chinese cohorts, getting familiar with local cultural traditions and so on. This can be referred to sub question one. Then, the usage of game elements is the major form of gamification application in an educational context. Those applications are mainly focused on aspects such as improving students' engagement, creating collaboration in social interaction, increasing students' self-efficiency,

etc. These findings clarify sub research question two.

Moving to sub-question three, although there is still a lack of specific research that focuses on the conjunction between cross-cultural adaptation and educational gamification application, research findings of gamification impact on relevant topics can still be revealed. These topics include that gamification can affect higher education students' induction and orientation experiences, be beneficial for their social learning purpose and emotional engagement. Finally, with the fusion of all the above findings alongside other literatures, it indicates the possibility and necessity of combining gamification studies with cross-cultural studies to discover answers to the main research question. With the help of previous studies, the current ground for my research has been illustrated. However, there are also gaps that emerge from those literatures. It is necessary to examine those gaps respectively, to help display the full scope of my research.

As previous research findings have addressed the main research question, interdisciplinary study among cross-cultural adaptation and educational gamification shows its scarcity in the numeric count. Although scattered arguments have been proposed towards adopting gamified approaches to improve student adaptation experience via pathways like orientation events or engagement capability, detailed investigation in the relevant area is still in demand. One major gap between these two topics is that the combination of SCAS and gamification approaches remains unclear. According to the literature, previous research makes efforts to examine cross-cultural adaptation issues with the foundation of Ward and her colleague's (1999) socio-cultural adaptation theory (e.g., Pan & Wong, 2011; Spencer-Oatey & Xiong, 2006) Likewise, researchers have also argued that bringing game elements can be beneficial in several educational purposes such as creating engagement and entertainment feelings (Bartel & Hagel, 2014; Spence et al., 2012; Vassileva, 2012). However, there is currently no specific research that indicates the co-relation and interaction between the items

of SCAS list and gamification elements list. Due to this fault, the link between cross-cultural adaptation scales and gamifying elements is still blurry, hence the gap exists for further examination. Another gap that exists between literature and my research scope is positioned in the effectiveness of bringing gamification into cross-cultural adaptation studies. Currently the major discovery of gamification's effect is mentioned in a positive tone, such as it can create participation and engagement (Vassileva, 2012), help motivating students in educational contexts (Simões, Redondo & Vilas, 2013), as well as potentially change people's behaviour from a motivational aspect (Landers & Callan, 2011). However, as every coin has two sides, the influence of gamification also requires comprehensive examination. Among all the previous literature, fragmented arguments that mention the deficiency and difficulties of applying gamification in educational research have also been proposed by researchers (e.g., Sierra & Stedman, 2012). This information reminds that the investigation of gamification's influence on cross-cultural adaptation research should also concern both positive and negative aspects. The positive effect of gamification application can be identified and developed, yet the possible negative effects and limitations should also be considered during the investigation, as they can also provide inspiration and guidance for future study of relevant topics.

After addressing the gaps in the main research question, the next step is examining sub research questions, as well as locating gaps for my research. Starting from the first sub-question, as it mainly focuses on the cross-cultural adaptation problems for Chinese international students in overseas context, previous literature has proposed findings that indicate the most common problems in their intercultural transition progress. Researchers have pointed out through previous studies that for Chinese international students, the primary difficulty within their cross-cultural experience is manifested in the language barrier aspect (Gill, 2007; Pang, 2007; Spencer-Oatey & Xiong, 2006). Specifically, the language barrier issue mainly refers to insufficient English language skill and proficiency in both academic and daily life settings. It

concerns the mastery of ability to use the English language appropriately in different settings, to help those Chinese international students get a better adaptation outcome in their overseas life. Through the manifestation of language barrier issue, one gap can be identified here: does the language barrier issue still keep its original form in the contemporary higher education sector, or is there any new expansion and interpretation for the same problem in the current situation?

The original argument of language barrier issue concentrates on the utilisation of English language as a communicative tool in the target country's social environment. Therefore, it seeks the solution in a more generalised and instrumental way, such as suggesting Chinese international students must have a better acquisition of knowledge towards English language (Pang, 2007), or expand their communication pathways within a more diverse range of student cohorts (Spencer-Oatey & Xiong, 2006). However, as a carrier of cultural norms and contexts in a social environment, language is not a fixed signal system, rather it evolves with the development of human society and history (Kramsch, 1993). From this perspective, the consideration of the language barrier issue in Chinese international students' cross-cultural adaptation process should also be taken in a fluid view. The global higher education market is always developing, the same adaptation problem may have different representations at different times. Thus, in relation to my research, the renewal of the language barrier issue in current Chinese international students' cross-cultural adaptation experiences in Australian higher education context is acting as one of the major gaps to explore. Apart from this language issue, there are also other aspects in the broader section of cross-cultural adaptation study can be examined in my research. These aspects include international students' intercultural understanding, behavioural performance during cross-cultural interaction, and self-management ability in overseas life (e.g., Gill, 2007; Pang, 2007; Spencer-Oatey & Xiong, 2006; Yan, 2011).

Among all the above aspects, other potential gaps for my research to explore also exist. For example, the preparation in pre-departure stage needs more attention, as indicated by Jenkins and Galloway (2009) and Yan (2011), and that incorrect assumptions about social conditions in the target overseas study country can cause adaptation problems. Through the pre-departure preparation stage, Chinese international students and their families need to obtain much detailed information to have a global understanding towards the target country. It is also beneficial to reduce their adaptation problem after travelling abroad (Zhou et al., 2008). Although this is an important aspect for Chinese international students to better adapt to the overseas study life, the academic research and relevant literatures are still short in number. Therefore, except for the language barrier issue, there are also other focus points in the cross-cultural adaptation field for my research to discover, one stance is the pre-departure preparation related issues.

For the second sub research question, as it concerns the design principle and thinking of gamification application, the focus should be on the operational angle when examining gamification topics. The major evidence to track gamification's effect in educational cross-cultural studies is the usage of game elements and functions in the educational settings. Therefore, the necessity of answering this sub-question has been put on the analysis of game elements in general gamification practices. Though educational gamification research has become a major category among all the gamification studies (Borges et al., 2014), previous studies examine the implementation of game elements in a limited range. Specifically, most academics focus on the gamified elements like engagement, interaction and collaboration, motivation, entertainment and fun, etc. (e.g., Banfield & Wilkerson, 2014; Dicheva et al., 2015; Jagoda et al., 2015). Research findings indicate that all these gamified elements can offer positive influences on educational demands, for example, the implementation of mobility in education activity can increase students' engagement in the university context (Bartel & Hagel,

2014), or bringing socialization functions into educational context can effectively stimulate students' motivation (Simões, Redondo & Vilas, 2013).

However, beyond the range of those specific elements and functions, there are still a large open area of gamification elements to explore. For instance, within previous educational gamification studies, it is presumed that gamification is applied with the help of computer-based, or digital-based approaches. Indeed, the game industry has received explosive growth after the popularising trend of digital entertainment industry. But from the historical perspective, the concept of game emerged and was organised without any digitalised technology. Based on this fact, does gamification have to be studied within the domain of digitalisation? Is it possible to investigate the effect of gamification in non-digitally based form? It should be noticed that in the game element list (Kanazawa, 2020), some items such as social discovery and community collaboration can be achieved not only in virtual contexts, but also in real-life situations. This means it is not convincing to study the effect of game elements only in digitally based form. This variation posts a gap for my research to notice, as the implementation of gamification should not be limited in the digitalised form. It is also important to explore the possibility of adopting gamified elements into non-digitally based environments, and further investigate the effect of such a combination.

The last sub research question focuses its sights on the connection of gamification approaches with specific cross-cultural adaptation purposes in the cohort of Chinese international students in an Australian higher education context. According to this attention point, previous research that combines the gamification approaches with cross-cultural adaptation studies in the Australian higher education context can be the best reference for literature support. However, after examining and refining relevant resources in various databases (Hamari, Koivisto & Sarsa., 2014), the closest research for the above scope is Fitz-Walter and his colleagues' (2011) project of using mobilised gamification approach to improve

new university students' orientation experiences in an Australian university. In this project, the researchers adopt a gamified mobile application named *Orientation passport*, and it aims to create newly arrived university students' engagement by improving their orientation experience. This research provides insights for further study in relevant areas, that adopting gamification elements can be supportive for improving student engagement throughout their orientation stage in an Australian university context. The only mismatch between this research and my scope is that it does not clearly focus on the group of Chinese international students, yet it is still valuable for my study to draw experience from Fitz-Walter and his colleagues' (2011) research. The actual gap within this sub-question is also reflected by this study, in that it reflects the lack of research on the same topics within the current academic field. The effects of gamification on cross-cultural adaptation studies are reflected in multiple aspects, for example, what game element is the most effective for international students' adaptation in target cultural settings, or what SCAS item can be affected by the gamification approaches? Regarding the above two considerations, Fitz-Walter and his colleagues' (2011) research can provide insights on the effectiveness of mobility and social interaction for student orientation purposes. Simultaneously, their study can also prove that student engagement and self-motivation can be affected by the gamification approaches introduced. However, these findings are still in a limited range, as the authors also admit that further investigations are needed for more appropriate choice of game elements (Fitz-Walter, Tjondronegoro & Wyeth., 2012).

This shortage reflects the combination of gamification implementation and student orientation experiences are still blurred in the major connection areas, hence for the further joint topic of educational gamification and cross-cultural adaptation in my research, the interconnection between game element list and the SCAS items list is a major gap for me to investigate. This requirement also conforms to the gap that exists in my main research question; it corroborates the relevance from the sub research questions to my main research question.

Apart from this gap, the connection between gamification applications and Chinese international students' cross-cultural adaptation problems that has been proposed in sub-question one also needs attention. The cross-cultural adaptation problems that have been mentioned in the investigation of sub research question one involves the major difficulties for Chinese international students in overseas context. Therefore, to study the impact gamification approaches bring to influence Chinese international students in Australian higher education context, it is necessary to combine the problems from findings of sub-question one. Those findings have directly pointed out the difficulties that Chinese international students are currently experiencing in their overseas study journey in Australia. This potentially remedies the contextual insufficiencies of Fitz-Walter and his colleagues' (2011) research, specifically focusing on the cohort of Chinese international students, and yet makes the investigation of sub-question three more feasible and reliable.

To sum up, by combining the review of previous literature with my current recognition of relevant academic topics, the gaps between my research and previous studies have been revealed. The main gap for my study to discover is how the educational cross-cultural adaptation and gamification research raises mutual influence through the interconnection of their own item and element list. Apart from this major gap, there are also other gaps that need to be examined in sub-questions. Those gaps include the development of the language barrier issue in current Chinese international students' cross-cultural adaptation experiences, the consideration of pre-departure preparation issues for Chinese international students, the effectiveness of non-digital-based or other particular types of gamification application, and the combination of all the conditions within my research topic. Like the structure of research question design, all the gaps from sub research questions are also in a supportive position to assist in the gap in the main research question. All these gaps will display the borderline and pinpoint of my research, which allows me to design my research with a more accurate

perspective.

As a conclusion, in this section, I have illustrated my research's current position and boundary, revealing the inferences and gaps from the review of the respective literatures. Following the structure of my research question, what is known from previous research is displayed layer by layer. The combined research of educational cross-cultural adaptation and gamification studies still rarely to be found in the academic sector, thus experiences can be drawn from relevant fields such as gamification and student orientation and induction studies. To examine this question in a specific way, various aspects need to be considered. These aspects include the current situation of Chinese international students' cross-cultural adaptation problems in overseas context, gamification application in student induction and orientation sectors, as well as its effectiveness and limitations. These aspects also match the structure of my design of sub research questions. Through the review of previous literature, Chinese international students' adaptation problem is mainly reflected by the incapability of English language skill. Other minor problems include unrealistic expectations regarding the target country, passive interaction with local and other non-Chinese cohorts, and getting familiar with local cultural traditions. The highlighted point of gamification in student induction and orientation research is mainly focused on aspects such as improving students' engagement, creating collaboration in social interaction, and increasing students' self-efficiency. Although there is still a lack of specific research that focuses on combining cross-cultural adaptation and educational gamification application, it is understandable that gamification may affect higher education students' induction and orientation experiences, be beneficial for their social learning purposes and emotional engagement. To place all the above findings alongside other literatures, the possibility and necessity of combining gamification studies with cross-cultural studies is revealed. However, there are also gaps emerging from literatures that display the limitation of my research scope. The major gap is how to connect educational cross-cultural adaptation and

gamification research together through the interconnection of their own item and element list. Minor gaps that exist in sub-questions include the development of the language difficulties in Chinese international students' cross-cultural adaptation process, the consideration of better pre-departure preparation for Chinese international students, the effectiveness of non-digital-based or other types of gamification approach, and the combination of all the above considerations with my research. All the known and unknown information will be references to help my discussion of research data in Chapter 5. By combining the literature with my research data, a solid discussion of my research can be made, and all the research questions can be answered.

2.8 Chapter summary

In this chapter, I have presented my overarching conceptual framework for my study, also being the basis for my research design to be discussed in the next chapter (Chapter 3). I have made a comprehensive review of relevant literature for my research. The concept of complexity theory has been first introduced, as it forms the foundation of my conceptual framework as well as my research design. Although it is generated from computer science and the natural science field, over nearly a hundred years' development, complexity theory has already evolved and become able to be adopted into the social science sector. The two major bodies of my conceptual framework are cross-cultural adaptation and gamification. Cross-cultural adaptation has been studied as an academic field for nearly a century, scholars have developed effective models and theories to explore the rich realm of cross-cultural phenomenon. Likewise, gamification has become a fast-developing academic field from the beginning of the 21st century, most theoretical understanding of gamification is still underdeveloped. The huge gap in the time of development between these two areas is showing that there is a range of work needed if researchers want to link them together. This also points out the potential of combining these two topics, as it can offer a novel prospect to examine the traditional cross-cultural study and

provide more insights for the development of gamification. By examining previous studies in both cross-cultural adaptation and gamification fields, I have been able to identify what is currently known from empirical evidence and demonstrate the gaps in knowledge about these two key aspects of my study. My critical analysis of these literatures has also enabled me to depict a panorama of theoretical support for my conceptual framework that leads to the next step, which is the design of my research project's structure. This leads to the next chapter, that is, the methodology of research design.

Chapter 3: Methodology

Following the literature view chapter, now I will uncover my research design. In this chapter, I will first discuss the methodological approaches for my research. The aim of this research project is to investigate how gamification approaches can affect Chinese international students' cross-cultural adaptation outcome when studying at Monash University. To achieve this purpose, I will use a major qualitative research method to collect and analysis research data. Following the methodological approaches, the next section will talk about the contextual information about my research design. This part includes the rationale of researcher, how the participants are selected and classified with what references. Then, after displaying a comprehensive research timetable, I will discuss the details of data collection and analysis methods. This study evaluates Chinese international students' cross-cultural adaptation problems in both academic life and daily life, as well as combining their evaluation of participating in the gamified university orientation programs. By analysing data that were collected from survey and face-to-face interview, this research explores what adaptation problems Chinese international students encounter most often during their overseas study experience, and how gamified approaches can influence their adaptation outcome. The final sections in this chapter will be the consideration of ethics, as well as reliability and credibility. Going through the entire body of this chapter, an overall understanding of how I designed and operated this research project can be illustrated.

3.1 Methodological approaches

In this section, I will talk about the choice of my methodological approaches in designing the project. It will start by introducing the construction of my conceptual framework. This is the point where everything begins. Following the brief introduction of how I have built my conceptual framework, the next part will be the classification of my research design. This is to

display the most appropriate position that my study should stand on, as well as ensuring the further data collection and analysis method can properly lead the way to the answer that solves my key research question.

3.1.1 Forming the conceptual framework

As mentioned in previous chapters, my conceptual framework is designed in a three-level structure. From the bottom to the top, there lay the three main topics, they are complexity theory, gamification, and cross-cultural adaptation, respectively. The bottom level represents the foundation of the entire framework, in this very root position, and the complexity theory sustains all the above components. The reason for choosing complexity theory as the foundation of my conceptual framework comes from the 'property' of my research data. In the early stage of drafting my research design, I have assumed that my research will extract empirical data from Chinese international students' adaptation experience, with the collected data mainly shown in a fragmental and non-linear form. Therefore, from this angle, my research can draw learning from complexity theory.

According to Bondarenko and Baskin (2016), complexity theory has been applied to humanity and social science systems since the early 1990s. The core principle of complexity theory is the study of the patterns that emerge as non-linear and networked systems evolve (Bondarenko & Baskin, 2016). The term non-linear refers to the mutual influence between every element within the complexity system, rather than a sequence of causes and results in a linear system. My research aims to find out how Chinese international students' adaptation problems affect their overseas study experience, as well as to examine how gamified orientation programs optimise their demands for better adaptation to the Australian university context. From this direction, the research project is trying to investigate how cross-cultural adaptation difficulties and gamified orientation programs mutually affect each other within the cohort of Chinese international students, via collecting empirical data from those participants. According

to these features, complexity theory can play a fundamental role for the research design, as well as positioning it as the root level of the conceptual framework.

Moving upward, the middle and surface levels are the research topics in specific academic fields. The middle level of the conceptual framework is the gamification topic, and the surface level is Chinese international students' cross-cultural adaptation problem. These two topics can both be divided into two categories and linked, respectively. For the topic of gamification, according to its theoretical foundation, the impact of gamification approaches on human motivation can be classified into two types: intrinsic motivation and extrinsic motivation (Werbach & Hunter, 2012). The intrinsic motivation inspires people's self-voluntary ability, implanting information to create a sense of self-motivation, and further trigger the person's own decision of acting on specific object. Likewise, the extrinsic motivation stimulates people by setting up objective goals or offering rewards to them. People therefore acting not on their own decision, but on the desire of earning reward from those objective goals and achievements (Werbach & Hunter, 2012).

For the topic of cross-cultural adaptation, Searle and Ward's (1990) cultural adaptation model is an important part of the theoretical foundation. According to the model, cross-cultural adaptation has two types of adaptation outcomes: the psychological adaptation and socio-cultural adaptation. The former concerns the physical and psychological wellbeing in cross-cultural adaptation and the latter stands for the inter-culture sojourner's degree of getting involved in the new environment (Searle & Ward, 1990). The socio-cultural adaptation focuses on participants' experiential feedback with the involvement of new social contexts. The psychological adaptation mainly looks at participants' physical and mental conditions in cross-cultural adaptation processes and focuses on participants' actual health indexes (Searle & Ward, 1990). Bringing these branches in the two topics together, the connectivity among those branches can be displayed. The intrinsic motivation from gamification's impact works on the

psychological side, as the cultural adaptation model also has a sub-class of psychological adaptation that concerns people's spiritual context. Simultaneously, the extrinsic motivation of gamification shows the effort by the interaction with objective elements. This scope is more related to the social domain, as the goals and rewards that serve as triggers of motivation are objectively existing in the real world within specific social and cultural conditions. This manifestation can build the bridge to the socio-cultural branch in the cultural adaptation model, due to this sub-class also focusing on the impact of socio-cultural contexts within the cross-cultural adaptation field.

According to the above connections between gamification and cross-cultural adaptation topics, the surface and middle level in the conceptual framework of this research can be linked together with two side paths: the psychological pathway and socio-cultural pathway. Previous studies (e.g., Searle & Ward, 1990; Ward & Kennedy, 1999; Werbach & Hunter, 2012) have indicated that the branches in both topics have an interactional effect with the main topic. This means the impact on the branch (intrinsic and extrinsic motivation; psychological and socio-cultural adaptation) can influence the outcome of the main topic (gamification; cross-cultural adaptation). Additionally, the influence between each topic and their branches is interactional. The events in each system have both action and retroaction between their sub-classes. This reflects a feature of non-linear influence in both topics and their combined structure. These two characteristics of mutual and non-linear influence offer the possibility of adopting complexity theory as a foundation to the combined structure, thus the completed conceptual framework is formed. The combination of those branches is appropriate to meet the purpose of studying Chinese international students' cross-cultural adaptation problems in the Australian higher education context. In accordance with this conceptual framework, the psychological pathway requires more professional and deep understandings on psychology, which is not adaptable from my personal background. Thus, my study will focus majorly on Chinese international

students' cross-cultural adaptation problems and educational gamification application on the socio-cultural pathway side, and partial information on psychological pathway is involved as a support.

3.1.2 Classifying the research

In this part, I discuss how I categorised my research within the methodological approaches. The areas of classify my research include the scope of research, the method of interpreting research data, the context and participant group of research subjects, as well as the type of research data. In the following paragraphs, I will examine those methodological approaches respectively.

3.1.2.1 Interpretative research

The original scope of my research is to find out the possible impact of gamification technique on Chinese international students. It is a project that aims to address a specific concern in a social context and try to describe the application of a novel approach. This feature fits with the interpretative research in the paradigm, as it concerns the social reality as a non-singular or objective concept (Neuman, 2002). It is affected by human experiences and social contexts. According to this consideration, to better investigate a social reality, it is preferable to put the research subject into a specific socio-historical context that has the closest connection with it (Neuman, 2002). By using the approach of subjective interpretations of its various participants from the research subject, it can be successful to study and understand the core of the chosen social reality or phenomenon. In this research, the project aims to investigate how the newly emerged gamification approach can fulfil Chinese international students' cross-cultural adaptation outcome. It concerns the advantages and disadvantages of an innovative educational approach in a targeted cohort's cross-cultural adaptation process. The main way to investigate it is examining participants' empirical evaluation and feedback. To simplify, this research is trying to discover the effect of a novel social influence method by understanding its participants'

experience. From this scope, for this project, the most suitable research method from the paradigm perspective is interpretative research

3.1.2.2 Descriptive research

Social research can also be classified by the purpose of the study. There are three major types of research method covered by research purpose, which are exploratory research, descriptive research and explanatory research (Neuman, 2002). Exploratory research fits the research project studying a newly appeared object that very few people have explored it. It focuses on the basic facts, settings, and concerns of the research target, and offers general recognition to help people understand what they are facing. Descriptive research puts the focus I on the developing process of a research object. It examines detailed information for the audience to help them understand what the difference between new things and old things is, or what the structure and mechanism of an entity is. In comparison with exploratory and descriptive research, explanatory research shows a more predictive feature. It mainly explores the reason for one thing or phenomenon by conducting a study that focuses on its theory's principles and possible predictions. It focuses more on the fundamental and theoretical level of an issue and provides research output by illustrating the similarities or differences between the theory and actual situations (Neuman, 2002).

In this research project, the major research purpose is located on finding out how the gamified orientation program is constructed and how it works in satisfying Chinese international students. It concerns the detailed picture of forming a program's structure, as well as the consequence of adopting a new approach into a cohort. By comparing data from different classifications, this research aims to reveal the influence of bringing a variation into an existing situation and provides a report on the new context of the situation. Therefore, for this project, the most appropriate method for the purpose of the research aspect is descriptive research.

3.1.2.3 Critical case studies

For the time frame and sample scale of the project, this research uses case study as a major research method. Case study is a research method that studies various features in one or a few specific units (Neuman, 2002). It is an in-depth examination that investigates multiple amounts of information about the object of study. Case study can be applied to a single time period as well as a duration of multiple time points. Generally, case study research is qualitative, this is because most qualitative research tries to provide arguments based on in-depth and detailed information that is gathered from cases (Ragin & Amoroso, 2011). For this research project, the sample group is designed within all the Chinese international students in Monash University, which equals to a cohort that is included in a designated organisation.

The research aims to study Chinese international students' experience during their participation of orientation programs, as well as their academic and daily life when they are studying at Monash University. All these time scales can be defined as specific time periods. Apart from sample group and time scale, this research majorly uses qualitative method to collect and analyse data, with the quantitative method as a supplement for data collection and analysis. Likewise, this research aims to improve Chinese international students' cross-cultural adaptation experiences by introducing the novel gamification approaches into the initial procedure. From a macro level, it manifests the notion of promoting benefits for a specific cultural cohort with innovative approaches. This notion fits for the idea of critical research, it aims to promote democracy by making changes in different social, political, cultural, economic, ethical as well as other society-oriented beliefs and systems (Neuman, 2002). According to all the features of sample group, time scale, data collection method, and research design notion, critical case study is the most suitable research method to choose for this project.

3.1.2.4 Quantitative and qualitative methods

According to the initial scope, my research design to investigate how gamification techniques

can help Chinese international students to optimise their cross-cultural adaptation outcome in an Australian university context. To achieve the aim of this research, the choice of appropriate research method needs to be carefully undertaken. There are three different types of research methods in the social science field, which are “qualitative, quantitative and mixed approaches” (Zhang, 2012, p. 59). According to Schmid (1981), qualitative research is a study method that investigates the empirical world from the viewpoint of the participant. Kirk, Miller and Miller (1986) have also defined qualitative research as “a particular tradition in social science that fundamentally depends on watching people in their own territory and interacting with them in their own language, on their own terms" (p. 9). This research contains the investigation of Chinese international students’ difficulties towards inter-cultural adaptation, and the participants are selected from different personal and academic backgrounds. Thus, it is suitable to choose qualitative research as a component of the research methodology for this project.

To construct an innovative research and data collection method, I have also drawn experience from experimental research design. The experimental method is a typical quantitative research method, it can usually be seen in STEM research subject’s notion rather than formal HASS research project. According to the notion of my research, the common cross-cultural difficulties that are encountered by Chinese international students in Australia can be set as a constant. Due to the research aim being to find out what influence of participating gamified orientation program can be made towards Chinese international students’ adaptation outcome, the influence of gamified orientation program can be examined as an inserted modification to the constant, and that is the variable. This is adapting to the common understanding of experimental study procedure, which is seen as “hypothesis based on current situation-modification on one specific aspect that connect to the cause-compare outcomes” (Neuman, 2002, p. 276). From the perspective of research design, the experimental data collection method can be set up as a comparison group and an experiment group, then using

the comparative study method to analyse collected data from both groups and find the evidence to support the argument. The comparison group refers to Chinese international students who do not attend gamified orientation programs, and the experimental group matches Chinese international students who participate in the gamified orientation programs. The benefit of using experimental method is to introduce innovative research design into educational research projects and provide objective analysis to support the research finding.

However, after carefully examining the preliminary research data, as well as reviewing the constitution of the sample groups, the choice of research method has been adjusted. Initially, my research was designed as a mixed method of research which combines both qualitative and quantitative data collection and analysis approaches. Although this research uses mixed method to conduct data collection and analysis, the focus point is still located on the qualitative approach. This is because this research majorly examines Chinese international students' experiences of adaptation at Monash University, and the data from participants are mainly in the empirical category. Additionally, the confirmed sample size of each sample group shows in an asymmetric situation, and the number of samples in the experimental group is not adequate for a solid quantitative data analysis. Therefore, the final choice of research method has been changed from mixed method research to major qualitative research. The quantitative approach is still an important supplement for data collection, though the sample size is too limited for a completed and large-scale quantitative analysis and to provide comprehensive results for the research questions.

To conclude this section, the conceptual framework in my research is constructed in the shape of a three-level structure. It contains three major topics that relate to my research and are distributed layer by layer. From bottom to top, it is positioned as complexity theory, gamification, and cross-cultural adaptation in this model. All the topics are connected by multidirectional and mutual-influenced branch topics, and the entire model can be recognised

as a complex system. The formation of my conceptual framework guides the design of the main body of the research project, which should start with the choice of appropriate research methodology. According to referencing conditions, they are research scope, the method of interpreting research data, the context and participant group for research, and the type of research data. Through examining these conditions, the final methodological approaches for my research are designed as interpretative, descriptive, critical, and qualitative research approach. With the help of these methodological approaches, the category of my research can be clarified, and helps me to find the most appropriate way to conduct my data collection and analysis.

3.2 Research context

Following the introduction of my methodological approaches, the next section in this chapter will be the illustration of my research context. To better understand why I chose this research topic, how I am going to evaluate my research data and what population my research intends to benefit, it is necessary to talk about some contextual information before moving to the actual research design stage. In this section, I will first talk about my background and how it generates the rationale as a researcher. Then, moving the view from subjective angle to objective angle, the next part will be the introduction of research participant and research instrument selection. By providing information in all the above categories, both the subjective and objective contextual environments of my research can be displayed, to help better understand my research design.

3.2.1 Researcher and rationale

In this part, I will extract my rationale of selecting this research topic from my personal background. Back in the year of 2013, being a Chinese international student in Australia myself, like other Chinese students in a different cultural setting, I also encountered transcultural

difficulties in both the academic area and everyday life when I started my overseas study. Before that time, I was an undergraduate student in a Chinese university with no overseas study experience. The experience of suffering from cross-cultural adaptation problems drives me to seek possible solutions for a better adapted local life in Australia. As I have a strong identity as a game player, I utilised this special personality to build a connection with some of the local communities sharing the same hobby. This attempt helped me to get a better cross-cultural adaptation outcome in my further overseas study in Australia. Through this experience, my interest in exploring Chinese international students' cross-cultural adaptation problem was aroused.

Furthermore, the small-scale research project that I undertook in the Graduate Certificate in Educational Research course identified Chinese international students' cross-cultural adaptation problems in two major categories: being more independent and positive in overseas contexts and improving their English language proficiency. The finding from that project illustrated the importance of finding solutions for Chinese international students in the Australian higher education sector. More importantly, this propaedeutic research experience illuminated my passion for conducting further study towards relevant topics in a more professionalised academic field. The finding in that small-scale project also provides preliminary references for me to initiate a higher-level research. Therefore, the seed that motivates my exploration in a higher research degree had been planted earlier.

Following the completion of Graduate Certificate in Educational Research course, I went back to my hometown city, Hefei, to gain some industry work experience in early 2016. Through the work experience of the short-term voluntary educational workshop that I did with my friend, the benefit of gamification technique has also been seen. We used gamified activities and tools to help school kids learn fundamental social science concepts and skills, the feedback from participants were mostly positive as well. This experience allowed me to discover

gamification techniques' actual effect towards the educational purpose. It not only consolidated my research interest on gamification topics, but also offered me relevant industry experience for reviewing the concept and effects of gamification.

My personal experience therefore reflects the reason why I choose my research topic. Being a game player since childhood, various game products became an inseparable part of my life. However, as I was growing up, I have always been told that games stand as the opposite of education. I keep questioning this argument, and I am always trying to find a balance point between game and education. Being an international student gives me another angle to explore the educational field, where I can dive into the real-world context and experience the issue for myself. According to my overseas study experience, I have confirmed the necessity of optimising Chinese international students' demand for better cross-cultural adaptation in Australia. Through my personal experience of getting better adapted via using game as a method, a solid foundation of combining game and cross-cultural adaptation in a research project can be seen. As this rationale concerns empirical viewpoint from a broad cohort (Chinese international students) in a specific social context, it is necessary to choose case study with qualitative research method, in order to provide a comprehensive study in an explicit mode.

3.2.2 Participant and sample group

After the introduction of the subjective rationale of the research scope, the following part will focus on the objective context of research design. The selection of participation is the first category to examine. In my research project, the participant group is targeted at the cohort of Chinese international students studying at Monash University, Australia. This main selection criteria fits for the two basic requirements of sketching the research participants: Chinese international students and studying in Australia. To fulfil the requirement of Chinese international students, when sampling the participant group, students from both mainland China and the regions of Hong Kong, Macao and Taiwan have all been included. This

consideration comes first from the similar language and cultural context that are shared by those regional districts with mainland China. Moreover, from the aspect of political ownership and international relationship, those regional districts also come under the central Chinese government, therefore those places are all included in the territory of China. Based on these two cultural and political considerations, it is appropriate to set the range of selecting participants within this area. The conditional requirement of studying in Australia can be naturally fulfilled as my research is conducted within the campus of Monash University which is located in the city of Melbourne, Australia. The selected range of participant group contains Chinese international students in both undergraduate and postgraduate level courses, as well as studying in different faculties at Monash University. This selection criterion automatically achieves the requirement of studying in Australia context, as well as fitting with the scope of the research questions.

For designing the sample group, participants of this research project are classified into two different sample groups, which are tagged as the comparison group and the experimental group. The comparison group refers to Chinese international students who do not attend gamified orientation programs, and the experimental group refers to Chinese international students who participate the gamified orientation programs. The initial idea of setting sample groups in this rule is because the original methodological design includes using quantitative research method, specifically, the experimental approach. The tag of comparison and experimental group manifests the original position that each sample group stands in regarding the research context. The term ‘experimental’ means to take the approach of gamification as a variation that has been brought in to influence participants’ cross-cultural adaptation outcome, and the term ‘comparison’ means data from this participant group majorly serves for comparing purposes with data from the experimental group.

In a further stage of research design, as the methodological approach of my research

project has changed to qualitative research method, the nominating and classifying the sample groups have also been changed. According to the features of each sample group, the comparison group has been renamed as non-gamified group, and the experimental group has been renamed as gamified group. The renaming of these two sample groups is attempting to depict the nature of each group more accurately, as well as to offer direct understanding that is not confusing for researcher and readers to recognise the correct methodological approach. Further data collection approaches that will be adopted into these sample groups include online questionnaire survey and face-to-face interview. The expected sample size of both participant groups is expected to be 60-80 people. This sample size is designed to fulfil the demand of questionnaire responses. For the further interview sample size, each group is expected to have five to ten people.

3.2.3 Measurement scale selection

Besides the selection criteria of sample groups, the selection of research instrument also needs to be clarified. As mentioned above, this research is based on Ward and Searle's (1990) cultural adaptation model, as well as Werbach and Hunter's (2012) gamification theory. Therefore, the selection of research instrument also comes from their theory. The design of measurement scale is based on the Sociocultural Adaptation Scale (SCAS), which has been developed by Ward and Kennedy (1999). The SCAS offers a full-scale items table to examine socio-cultural adaptation outcomes. The scale initially contains 16 items, and later increases to 41 items (see Appendix B). However, the initial SCAS list is too broad to adopt into a specific research project. Ward and Kennedy (1999) indicate that "the SCAS is a flexible instrument and can be easily modified according to the characteristics of the sojourning sample" (p. 662). Therefore, specific items have been selected to fit the purpose of studying Chinese international students' socio-cultural adaptation problems in this research (see Appendix C and Appendix D). In order to fit the purpose of this research, the scales are selected based on two major categories: the

academic related scales and the daily life related scales. The academic scales manifest Chinese international students' adaptation in their university life, as well as their communication and understanding of culture and language in an educational setting (see Table 3.1). The daily life scales reflect Chinese international students' adaptation situation in their everyday life aspects such as accommodation, transportation, engaging in local lifestyle, understanding local culture and communicating with non-Chinese groups (see Table 3.2). Based on these selection criteria, specific questionnaire and interview questions were designed and deployed to participants (see Appendix F, Appendix G, Appendix H, and Appendix I).

Table 3.1. Items for studying Chinese international students' academic adaptation problems

1. Understanding what is required of you at university
2. Coping with academic work
3. Dealing with foreign staff at the university
4. Expressing your ideas in class
5. Talking about yourself with others
6. Understanding the local accent/language
7. Understanding cultural differences

Table 3.2. Items for studying Chinese international students' daily life adaptation problems

1. Adapting to local accommodation
2. Using the transport system
3. Going shopping
4. Getting used to the pace of life
5. Living away from family members overseas/independently from your parents
6. Making friends
7. Understanding the local value system

Another instrumental design reference is the game element list (Kanazawa, 2020) which developed from Werbach and Hunter's (2012) gamification theory. It comes from the deconstruction and reclassification of structural elements in general game systems. The completed game element list (see Appendix E) contains a hundred different elements that can be referred or used both independently and jointly with each other (Kanazawa, 2020). Unlike the items in the SCAS list, which need to be specifically chosen to fulfil the specific study purpose, although the number of items in the game element list is much larger than the amount in the SCAS list, it does not involve specifically selecting items. This is because the game

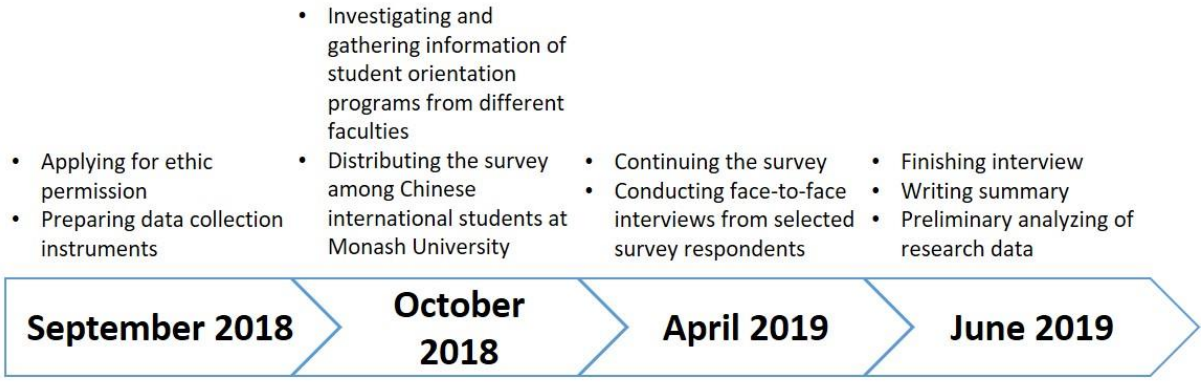
elements have no specific service purpose, and the elements are more like implements in a toolbox. The game element that has been finally selected in this program depends on which element has been used in specific gamification programs. In my research, the answer of what specific game element that has been applied will be revealed alongside the analysis of gamification research data.

To sum up, according to my rationale of conducting a higher degree of academic research on the topic of Chinese international students' cross-cultural adaptation in an Australian higher education context and educational gamification application, the selection criteria of the sample group and data collection instruments can be revealed. The participants are selected from Chinese international students that come from mainland China, Hong Kong, Macao, and Taiwan and are studying at Monash University, Australia, from various disciplines and course levels. The selection of data collection instrument is based on theoretical foundations of cross-cultural adaptation and gamification studies. Relevant items are selected and correlated to my research, to measure the collected research data and provide solid raw data for further analysis.

3.3 Research timeline

In this section, an introduction of the time duration of the data collection stage will be made. The data collection stage of this research was mainly conducted between August 2018 to June 2019. Within these ten months there were two major stages that included three different parts of data collection activity. Figure 3.1 gives an overall display of research timeline. Starting from August 2018, the major task for this research was to prepare ethics application documents. The application was lodged with Monash University Human Research Ethics Committee at mid-September 2018 and got approved on 25th of that month. The detailed consideration of my ethics application will be discussed in a later section of this chapter. After the ethics had been approved, the actual data collection process formally started.

Figure 3.1. Research timeline



The first stage of data collection started from October 2018. Due to the undergraduate and postgraduate coursework students having school holidays during December 2018 to February 2019, the data collection process was mostly paused in these three months. For this reason, the actual period of stage one was from October to November 2018, and then from March to June 2019. Stage one contained two different parts, which are investigating and gathering information about student orientation programs from different faculties and distributing a survey among Chinese international students at Monash University. In part one, I used online research as a major method. By gathering and filtering orientation program information from different faculties at Monash University, I further selected three faculties that run gamified orientation programs. I then contacted each faculty's department officer who was in charge of those student orientation programs, in order to make sure the gamified orientation program fulfils this research project's scope. After examining the detailed information from selected faculties, those three orientation programs were confirmed to fit my research in design and execution notion. These faculties are Faculty of Education, Faculty of Engineering and Faculty of Art Design & Architecture, participants from these three faculties' gamified orientation programs were put into the gamified group in furthering the research process. Accordingly, participants not from these gamified orientation programs were put into the non-gamified group. The reason for distinguishing participants by different programs, rather than by faculties, is related to the Faculty of Education's gamified orientation program. The designer

of this program has mentioned that it majorly serves new and incoming undergraduate students in their faculty. However, the participant group of my research contains both undergraduate and postgraduate Chinese international students from the Faculty of Education. Apparently, this condition indicates that the sampling of participants cannot be simply determined by faculties. Therefore, the more appropriate way of sampling is based on different gamified orientation programs. The details of sampling participants will be discussed in further chapters. The game element list (Kanazawa, 2020) will also be incorporated into these gamified orientation programs in this stage.

The second part of stage one data collection started simultaneously with part one, that is, spreading a survey among Chinese international students at Monash University. The questionnaire is designed on Qualtrics platform, and given out via email, QR code and online social media advertisement. Each participant group has its own version of the questionnaire, all developed from the SCAS (Ward & Kennedy, 1999). This differentiation in content design aims to fit participants' cross-cultural adaptation experience with regard to attending gamified orientation programs or not. The survey was launched at mid-October 2018 and open till late May 2019. By the end of May 2019, a total number of 184 responses had been received, as there were 127 responses in the non-gamified group and 57 responses in the gamified group. However, after examining each questionnaire response's content, there was unqualified feedback among all the responses. These unqualified responses include unfinished questionnaires and finished questionnaires but no answer to general information questions, blank or mis-submitted feedback. Blank and mis-submitted feedback was not able to acquire any information, as well as unfinished questionnaires. For the finished questionnaires without answers to general information questions, although data could be extracted from these survey results, the missing answers to general information questions could cause trouble in mapping the profile of the participant group. Therefore, these unqualified responses needed to be

eliminated from the ultimate survey result. After re-checking the valid responses, the final number of each sample group's response were shown as 111 in the non-gamified group and 47 in the gamified group, respectively. Although the initial sample size for each sample group was expected to be equivalent between 60-80 people for further comparing, as my methodological approach was finally confirmed as qualitative method, the feature of comparison had been removed. Therefore, each sample group operates independently in the further data analysis process, and the sample size is not restricted to be equal with each other. These numeral data will be used in the further data analysis and discussion stages, as well as being mentioned in further chapters.

The second stage of data collection was randomly selecting questionnaire responses from each participant group and conducting face-to-face interviews. Each participant group also had its own version of interview questions, as it was also based on the same scope of differentiation in the designing of the questionnaire. The preparation of interview started from late April 2019, it contained the contact details of participants as well as arranging time and location for interviews. The entire interview stage lasted for two months and ended in late June 2019. Within this stage, a total number of 13 questionnaire participants were chosen and accepted as interviewees. Among those interviewees, four were from the gamified group and the other nine interviewees were from the non-gamified group. The initial idea of interview was conducted in focus-group style, however considering participants' time availability issues, one-on-one interview was also put into consideration to meet each interviewee's personal demand. In the entire interview process, only one focus group interview was conducted where three participants joined in the activity. The other ten interviewees all received one-on-one interview, which was more suited to their personal timetable. For the purpose of protecting the privacy of participants, interview participants will be mentioned in further chapters with their code names. Table 3.3 illustrates the code name for each interview participant, the sample

group they belong to, and their faculty, respectively. The specific rules and principles for how these code names are made will be mentioned in a later section of this chapter.

Table 3.3. Interview participants' code names, sample groups and their faculties

Sample groups	Code name	Faculty
Non-gamified group	WW	Faculty of Business and Economics/Faculty of Arts
	YL	Faculty of Arts
	JW	Faculty of Arts/Faculty of Medicine, Nursing and Health Sciences
	YXL	Faculty of Education
	LZ	Faculty of Education
	CF	Faculty of Education
	MT	Faculty of Education
	LL	Faculty of Business and Economics
	SF	Faculty of Medicine, Nursing and Health Sciences
Gamified group	KC	Faculty of Art, Design and Architecture
	SM	Faculty of Engineering
	FL	Faculty of Education
	RT	Faculty of Education

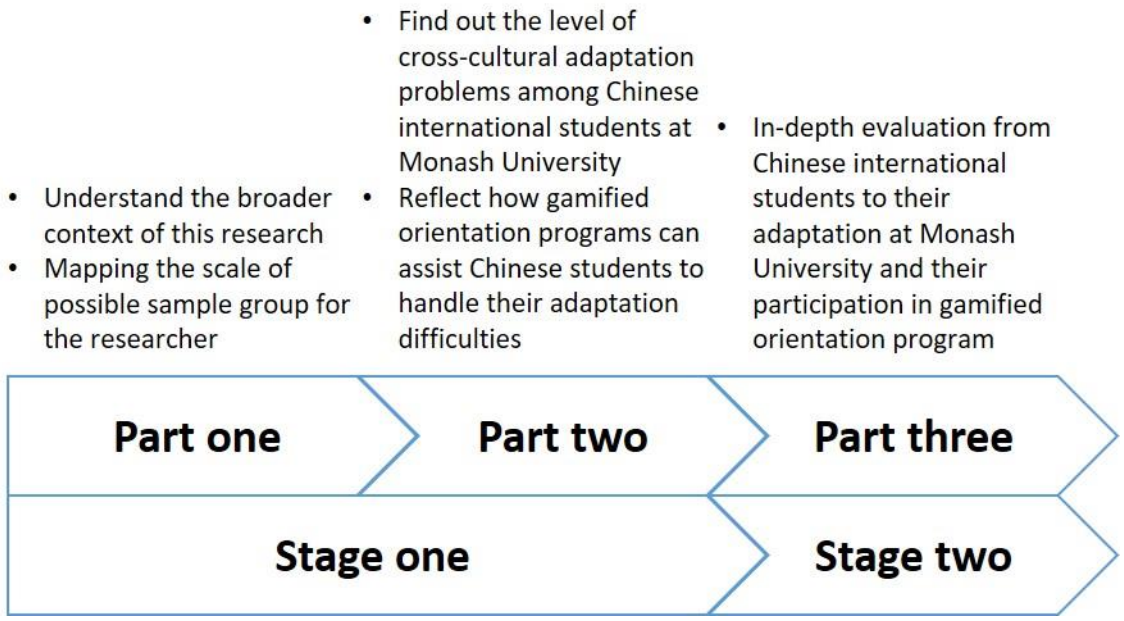
As a conclusion, the data collection stage in my research design was distributed in a

two-stage sequence in the ten months between the years of 2018 and 2019. Stage one contains two parts of data collection, the first part maps the overall landscape of my research by investigating gamified orientation programs at Monash University, and part two is the investigation of cross-cultural adaptation issues for Chinese international students in the same campus. The major data collection method in stage one was online questionnaire survey. Stage two was the interview with selected participants among both sample groups. This aims to provide findings on the impact that gamification applications can have on Chinese international students' cross-cultural adaptation experience. Accordingly, the major data collection method used in this stage is face-to-face interview.

3.4 Data collection

Following the data collection timeline, the next section is the data collection process. As briefly mentioned above, the data collection process of this research project is distributed into three different parts, embedded in two stages. Part one was gathering information from different faculties about their orientation programs within Monash University, and then selecting designated faculty orientation programs as the reference for building sample groups. Part two regards distributing a survey among the Chinese international student cohort at Monash University. Part three is about selecting questionnaire participants in a random pattern in each sample group and conducting face-to-face individual or focus group interviews. Parts one and part two are included in stage one, and stage two contains part three. Figure 3.2 gives a brief illustration of data collection steps.

Figure 3.2. Data collection steps



In part one of data collection, I investigated and gathered information about student orientation programs from different faculties at Monash University. The aim of part one was to find out what are the design principles of those faculties' orientation programs, how many faculties have adopted gamification approaches into their orientation program design, and what gamified elements they have used in their orientation programs. The purpose of conducting this part was to understand the broader context of this research, mapping the scale of possible sample group for the researcher. It shows the accordance to the descriptive research's requirement of focusing on the basic settings and understanding the detailed research context for further analysis (Neuman, 2002). By searching on the intranet of Monash University and informal visiting of different faculties' student engagement departments, I identified three orientation programs from Faculty of Education, Faculty of Engineering and Faculty of Art Design & Architecture that have adopted gamified elements. Furthermore, participants from these three programs have been classified into the gamified group. Likewise, participants who have not participated in these programs were classified into the non-gamified group.

Part two of data collection was distributing a survey among Chinese international students at Monash University. The survey used questionnaire method to investigate Chinese

international students' experience of how cross-cultural adaptation difficulties affect them, and how participating in gamified orientation programs can help them handle those difficulties. For each sample group, a unique vision of questionnaire was designed to fulfil specific research purposes: the questionnaire for the non-gamified group aimed to find the level of common cross-cultural adaptation problems that affect Chinese international students, and the questionnaire for the gamified group was to reflect how gamified orientation programs can assist Chinese students to handle their adaptation difficulties. In order to keep the consistency of data collected from both groups, questions in these two questionnaires were all based on selected items from the SCAS (Ward & Kennedy, 1999), as well as designed in a 5-scale evaluation format. The selected items from the SCAS related to Chinese international students' adaptation in both academic life and daily life aspects. These items are displayed in Table 3.1 and Table 3.2 above, and the sample questionnaire for each group is also shown in Appendix F and Appendix G. The rationale of setting these two sample groups is to fulfil the purpose of displaying and understanding the difference between new things and old things, as it is one of the basic approaches for descriptive research (Neuman, 2002).

For part three of the data collection, questionnaire participants who expressed their willingness to join in further research stages were selected randomly from each sample group. They then received a face-to-face interview. The interview was originally designed in focus-group style, however, to better fit the participants' personal time, the one-on-one interview style is also considered later in the process. The aim of conducting this interview method is to investigate in-depth evaluation from Chinese international students' adaptation at Monash University (for the non-gamified group), as well as their participation in gamified orientation programs (for the gamified group). Although interview questions for the non-gamified group and the gamified group are not totally the same, the principles of designing interview questions are all based on the SCAS (Ward & Kennedy, 1999). The sample interview questions are shown

in Appendix H and Appendix I.

3.4.1 Survey

Survey is a common social science data collection method. Researchers use surveys to investigate self-reported beliefs or behaviours by asking questions and measuring variables from participants' responses (Neuman, 2002). The general procedure of conducting survey research is reflected in a sequence of conceptualising variables and developing hypotheses, piloting the test of survey instruments, deciding the sample size, locating respondents and deploying the survey, then collecting the data, and further analysing the data (Neuman, 2002, p. 312). To construct a good questionnaire, the researcher needs to be aware of avoiding possible confusion for the respondent. This requires the researcher to take additional care if the respondent comes from a heterogeneous background (Neuman, 2002). Another important principle for developing a good questionnaire is to always keep the respondent's perspective in mind (Neuman, 2002). Different participants can have different interpretations of the same survey question, therefore their responses to the same question can vary in a wide range. Considering all the possible perspectives from the respondent can be beneficial for the researcher to design a high-quality questionnaire, which decreases the variation in respondents' understanding and provides solid research data to reach the research aim.

In this research, the questionnaire was designed based on the items from the SCAS (Ward & Kennedy, 1999). Specific items have been selected as the variables to design the survey questionnaire (see Table 3.1 and Table 3.2 above). All these items are related to the participant's everyday experience when studying in the Australian higher education context, and the questions were designed in plain English language. The notion behind conducting these approaches is to increase the validity of questionnaire data. As the participants of my research are all Chinese international students studying in an Australia university, Chinese language is their first language, therefore it is acceptable to design the content of questionnaire in Chinese

language. However, because the aim of this research is to investigate participants' cross-cultural adaptation problems in an English language social context, if it involves the description of specific life settings, then using a language that fits for the social context is important. Using Chinese langue to describe life settings in an English language oriented social context can cause potential misunderstanding, as the wording in Chinese may not carry similar representation or meaning to its English translation. One example can be raised here, the word "orientation" represents a concept that is relatively unfamiliar for Chinese higher education students. In the Chinese higher education sector, universities do not have a specific new student welcoming period. Instead, Chinese universities conduct several weeks' military training and education (Chinese: 军训) in new and in-coming students' first month of university life (Wang, 2015). For Chinese university students, this is the closest concept in their university life that can be linked to orientation, though it is not similar to its original representation in English. If the questionnaire content in this research is designed in Chinese, then extra effort needed to be taken to avoid participants' misunderstanding in concepts such as orientation. This can cause redundancy issues in research design, and further potential issues in data analysis. Therefore, to deliver the research instruments more appropriately to the participants and obtain data from them more accurately, although the language of Chinese can be used, the final choice of instrumental language is still English. Each participant group has its own vision of questionnaire, and this is to fulfil the purpose of the research: the non-gamified group's questionnaire aimed to find the level of common cross-cultural adaptation problems that affect Chinese international students, and the gamified group's questionnaire aimed to reflect how gamified orientation programs can assist Chinese students to handle their adaptation difficulties. The questions in the two questionnaires were slightly different, due to the different goals and contexts when setting up these two sample groups. However, those questions still follow the same principle of questionnaire design, that is, the selected items from the SCAS (Ward &

Kennedy, 1999). This is considering the consistency of collected data from two different groups, therefore providing solid and convincing research outcomes for the project.

3.4.2 Semi-structured Interview

Interview is a study methodology that involves the researcher and one participant or several participants at the same time. It is an appropriate way to study participants' behaviour and responses that cannot be easily observed. The interview has different types such as highly structured, semi-structured and open-ended questions. This research uses a semi-structured interview to explore Chinese international students' evaluation of their orientation experience. On most occasions, semi-structured interviews are simply conversations. They use a set of questions to ask participants for ideas of topics that have been covered, but the conversation is free to vary, and is likely to change substantially between participants (Fylan, 2005, p. 65). Combined with this research, as the project aims to find out participants' experiences and viewpoints towards the cross-cultural adaptation issues, it was appropriate to deploy a set of questions and ask for the participant's feedback on their subjective experience. Those questions must connect with a specific topic, likewise it also needs to leave spaces for the interviewee to freely express their opinion. Due to all these requirements, the most suitable interview method for this research is semi-structured interview.

In this research, all the interview questions were designed in an open-ended form rather than closed-ended, such as asking what the interviewee's opinion and assessment of participating in the gamified orientation program are, or how the interviewee discovers adaptation approaches without joining in the orientation activities. This is because the research aims to extract the interviewee's subjective experience towards a complex issue, and it is important to ensure the interviewee answers the questions in an unlimited circumstance. Open-ended questions allow the interviewee to provide an unlimited number of possible answers, as well as to qualify and clarify detailed responses (Neuman, 2002). Compared with limited

options to be chosen in a closed-ended question, the interviewee has more freedom to express their own thoughts toward a topic in an open-ended question. Although interviewees also have a possibility of giving different degrees of detail in their responses, which can make the data become irrelevant or vague (Neuman, 2002), it is still the most appropriate form to choose for this study as the researcher tries to evaluate the participant's values by hearing their thoughts. In the interview, due to both the investigator and participants all being from China, the choice of the major communicating language is Chinese. Unlike the consideration about general language in questionnaire design in the interview stage, as the major communication method is oral communicating, most participants tend to use their first language to express their opinions. To make participants feel more comfortable and relaxed during the interview process, as well as allowing them to offer as much information as possible, using Chinese as the major communicating language can best fit all the conditions. Additionally, if participants feel that using Chinese cannot appropriately convey their opinions, then they can still use English to communicate. If a participant has a special requirement on language use, such as preferring to use English as the major communicating language, it is also allowed in the interview. All the interview transcripts are recorded in Chinese and further translated to English versions for data analysis. The credibility and validity issue of translation will be discussed in further sections of this chapter.

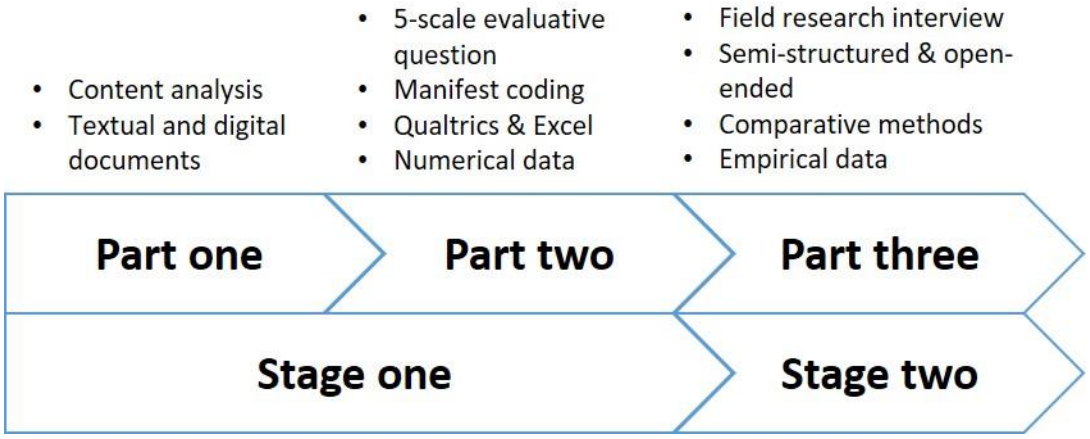
The interview takes place after the questionnaire stage. It was conducted in both non-gamified group and gamified group. By using interview method with selected participants, the data of Chinese international students' general cross-cultural adaptation problems and evaluation of current orientation program's assistance towards adaptation was collected and analysed. The participants' experience of attending a university orientation program was evaluated and compared with data from both groups. With the interpretation of data from those two groups, the effects of gamified orientation program towards Chinese international students'

adaptation in Australian university context will be examined, and related findings will be discussed in further chapters.

3.5 Data analysis

In this section, the data analysis approaches will be introduced. Due to the data collection stage containing three parts in two stages, the data analysis process is also designed in corresponding parts and stages to match the collection process. Generally, part one of data analysis focuses on the data collected from faculty departments and staff, part two will focus on questionnaire data, and part three will focus on interview data. After all, three steps, I will bring the previous data analysis results together and try to find answers for the research questions of "What are the strengths and limitations of using gamification techniques to help Chinese international students improving their cross-cultural adaptation outcome in Australian higher education environment?". Figure 3.3 gives a brief illustration of data analysis steps.

Figure 3.3. Data analysis steps



For the first part of data collection, as the project gathers descriptive textual data for different faculties' orientation programs, the major data analysis method is content analysis. Content analysis focuses on the textual materials, which include words, meanings, pictures, or any other communicative messages embedded in materials such as books, articles and other types of documents (Neuman, 2002). Content analysis cannot provide significant understandings towards the object of study; however, it can help the researcher to establish

detailed recognition of what information has been coded in the text. Content analysis reveals the basic information from the textual sample and offers raw material for further theoretical and systematic investigation. For this research, the content analysis plays a supportive role of understanding preliminary information in the data analysis stage. By analysing the content of documents that were gathered from different faculties' websites and student engagement officers, the questions of how many faculties have gamified orientation programs and what gamified approaches they have used in their orientation programs are expected to be answered. The purpose of finding out the answers to these questions is to build a standard of setting up the sample group and variables for further survey and interview question design. It is also an essential requirement for the descriptive research method (Neuman, 2002). With the help of content analysis of data collected in the first section, I can gain a clear understanding towards the research context, hence the research project can successfully continue to the next stage.

The second part of data collection conducts a survey. The questions are designed in accordance with selected variables from the SCAS (Ward & Kennedy, 1999). General information such as what age group the respondent belongs to and what course the respondent enrolled in has been gathered during the first few questions. It aims to provide a rough understanding of the respondent's background. The major content of the questionnaire uses a 5-scale evaluative question to examine respondents' viewpoints on their adaptation at Monash university, as well as their experience of participating in orientation programs. The analysis result is reflected on the Likert with the following categories: average score 0 to 1 equals negative, 1 to 2 equals neutral negative, 2 to 3 equals neutral, 3 to 4 equals neutral positive, and 4 to 5 equals positive. The content of questionnaire responses provides numerical data for the research, therefore the data analysis for this part is also designed to be a content analysis method. In this part of data analysis, as the questions are based on a list of selected variables and the major job for the analysis is to decode respondents' evaluations through presented point

marks, the analysis is a counting and comparing task. Therefore, I chose to adopt manifest coding approach to examine this data. Manifesting coding is an analysis method that uses a pre-developed list of items as references and provides statistic measurement towards data content for extracting the result (Neuman, 2002). Manifest code is a reliable data analysis method due to it directly reflecting what the content says. For the questionnaire data collected in this research, the purpose of analysing is to investigate respondents' evaluation of their adaptation outcome and experience of participating in the orientation programs through giving numerical gradings. To fulfil this purpose, it needs factual reflection on their experiences rather than the underlying, implicit comments on the facts. The result of grading is the content for analysing, and the scales are designed as references to reflect the result. Under this circumstance, it is fitting to use manifest coding to do the data analysis for the questionnaire data. The analysed questionnaire data is expected to provide answers to the questions such as "What kind of socio-cultural adaptation problems do Chinese students encounter the most in Australian university context?" and "What kind of help can gamify orientation programs provide to assist Chinese students get better adapted to their academic and daily life in Australian university context?".

After analysing data collected from the first two parts, the next step of data analysis targets the information gathered from interviews. Due to the interview questions being designed in a semi-structed, in-depth and open-ended form, the classification of the interview is related to field research interview rather than survey interview. Survey interview considers the approach to be deployed based on pre-developed assumptions and collects the interviewee's response via structured conversations. Field research interview, on the other hand, often uses unstructured and open-ended questions to investigate the interviewee's insights, feelings, or conceptions in an in-depth method (Neuman, 2002). Survey interview is more suitable for analysing quantitative data, whereas field research interview fits better for analysing qualitative

data. Considering the design of interview in this research, the field research interview is the most suitable approach to choose. By analysing interview data that was collected from both participant groups, the research questions expect to be examined. The first step of analysis focuses on the interview result that comes from the non-gamified group, in order to reflect Chinese international students' cross-cultural adaptation difficulties at Monash University, and the expectations they hold towards the university orientation programs.

The collected data will be archived and classified by different faculties and expectations of students, in order to match the further data analysis purpose of discovering specific cross-cultural difficulties that Chinese students encounter most frequently in an Australian higher education context. The next step of data analysis is to examine the interview data from the gamified group and combine them with the result from the other sample group. The analysis of data from this part is designed as correlating with data from the previous stage in corresponding groups. This is to examine whether the hypothesis is validated or needs further development (Neuman, 2002). By the combination of these two groups' interview results, it is expected to find out what kind of cross-cultural adaptation difficulties Chinese international students have encountered, and how the gamification program can help to resolve those difficulties. There are two major aims of analysing the interview data. The first major aim is providing supplementary knowledge towards the research question of "What kind of socio-cultural adaptation problems do Chinese students encounter the most in Australian higher education context?". The second major aim is trying to find the answer for the research question of "What is the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties?" and "What effect can gamification techniques bring to positively influence Chinese international students' cross-cultural adaptation process in Australian higher education context?".

In general, conclusion, the data analysis procedure is designed as a step-by-step

progress pattern. The analysis of data collected from the part one aims to answer the question of "What kind of gamified orientation programs are currently using at Monash University?" and "What is the design principles of gamified orientation programs that using at Monash University?". The answers to these questions can help the researcher understand more clearly the research context, as well as providing referencing criteria for designing the instruments of questionnaire and interview questions for the sample groups. The analysis of part two data is trying to find answers for the question of "What kind of socio-cultural adaptation problems do Chinese students encounter most frequently in the Australian university context?". The effort of examining these questions aims to reveal Chinese international students' current reflections on their cross-cultural adaptation issues at Monash University, likewise, seeing the general results of Chinese students' evaluation of their participation in gamified orientation programs towards improving their adaptability to overseas study. The analysis of part three data tries to provide detailed supplementary information for the questions located in part two data analysis. Furthermore, this part's analysis also expects to find the answer for the question of "What is the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties?" and "What effect can gamification techniques bring to positively influence Chinese international students' cross-cultural adaptation process in Australian higher education context?"

The purpose of analysing data from this part is to discover detailed information from both Chinese students' adaptation issues as well as the effective and ineffective components in gamified orientation programs that target on improving Chinese international students' adaptability at Monash University. Part one data analysis provides context recognition and referencing criteria for the design of following data collection parts, part two and three data analysis offers insights and solutions to the major research aims of exploring Chinese international students' cross-cultural adaptation issues and their satisfactory address through

participating in gamified orientation programs. With the progressive analysis, the main research question of "What are the strengths and limitations of using gamification techniques to help Chinese international students improving their cross-cultural adaptation outcome in Australian higher education environment?" is expected to be answered by combining the results of all three data analysis parts.

3.6 Ethical considerations

After introducing the design-related topics in the methodology domain, the next section will address the ethical considerations in my research. Due to my research being mainly positioned in the educational and social science fields, the major ethical considerations of my research are also located in these areas. According to Hammersley and Traianou (2012), there are five main ethical principles in educational and social research: minimising harm, respecting autonomy, protecting privacy, offering reciprocity, and treating people equitably. Combining with my research, all these five ethical principles are involved in order to provide credibility for the collected data.

Minimising harm represents the consideration of safety issues that relate to not only participants but also other people that may be involved in this research project (Hammersley & Traianou, 2012). In my research, the major consideration of safety issues is the location of conducting face-to-face interview. In order to keep the participants safe and comfortable during the data collection process, the interview was conducted in designated times and places within the Monash University campuses, which had been considered and discussed with participants before the actual activity was launched. All the interviews take place in Monash University facilities, including the Learning and Teaching Building, Campus Centre and Monash Caulfield Library. All these venues are monitored by Monash security, in order to ensure the safety and emergency assistance when needed.

Respecting autonomy means allowing participants to make decisions for themselves,

notably about whether to participate or not (Hammersley & Traianou, 2012). In my research, the participants were recruited from among the group of Chinese postgraduate international students at different faculties of Monash University. The participants were recruited voluntarily, and all of them were free to withdraw during the research process if they feel forced to participate. A consent form was provided at the starting page on the questionnaire, indicating all the possible consent options in the following data collection activities. Only when the participant agreed to take part in the research and completed the consent form, was the rest of questionnaire shown to the participant, as well as the following interview that is going to be conducted.

Protecting privacy considers that a participant's information should not be made public (Hammersley & Traianou, 2012). In my research, all collected data is stored on the researcher's personal device and requires password to provide access. The data collection was not started until the ethics permission was approved, and the data is to be used only for the research purpose. If the participant chooses to withdraw from the research, all collected data from that participant will be destroyed, in order to ensure the safety of the participant's personal information.

Offering reciprocity stands for the participants' benefit for giving up personal time to join the research project (Hammersley & Traianou, 2012). In my research, all the interview participants were asked if they have any preference of time and location to receive the activity. This is for the consideration of fitting with the participant's personal time and further demands. If the participant has any question about the background or potential development of this research project, the researcher was pleased to have an informal chat with the participant before and after the main interview procedure. Apart from the participant's benefit of right to know, while this research project does not offer any financial reward for the participant, some of the interview venues do provide free drinks for visitors, where participants can get some

refreshments if needed.

Treating people equitably reflects that every participant should be treated equally, and no one is unjustly favoured or discriminated against during the research process (Hammersley & Traianou, 2012). In my research, every participant was notified of the entire project procedure when they agreed to join. Each sample group had its own version of questionnaire, and each questionnaire was delivered to all the participants in the same sample group. It is the same for the interview participants, that each sample group has its own version of interview question outlines and conducted to all participants from the same group. Due to all the participants coming from a Chinese background, the oral communication within the focus group interview was conducted in Chinese language. However, if the participant preferred to use English, the researcher informed other focus group members before the interview was conducted, in order to make sure every person in the focus group could use the most comfortable way to talk.

All the above concerns of ethical principles have guided my preparation of the ethics application. Composing my ethics application, I paid full attention to participants' safety, autonomy, privacy, reciprocity, and equity issues. The ethics application also applies the regulation and rules of university governance, as the major research activities took place within the university campus area. With the help of my supervisors and faculty staff, my ethics application documents were lodged to Monash University Human Research Ethics Committee in mid-September 2018. After a few days, my ethics application got approved (see Appendix A), which means my consideration of participants and research context was considered to be tangible and reasonable. Therefore, the actual data collection and further analysis stages could then be successfully deployed.

To sum up, the human ethical considerations that are involved in my research contains five major aspects. These aspects are manifested in participants' safety, autonomy, privacy,

reciprocity, and equity issues, as well as the coordination with research contexts and support groups. My ethics application was designed following these principles and got approved by the relevant university office before the data collection stage. With the support of ethics approval, my research could then further collect and analyse research data successfully.

3.7 Dependability and credibility

The last section of this chapter will talk about the dependability and credibility issues in my research. To provide sound research outcomes, qualitative research needs to consider dependability and credibility problems (Brown, 2008). One major dependability issue that is contained in this research is the privacy of individual identity. The consideration of individual privacy cares for the integrity of participants' identity which decides whether the information they provide is reliable to quote in the text or not. Likewise, participants' identity must also be masked in the text for the purpose of indirect display. This is to avoid the exposure of participants' real identity in possible published documents and further compromise for both researcher and participants. To address this consideration, all the participants were asked at the end of interview about how they prefer to be mentioned in the research report. If they agree then the report will use their real names, however if they prefer not to be mentioned by their real names then an anonymous means is deployed in this research outcome. The initial consideration of participants' identity issue is planned as above. However, when analysing interview transcripts, another problem related to the participant's identity occurs. As mentioned above, interview participants have indicated their preference on how they will be mentioned in the report. Some of them accepted being mentioned by their original Chinese names, meanwhile other participants chose to be mentioned by an alias such as their English name. This differentiation of names could cause a further confusion in reading the data analysis results, as the format of naming participants is not in a unified standard to reflect consistency in coding. To fix this issue, a further unified approach of coding participants' name would be conducted.

The rule of this approach is to use the capital letters from participants' surname and family name, to form a unique code name that represents the specific participant. This approach can make the recognition of participant more convenient, as well as to protect participants' privacy. The specific code name list has been displayed in the previous section (see Table 3.3), and it will be used in the data analysis chapter.

Another dependability problem is the accuracy of interview transcriptions. Because the initial transcription in this research was recorded in Chinese, all Chinese transcription was documented and translated into English. According to the plan of data analysis, each interviewee received a translated script of his or her interview record for double checking. This is to make sure the translation is accurate and correct and allows the interviewee to provide information that was missed during the translating process. Before using these transcripts for data analysis, all these translated documents were checked by English native-speaking academics, to ensure the translation is accurate and appropriate. All collected data are stored and analysed on personal laptop devices and online platforms such as Google Drive and Qualtrics that requires password to access. These approaches were deployed to make sure the operation on research data can match the principal of safety (Hammersley & Traianou, 2012), as well as protecting the research data's reliability and credibility (Brown, 2008).

In conclusion, this last section of methodology chapter addresses the dependability and credibility issues for my research. Two major topics have been discussed in this section, protecting participants' identity and ensuring the accuracy of interview transcriptions. The former issue concerns the avoidance of potential invalidity problems caused by revealing participants' identity in the research report. By offering a unified code name standard, the harmfulness of this issue was reduced. The later issue concerns the success of extracting solid research data from participants. With the help of multi double-check approaches, the chance of mistranslation and misdelivering information can be minimised.

3.8 Chapter summary

In this methodology chapter, the methods of data collection and analysis have been illustrated. The principles of designing this research's data collection come from complexity theory (Bondarenko & Baskin, 2016) and game element theory (Warbech & Hunter, 2012), as well as cultural adaptation model (Searle & Ward, 1990). To examine Chinese international students' cross-cultural adaptation difficulties at Monash University and how gamified orientation programs can satisfy Chinese international students' demands for better adaptation outcome, my research uses interpretative and descriptive research methods to conduct and frame the data collection. By selecting Monash University as a specific research context, this project uses the method of case study to confirm the sample scale. My research mainly uses quantitative data collection and analysis method, alongside borrowed ideas from quantitative research method, which aims to provide soundness of research findings. The data collection process is deployed in three continuous parts within two major stages. The first stage contains two parts: gathering information on student orientation programs from different faculties and distributing a survey among Chinese international students at Monash University. The aim of these two parts is understanding the research context, providing references for designing data collection instruments, investigating what kind of socio-cultural adaptation problems Chinese students encounter most often in the Australian higher education context, and what kind of help can gamify orientation programs provide to help Chinese students get better adapted to their academic and daily life in the Australian university context. The data analysis methods used in these two parts are designed as content analysis and manifest coding approach. The second stage of data collection is randomly selecting questionnaire responses from each sample group and conducting face-to-face interviews. The purpose of this stage is to provide supplementary understanding of what kind of socio-cultural adaptation problems Chinese students encounter most frequently in the Australian higher education context and what kind of help gamified

orientation programs can provide to help Chinese students get better adapted to their academic and daily life in Australian university context, as well as trying to find the answer to what is the best design of a gamification program that aims to resolve Chinese international students' cross-cultural adaptation difficulties and what effect gamification techniques can bring to positively influence Chinese international students' cross-cultural adaptation process in the Australian higher education context. To analyse data collected from interviewees, in this stage I use a combined method to discover information from field research interviews. To consider the dependability and credibility problem of collected research data, all collected data were stored and analysed on personal laptop devices and online platforms such as Google Drive and Qualtrics that require password to access. The participants' name in the research report is based on their own choices. If they chose not to be mentioned by their real names, then an anonymous means was adopted to meet their requirements. All Chinese transcriptions was documented and translated to English, and every transcript would be sent to interviewees for double checking and supplementary information. Through the analysis of the collected research data, it is expected to find insightful information for further answering the research question of "What are the strengths and limitations of using gamification techniques to help Chinese international students improving their cross-cultural adaptation outcome in Australian higher education environment?"

Chapter 4: Interpretation of Research Data

In this chapter, the research data will be presented and analysed. According to the data collection design, the research data are classified in three main sections: gamified orientation programs that currently run at Monash University, and questionnaire feedback from two sample groups, as well as interview feedback. The questionnaire and interview feedback are separated into two different sample groups: the non-gamified group that stands for participants who have not experienced the gamified orientation program, and the gamified group that covers participants who have joined the gamified orientation group. The analysis of questionnaire and interview feedback of the non-gamified group will try to find out what socio-cultural adaptation problems Chinese international students encounter most often at Monash University. The next step of data analysis will be focused on questionnaire and interview feedback from the gamified group. Based on the background analysis of gamified orientation programs, information on how those programs will help Chinese international students to get a better socio-cultural adaptation result will be revealed. By investigating questionnaire and interview feedback from the gamified group, the influence that gamified orientation programs have brought to Chinese international students' socio-cultural adaptation will be illustrated. The demands and expectations for Chinese international students to obtain a better socio-adaptation result from gamified orientation programs will also be analysed. This aims to find out what effect can gamification techniques bring to influence Chinese international students' socio-cultural adaptation process in the Australian higher education context. Bringing all the data analysis together, this research aims to find out what are the strengths and limitations of using gamification techniques to help Chinese international students improve their socio-cultural adaptation outcome in the Australian higher education environment.

4.1 The context: Chinese students' socio-cultural adaptation problems

This section will introduce the general context of Chinese international students' socio-cultural adaptation problems at Monash University. By interpreting research data that were collected from Chinese international students via questionnaire survey and face-to-face interview, their general socio-cultural adaptation problems will be illustrated and analysed.

4.1.1 Background of Chinese international student at Monash University

By the end of the academic year 2018, the total number of students enrolled at Monash University was 83,633. Among all these students, there are 16,609 Chinese international students enrolled across all faculties and courses, in both coursework and research fields. This number is for the purpose of illustrating the general situation of Chinese international student cohort in the context of Monash University, therefore, no specific distribution of the entire Chinese international student cohort will be made. The data analysis will focus on the specific population of both sample groups. The proportion of Chinese international students among all enrolled students at Monash University is 19.90%, that indicates the cohort of Chinese international student has become one of the major student bodies at Monash University.

For this research project, as there are two different sample groups, the scale of each sample group will also be illustrated here. For the non-gamified group, the data was collected from all Chinese international students at Monash University, therefore the scale of selecting sample is the same as the total Chinese student number. For the gamified group, as it includes students from specific courses (Bachelor courses in Faculty of Education, Master of Design courses, and Bachelor and Master courses in Faculty of Engineering), the specific number of each division and its occupation in the total student number is displayed in Table 4.1 below:

Table 4.1. Number of Chinese international student in divisions of the gamified group

Student cohort	Number	Percentage in total student number

Chinese students in Bachelor and Master courses of Faculty of Engineering	1,296	1.50
Chinese students in Bachelor courses of Faculty of Education	394	0.50
Chinese students in Master of Design courses	322	0.40
Total	2012	2.40

The scale of the gamified group indicates that although Chinese international students have become a major student body within Monash University, the number of Chinese students who have the chance to experience gamified orientation programs is still limited.

4.1.2 Adaptation problems from survey results

For the questionnaire data collected from the non-gamified group, the age group of 18-24 is also the largest proportion (57.66%) that accounts for 64 among 111 valid responses. Eighty-four (75.68%) of respondents are female. For all 111 valid responses, 76 (68.47%) indicate that they have no previous overseas study experience, and 86 (77.48%) are first time students in Australia for their current enrolment.

Table 4.2 below shows that the respondents feel mostly positive about receiving information on study related issues through their university life, especially in the topic of "Understand the course requirements", "Have a clear understanding through the discussion with tutors/lecturers about assignment requirements/feedback", and "Understand essential academic skills to achieve the unit completion in a C, D or HD level".

Table 4.2. Respondents' average score of academic related topics in the non-gamified group

Topics	**Average score**

Get most of the essential information during the orientation period	3.56
Understand the course requirements	3.99
Have a clear understanding through the discussion with tutors/lecturers about assignment requirements/feedbacks	3.88
Understand essential academic skills to achieve the unit completion in a C, D or HD level	3.83
know what the right option is if there is a failure or miss-conduct happens in the course	3.68

Table 4.3 below shows a neutral positive position among respondents' feedback to the topic of communication with non-Chinese students in the educational context, such as classroom and teaching activities.

Table 4.3. Respondents' average score of communication in educational context related topics in the non-gamified group

Topics	**Average score**
Express ideas clearly in class	3.54
Communicate with non-Chinese staff and professionals smoothly at university	3.66
Get used to non-Chinese classmates' ways of expression	3.59

Table 4.4 below shows that although respondents are aware of cultural difference and try to avoid misunderstandings, the respondents still give mostly neutral negative feedback on the topic of interaction with non-Chinese friends in student life and on-campus activities.

Table 4.4. Respondents' average score of communication in student life related topics in the non-gamified group

Topics	**Average score**

Go to student association/clubs' activities regularly	2.62
Build a friendship or regular social connection with non-Chinese students via student association/clubs	2.59
Participate in off-campus student association/club activities (e.g., camping, travel group, etc.)	2.59
Understand the difference between cultures, and use it to avoid misunderstanding when talking with non-Chinese students	3.50

Table 4.5 below shows that respondents' feedback on the topic of navigating the campus and getting access to student services is majorly positive.

Table 4.5. Respondents' average score of navigating related topics in the non-gamified group

Topics	**Average score**
Visit most parts of the university campus	3.68
Use university facilities (e.g., library meeting rooms, multi-media devices, etc.) and/or services (e.g., health services, copy/scan, language support, etc.)	3.94

Continuing with the adaptation of daily-life related issues, the respondents also provide insightful data through their feedback. To consider the accommodation issues, Table 4.6 below shows that respondents hold a positive attitude towards living with Chinese roommates. When talking about getting along with non-Chinese roommates, the respondents' attitudes show a slight drop but are still in a positive location (see Table 4.6).

Table 4.6. Respondents' average score of accommodation-related topics in the non-gamified group

Topics	**Average score**
Prefer to live with Chinese roommates	3.67

Get along with non-Chinese roommates	3.56

For the issues related to local lifestyle, such as commute and shopping, Table 4.7 below shows that the respondents give a mostly neutral score to manifest their evaluation, although most of them feel positive towards adapting to the pace of life in Melbourne.

Table 4.7. Respondents' average score of daily-life related topics in the non-gamified group

Topics	**Average score**
Convenient to use the public transport system when I travel around the region	3.16
Need a personal vehicle to make the travel more easily	3.36
Have a pleasant feeling when shopping at local retailer store/shopping centre	3.86
Feel comfortable to do online shopping	3.21
Get used to the pace of life in Melbourne	3.93

As international students in Australia, respondents all need to face the long-distance separation from their families in China. Table 4.8 below shows that the result of family-bond related issues locates in a positive position through respondents' feedback.

Table 4.8. Respondents' average score of family bond related topics in the non-gamified group

Topics	**Average score**
Get used to live without family members in Melbourne	4.05
Need regular contact with family members in China.	3.72
Not been affected by the jet lag problem	3.72

Table 4.9 below shows that for the topic of social contact with local residents, the respondents'

feedback is on mostly neutral scales, especially in the aspect of "Use non-Chinese social media networks" and "Be aware of the local etiquette, and intentionally used it to avoid misunderstandings when talking with local residents".

Table 4.9. Respondents' average score of cross-cultural interaction related topics in the non-gamified group

Topics	Average score
Been to local social event (e.g., sport games, concerts, art performances, etc.)	3.30
Use non-Chinese social media networks (e.g., Facebook, Twitter, Instagram, etc.)	3.55
Have at least one non-Chinese friend that can make long term friendship	3.14
Be aware of the local etiquette, and intentionally used it to avoid misunderstandings when talking with local residents	3.42

As a summary of respondents' survey results, according to their feedback, the respondent feels mostly positive about receiving information with regard to study-related issues through their university. The issue of communication with non-Chinese students in an educational context, such as classroom and teaching activities, is in a neutral positive position among respondents' feedback. For the issues of interaction with non-Chinese friends in student life and on-campus activities, the respondents give mostly neutral negative feedback, although they are aware of cultural difference and try to avoid misunderstandings. Respondents report positive feedback on navigating the campus. When talking about getting along with non-Chinese roommates, the respondents' attitudes show a slight drop but are still in a positive location. For the local lifestyle-related issue, such as commute and shopping, the respondents give a mostly neutral score to manifest their evaluation, although most of them feel positive towards adapting to the pace of life in Melbourne. The result of family bond-related issues shows a mostly positive

reflection through respondents' feedback. For the topic of social contact with local residents, the respondents' feedback is on mostly neutral scales. Their overall evaluation of adapting to the academic life at Monash University locates on a slightly positive scale of 3.72 average score. For the overall evaluation of respondents' daily life adaptation in Melbourne, the average score from their feedback locates on 3.98. It also reflects a positive attitude from respondents to consider their socio-cultural adaptation in their overseas life.

4.1.3 Adaptation problems from interview result

In this section, the interview data collected from the non-gamified group will be interpreted first. I will first describe my synthesis of each group's direct responses to my questions. To ensure the accuracy of data interpretation, all collected data will be illustrated in its original language, that is, Chinese. The correlated part regarding research questions in research data will be translated into English, in order to fulfil the need of further data analysis. Participants' code names will be used to identify each participant, the code name list was referred to in the previous chapter (see table 3.3). All the interpreted data will be brought together in later sections to help to answer my key research question, based on questionnaire and interview questions, and the participants' responses will be classified in different sections, and then categorised into correlated topics and questions.

4.1.3.1 Getting familiar with an unfamiliar campus

This section is the interpretation of interview question one: "According to your experience of study at Monash University, what is your general feeling about your adaptation to the academic life? What is the best part of your adaptation? What is the worst part?" The general result of participants' adaptation to the academic life locates on a neutral-to-neutral positive position. Eight of nine participants use a 1-to-10-point scale to measure their adaptation result, except for WW who only mentioned his general feeling of adaptation in a neutral positive degree. To

be justified, the 10-point Likert works as an analogy to let the interviewees reflect the degree of their adaptation result, rather than a formal method of data analysis. The specific marking result is shown in table 4.10 below.

Table 4.10. Participants' marking points of their general adaptation result re. academic life

Interviewee	Marking point
SF	8 to 9
LZ	7 to 8
LL	7 to 8
JW	6.5 to 7
YXL	6.5 to 7
CF	6 to 8
MT	6 to 7
YL	5 to 6
WW	No marking point

For the best and worst parts of their adaptation, participants give specific feedback in relation to their personal experience. Although the ideal response is separating the best part and the worst part, however due to expression habit, some participants mixed those parts together as a general consideration of their adaptation result. According to WW, his response towards academic adaptation is mainly focused on the lack of academic skills during the transforming of undergraduate to postgraduate study. He feels struggle when dealing with study tasks and assignments in his first semester. Likewise, he also mentions that the on-campus social activities are not attractive to him. This makes WW feel more preference to spend his on-campus time alone, which has further caused the lack of engagement with campus environment for him.

JW talks about her academic adaptation in both its good and bad aspects. For her good adaptation, JW thinks it is mainly reflected in the academic skill acquisition aspect. When she attends her first session at Monash University, the lecturer spends a large portion of time to explain why academic skills and integrity are important. It impresses her a lot as she made a comparison with her previous undergraduate education in China, as in that time the academic skills and integrity were not quite strict in her institution. This difference has embedded a

motivation for JW to improve her academic skills to handle her study more easily, as well as bring her a better academic adaptation experience. Her negative academic adaptation experience comes from the in-class discussion and communication, as her English language capability restricts the quality of her communication. Although she is willing to speak out in classroom discussion, she however admits that it can be difficult for her in some cases:

> 要在一些 role play 或者讨论的过程中跟上他们（非中国学生）的思维节奏，我觉得是比较有挑战性的……对于我来说如果可以的话我当然希望自己尽可能多地做发言者……但我的语言能力以及对课程内容的理解能力可能没有那么好，所以我可能就不是太有自信去做到这些。("It is challenging for me to catch up with my non-Chinese classmates' rhythm of thinking when we are doing activities like role play or discussion. Although I want to do more communication in classroom, this incapability of receiving and understanding information causes me to lose the confidence to open my mouth.")

She also thinks that while English language ability is an important reason that restricts her adaptation result, other reasons such as self-confidence and interdisciplinary experience also influence her academic adaptation to a certain degree.

YL's satisfaction towards her academic adaptation is mainly in academic skills and atmosphere. Her lecturer has a more generous attitude to the students, including giving more time for students to prepare the reading materials, encouraging students to explore the course content by themselves, and allowing them to have extensions for assignment completion. All these generous measures make YL feel more freedom in her learning progress, and hence improve her academic adaptation experience. Her dissatisfaction towards academic adaptation is in the self-management aspect. Her lack of time management skills always put her in an overdue situation, that discourages her academic adaptation.

YXL's positive academic adaptation experience connects with her mastery of academic and communication skills. In another aspect, she thinks her transdisciplinary experience brings negative influence on her academic adaptation. The insufficient understanding of her target discipline's characteristics impedes her engagement with the new academic atmosphere after she successfully transfers her courses and causes poor adaptation to her new course.

MT talks about her academic adaptation in two different stages. At the undergraduate

stage, her overall academic adaptation is majorly negative, especially in low English language skill and limited campus navigation. Later in the postgraduate stage, her academic adaptation encounters an obvious boost. She thinks this is because of her improvement in engaging with the campus environment and student services, as well as her higher English language proficiency. Her major negative academic adaptation experience comes from the insufficient information that is provided by university departments and facilities, such as in relation to assignments. She thinks that one major reason causing this adaptation problem is that most Chinese international students having previous higher education experience in China, including herself at that time, always have a passive attitude regarding their study, since it is normal in most Chinese universities. This makes them think that the university should and will provide all the information to them, following the teacher's instruction rather than searching information for themselves:

> 我觉得可能和中国大陆学生之前所接受的教育方式有关。很多学生之前在中国内地上大学本科，大部分情况都是老师说什么学生就怎么做，导致很多学生来这这边之后都不太会去想原来作业可以延期……像我当时、还有很多其他中国学生，就不愿意主动去探索，而是觉得学校会把这些信息直接告诉我们，经常处在一个被动的态度。("I think it may be caused by the pedagogy that mainland Chinese students have previously received. Many students had their undergraduates in mainland China. In most cases, the students strictly followed what the teacher said. After coming here, most of them have not realised that there are differences between the two education systems, such as the assignment can be postponed here. Many Chinese students, including me, are not willing to take the explore in their first several months in Australia, but feel that the institution will tell us this information directly. We live in a passive attitude.")

LL feels well-assisted when getting support from student services during her academic adaptation process. In contrast, the insufficient information from university departments and facilities also brings negative experiences in her academic adaptation.

SF's positive academic adaptation experience mainly comes from her familiarity with the university environment, such as on-campus living, volunteering and participating in a student service team. As an international student from Hong Kong, China, SF also has no problem with English language ability issues. Using this advantage, she has joined the university's new and incoming student induction project. Her negative academic adaptation is

reflected in seeking help for health issues. When she first enrolled in Monash University, she found that there were no Mandarin speaking doctors in the campus health centre. After several years, the situation then improved with doctors being able to speak Chinese language.

LZ completed her undergraduate study in America; therefore, the well-developed English language skills help her to have a better academic adaptation result. On the contrary, she thinks the lack of academic skills that comes from transdisciplinary experience has brought obstacles to her academic adaptation, as well as limited communication with local teachers and classmates. Although she has previous study experience in America, the academic requirements in Australian universities are still different from in America, and it demands extra time and effort to explore and acquire the specific requirements in the Australian higher education sector:

> 学科方面的话因为之前我在美国读的是商科，不需要写大篇幅的论文，所以我刚来澳洲的时候并不太清楚如何写论文，比如参考书目需要多少、用什么样的格式等，一开始也没有人告诉我那些基本的格式要求，都是通过提交作业之后老师的反馈来了解哪些地方需要提高，或者和作业分数比较好的同学交流，又或者是通过阅读材料来学习那些格式。我之前完全都不知道这些，只是自己凭空去想、去摸索这些知识点，后来通过一次次作业的摸索和提升我才逐渐掌握了这些知识。(“Because I used to study business in the United States, I did not need to write a large paper, so when I first came to Australia, I did not know how to write a paper, as well as how much bibliography is needed and what format to use. At the beginning, no one told me the basic format requirements neither. I learn all these things through the teacher's feedback after submitting the homework, or to communicate with students with good feedbacks. I did not know those things firstly but gradually mastered them through the exploration and improvement of homework.”)

CF’s positive academic adaptation experience is supported by the comprehensive student services and facilities. She enjoys the wide range of student services in almost every aspect of on-campus life, from language support to employment ability improvement, and even volunteering opportunities. Her negative academic adaptation is majorly caused by limited social activity with non-Chinese cohort, as well as insufficient academic skills.

According to participants, eight of the nine participants have mentioned study related issues, except for SF. Among all the participants, WW, LL, LZ and CF have negative adaptation experience regarding study related issues, which includes lacking academic skills (WW and CF), lacking transdisciplinary support (WW and LZ), and insufficient information provided by

the academic unit (LL). YL, YXL and MT have both positive and negative adaptation experience around study related issues, the positive experience includes mastering academic skills (YL and YXL) and engaging with campus environment (MT), and the negative experience includes lacking time management skills (YL), lacking transdisciplinary support (YXL), lacking navigation on campus (MT) and insufficient information provided by the academic unit (MT). JW only has positive adaptation experience of study related issues, that is, the mastery of academic skills.

There are also eight of the nine participants who have mentioned interpersonal relations issues with regard to their academic adaptation experience, except for YL. WW, JW and LZ have negative adaptation experience of interpersonal relations issues, which including lacking participation in on-campus activity (WW), lacking participation in classroom discussion (JW) and limited communication with local cohort (LZ). MT and SF have both positive and negative adaptation experience of interpersonal relations issues, where positive experience includes engaging with on-campus activity (MT and SF), and negative experience includes limited interaction between students and academic units (MT) and interacting with student services (SF). YXL, LL and CF have positive adaptation experience of interpersonal relations issue, which includes mastery of communication skills (YXL) and effective support from student services (LL and CF).

Apart from the above two topics, a third topic of language and culture issues has been mentioned by six of the nine participants, although WW, YL and YXL have not mentioned this topic in their feedback. JW, LL and CF have negative adaptation experience in relation to language and culture issues, which includes lacking English language proficiency (JW and LL) and limited communication skills with local cohort (CF). MT is the only participant who gives both positive and negative responses towards language and culture issues, as her lack English language proficiency creates negative adaptation experience at the beginning of her overseas

study, then improved language proficiency offers her more benefits later in her university life. SF and LZ have positive adaptation experience of language and culture issues, that comes from their well-developed English language proficiency before coming to Australia.

4.1.3.2 Living in a foreign context

This section covers the interpretation of interview question two: "According to your experience of living in Melbourne, what is your general feeling of your adaptation to the daily life? What is the best part of your adaptation? What is the worst part?" It is similar to examining participants' adaptation outcome in their daily-life field. Seven of nine participants use 1-to-10-point scale to measure their adaptation result, while only WW and MT have provided general evaluation on their daily-life adaptation. Most participants give positive feedback on their daily-life adaptation experience, and the specific marking result is shown in table 4.11 below.

Table 4.11. Participants' marking points of their general adaptation result re. daily life

Interviewee	Marking point
LL	8 to 9
SF	8 to 9
YXL	7 to 8
YL	7 to 8
LZ	7
JW	6.5 to 7
CF	5
MT	No marking point
WW	No marking point

As with the academic adaptation evaluation, participants also talk about both best and worst parts of their daily-life adaptation. WW thinks his previous overseas travel experience helps him a lot in daily-life adaptation, especially in the diet habit aspect. He can even make friends with local residents via eating dinner together, and he thinks he is not actually relying on Asian grocery store quite as often as some other Chinese students in Australia. His shortage of daily-life adaptation is manifested in limited social circle within the local community. He thinks that his English language ability is not a problem, the major obstacle that impedes his connection with local community is lack of spare time. Due to this issue, he chooses to use Chinese in

most of his daily life, the activity of social with friends from local and countries other than China is mostly conducted via social media network.

JW combines her daily adaptation with her previous working experience, which encourages her to be more proactive in engaging with local society. The previous working experience makes her felt pushed when getting back to the identity of student again and drives her to find more part-time job opportunities in addition to her study. However, she does not think this is an extra task or burden for her overseas life, in fact this is also an alternative way for her to get adapted to the local environment. From another angle, she thinks the lack of connection with local and professional community creates a negative effect on her daily life adaptation. Spending more time on part-time jobs narrows her social circle and personal time, and that is also the reason why she feels alienated from the local and professional community.

According to YL, she has a strong willingness to communicate with the local community. She likes the local vibe of daily life, is not in a hurry about everything and has always been told to "*take your time*", which is helpful to her adaptation. However, the incomplete language ability restricts her understanding when talking to local people, although she thinks it is not a vital problem. The major problem in her daily life adaptation is in the shopping aspect. Due to the delivery rules in Australia not being the same as in China, she has unpleasant experiences of missing the notification of parcel collection when shopping online in Melbourne, that reduces her daily-life experience.

YXL thinks her engagement with the local community and environment can bring positive influence on her daily-life adaptation. She thinks frequently visiting local Christian community gives her more access to adapting, although she is not a Christian. Her lifestyle has also changed after settling down in Melbourne, so that she feels more likely to enjoy outdoor activities and get closer to the natural environment. That also improves her daily-life adaptation. Her major negative daily life adaptation experience comes from communicating with agencies,

especially in the house renting area such as not understanding professional terms and working process in local industry, that creates misunderstanding and losing the sense of safety. Other public services such as online shopping and public transportation also cause bad daily adaptation experience for her, majorly the same as YL has mentioned above, including missing parcels and slow processing speed.

MT still compares her two different stages of daily-life adaptation experience. At her postgraduate stage, the well-developed communication skill has benefited her engagement with the local community. In contrast, at her undergraduate stage the daily-life adaptation experience was not strong due to her lack of willingness to communicate, as well as being afraid of making mistakes and losing face. She also admits that the pathway of acquiring information was not broadened when she first arrived at Melbourne, which also causes communication issues to her daily-life adaptation outcome. The way of communication is also different between Australia and China, as in Australia most people prefer to use emails and in China phone calls and text messages are more popular. This cultural difference also brings some obstacles to her daily-life adaptation.

LL concludes that although pre-departure preparation can help improve her daily-life adaptation, after the arrival it still requires "*taking action and being braver*" in daily life to get adapted:

> 我认为行前准备对适应澳洲的生活有很重要的帮助，而且了解过信息之后来到澳洲还需要大胆行动。("I think preparation before the trip is very important for adapting to life in Australia, and it is necessary bravely to take the action after arrival.")

Her daily life adaptation problems come from language aspect, as insufficient language proficiency brings the issue of missing information.

SF talks about adaptation benefits in public transport and accommodation aspects. The free airport pick-up service that is provided by the university gives new and incoming students a warm welcome. The university also provides detailed services for arranging student accommodation that make her feel assured. The adaptation problem in daily-life aspect that SF

thinks is primarily the slow service and delays in the public transport system. In comparison with public transport in Hong Kong, the PTV system in Melbourne often performs slowly and is delayed, and that makes her feel ineffective.

LZ talks about her daily-life adaptation experience majorly in the public transport area as well. She thinks that although she can get used to the service, the delay and cancellation issues of public transport still create inconvenience for her adaptation. For other aspects such as shopping, she thinks that her previous experience of study in America has already helped to get her adapted to the system. Although it is slow when compared with 'express' in China, she can still adapt to it now. The biggest daily life adaptation problem for her is seeking medical help. Due to the difference of health service system between China and Australia, she struggles when seeing a doctor alone in Melbourne, since she needs to find the doctor and do all the paperwork by herself, not to mention that she has also been sick. Another daily-life adaptation problem for LZ is the safety problem when finding accommodation. The housing system is also different from China's, therefore when renting a place in Melbourne, she feels helpless when preparing documents, records, and referees. Some of the agencies are unreliable, therefore the safety issue can be vital for her.

CF also thinks the public transportation system is adaptable in her daily life, and the barrier-free services on the bus make her feel appreciated. The experience of shopping here, especially the self-checkout service, has also impressed her. The artistic social life and atmosphere in daily life attracted her as well, as it is not so rapid and hurried in everyday life, so people can have more time to meet and catch up with each other. She feels fascinated by this social atmosphere. Her daily-life adaptation issues mainly come from her part-time working experiences. The boring working tasks and limited contact with local resident group restricts her engagement with local daily life, the mostly Chinese customers also limits her improvement in English language acquisition and cultural understanding. Another important reason for

negative daily-life adaptation is the lack of personal management skill. Life in Melbourne mostly relies on self-regulation and time management, however for CF, it is different from her previous study experience in China as most of her study jobs were put under pressure by family and school. Therefore, when she came to Melbourne, the strain was lessened, and she feels freedom and less pressured in her everyday life, therefore her pace of daily life gets distorted, and as a result she feels unadapted to daily life.

Among all the participants, seven of the nine have mentioned adaptation experience with regard to essential issues of daily life except for WW and JW. YL, YXL and MT have negative adaptation experience with daily life essential issues, that includes inconvenience of online shopping (YL and YXL), low efficiency of public transport (YXL) and insufficient information about accommodation (MT). SF and LZ have both positive and negative experiences of daily-life essential issues, the positive experience includes comprehensive public transport services (SF and LZ) and convenient in-store shopping (LZ), while the negative experience includes insufficient information about accommodation (SF and LZ) and low efficiency of public transport (SF and LZ). LL and CF have positive adaptation experience on daily-life essential issues, that includes good pre-departure preparation (LL), comprehensive public transport services (CF) and convenient in-store shopping (CF).

Another main topic from participants' feedback is the intercultural understanding issue, that six of nine participants have mentioned, except for SF, LZ and CF. WW, JW, YL and MT have all mentioned positive and negative experiences of intercultural understanding issue, the positive experience includes being willing and capable to engage with local community or residents (JW, YL and MT) and getting used to local dietary habits (WW), while the negative experience includes limited friendship with local community and residents (WW and JW), lacking English language proficiency (YL and MT) and difficulties in understanding local habits and etiquette (MT). YXL has positive experience of intercultural understanding in her

daily life adaptation experience which includes successfully engaging with local community, likewise LL has negative experience with this topic, coming from her incomplete English language proficiency.

The third major topic that is shown in participants' responses to daily life adaptation experience is the issue of local atmosphere, and YL, LZ and CF have pointed out this topic in their feedback. YL has positive experience of local atmosphere issue, and she loves the vibe in local daily life. LZ's experience of local atmosphere is majorly negative, especially in the inconvenience of seeing a doctor at Melbourne. CF has both positive and negative experiences of local atmosphere issue, the positive experience comes from her love of the vibe in local daily life, and the negative experience comes from her insufficient self-management skills, as well as her unsuccessful part-time working experience.

4.1.3.3 First experience in the new university

This section is the interpretation of interview question three: "What is your evaluation of the orientation program you have attended? Does it provide necessary information for you to get adapted to both academic life and daily life?" Participants gave feedback on these questions based on their experience of joining in the faculty and university orientation programs. The goal of these questions is to examine the effect of current university orientation programs. From all these participants, WW and JW have attended two different faculties' orientations because they both have interdisciplinary experience. Other participants have only attended a single faculty's orientation program, as well as some other university and library orientation programs. WW's first orientation experience was provided by the accounting courses, but his overall evaluation of the orientation is not helpful. Specifically, he thinks the content of orientation programs was not applicable, focusing too much on the goal of students' career development, but lacking guidance on the upcoming semester for new students. If a student has questions about specific topics, it is more likely to get referred to a related sector or department, rather

than be given helpful suggestions at the scene. His second orientation experience was provided by the arts courses. According to WW, the second orientation program offered detailed guidance on how to cope with academic work as well as further placement, the instructor also provided detailed explanation and instructions on both study-related issues and further career development directions, which was more applicable than the first one.

JW also participated in two orientation programs. Her first one was offered by the communication and media course, and she thinks this orientation helped her in both academic and daily life aspects. The essential academic skills and daily life information that is contained in the three-day orientation program material satisfied her need of improving study performance, as well as forging a high-quality daily life. By joining this orientation program, she felt more confident in coping with academic tasks, and her participation in activities also expanded her social network, that allowed her to gain access to more resources. Her second orientation experience was provided by the social work course. She thinks this orientation is not as helpful as the first one, because the content design of this orientation program was not ideal and that too much information had been bundled into a short time period. The majority understanding of coping with academic tasks still comes from the first orientation program that she attended.

YL thinks her faculty's orientation is useful, although it has only provided general guidance for new students, lacking essential information. It is more helpful for the students to get directional help rather than practical help from the orientation program. A specific activity during the orientation that has impressed YL is the showcasing of local animals. She feels that it is interesting and boosts her understanding of the local environment, which can be a unique method for international students to get familiar with Australian cultural and environmental features.

YXL's most helpful orientation experience comes from the library orientation, she

gained practical benefits in academic skills from this orientation, especially in how to use databases and search for articles. She feels that in later study experience, her efficiency of processing academic tasks is better than those students who have not been to the library orientation. Regarding the university orientation activities, YXL does participate but thinks that it is not helpful for her, because her personality tends to be isolated, and it is not fitting in with the design of the activities, which aims to foster interpersonal relationship and build connections. She also joined in a student club during the orientation week, although she only went to the club's activity for half a semester, and she still admits that this club helped her a lot, especially in meeting several friends. She has also pointed out one phenomenon that can cause negative feelings for Chinese students when participating in the orientation programs, which is that some instructors have a cold attitude to participants, making students feel neglected during the activity:

> 我发现 orientation 期间有一些活动对学生的包容程度并不是很高，有一些活动的参与者对学生表现得比较冷淡，让学生感受到一种区别化的对待，这样对活动的设计者来说就比较难以达成期待的目标。("I found that some activities during the orientation period were not very inclusive to students. Some participants in activities were relatively indifferent to other students, which made the latter feels a differentiated treatment. For the designers, it makes the activity more difficult to achieve the desired goal.")

MT's pleasant orientation experience comes from the gift that was given by the orientation organiser, as receiving these gift-like items makes her feels satisfied with the participation. She also compliments the interactive atmosphere during the orientation activity, which has fostered an impressive atmosphere during the activity.

LL was attracted by the comprehensive design of university orientation programs, especially the orientation activity poster and theme design. The multi-cultural atmosphere during the orientation activity attracted her as well since the trait of multi-cultural communicating was reflected.

SF thinks the most helpful part of her faculty orientation was the detailed introduction of English language support, which provides help for her academic performance. For the

university's international student orientation, she gave a negative evaluation as it was "*dull and boring*", this is because students do not quite like the form of lecturing:

> 在学校的国际留学生 orientation 方面我那一年参加的 orientation 比较沉闷枯燥……学生可能不太喜欢讲座的形式。("In terms of the orientation for international students, the orientation I attended that year was rather dull and boring. Students may not like the format of lectures.")

LZ's evaluation of her faculty's orientation is a neutral degree. Specifically, she gives an example of a workshop that aimed to help new students to know the essential information about a teacher's qualification test. It was the first year to execute this test when LZ enrolled into her master's course, so the instructor of this workshop successfully reminded her what must be done before she takes part in that test. However, due to it being the first year of implementing that test, the instructor was also not clear about what was the specific content of the test, therefore the material was rough, and the quality of that workshop was not ideal for her. One thing LZ has mentioned that provides positive influence on her during the orientation is the introduction of faculty staff. It gives her a pathway to build connections with teachers and allows her to seek help from them in the future.

When talking about the most impressive experience during the orientation programs, CF also mentioned the animal showcase activity, and the reason is the same as YL's, that it gives her an opportunity to learn about the local environment:

> 我们 orientation 最开始的时候有接触小动物的活动，这个活动我觉得挺有用的，可以让我们这些没有接触过本地特色动物的国际学生对它们有一个认识和了解。("At the beginning of our orientation, there was an activity of meeting local animals. I think this activity is very useful. It can give international students an opportunity to know and understand local animals.")

CF missed her own faculty's orientation, but she attended her roommate's orientation. She says the most helpful part was the guidance of using the online learning platform, as well as getting small gifts from the program. Another beneficial part of the university orientation is student club. CF has joined a chorus club and attended their activities, and she feels interested and joyful about joining that club. Another impressive part of CF's orientation experience is that she has attended an activity that needs her to collect nine stamps, if she collects all stamps, she

can get a free lunch as a reward. She feels attracted by this activity. This statement makes CF the only participant in this sample group who has mentioned experience of gamification design under a non-gamification related question:

> 我记得当时 orientation 的时候有送一些小礼物，像笔之类的，还有当时给我们每人发了一张列表，如果可以集齐上面九个点的话就可以去领一份免费午餐。我们当时为了集点就都去玩这些项目，印象比较深刻。(“I remember that during the orientation I received some small gifts, like pens. We also got a list with nine collectable points. If we can collect all of them, we can then get a free lunch. We all went to gather these points and we were quite impressed.”)

In conclusion, participants’ feedback with regard to their orientation experience majorly focuses on the academic skill and resource development area. According to WW, JW, YXL, SF and LZ, the support of academic skills and resources has brought benefits to their orientation experience. Other positive experiences include social support and engagement (JW, YXL, LL and CF), receiving gifts from an activity (MT and CF), getting familiar with local animals (YL and CF), supportive content design of orientation activity (LL) and daily-life guidance (JW). However, there is also negative experience in participants’ orientation process. One major negative experience is the ineffective and impractical content design, which has been mentioned by WW, JW, YXL and SF. Other negative experience includes lacking essential information for academic guidance (YL and LZ).

4.1.3.4 Learn from deficiency

This section is the interpretation of interview question four: “If you have not attended any university orientation programs, what is your approach to get essential information to help you get adapted to both academic life and daily life?” The notion of this question is trying to investigate participants’ strategy for getting adapted to their overseas study life, other than attending orientation programs. Participants give feedback based on their own overseas study experience in Melbourne, and it contains strategy in both academic and daily life area.

According to WW, the most helpful means he uses is working with library services, both face-to-face sessions and online resources. Whether in the business course or in the arts

course, the library services could always help WW to fulfill his demands regarding academic issue solution. Another aspect for WW's adaptation strategy is attending English language support activities. Although he did not attend the activity continuously, he still admits that this language support service is beneficial for extending his friendship zone.

JW seeks help for a better adaptation outcome mostly via social network, as it is convenient for her to know information from social media networks, in both local social media platforms such as Facebook and WhatsApp, and Chinese social media platform such as WeChat and Weibo. Members are quite active on all the platforms, so she could get information for both academic and daily life from there, therefore making her life more convenient. Another way she thinks useful is building connection with senior students in the same course, as they can provide direct guidance for new and incoming students. Apart from the above two approaches, JW also admits that living with her spouse who had overseas study and living experience in Australia was beneficial to her adaptation, as she can learn daily-life tips directly from her spouse.

YL says her only strategy for adapting to overseas study life is language acquisition, that is, imitating and then putting it into practice. She borrows this learning strategy from learning language to understand local communication habits, which helps her to adjust to communication habits, and to be more adaptable to the local resident group:

> 我觉得比较重要的一点是无意间习得。比如说出门购物的时候时常要和别人打交道，时间长了以后就可以学到一些日常打招呼之类的对话应该如何应答。而且可以参照别人的回答，就像我有时候就会去注意当地人是怎么应答这些对话的，然后我下次去商店的时候我就会套用起来，然后我再看对方是什么反应，那我就再观察这种反应应当如何应对……我觉得我的经验就是在日常生活中有意识地去观察、去模仿，这也就是语言习得的基本过程，从观察到模仿，最后变成你自己的东西的一个过程。("I think an important point is inadvertent learning. For example, when you go shopping, you often need to interact with others. After some time, you will be learnt how to respond to conversations such as daily greetings, and you can even refer to other people's answers. I sometimes pay attention to how the local people respond to these conversations, and then I will apply it when I go to the store next time, and then I will see what the other person's reaction is, and then I learn more on responding. I think my experience is to consciously observe and imitate in daily life. This is also the basic process of language acquisition, from observation to imitation, and finally becoming your own knowledge.")

YXL talks about her strategy in an opposite direction, she missed some academic

workshops in her first-year study, then she found that it took her longer time than other students who have attended those workshops to adapt to the academic tasks. Therefore, she reflects that making good use of academic support and resources can be beneficial to her adaptation. Another way YXL used was in the connection with the non-Chinese student group. She confirms that she has learnt extra information such as second-hand market and courtesy bus timetable from her non-Chinese friends, and that is helpful for her to get adapted to university life.

MT uses student email and student advisor to learn information that can improve her adaptation outcome during her study in Australia. She thinks if the university can emphasise the importance of these official methods for gaining information, then a lot of problems can be solved for students. Social network is another way for her to acquire information. She also thinks that "*a willingness of proactively exploring*" for overseas students can improve their adaptation quality:

> 还有一点就是国际留学生应该学会主动去探索，而不是被动地等老师来讲解。外界已经给了很多资源，剩下的就需要靠学生们自己去发掘。("Another point is that international students should learn to actively explore rather than passively waiting for teachers' guide. There are a lot of resources around, and the students need to discover by themselves.")

LL also mentions the importance of proactively exploring how Chinese students can get a better adaptation. She thinks that, due to the cultural difference between China and Australia, many Chinese students are getting used to being provided with information, rather than positively seeking it. Therefore, being proactive to gain information is a key method for Chinese students to get adapted in Australian society.

SF mainly uses her local friendship network, such as classmates who also come from Hong Kong and local church organisations, to share and acquire information, thus increasing her adaptation outcome. She also performs several volunteering activities, to learn more about the local social and cultural context.

LZ's strategy is making good use of interpersonal connections with faculty staff,

facilities, and senior students, to get direct help from them. However, she also complains that her faculty's student advisor program is not as helpful as she thinks. She used to seek help from student advisor, but the suggestions she received were not practical and useful for her.

CF improved her adaptation outcome by participating in volunteer programs. She could meet new friends and expand her friendship zone this way. In the academic adaptation aspect, CF makes full use of on-campus services such as English language support and faculty learning support workshops, as well as carefully checking student emails. She also uses social media networks as a major pathway of acquiring information in both pre-departure and post-arrival stage. CF has also mentioned the faculty advisor service. She is in the same faculty with LZ, and her comment on the faculty student advisor program also locates on a negative degree; that the program lacks support for students.

Among all the participants, the most mentioned strategy is making full use of social networks, six of the nine participants have pointed to this strategy, including both digital ways (JW, MT and CF) and in actual life (YXL, SF, LZ and CF). Other strategies include making full use of academic support services (WW, YXL and CF), seeking help from senior students (JW, MT and LZ), being aware of information published by the university (MT, LZ and CF), making full use of language support services (WW and CF), proactively being willing to explore in a new country (MT and LL), cultivating cultural learning ability (YL) and seeking help from other family members (JW).

4.1.3.5 A novel way to fix the problem

This section is the interpretation of interview question five: "What is your attitude towards using gamified approaches to help yourself adapt to the local lifestyle?" This question is designed to investigate participants' attitude towards gamification in both academic and daily life in their overseas study experiences. It is also designed to find out what kind of adaptation problems participants think can be resolved by gamification approaches. Participants in this

sample group have no compulsory gamified units in their orientation programs, however they may have the experience of gamification in other activities they have attended.

WW gave positive feedback towards gamification approaches, especially on the university library tour. He thinks that gamification can be helpful for tasks like navigating the university environment and campus tour. Gamification can stimulate a participant's willingness towards proactive engagement, that can be helpful for students to explore their surroundings on university campus. On the contrary, in daily-life aspect WW thinks that gamification can make things more complicated for people like himself, as they have already positively managed their daily life, and gamification can put extra tasks on their timetable that can bring conflict and burden to them, which is not beneficial.

JW gives evaluation on gamification based her orientation experience. She has attended activities that use a similar design notion of gamification, she thinks it is not attractive to her, due to the content of activity feeling "*simple and naïve*":

> 从我的角度来说我觉得游戏化在很多的活动中还不是很完善，设计者的出发点可能是好的，但活动的内容会让我觉得很简单和低级，在参与的过程中让我觉得很尴尬，所以我的接受程度可能不是特别高。("From my point of view, I feel that gamification is not perfect in many activities. The designer's intention may be good, but the content of the activity makes me feel simple and naïve. I feel embarrassing in the process of participating, so my acceptance may not be particularly high.")

However, she also admits that if the gamified activity is well-designed, she may be willing to try it.

YL is not familiar with the notion of gamification. She thinks that if a gamified orientation is well-developed, and the design notion directly guides the activity's execution, then she wants to have a try:

YXL only has superficial understanding about gamification, she feels that the key point to determine whether a gamified activity can be attractive to her or not is the specific design notion. If a gamified activity is focusing on personal development rather than teamwork, and can give her a specific goal for attending, then she is willing to attend it.

MT also admits that if the content design of gamified activity is childish then it is not attractive to her, and something more challenging is better for her. She also links this childish design issue to Chinese students' unwillingness to participate in university activities, that she feels most Chinese international students have "*a high state of mind and expectation*" when coming to Australia, so if the content design is too simple then Chinese students can feel bored when participating:

> 我感觉中国学生很多时候心气会比较高，可能看到一些游戏化活动的内容会觉得过于幼稚，不太能够吸引到他们。但如果这个游戏化活动设计的很有内容，能让中国学生觉得他们在参与的过程中学到了东西，那么还是会吸引到他们的。("I feel that Chinese students are upbeat sometimes, they may feel too naive when seeing the content of some gamification activities. It is not attracting for them. However, if the gamification activity is designed with content that makes Chinese students feel that they have learned something during participation, they will still be attracted.")

LL has no experience of gamification, according to her understanding she thinks the most important thing for gamification application is a clear delivery of initial information that the designer wants the participant to know.

SF has learnt relevant information about gamification in her course, she thinks that if gamification approach can connect and work collaboratively with other multi-media technologies such as PPT slides or video conference, it can be more effective to help students.

LZ says she is willing to try gamification programs, she thinks that the improvement of communication between participants can offer benefits to students, as well as providing a sense of achievement. She would be attracted by that kind of gamified design and believes it can be a positive solution for improving students' social connection and engagement problems.

CF also has the willingness to participate in a gamified project. Her intention comes from the previous teaching experience of using similar approaches, such as check-in and reward mechanisms to motivate primary school students' in-class performance. By using those approaches, students feel more motivated, as well as having a better learning result. CF also points out that to utilise gamification approach, it is vital to "*balance the process and the final reward*". It is a good tool, yet it still requires precise design:

> 游戏化的形式不能操之过急，不能过于被最后的奖励所驱动，导致忽略了整个过程中应该关注到的内容……总的来说我会觉得这个方式是利大于弊，但要设计好。(“The form of gamification should not be rushed. It should not be driven by the final reward and caused the ignoring of content that should be paid attention to. Generally, I think this method has more advantages than disadvantages, but it must be designed well.”)

In conclusion, participants’ attitude towards accepting gamification or not depends on their own situations. WW had played both digital and board games for a long time, therefore his attitude towards gamification was positive in most scenarios, except for his daily life because he thinks that gamification can bring extra burden for him. Louis and CF have clearly indicated that they can accept gamification techniques in their life, especially in expanding their social circle (LZ) and triggering motivation by rewards (CF). JW, YL, YXL and MT have all indicated that their acceptance of gamification depends on the content design of an activity, so that if the content makes them feel dumb and naïve (JW and MT) or focuses on teamwork rather than personal action (YXL) or cannot implement the initial design notion (YL), then it is hard for them to accept. SF thinks that if a gamification activity can make use of multiple technologies into cooperation, then her acceptance can be improved. LL has not clearly indicated her tendency of acceptance towards gamification approaches, she only mentioned that the successful implementation of design notion is important for a gamification project.

4.1.3.6 From grantee to grantor

This section is the interpretation of interview question six: “If there are fellow Chinese international students that enrol in your course, how would you suggest that they get adapted to the local lifestyle?” This question is designed to investigate participants’ thinking around what the most important points are during their adaptation process. It can be something they have achieved, or something they have not experienced yet, and it also contains both positive and negative points that they think Chinese international students should pay attention to.

WW’s suggestion focuses more on involvement with local culture and life, as he thinks language is correlated with culture, and learning the local culture is the best way to get adapted

to local daily life. Although he had not joined any student club, WW still encourages new and incoming Chinese students to find and join student clubs based on their personal interests. This is a good way to expand their friendship zone. For postgraduate students, WW suggests that if they have spare time, they can distribute it more on touring around local places, as well as getting more use of local social media. These are all beneficial ways for Chinese international students to gain understanding of the local environment.

JW encourages her fellow Chinese students to make more friends, no matter whether they are Chinese or not. It is helpful for them to expand their interpersonal relationships during their overseas study. However, she also suggests her fellow students keep their distance with Chinese cohort, as staying too close with their co-nationals may restrict their further development within local society. Another useful idea JW has mentioned is making full use of faculty support services. It is helpful for Chinese students to build their confidence through communication with local teachers and staff. Apart from the above suggestions, JW also says that more volunteer experiences can make future job hunting much easier.

YL's suggestion is similar to WW's, that is, reading more English books can be helpful for Chinese students to understand the local culture and language. She also thinks positive contact with teachers can be beneficial, especially for international students to build their self-confidence, in order to handle further overseas study life better. In the daily-life aspect YL suggests that doing a part-time job can be helpful for Chinese students to understand local lifestyle better, as well as cultivating new skills.

YXL feels that knowing how to live alone is a key point for Chinese students. Living alone can boost a student's time management skills, and it can also improve students' interpersonal communication ability:

> 我觉得特别重要的一点是要学会独处……学会独处也可以提升时间安排的能力，因为你会有大量的时间可供安排。除此之外通过独处还可以提升自己的包容能力，因为你不能强迫周围的人去和你做一样的事情，这对人际关系的处理也有好处。("I think it is particularly important to learn to be alone. Being alone can also improve your time management ability, because

> you will have a lot of time to arrange. In addition, being alone can also improve your tolerance, because not every other person has to live in your pace of life, it is important for us to remember this to understand others better.")

Apart from the above suggestion, YXL also suggests her fellow Chinese students join the orientation activities, as she thinks it is a good way to expand their friendship zone.

MT suggests new and incoming Chinese international students think carefully about their entire plan before starting their overseas study. She thinks that the overseas study is meaningful only if the student has a clear understanding of their future and career goals.

LL encourages that Chinese students are not afraid when taking action and making decisions during their overseas study. A braver attitude can make adaptation process easier for Chinese international students.

SF's suggestion focuses on the full use of social media. She has also mentioned that students need to plan further after their graduation, such as what they would like to do and what are their long-term career goals, which is similar to MT's suggestion:

> 我会建议他们思考的更长远一些，比如完成学业之后想要做什么。如果打算回国需要怎么做，如果留在澳洲继续深造又需要怎么做，这些都是需要提前计划好的。("I would suggest them to think for long-term goals, such as what they want to do after completing their studies, what they need to do if they plan to return to China, or what they need to do if they stay in Australia to continue the studies. All these need to be planned in advance.")

LZ thinks the most fundamental suggestion is improving English language proficiency, as this can offer more chances and pathways for Chinese students to acquire information. She also suggested that Chinese students should seek help from student support services and senior students. In addition, she provides her consideration of speaking Chinese in overseas context. Although people say when going overseas it is better to use English rather than Chinese, LZ does not totally agree with this opinion. In normal daily life it is fine to use English as the primary communication language, however when facing key issues such as large amounts and costs, using Chinese is a safer way to ensure security issues are not involved, because native language is the most accurate way to deliver information. A small tip from LZ is that buying a car can certainly improve the quality of daily life.

CF's first suggestion is about accommodation. Chinese international students can live with Chinese roommates early on; however, it is better if they move to multi-cultural accommodation later. It can be helpful for the improvement of their English language proficiency. Her second suggestion is to not stop building the friendship zone when the orientation ends. Starting a friendship is easy but maintaining it requires more effort. She has not performed well in maintaining her friendship with local students; therefore, it restricts her adaptation to local social context. Based on this negative experience, she made this suggestion. Her other suggestions include improving time management skills, focusing more on academic study and balancing study and life, and having a long-term goal and insisting on it.

According to participants, the most common suggestion is the expanding of social network, as six of nine participants (WW, JW, YXL, SF, LZ and CF) provided suggestions concerning this area. It contains the expanding of both digital social media network (WW, SF and LZ) and real-life friendship zone (JW, YXL and CF). Another major suggestion is improving language and culture learning, four participants (WW, YL, LZ and CF) have provided this suggestion. Other suggestions include doing part-time jobs and/or volunteer jobs (JW and YL), making full use of academic support (JW and YL), improving self-management skills (YXL and CF), doing pre-departure preparation (MT and LL) and post-study plan (MT and SF), and having a personal vehicle if possible (LZ).

4.1.4 Summary of adaptation problems

According to the data examined from the survey result of non-gamified group, respondents' overall evaluation of adaptation to both academic life and daily life are all shown in a positive scale. This reflects that most respondents are satisfied with their socio-cultural adaptation outcome, however there are still improvements that can be made. For the academic adaptation aspect, respondents positively evaluated their experience of academic and teaching related adaptation outcome, as well as the navigation of the campus around them. The communication

solutions in the educational context are positive but not satisfactory for respondents. However, although respondents are positively making efforts to learn the importance of cultural difference, their connection with non-Chinese cohorts during on-campus student life still shows a neutrally negative reflection. For the daily-life adaptation aspect, it is obvious to see that, as Chinese international students, although respondents feel positive about getting along with non-Chinese roommates, they still preferred to live with their co-nationals.

The adaptation to local lifestyle shows a neutral positive reflection from the respondents, although their satisfaction around public transport and online shopping remains moderate. Respondents' connection with their original family in China receives positive feedback because they mostly have regular contact with family members. This also offers positive influences for respondents' adaptation to living alone in Melbourne. Their resistance towards jetlag problems can be another positive affect towards their independence in Melbourne. Finally, when talking about the cross-cultural interaction issues in their daily life, respondents give a mainly neutral intermediate level evaluation. It is also fitting for the communication in student life issues, as the respondents do make efforts towards improving cross-cultural understanding, like using local social media networks, the result of actual participation in local social events and friendship making still remains at an average level.

According to the data examined from the interview results of non-gamified group, for participants' academic adaptation at Monash University, study related issues and interpersonal relations issue are the most common topics. On the study related issue, participants feel that academic skill is on at acceptable level for them to handle in study tasks, though there are still demands for them to improve their academic skills. Other problems of academic life for participants include insufficient information and support from academic unit, issues for transdisciplinary study, lack of navigation and engagement in campus environment, as well as time management skills. On the interpersonal relations issue, participants feel positive about

their communication skill level. Their problems majorly come from insufficient chances to participate in on-campus activity and classroom discussion, and limited interaction between students and academic units, student services and local cohort. Apart from the above two topics, a third topic of language and culture issue was mentioned by participants as well. Participants admit that their English language proficiency can determine their adaptation outcome regarding the language and culture understanding. Well-developed English language proficiency can improve the cultural understanding result, while lack of English language proficiency can slow their adaptation progress.

For the daily-life adaptation at Monash University, this essential issue is the most frequently mentioned topic amongst all participants. Shopping, transport, and accommodation are the main aspects of their daily life essential issues. In-store shopping is enjoyable for participants, however online shopping experience is not so pleasant. The same situation happens in the transport area, while participants enjoy the comprehensive public transport services, they however feel disappointed with the poor efficiency of public transport. For accommodation, participants majorly report negative feelings in this area, especially regarding insufficient information for finding ideal accommodation.

Another main topic from participants' feedback is the intercultural understanding issue, as participants are majorly willing and capable to engage with local community or residents and get used to local lifestyle. Their major problems are located on the limited friendship zone with local community and residents, as well as difficulties in understanding local habits and etiquette. These problems are still connected with incomplete English language proficiency. The third major topic that is shown in participants' response to daily-life adaptation experience is the local atmosphere issue; the general social vibe in the local community is attractive to those participants, but when facing specific occasions in everyday life such as seeing a doctor

or doing a part-time job, it can still be problematic for them since the social system works differently from in China.

For other key points of interview, concerning participants' socio-cultural adaptation problems, they would like to receive more essential information as academic guides, as well as demanding more effective and practical content design for the orientation sessions. They have noticed the importance of social networks in helping them solve adaptation problems and expanding social network has become the most popular suggestion when asking them to provide advice for new and incoming Chinese international students. Other strategies include making full use of academic support services and senior students, being aware of information published by the university, seeking language support, having a proactive willingness to explore in a new country and cultivating culture learning ability. This is also correlated with another common suggestion for improving language and culture learning from those participants. Other suggestions include doing part-time jobs and/or volunteer jobs, making full use of academic support, improving self-management skills, doing pre-departure preparation and post-study plan, and having a personal vehicle if possible. Finally, according to participants' experience and opinions, they think that gamification approach could be helpful with the improvement of engaging in the university environment, expanding social circle, and triggering motivation for self-exploration.

4.2 The variation: Gamified orientation programs

This section will illustrate the gamified orientation programs at Monash University. By interpreting research data that was collected from Chinese international students in three specific faculties and/or courses: Bachelor and master's courses of Faculty of Engineering, Bachelor courses of Faculty of Education and Master of Design courses. Their evaluation on how gamified orientation programs have helped them to improve their socio-cultural adaptation

result will be analysed and illustrated.

4.2.1 Background of Gamified orientation programs at Monash University

According to the information gathered from online resources on the website of Monash University and university faculty department staff, there are three specific faculties that run orientation programs with gamified design elements. These three faculties are Faculty of Education, Faculty of Engineering and Faculty of Art Design & Architecture. Although these three faculties all have gamified orientation programs, the content and design of each faculty's program are different from others. Therefore, it is better to discuss these faculties' gamified orientation programs separately.

4.2.1.1 Amazing Race

The Faculty of Education's gamified orientation program is named as *Amazing Race*. It is a two-day orientation program that is designed for the new and incoming undergraduate education students. The program includes a set of activities with gamified components that aim to provide fun for participants while they are completing the orientation process. When joining in this program, the participants are first signed up in different teams. Then each team receives a brochure that lists a series of goals to complete. The goals are the same on all the brochures, however the sequence of completing the goals may not be the same for each team. To complete a goal, the team member needs to visit a designated site within the university campus and complete tasks on that site. By finishing the task on each site, participants can get a stamp on their brochure to indicate they have finished the task and earn points for their team. The task includes basic task and bonus task; basic task is the compulsory activity for each site, while bonus task is designed for participants who would like to do additional challenges and it also provides extra points upon completion. The next step for each team is to start off the journey within the campus and try to complete all the tasks. Although each team's routine of completing tasks is not the same, as the sequences are different in each brochure, all teams return to the

starting point by the end of the activity. Based on the points they have earned during participation, there will be a winner for the highest scoring team, and a small prize is provided for the winner. After finishing the exploration activities, all participants are invited to a venue and share what they have learnt from the activity, to provide mutual help as well as forge friendships with each other. The list of game elements that are used in *Amazing Race* is provided below in Table 4.12.

Table 4.12. Game elements in *Amazing Race*

Component of program	**Related game element**
Signed up in different teams	Teams
Brochure with goals	Tasks
Sequence of finishing the goals	Progression
Guidance of the activity	Rules
Different sites within the campus	Worlds/Levels/Blocks
Cooperating to complete the goal	Communication
Stamps of finishing	Badges

Earning points for the team	Points/Scores
Completing additional on each site	Achievements
Rank through points earned	Leader boards
A winning team	Competition
Small prize for the winning team	Rewards

4.2.1.2 Spaghetti Marshmallow Challenge

The Faculty of Engineering offers an orientation activity with gamified approaches for both undergraduate and postgraduate students. The activity is named *Spaghetti Marshmallow Challenge*. The aim of this activity is helping new and incoming engineering students to get familiar with their courses, and illustrating an idea of innovative thinking method, as well as increase mutual understanding. The activity also starts with teaming up all the participants. By providing limited materials and restrictive rules for each team, the activity requires participants to build a structure as solid and steady as they can. The activity has a time restriction, and when the time ends, the team with the highest structure is recognised as the winner and is provided with ovation and a prize. After the session there is a wrap-up session for the participants, some insightful educational arguments are raised and provided for the students to discuss the lesson they have learnt during the activity. It also helps the student to understand their study subject better, as well as improving their connections to develop further friendship. The list of game elements that are used in *Spaghetti Marshmallow Challenge* is provided below in Table 4.13.

Table 4.13. Game elements in *Spaghetti Marshmallow Challenge*

Component of program	**Related game element**
Team up activity	Teams
Limited materials	Context/Setting
Clarify restrictions	Rules
Completing the goal	Tasks
Cooperating during the activity	Communication
Final structure from each team	Achievements
Measuring the height	Points/Scores
Rank from highest to the lowest	Leader boards
A winning team	Competition
Ovation and prize	Rewards

4.2.1.3 Press Play

The Faculty of Art Design & Architecture also has a gamified orientation program, named *Press Play*. This program is designed for new Master of Design students. Compared with the other two programs, the *Press Play* is a little different due to not operating during the university orientation week. Instead, this program replaces the original week 1 sessions for new Master of Design students. In this program, a set of activities is deployed, based on the different topics within the area of design courses, which includes visual design, photo design, character design, etc. The program lasts for five days, and each day begins with a small activity that provides opportunities for students to team up and facilitate trust. The small activity also introduces the topic of that day; therefore, students can get ready to face the upcoming challenges. The main session of each day is to perform a design activity with the provided tools and materials. Using creative thinking and teamwork, each team needs to complete the design task and present their work at the end of the session. By reflecting on what they have learnt through the entire day's activities, the themes of related design thinking, and design processes have been introduced to students, in order to help them understand the subject better. The completion of each day's topic allows students to move on to the next day's theme, and when finishing the last day's activity, a catered lunch is provided as a reward for all the participants. The aim of this gamified program is to help new design students get familiar with the course and to understand the design philosophy better. The list of game elements that are used in *Press Play* is provided below in Table 4.14.

Table 4.14. Game elements in *Press Play*

Component of program	**Related game element**

Team up and activities	Team
Ice-breaking activity and cooperating in the session	Communication
Themes of each day	Worlds/Levels/Blocks
Time series of five days	Progression
Provided tools and materials	Context/Setting
Completion of each day's theme	Tasks
Procedure of each day's activity	Rules
Products of each team	Achievements
Catered lunch	Rewards

4.2.1.4 Overview of similarities and differences between programs

By comparing the game design elements in these three gamified orientation programs, the similarities and differences between the design notions of these programs can be revealed. Table 4.15 shows a general summary of what is similar and different between these three programs.

Table 4.15. Similar and different game elements in three gamified orientation programs

Amazing Race	Spaghetti Marshmallow Challenge	Press Play

Component of program	Related game element	Component of program	Related game element	Component of program	Related game element
Signed up in different teams	Teams	Team up activity	Teams	Team up and activities	Team
Cooperating to complete the goal	Communication	Cooperating during the activity	Communication	Ice-breaking activity and cooperating in the session	Communication
Brochure with goals	Tasks	Completing the goal	Tasks	Completion of each day's theme	Tasks
Guidance of the activity	Rules	Clarify restrictions	Rules	Procedure of each day's activity	Rules
Completing additional on each site	Achievements	Final structure from each team	Achievements	Products of each team	Achievements
Small prize for the winning team	Rewards	Ovation and prize	Rewards	Catered lunch	Rewards
Earning points for the team	Points/Scores	Measuring the height	Points/Scores		
A winning team	Competition	A winning team	Competition		
Rank through points earned	Leader boards	Rank from highest to the lowest	Leader boards		
Sequence of finishing the goals	Progression			Time series of five days	Progression
Different sites within the campus	Worlds/Levels/ Blocks			Themes of each day	Worlds/Levels/ Blocks
		Limited materials	Context/Setting	Provided tools and materials	Context/Setting

Stamps of finishing	Badges				

Similarities

The green cells in the above table represent the game elements that have been used for all three programs. These elements are teams, communication, tasks, rules, achievements and rewards. Teams can be used to foster interpersonal connections between participants, as well as communication achieving the similar purpose of improving participants' cooperation during the activity. Tasks give participants a clear goal to achieve, and rules add extra limitations and difficulties to the tasks in order to make them more challenging. 'Achievements' is represented for participants to record their progression and to give them a sense of fulfillment. 'Rewards' is the motivative element to stimulate participants for completing the task.

Differences

The yellow and red cells in the above table are the game elements that have not been used for all three programs. The yellow cells are the elements that have been used in two programs, and the red cells are the element that has been used in only one program. For the yellow cells, the element of points/scores, competitions and leader boards have been used in *Amazing Race* and *Spaghetti Marshmallow Challenge*. These two programs have the traits of scoring and competition, in order to create an intense atmosphere for the participant. The element of progression and worlds/levels/blocks can be seen in *Amazing Race* and *Press Play*. These two programs include the feature of creating settings and moving on from one setting to another, thus providing a feeling of progress for participants to hold their attention. The element of context/setting can be seen in *Spaghetti Marshmallow Challenge* and *Press Play*, which means that these two programs introduce specific conditions for participants, so that the theme of each program can be understood by participants more clearly and easily. In addition, the element of badges has only been used in *Amazing Race*, which provides extra collectable components for participants to keep their motivation of participating.

Summary of findings

Through the analysis of all three gamified orientation programs above, it can be seen that all these programs have used the component of "team" and "communication" to improve interpersonal communication among participants. Using these game design elements, the programs' design notions are to increase students' mutual communication and understanding via a pleasant and low-pressure context, in order to offer induction for new and incoming university students. The use of "team" and "communication" can also be helpful for Chinese international students to improve their English language skills and get familiar with the overseas study environment. Another similar usage of game element among these three programs is that they all introduce "achievements" and "rewards" into the process. The notion of "achievements" is to provide a sense of accomplishment for the students, in order to allow them to build a track of progression for their participation. The "rewards", in another angle, offer a stimulation for students to keep their motivation of participation. The designer also believes that these traits are helpful for Chinese international students to get involved in the program and better familiarised with their subjects and courses. All these assumptions will be examined with the comparison of questionnaire and interview data from the gamified group in further sections.

4.2.2 Influences from survey results

For the data collected from the gamified group, 40 of 47 valid responses indicated they are in the age group of 18-24, and the ratio is 85.11%. 36 of those respondents are female, hence the ratio of female is more than two-thirds of the total (76.60%). 27 (57.45%) of students among those respondents have no previous overseas study experience, and 34 (72.34%) of those students indicated that this is the first time they have studied in Australia. Apart from those general and background information questions, the major section of each questionnaire is designed in a 5-scale model. For each question, the respondent is given an evaluation on a 5-

point scale, in which 1 stand for the most disagreeing and 5 represents the most agreeing. The reference value of neutral point is 3, and the analysis uses average scores of all valid responses in each group to compare with the neutral value, in order to reflect respondents' evaluation of each question.

Table 4.16 below shows that through the participation in gamified orientation programs, most respondents feel slightly more positive about gaining help in academic related aspects, including learning academic skills and course requirements, as well as meeting academics in the faculty.

Table 4.16. Respondents' average score of academic related topics in the gamified group

Topics	**Average score**
Get a clear understanding of the course requirements	3.66
Get a chance to get familiar with the academics in the faculty	3.60
Learn relevant academic skills to help further study	3.70

Table 4.17 below shows that in the communication aspect, although respondents indicate they positively agree to be offered oral communication chances, there are still problems for them when facing specific issues of misunderstanding. Understanding cultural differences and developing friendships with non-Chinese students is also in the neutral position.

Table 4.17. Respondents' average score of communication related topics in the gamified group

Topics	**Average score**
Get a chance to make oral communication with non-Chinese students/staffs	3.91
Know how to deal with misconduct situations if it happens	3.34

Developed friendship or regular social connection with non-Chinese students	3.02
Understand cultural differences through the interaction between students from different cultures	3.49

Table 4.18 below shows that regarding the aspect of getting familiar with campus and facilities, respondents give mostly positive feedback, although they still feel neutral in accessing student associations and clubs.

Table 4.18. Respondents' average score of navigating related topics in the gamified group

Topics	Average score
Visit most parts of the university campus	3.83
Understand the accesses to campus facilities/services	3.79
Get a chance to access to student association/clubs	3.23

Apart from academic and university related topics, the respondents also expressed their evaluation of the daily-life topics. By participating in the gamified orientation programs, table 4.19 shows that respondents feel they have received a major positive influence on their understanding of the lifestyle in Melbourne, especially in understanding how to use the public transport system, as well as knowing the major landmarks.

Table 4.19. Respondents' average score of daily life related topics in the gamified group

Topics	Average score
Learn basic knowledge of living in a foreign country	3.94
Learn how to use the public transport system in Melbourne	4.21

Know the major landmarks in Melbourne	4.11
Know some of the major social events in Melbourne	3.47

Table 4.20 shows that although respondents feel positive to use non-Chinese social media networks and understand the pace of local life, it is still in an intermediate scale when they are trying to interact with local residents and are facing mental problems in an overseas context.

Table 4.20. Respondents' average score of cross-cultural understanding related topics in the gamified group

Topics	**Average score**
Get a first impression of the local pace of life in Melbourne	3.79
Know how to deal with mental problems	3.38
Use some non-Chinese social media networks via the program	3.77
Get a chance to interact with local people and practice communication skills for further daily life	3.43

In summary, based on the survey results of the gamified group, most respondents think that participating in the gamified orientation programs is slightly more positive to gain help in academic related aspects. Although respondents indicated they are positively agreeing to be offered oral communication chances, there are still problems for them to handle specific misunderstanding problems. It is also in the neutral position for respondents to understand cultural differences and develop friendships with non-Chinese students. For the aspect of getting familiar with campus and facilities, respondents give mostly positive feedback, although the accessing of student associations and clubs has still been indicated as neutral. The respondents also reflected their evaluation on the daily-life topics, as they think that by

participating in the gamified orientation programs, they have received a major positive influence towards understanding the lifestyle in Melbourne. Although respondents indicated that it is positive for them to use non-Chinese social media networks and understand the local lifestyle, it is still in an intermediate scale when they are trying to interact with local residents, as well as handling mental health problems.

4.2.3 Influences from interview result

In this section, the collected interview data from the gamified group will be interpreted first. To correlate with the interpretation of non-gamified group interview results, I will describe my synthesis of this group's direct responses to my questions. All collected data will be illustrated in Chinese, and the correlated part involving each research question will be translated into English as well. Participants' code names will also be used here, and the code name list has been referred to in a previous chapter (see table 3.3). All the interpreted data in this group will also be brought together in later sections to help to answer key research question.

4.2.3.1 Changes on academic adaptation

This section is the interpretation of interview question one: "According to your experience of study at Monash University, what is your general feeling about your adaptation to the academic life? What is the best part of your adaptation? What is the worst part?" As participants in the non-gamified group, a 1-to-10-point scale has been used to measure the adaptation result. Three of four participants have used this scale, except for KC, who only mentioned her general feeling of adaptation in a neutral degree. The overall result of participants' adaptation to the academic life locates on a neutral-to-neutral positive position, Table 4.21 below illustrates the result.

Table 4.21. Participants' marking points of their general adaptation result to the academic life

Interviewee	Marking point
FL	8
RT	6
SM	6
KC	No marking point

For the best and worst part of their adaptation, participants give specific feedback in relation

to their personal experience. It is the same as in the non-gamified group, that participants mixed the best part and the worst part together as a general consideration of their adaptation result during their interview. According to KC, the most difficult part of her academic adaptation is the lack of professional understanding towards her courses. She thinks that is majorly caused by the transdisciplinary experience. In contrast, after one semester's fundamental study, she feels much better about the study:

> 这个学期已经有了一些基础了，就明显感觉有些“刹不住车”了。(“I already have some foundation this semester, so I feel a little bit 'unstoppable' now.")

SM's most satisfying aspect in academic adaptation is time management, specifically in balancing study tasks and personal daily life. He feels adapted to the teamwork-based learning style as well. In addition, SM also thinks that campus environment and facilities can fully support his study, which is beneficial for him to adapt. The negative part of SM's academic adaptation is mainly reflected in the on-campus social aspect. He admits that he is not actively participating in student societies and clubs, except for recently visiting a faculty student group. On-campus dining is another aspect that SM does not feel quite satisfied with. He says that although there are several Chinese restaurants around campus, the selection of their cuisines is not, however, abundant and the taste is not as good as back in China. A third negative experience for SM's academic life is related to the campus environment. He says that whenever walking on campus, he can always find some places under construction. This creates some inconvenience in using some campus facilities, and therefore it may bring unpleasant feelings to students.

FL's best academic adaptation experience manifests in the communication aspect. The practical communication ability allows her to get involved in the classroom discussion, especially with local and non-Chinese students. Her well-developed language ability and academic study skill also improves her academic performance. In another aspect, social activity and engagement are less satisfying for FL, due to the lack of balance between her study and

personal life, however it is not a negative effect for her, as in her words, it's a "*normal situation*".

RT's best academic adaptation experience is related to sufficient academic skills, which leads to effective learning, writing and communicating with student services and resources. He feels he has not adapted to the accommodation type in Australia. Unlike university students who are mostly living on-campus in dorms in China, when studying in Australian universities, most of Chinese students are living off-campus, therefore the time they can spend on on-campus activities is restricted. RT thinks that this off-campus accommodation type can cause a lack of connection with the university, and reduce the student's recognition and sense of belonging to the university:

> 我感觉学校这种走读制让我不是很适应，每天在学校的时间很有限，所以校园氛围的感觉不会很深，不像国内大学那样大家都住在一起，交流起来也很方便，对学校的归属感也会比较强……我有去住校朋友的宿舍里参观过，他们的住宿是单人间，虽然说可以保障隐私，但相对来说宿舍文化相较于国内那种集体宿舍也会弱一些。("I feel uncomfortable with this commuting way of the attending lectures every day. Daily time in university is very limited, so the feeling of campus atmosphere is not very deep. Unlike Chinese universities, where everyone lives together, it is very convenient for the students to communicate, and the sense of belonging is also very strong. I have visited my friend's dormitory who live on campus, it is a single room. Although privacy can be guaranteed, the dormitory culture is relatively weak than Chinese universities.")

Another academic adaptation issue RT has is the maladjustment of teaching method. He thinks the student-centred method is more suitable for higher research degree students who already have the foundation of self-study. Chinese students that are coming to Australia to seek undergraduate degree education, such as himself, mostly lack the training of independent study in China, therefore it is difficult for them to adapt to the Australian higher education system, especially in their first several months after commencing.

According to participants, the most mentioned topic is study-related issues, all four participants have mentioned this topic in their interviews. KC has only mentioned negative experience of academic adaptation, which is lacking transdisciplinary support. SM and RT have both positive and negative experiences towards study-related issues, the positive experience is mastering academic skills (SM and RT), as well as adequate time management skills (SM), and the negative experience is lacking navigation on campus (SM) and insufficient understanding

of learning and teaching methods (RT). FL has only mentioned positive experiences towards study-related issues, that is, mastering academic skills.

On the issue of language and culture, three of four participants have mentioned it. SM and RT have negative experience towards this topic, which includes being unadaptable to the dining habit (SM) and unadaptable to the accommodation type in campus life. FL has positive experience towards language and culture issues, that comes from her well-developed English language proficiency.

Apart from the above two topics, two of four participants have also mentioned the topic of interpersonal relations. SM has negative experience towards interpersonal relations issues, that is, limited interacting with student services. FL's experience towards interpersonal relations issues is more positive, as that includes sufficient participation in classroom discussion and communication with local cohort.

4.2.3.2 Changes on daily life adaptation

This section is the interpretation of interview question two: "According to your experience of living in Melbourne, what is your general feeling about your adaptation to the daily life? What is the best part of your adaptation? What is the worst part?" In this question, participants also use 1-to-10-point scale to measure their adaptation result. It is the same as question one responses that three of four participants have used this scale, except for KC, who only mentioned her general feeling of adaptation in a neutral degree. The other three interviewees give positive feedback to this question, the detailed result can be seen in table 4.22.

Table 4.22. Participants' marking points of their general adaptation result to the daily life

Interviewee	Marking point
SM	7 to 8
RT	7
FL	6 to 7
KC	No marking point

It is similar to talking about the academic adaptation evaluation; participants also give both best and worst parts of their daily-life adaptation. KC thinks that her positive daily life

adaptation experience is relates to the close connection with the Chinese community, which makes her daily life more convenient in the aspect of seeking help. The only negative experience in KC's daily-life adaptation is the public transport area. The different type of bus operation, such as not alerting the next stop in some bus lines, can cause confusion for her travel.

SM has also mentioned that the social services in the community where he lives make his daily life more convenient, although he does not specifically point out whether it is a Chinese community or not. Public transport system can be inconvenient sometimes due to the unreliable timetable and lack of shifts, however it was still acceptable for SM. The safeguards in the community give SM more sense of security in his daily life. Apart from those positive aspects, SM has also mentioned some negative experiences in the daily life adaptation. One major aspect is the rising living costs and tuition fees that create negative feelings for SM. Another slightly negative experience is feeling lonely when first arriving in Australia, however it was not a big problem for SM as time went on.

FL thinks her part-time job experience has enhanced the daily-life adaptation outcome due to being able to forge social connections via communicating with different people during work, rather than only focusing on study and getting isolated from the local society. Her Chinese landlord also offers important help to her, as she describes that the landlord couple is like "*her parents in Australia*", which also benefits for her daily-life adaptation:

> 我刚来墨尔本的时候因为各方面都不熟悉，加上又比较害怕一个人住，所以就租住在一对移民过来的中国夫妇的房子里……相互熟悉了之后就和一家人一样……家庭氛围很好。他们就像是我在这边的家长一样，我在学校的紧急联系人填的都是他们。("When I first came to Melbourne, as I was not familiar with local environments and I was afraid of living alone, I rented a room in a Chinese immigrant couple's house. After getting known with each other, they became like my family members. The family atmosphere was very good. They were like my parents here. Even my emergency contacts were them.")

For the public transport system, she feels accepting, meaning that it is not a problem for her daily-life adaptation.

RT thinks that the best part of his daily-life adaptation is the high-quality natural

environment, that attracts him a lot, and offers more spaces to do outdoor activities. The politeness and kind manner of local residents also improves his daily-life adaptation outcome and decreases his feeling of marginalisation in a different culture. He lives with his uncle who already has permanent residence; therefore, he can get comprehensive help from his uncle to deal with daily-life problems, that also benefits his adaptation. The biggest problem in RT's daily-life adaptation is caused by the low efficiency of social services. In his opinion, it always takes longer time than expected to get a response from government or public service. Other social services such as restaurants and shops also have an early closing time, which makes him experience inconvenience and low efficiency. The security issue is another point that RT has mentioned causing negative experience in daily-life adaptation. The frequently occurring robbery cases around the campus area have caused terrifying feelings for him, along with lack of security during the daily commute to university. Apart from the above, RT also thinks that the unfamiliarity with local scenic sites restricts his choice of touring. The local insects that are not seen in China also make RT feel terrified and bring difficulties to daily-life adaptation.

All four participants mentioned adaptation experience relating to daily-life essential issues. KC, SM and RT have all mentioned both positive and negative experiences of daily-life essential issues. The positive experiences include stable and convenient accommodation (KC, SM and RT), acceptable public transport system (SM) and essential security services (SM). The negative experiences include inconvenient public transport system (KC), inconvenient shopping experience (SM and RT) and lack of security service (RT). FL only has positive experience with regard to daily-life essential issues, which includes convenient accommodation and acceptable public transport system.

Another major topic that is included in participants' response is the local atmosphere issue. Two of four participants have mentioned this topic, on which SM has negative experience, feeling lonely when living independently, and RT has both positive and negative experiences

of this issue. The positive experience comes from the high-quality natural environment and the vibe in local daily life, and the negative experiences come from the inconvenience of social services and inability to adapt to some local species.

There also two of four participants who mention the intercultural understanding issue, and both FL and RT have positive experience towards this topic. FL's experience comes from capacity to engage with local community or residents, and RT's experience comes from getting used to local etiquette.

4.3.3.3 Be aware of gamer identity

This section is the interpretation of interview question three: "Are you a game player? What is your attitude towards games (all game types)?" This question is designed to investigate if participants have background information from being a game player or not. It serves to further the analysis of participants' acceptance towards gamification application.

KC only plays some tabletop games for social purposes, but not many digital games. She thinks that playing games in a neutral degree is acceptable. SM mostly plays mobile phone games, and occasionally plays some board games. He thinks that playing games is an important part in his life, however it is not necessary to spend too much time on it. Overall, he evaluates himself as an ordinary game player. FL does not play any games and she also does not object to playing games. She admits that she has no interest in playing games, however she is also willing to have a try if it is not too time consuming. RT plays games, including digital games and tabletop games. He thinks that he is just an ordinary game player, and it is one part of his daily life, but it is not something that is a daily essential to him.

From all participants' responses, only one person has no experience of gameplay (FL), the other three participants have gameplay history in varying degrees. KC has limited experience of playing games that only focuses on tabletop games, likewise SM and RT have experiences of playing games in both digital and tabletop forms. All four participants have the

opinion that playing games to a certain degree is acceptable, and it does not occupy a large amount of time in their daily life.

4.2.3.4 Are you ready for the change?

This section is the interpretation of interview question four: "Do you know the concept of gamification? Do you prefer to use gamified approaches to improve the quality of your daily life?" This question is designed to investigate participants' attitude towards using the gamification approach to improve their overseas study experiences. Participants in this sample group have gamified units and activities in their orientation programs, and this question can also investigate the effect for them of participating in the gamified orientation programs.

KC admits that she is not familiar with the concept of gamification. She feels that it is on the neutral scale for her whether to introduce gamification approaches into her overseas study life. SM learnt the concept of gamification in his previous study. He is willing to introduce this approach into his overseas study life, as gamification can ease the pressure when exploring new subjects and make study tasks easier to accept. FL has also learnt from her courses about gamification. She is also willing to use gamification approaches to improve her overseas study experience, because it can make the tasks more attractive, thus become more interesting for her. RT also learnt the conception of gamification via his course. He is also willing to utilise this approach; however, it must be well-designed and have high-quality content to ensure learning new things through participating.

In conclusion, all participants except KC have previous understanding of gamification concept, and their attitude towards introducing gamification into their overseas study life is positive. As for KC, she has no previous understanding of gamification, and her attitude towards gamification application is in a neutral position: both use and not use are all acceptable to her.

4.2.3.5 Display the influence

This section is the interpretation of interview question five “According to your experience of the gamified orientation program, what is your general feeling about the program? Would it be helpful or not? Does it provide necessary information for you to get adapted to both academic life and daily life?” The intention of this question is to investigate participants’ evaluation on their faculties’ gamified orientation programs. Among all the participants, although they all come from faculties operating gamified orientation programs, for one of the participants, FL, the orientation program that she attended was hosted by the bridging course department, not her course faculty, therefore she has no experience of participating in gamified orientation programs. Due to this situation, this question has only collected three effective responses, from KC, SM and RT.

KC’s feedback on her faculty’s gamified orientation is mainly positive. She thinks that the content is mostly focusing on fundamental information, which is easy for new and incoming students to understand. SM’s general feeling about the faculty’s gamified orientation program is also positive. He thinks that by using gamified activities, it is easier to build a team, and everyone’s performance also improved while working as a team member. By participating in the gamified orientation program, SM also thinks that his communication skill has improved because of the teamwork atmosphere. RT also gives positive comments on his faculty’s gamified orientation program. He comments that this gamified orientation program has offered essential information for international students to get adapted in local study life, and other skills such as teamwork and navigation have also been included in the program. In another aspect, RT thinks that this gamified orientation program is not quite helpful in assisting students adapt to daily life. This is because the major content focuses on academic-related topics rather than daily-life topics.

Among the three participants who have attended gamified orientation programs, they have all given positive responses to the program, and declared that they are accepting of the

program. They have also pointed out that the gamified orientation program can provide essential information to students in many aspects, such as fundamental subject knowledge (KC), teamwork (SM and RT), communication skill (SM) and navigating ability (RT). RT has also mentioned a defect of gamified orientation program – that it is lacking daily-life related information in the content.

4.2.3.6 Promote strengths and avoid weaknesses

This section is the interpretation of interview question six: "Which part of the gamified approach in the orientation program is the most helpful to you? Which part is the worst?" This question is designed to examine which component of gamified program offers greatest help to participants, and if there are any parts that are not helpful. Same as in the previous question, due to FL having no experience of participating in gamified orientation programs, this question has only collected effective responses from KC, SM and RT.

KC thinks the most helpful part in the gamified orientation program is the social component, which serves an ice-breaking function and helps improve her communicating skill. For the least helpful part, she thinks that the gamified orientation program is lacking guidance on further course direction, as well as plain explanation of academic study skills by tutors. She also mentions that one key part of her course, choosing the pathway of further study, has not been included in the orientation program. This is a major deficiency for KC concerning her faculty's orientation. SM also has positive feedback on his participation of gamified orientation program. By participating in the gamified orientation program, he has developed his communication skill, and has become more capable of speaking in a public situation. RT talks about his evaluation on the gamified orientation program as both helpful and non-helpful. He has mentioned two benefits via participating the orientation program, the first one is getting familiar with campus environment and functions during the gamified activity. Another benefit he gains via participating in gamified orientation program is improving his social and

communication abilities. For the negative experience, according to RT, there are two aspects. First, he thinks this gamified orientation program does not provide essential information to allow him to understand how the learning group is formed. When he attended the orientation activity, he thought that the students in that activity would be studying together later for the entire semester. However, when the semester began it was not as he expected. This caused a missed connection between him and other students, which is not helpful for him to build long-term social connections. Second, RT also thinks that the gamified orientation program did not cover a large amount of academic skill training, which is an important aspect for international students.

In conclusion, apart from FL who has not attended her faculty's gamified orientation program, all three other participants have provided detailed responses on their evaluation of gamified orientation programs. Specifically, KC, SM and RT have all mentioned that through their participation in the gamified orientation program, their social and communication skills have been improved. SM's presentation skills and RT's navigation skills have also been enhanced. For the least helpful aspect, both KC and RT mentioned that the gamified program is lacking academic skill development. RT also pointed out that the gamified orientation program failed in forging long-term friendships and connections between new students, which can lead to further adaptation problems.

4.2.3.7 Sharing the fruit

This section is the interpretation of interview question seven: "If there are fellow Chinese international students that enrol to your course, would you recommend them to participate in this gamified program or not? Do you have any other suggestions for them to get adapted to the study and local lifestyle?" This question is designed to investigate participants' evaluation of gamified orientation program on a further scale, as participants' recommendations can express their recognition of the program. From another perspective, participants' suggestions

can reflect if there are any other important points that have not been included in the gamified orientation program.

KC thinks that she will recommend new and incoming students to join in the gamified orientation program, and the main reason is that it can help them to get a general understanding of what they are going to learn in their future courses, as well as to expand their social circle. For other suggestions, KC says that it is better for them to participate in other on-campus activities and to also make full use of university services and resources, such as psychological consultant, course coordinator and library services which can all provide useful assistance to students.

SM thinks he will recommend the gamified orientation program to incoming students, because it is helpful for them to expand their social circle. He also suggests that to adapt better to the overseas study life, it is necessary for Chinese international students to have stronger willingness to communicate and make friends. It is not compulsory that those friends are not also Chinese people, however the true goal for making friends is to have someone to communicate and exchange thoughts with. If there are enough pathways that allow Chinese international students to express their feelings and needs, it can be beneficial for their process of adaptation.

Although FL has not attended the gamified orientation programs, she also recommends that new Chinese overseas students try this program. She thinks that the atmosphere in the program can be quite relaxing, which is helpful for new and incoming international students to release their pressure. As for suggestions, FL encourages new students to be braver in actively communicating. Losing the courage of opening one's mouth and speaking can lead to more silence in both classroom and social occasions, and therefore hinder their performance during overseas study progress. Another suggestion from FL is trying to expand the social circle by exploring the local social activity and events, rather than just focusing on on-campus events.

FL also thinks that having well-developed time management skills is an important element for a successful overseas study journey, that can also offer more access to all the resources in both academic and daily life aspects.

RT says he will recommend the gamified orientation program to new Chinese international students. His suggestion is similar to FL's, that a stronger willingness to communicate with others is crucial. Chinese international students should try to expand their friendship zone, including both other Chinese international students and local cohorts into their social network. He also suggests that Chinese international students should be more generous to themselves, not living their everyday life "*under the fear of making mistakes*":

> 不要有心理负担，即使做错了什么也不会有人来批评你，这一点甚至可以延伸到以后的日常生活中，不要带着负担和压力去过每一天的生活。("Do not have any psychological strain. Even if you make mistakes, no one will criticize you. This can even extend to your future daily life, do not live everyday with burdens and pressures.")

Lastly, RT also suggests that the other non-gamified events and activities in the orientation are also important because they may also contain key information, if students miss out then it can also cause further adaptation problems.

In conclusion, all four participants have held a positive attitude that they would like to recommend their faculties' gamified orientation program to the new and incoming fellow Chinese international students. The most valuable things that Chinese student can obtain via participation are gaining more understanding of their upcoming overseas study (KC), releasing their pressure (FL), as well as expanding their social circle (SM). Among other suggestions to fellow Chinese international students, the most frequently mentioned suggestion is about being more active in communicating with other people, no matter if they are Chinese or local cohort (SM, FL, and RT). Other suggestions include making full use of resources in the university (KC), exploring social activities out of university campus (FL), releasing psychological burdens, and participating in other non-gamified orientation programs (RT).

4.2.4 Summary of influence

According to the data extracted from the gamified group's survey responses, the most satisfactory part of participating the gamified orientation program is understanding the local lifestyle issues. The respondents also give positive evaluations on understanding academic related topics and navigating the campus. However, on the aspects of communication and cultural understanding related issues, the respondents show a neutral reflection. Although respondents feel the gamified orientation program provides enough chances for them to have active communication and the use of local social media network is easy to access, it still puts them in a less positive position when encountering cross-cultural communication and understanding problems.

According to the interview result from the gamified group, for participants' academic life, the most mentioned topic is study-related issues. Participants have reflected that mastering academic skills can help them to have positive adaptation experiences in the academic setting. Sufficient time management skill is another beneficial condition to improve participants' academic adaptation. Apart from those positive influences, there are still defects that need to be noted: lack of transdisciplinary support, lack of navigation in campus and insufficient understanding of learning and teaching methods still impede participants' academic adaptation at Monash University. Regarding the issue of language and culture, well-developed English language proficiency can help participants to get a better understanding towards local culture, however there are still problems existing in aspects such as dining habits and accommodation types in campus life for participants. Apart from the above two topics, interpersonal relations have also been mentioned by participants. According to the participants, sufficient participation in classroom discussion and communication with local cohort can help boost academic adaptation experience, while limited interacting with student services plays as a barrier to the academic adaptation.

For daily-life adaptation experience, the essential issue is the most mentioned topic

among participants. Stable and convenient accommodation, acceptable public transport system and essential security services can create positive experiences for participants' daily-life adaptation. In the meantime, inconvenient public transport, inconvenient shopping experience and lack of security service can be major drawbacks for the daily life adaptation. Another major concern is the local atmosphere issue. High-quality natural environment can help participants get better adapted to the local lifestyle, however feeling loneliness when living independently, as well as the inconvenience of social services, can lower the experience of daily-life adaptation. The intercultural understanding issue is the third major topic for participants, as being capable to engage with local community or residents and getting used to local etiquette can help improve their daily life adaptation experience.

For other important points in the gamified group's interview results, all participants held the opinion that playing games is acceptable to a certain degree, and their attitude towards introducing gamification into their overseas study life is in a neutral positive position. Among the three participants who have attended gamified orientation programs, all have given positive responses to the program, and declared that they are accepting of the program. They have also pointed out that the gamified orientation program can provide essential information to students for their adaptation. The main defect of gamified orientation programs has also been mentioned, that is lack of daily-life related information in the content. Through the participation in gamified orientation programs, participants' social and communication skills have been improved. Other aspects that have been improved include presentation skills and navigation skills. For the least helpful aspect, participants have mentioned that the gamified program is lacking academic skill developing. Other non-helpful aspects include failure in forging long-term friendships and connections between new students, which can lead to further adaptation problems. All participants state that they would like to recommend their faculties' gamified orientation program to the new fellow Chinese international students. The most valuable things

that Chinese student can get from the program are gaining more understanding of their upcoming overseas study and releasing pressure as well as expanding their social circle.

4.3 The change: The effect of gamification technique

In this section, the previous interpretation of collected research data will be brought together to illustrate what are the socio-cultural adaptation problems for Chinese international students, what the attempt of gamification approach has provided to help improve Chinese international students' adaptation result, and what still needs to be done in order to improve Chinese international students' adaptation experience at Monash University. The analysing of data in this section serves for further analysis in relation to the research questions and reveals to what extent have the research questions been answered.

4.3.1 The inhibitors

This section aims to illustrate what socio-cultural adaptation problems Chinese students encounter most frequently in an Australian higher education context. According to the interpretation of survey and interview data collected from the non-gamified group, although participants have reported positive feedback in both academic and daily life adaptation, there are still obstacles existing in their socio-cultural adaptation process.

Participants mainly report positive evaluation on the academic adaptation through the questionnaire survey, the interview feedback also fits this result, as participants talk about their academic adaptation as an acceptable degree. Checking in specific scales, participants' satisfaction and requirements are both mentioned in their feedback. Participants feel positive in the study-related scales, though there are still flaws during their adaptation process. These flaws include under-developed information acquiring skills, insufficient usage of academic support units, and feeling the uselessness of orientation materials. For interpersonal relation scales, participants report majorly negative responses. The most concerning problems in this

scale are limited connection and interaction chances with non-Chinese cohorts during on-campus student life. What needs to be emphasised is that among all scales, the interpersonal relations are the only scale that participants expect to be improved by adopting gamification approach. For the language and culture scales, participants hold a neutral opinion in their feedback. They are aware that the English language training before their departure has a positive influence on their language skills, and it makes them think their language skill is on an acceptable scale. However, participants have also expressed lack of satisfaction towards their intercultural understanding, and this requires more English language assistance and culture learning support in their overseas study experience.

In daily-life adaptation aspect, participants also report positive evaluation via the questionnaire survey. However, in the interview responses the feedback is mostly neutral, as their daily-life adaptation issues exist in conjunction with their unsatisfactory experiences. The daily-life essential scales are typical examples to illustrate this neutral state. Participants' survey results reflect that their satisfaction regarding public transport and online shopping are only in a moderate degree. When looking into specific interviewee feedback, participants report similar experiences – that the in-store shopping is enjoyable, but the online shopping experience is not so pleasant. The same trend can also be seen in the transport aspect, as participants appreciate the fully covered public transport services, however the low efficiency of public transport is disturbing for them. Participants also report lacking information for satisfactory accommodation and safety, this is another flaw in the essentials of daily-life field. On the atmosphere scales, participants give a majorly positive response, as their regular contact with original family members in China helps them to ease the pressure of independent living in Melbourne. The general social vibe in local community attracts participants and leads to positive feedback from them. However, participants still encounter adaptation problems when facing some specific occasions in everyday life such as seeing a doctor or doing part-time job,

due to the social systems working differently between Australia and China. For the intercultural understanding scales, participants give majorly neutral feedback as well. From the questionnaire results, although participants can realise the importance of communication and cross-cultural understanding in their daily life, as well as making further effort to improve it, however their participation in local social events and friendship-making remains at an average level. This is also in accordance with interview feedback. Although participants are willing and capable to engage with local community or residents, and to expand their social network, they still feel limited in developing friendships with local people, as well as difficulties in understanding local habits and etiquette. It is similar to the language and culture scales in the academic adaptation.

In conclusion, among the data collected from survey and interview participants in the non-gamified group, the main problems that inhibit Chinese international students' socio-cultural adaptation at Monash University are manifested in the follow aspects:

- underdeveloped information acquiring skills,
- insufficient usage of academic support units,
- feeling the uselessness of orientation materials,
- unadaptable for designated social services such as online shopping, accommodation safety and transport efficiency,
- lack of intercultural understanding with regard to specific social occasions such as part-time work and seeing a doctor,
- limited connection and interact chances with non-Chinese cohorts for both academic and daily life,
- lack of English language assistance and cultural learning support in both academic and daily life.

In addition to these problems, an expectation from participants has been revealed, that

the interpersonal relations are the only scale which can be improved by adopting gamification approach. This is because from participants' understanding, the gamification approach can be helpful with interaction and improvement of engaging in university environment and expanding social circle.

4.3.2 The enablers

This section aims to describe what effect gamification techniques can bring to influence Chinese international students' socio-cultural adaptation process in Australian higher education context. According to the interpretation of survey and interview data collected from the gamified group, although participants have reported positive influence in both academic and daily-life adaptation through participating in gamified orientation programs, there are still points that can be improved regarding their adaptation outcome.

Participants' survey feedback shows that they gave a positive evaluation on study related scales, and this is in accordance with interview responses that mastering academic skills can help participants to obtain positive adaptation experiences in academic adaptation. Specifically, participants have mentioned that their presentation skills and navigation skills have received some improvement after joining in the gamified orientation programs. Apart from the above positive evaluations, participants also report drawbacks that still need to be addressed. These drawbacks include lacking transdisciplinary support, lacking navigation activities across campus area, and insufficient understanding of learning and teaching methods and skills. For the interpersonal relations scales, participants report a mainly neutral degree on understanding cultural differences and developing friendships with non-Chinese students. They think that through participating in the gamified orientation program, although the participation in classroom discussion and communication with local cohort are sufficient, it is still not enough for them to build long-term friendships and connections with other students. The same neutral evaluation has appeared in participants' feedback on the language and cultural scales.

By joining the gamified orientation program, participants' social and communication skills have been improved, however there are still problems existing in specific cultural understanding aspects, such as dining habits and on-campus accommodation style.

Participants' response on daily-life adaptation problems reflects that, comparing positive influences, there is still room for improvement if gamification orientation programs aim to benefit Chinese international students' socio-cultural adaptation result. For the daily-life essential scales, it generally reported positive influence for participants understanding the lifestyle in Melbourne from their orientation experience. However, it has also shown a similar trend of neutral distribution in daily-life adaptation problems from the non-gamified group, as participants report both positive and negative experiences towards specific aspects in their daily life. These aspects include accommodation safety, public transport efficiency and shopping experience. Participants have also reported their concern about missing content on daily-life essential scales during their orientation experiences, as it lacks relevant information in the gamified orientation program content. For the atmosphere related scales, participants give positive feedback in adapting to local lifestyle, as well as using non-Chinese social media networks to boost understanding of local life. However, feeling loneliness when living independently is still bothering participants and is considered a defect of their adaptation result. This is in accordance with participants' demands for more chances of forging long-term friendships in their academic adaptation. For the intercultural understanding scales, although participants still evaluate their interaction with local cohorts in an intermediate degree from the survey results, the interview results have also shown that participants understand the importance of engaging with local community as well as getting used to local etiquette and are willing and capable to put it into practice, in order to improve their daily life adaptation experience.

In conclusion, among the data collected from survey and interview participants in the

gamified group, the major influences that gamified orientation programs have brought to Chinese international students' socio-cultural adaptation at Monash University are manifested in the follow aspects:

- improved presentation skill and navigation skill
- sufficient participation in classroom discussion and communication with local cohort
- improved social and communication skills
- better understanding of the lifestyle in Melbourne
- more willing and capable to engage with local community and understand local etiquette

In addition to these influences, there are also improvements for gamified orientation programs to achieve better benefits for Chinese international students. These requirements and expectations are:

- more assistance in transdisciplinary support, navigation activities across campus area, and understanding of learning and teaching methods and skills
- more assistance for them to build long-term friendships and connections with other students
- specific cultural understanding aspects such as dining habits and on-campus accommodation style
- more guidance on daily-life essential content.

Among the interpretation of three gamified orientation programs' design structure, one main aim for those programs is using elements of teams and communication to enhance participants' interaction and communication. This effort has been positive for Chinese international students, as can be seen in the survey and interview result that participant have reported improvements in their presentation skills, social and communication skills, and participation in classroom discussion. However, there is room for improvement as participants

also need more assistance in building long-term friendships and connections with other students. The gamified orientation programs also lack content on daily-life adaptation topics; that is a major focus point for the program designers to make further efforts to help Chinese international students.

4.4 Chapter summary

This chapter has interpreted and analysed the research data that has been collected from two sample groups via questionnaire survey and face-to-face interview. Through the analysis of research data in the non-gamified group, Chinese international students' major socio-cultural adaptation problems at Monash University are manifested in the aspects of information acquiring, language and cultural understanding, as well as required intercultural communication opportunity. This can answer the sub-question of "what kind of socio-cultural adaptation problems do Chinese students encounter most frequently in an Australian higher education context?". The design structure of gamified orientation programs has shown the intention of using the design element of teams and communication to improve participants' interaction and communication skills. From the analysis of research data in the gamified group, the influences that gamified orientation programs have brought to Chinese international students can be seen in improving communication related skills, creating more chances for Chinese international students to interact with non-Chinese cohorts, as well as offering more intercultural understanding. There are also demands from Chinese international students for a better socio-cultural adaptation result through participating in gamified orientation programs, that includes more assistance in study related support, more assistance for building long-term friendships and connections with other students, as well as specific guidance on cultural understanding and daily-life essential content. This helps to answer the sub-question of "what effect can gamification techniques bring to influence Chinese international students' socio-cultural adaptation process in Australian higher education context?". By combining these two

sub-questions' answers, the main research question: "What are the strengths and limitations of using gamification techniques to help Chinese international students improving their socio-cultural adaptation outcome in Australian higher education environment?" can be answered.

Chapter 5: Discussion

In this chapter, I will discuss the results of my data analysis together with relevant research literature and offer greater theorisation of this emerging field. In order to fulfil the aim of my study, I have designed my research in a three-level structure: the surface level is the manifestation of this model; it studies the cross-cultural adaptation problems as the lens for conducting this research. The middle level is the core level, as it focuses on gamification topics as they are mobilised by Chinese international students. The root level is the foundation layer, and it is developed from complexity systems theory. According to this design structure, the discussion of my research findings will also be presented in three different parts, following the sequence of surface to root level in the research design.

In the following sections, I will first report the socio-cultural adaptation problems of Chinese international students at Monash University. Then the second part of this chapter will explore the impact of gamification on their socio-cultural adaptation. The third part will discuss my reflections on the complexity system theory with data from this research. The composition of this chapter is in a reversed sequence with the literature review chapter, as this is based on the manifestation of research data in the conceptual framework. The cross-cultural adaptation problems are the most superficial and intuitive reflection on the conceptual framework, and the gamification topics need to be examined in combination with cross-cultural adaptation problems.

As the foundation of the conceptual framework, insights towards complexity theory need in-depth analysis and discussion, therefore it should be located at the end of these three topics. In the above three parts, I will first examine aspects of this study that have confirmed previous research, then aspects that could be expected to have arisen in the findings but were not evident in the critical review of literature will be presented in the following section. The reason why these absences exist will be discussed, based on the analysis of the findings.

Finally, I will discuss key aspects of the findings that were not found in previous research. After the three parts that correspond with the three layers in the conceptual framework, I will conclude this chapter in the last part, examining the findings with respect to current theoretical understandings in the field and propose a new theoretical approach to studying the intersection of gamification with processes of cross-cultural adaptation.

The main research question of this study is: "How do gamification approaches affect Chinese international students' cross-cultural adaptation outcomes?" To examine this question, the first point to explore is Chinese international students' cross-cultural adaptation problems. This also fits with the surface level of my conceptual framework, and it will be the first topic in the discussion chapter as well.

5.1 Socio-cultural adaptation problems of Chinese international students

In this section, I will discuss the correlation between Chinese international students' cross-cultural adaptation problem and the research findings. To fulfil this purpose, an adaptation of Ward and Kennedy's (1999) SCAS (seen in Appendix B) will be employed and discussed below. As I have previously discussed in Chapter 4, the SCAS offers a full-scale items table to examine both psychological and socio-cultural adaptation outcomes over time. In this research, I have chosen related SCAS items to design the data collection instruments (seen in table 3.1 and 3.2). Before the discussion, I will first talk about the findings that have been generated from research data.

There were identifiable differences between the non-gamified and gamified groups when considering the overt context of them all being Chinese international students. The key finding was shared among them but with subtle differences. I will first discuss the non-gamified group response to English language proficiency problems, followed by the gamified group.

Non-gamified group: Socio-cultural problems and English language proficiency

Manifesting in each scale, the adoption of SCAS in this research has revealed specific socio-cultural adaptation problems for Chinese international students at Monash University. From the summary of respondents' survey results from the non-gamified group, the respondents felt mostly positive about receiving information with regard to study-related issues through their university. Regarding the issue of communication with non-Chinese students in educational contexts such as classroom and teaching activities, I found a neutral positive position among respondents' feedback. For the issues of interaction with non-Chinese friends in student life and on-campus activities, the respondents give mostly neutral negative feedback, although they are aware of cultural difference and try to avoid misunderstandings. Respondents report positive feedback on navigating the campus. When talking about getting along with non-Chinese roommates, the respondents' attitudes show a slight drop but are still in a positive location. For local lifestyle related issue, the respondents give a mostly neutral score to demonstrate their evaluation, although most of them feel positive towards adapting to the pace of life in Melbourne. The result of family bond related issues shows a mostly positive reflection through respondents' feedback. For the topic of socialising with local residents, the respondents' feedback is on mostly neutral scales. Table 5.1 below shows the general result of non-gamified group's survey responses relating to the sub-themes.

Table 5.1. Non-gamified group's survey result in sub-themes

Sub-theme	Result
Study	Major positive
Interpersonal relation	Neutral positive
Language and culture	Neutral negative
Daily life essential	Neutral positive
Atmosphere	Major positive

Intercultural understanding	Neutral

According to the data examined from the interview result of non-gamified group, for participants' academic adaptation at Monash University, study-related issues and interpersonal relations issues are the most common topics. In the study-related issue, problems include insufficient information and support from the academic unit, issues for transdisciplinary study, lack of navigation and engagement in campus environment, as well as time management skills. In the interpersonal relations issues, participants' problems mainly come from insufficient chances to participate in on-campus activity and classroom discussion, and limited interaction between students and academic units, student services, and domestic students.

Apart from the above two topics, language and culture issues are mentioned by participants as well. Participants recognise that their English language proficiency can determine their adaptation outcome regarding language and culture understanding. For the daily-life adaptation, essential issues are the most frequently mentioned topic among all participants. Shopping, transport, and accommodation are the main aspects for participants in their daily-life essential issues. According to the participants, the major unpleasant experiences occur in the field of online shopping, low efficiency of public transport and insufficient information for finding ideal accommodation. Another main topic from participants' feedback is the intercultural understanding issue; here, participants' major problems focus on the limited friendship zone with local community and residents, as well as difficulties in understanding local habits and etiquette. These problems are connected to incomplete English language proficiency. The third major topic that is shown in participants' response to daily-life adaptation experience is the local atmosphere issue. Although the general social vibe in the local community is attractive for those participants, it can still be problematic for them when dealing with specific occasions in everyday life, such as seeing a doctor or doing a part-time

job, since the social system works differently to China's. Table 5.2 below shows the general result of the non-gamified group's interview responses relating to the sub-themes.

Table 5.2. Non-gamified group's interview result in sub-themes

Sub-theme	Result
Study	Insufficient information and support from academic unit
	Issues for transdisciplinary
	Lacking navigation and engagement in campus environment
	Lacking time management skills
Interpersonal relations	Insufficient chances to participate in on-campus activity and classroom discussion
	Limited interaction between students and academic units, student services and local cohort
Language and culture	Lacking English language proficiency can slow down the adaptation progress
Daily life essentials	Online shopping experience is not so pleasant
	Feel disappointed with the low efficiency of public transport
	Insufficient information for getting an ideal accommodation

Atmosphere	When facing specific occasions in everyday life (i.e., seeing a doctor or doing part-time job), it can still be problematic since the social system works differently between Australia and China
Intercultural understanding	Limited friendship zone with local community and residents
	Difficulties in understanding local habits and etiquette

In the next section, I consider the same matters with respect to analysis of the data from the participants in the gamified group.

Gamified group: Socio-cultural problems and Language Proficiency

Although the initial intention of the gamified group's survey was to investigate the influence of gamified orientation programs on Chinese international students' socio-cultural adaptation outcome, through the analysis of survey data I was also able to analyse these Chinese international students' socio-cultural adaptation problems to a certain degree. Based on the survey results of the gamified group, most respondents think participating in the gamified orientation program is slightly positive to gain help in academic related aspects. Although respondents indicate they positively agree to be offered oral communication chances, there are still problems for them to handle specific problems of misunderstanding. It is also in the neutral position for respondents to understand cultural differences and develop friendships with non-Chinese students. Regarding the aspect of getting familiar with campus and facilities, respondents give mostly positive feedback, although accessing student associations and clubs is still indicated as neutral. The respondents also reflected their evaluation on the daily life

topics, as they think that by participating the gamified orientation programs, they have received a major positive influence of understanding the lifestyle in Melbourne. Although respondents indicate that it is positive for them to use non-Chinese social media networks and understand the local lifestyle, it is still in an intermediate scale when they are trying to interact with local residents, as well as handling mental health problems. Table 5.3 below shows the general result of gamified group's survey responses relating to the sub-themes.

Table 5.3. Gamified group's survey result in sub-themes

Sub-theme	Result
Study	Neutral positive
Interpersonal relation	Neutral
Language and culture	Neutral
Daily life essential	Major positive
Atmosphere	Neutral positive
Intercultural understanding	Neutral

The interview result of the gamified group has also reflected Chinese international students' socio-cultural adaptation problems to a certain degree. According to the interview result, regarding participants' academic life, the most mentioned defects that need to be addressed are lack of transdisciplinary support, lack of navigation on campus and insufficient understanding of learning and teaching methods. On the issue of language and culture, there are still problems existing in aspects such as dining habits and accommodation type in campus life for participants. Apart from the above two items, interpersonal relations topic has also been mentioned. According to the participants, limited interaction with student services is a major flaw in their academic adaptation. For daily-life adaptation experience, the daily-life essential

issue is the most mentioned topic among participants. The inconvenient public transport system, inconvenient shopping experience and lack of security service can be major drawbacks for the daily life adaptation. Another major problem is the local atmosphere issue, feeling loneliness when living independently, as well as that the inconvenience of social services can lower the participants' experience of daily-life adaptation. Table 5.4 below shows the general result of the gamified group's interview responses with regard to the sub-themes.

Table 5.4. Gamified group's interview result in sub-themes

Sub-theme	Result
Study	Lacking transdisciplinary support
	Lacking navigation in campus
	Insufficient understanding to learning and teaching methods
Interpersonal relation	Limited interacting with student services
Language and culture	Unfamiliar dining habits
	Unfamiliar accommodation type
Daily life essential	Inconvenient public transport system
	Inconvenient shopping experience
	Lacking security service
Atmosphere	Feeling loneliness when living independently
	The inconvenience of social services
Intercultural understanding	Not mentioned

The above research data has displayed how the major cross-cultural adaptation problems in the cohort of Chinese international students are reflected in English language proficiency issues and cross-cultural interaction attitude issue. However, apart from these regularly seen issues, there are also other cross-cultural adaptation problems existing in the feedback of my research participants. These problems include academic support issues and daily-life adaptation issues. The academic support issue refers to insufficient information and support from academic unit, or transdisciplinary support issues. The daily-life adaptation issue concerns inadaptability in daily-life settings such as online shopping, transport, or understanding local habits and etiquette. Unlike English language proficiency and cross-cultural interaction attitude issues, these problems are not regularly seen in other literatures. No matter how frequent these problems are been found in other research, to better understand the impact of those problems, further discussion on those data is needed. In the following sections, I will provide my discussion of Chinese international students' adaptation problems compared with previous literature. First, aspects of this study that confirmed previous research about socio-cultural adaptation will be presented. Second, aspects that could be expected to have arisen in research findings but were only found in the review of literature and not in this study will be illustrated, and I will propose some reasons why these absences exist, based on the analysis of the findings. Lastly, the final aspect of this section will discuss key aspects of research findings that were not found in previous research, highlighting my research contribution to developing a better understanding of this topic.

5.1.1 Concluded and confirmed

In this part, I will discuss the research findings that are in accordance with other researchers' studies. The first major purpose of this research has been to investigate Chinese international students' cross-cultural adaptation problems when studying at Monash University. As mentioned in previous chapters, 14 specific scales were selected to study Chinese international

students' adaptation in academic and daily-life aspects (seen in Appendix C), and all the specific scales have connection with each sub-theme in research questions (seen in Appendix D). With the help of SCAS, I have identified one specific socio-cultural adaptation problem among research participants, that is the language proficiency issue.

5.1.1.1 The English language proficiency issue

As can be seen in research findings, Chinese international students' language and cultural barrier problem still occupies a major position among the variety of aspects. In the non-gamified group's survey result, the feedback on language and culture scale is on the neutral negative position, and in the same group's interview result, interviewees have also pointed out that lacking English language proficiency can be very problematic for their adaptation outcome. Another scale that relates to language proficiency is intercultural understanding, as it requires Chinese international students to equip at a certain level of English language proficiency. In the non-gamified group's survey result, the feedback on this scale is neutral, which indicates that the level of intercultural understanding for Chinese international students studying at Monash University still has room for improvement. For the same group's interview result, the scale of intercultural understanding has also received feedback of limited friendship zone with local community and residents, as well as difficulties in understanding local habits and etiquette. The former feedback can lead to limited chances of English language practical usage in overseas daily life, and the latter feedback is the manifestation of incomplete English language skill and background knowledge. When investigating the gamified group's survey and interview result, the language proficiency problem still exists. In the gamified group's survey result, both the language and culture scale and the intercultural understanding scale received an evaluation of neutral feedback. In the same group's interview result, although no direct mention of language proficiency issue has been seen, participants still express difficulties in understanding local cultural forms such as dining habits and accommodation type.

Due to my analysis allowing for the impact of gamification, there is little research that speaks to the subtleties of my findings. Even so, the broader socio-cultural and English language proficiency issues have been found by other researchers in general terms. In particular, researchers using the SCAS to conduct cross-cultural studies have also proposed that language proficiency is a major problem for Chinese international students. For example, extending the SCAS models of cross-cultural adaptation theories, Gill's (2007) research indicates that language proficiency can be a further challenge for overseas students in their cross-cultural learning process, which adds weight to the importance of the SCAS approach. More specifically, Pang (2007) has also indicated in her study that Chinese international students turn out to have communication difficulties when they come to a new cultural context. This finding accords with Carno and Carno's (1993) theory that the language can be an important factor to affect students' cross-cultural adaptation, as well as Yu and Moskal's (2019) finding that English language proficiency can be a primary challenge for Chinese students in an international education context. The research findings of this aspect of my study have confirmed previous scholars' findings, demonstrating that English language proficiency is still a major problem for Chinese international students.

With respect to intercultural understanding-related issues, Spencer-Oatey and Xiong (2006) found in their study that a Chinese student's lack of interaction with British nationals can cause potential adaptation problems to their further overseas life experience, especially in language and communication aspects. This confirms the participants' feedback in my study of limited friendship zone in their overseas study life in Australia. In discussing a related aspect, Gill (2007) claims that the low level of English language proficiency and the lack of subject knowledge can pose burdens for Chinese students' adjustment procedures. This is in accordance with participants' feedback on difficulties in understanding local habits and

etiquette. All the above evidence has validated that the English language proficiency issues remain a major problem for Chinese international students at Monash University.

5.1.1.2 Discussion: language proficiency issue in the usability aspect

According to Searle and Ward (1990), the socio-cultural adaptation issue stands for the intercultural sojourner's degree of getting involved in the new environment. It focuses on participants' experiential feedback with the involvement in new social contexts, when they are living, studying, travelling in the overseas country, which all concerns usability changes for intercultural sojourners. This represents the external influences on the intercultural sojourner's adaptation problems in a new cultural setting. On the other hand, the psychological adaptation concerns are more about the physical and psychological well-being in the cross-cultural adaptation procedure. It is common to see the discussion about Chinese international students' psychological adaptation problems in previous scholars' research. For example, Gill (2007) finds that most Chinese students have experienced a three-fold process of cross-cultural adaptation in the UK: first, the stress and anxiety, then the adaptation and lastly the change in perception of self and other. From Gill's (2007) perspective, the cross-cultural adaptation study is also conducted from the subject's mental and cognitive angle, that is also the category of psychological adaptation.

Jenkins and Galloway (2009) argue that the incorrect assumption of social condition can cause adaptation problems in several aspects such as social cognition, social behaviour, and stress coping. These aspects are more concerning problems for the mental well-being field. Yin (2013) proposes that English language problems may lead to further difficulties such as loneliness and isolation for Chinese international students overseas. This specifically links language proficiency issues to the psychological adaptation topic of feelings. Belford (2017) points out that social interaction and friendship development plays a significant role in

international students' adjustment process, as well as providing them a sense of confidence in the host cultural context. It is also providing insights on the motivation topic for the cross-cultural adaptation study. In general, previous research on Chinese international students' cross-cultural adaptation commonly focuses on the psychological adaptation issues. It is necessary to examine the same topic in the socio-cultural adaptation field in order to provide novel insights, which is also the aim of my research.

In the research data, it is clear to see that participants talk about English language proficiency issues in relation with the socio-cultural respect. For example, according to the data examined from the survey results of the non-gamified group, although respondents are positively making efforts to learn the importance of cultural difference, their connection with non-Chinese cohorts during on-campus student life still shows a neutrally negative reflection. For the daily-life adaptation aspect, as Chinese international students, although respondents feel positive about getting along with non-Chinese roommates, they still preferred to live with their co-nationals. In the interview result, when asked about the cross-cultural interaction issues in their daily life, respondents gave a mainly neutral and intermediate level evaluation. It also fits for the communication in academic life issues, as the respondents do make efforts on improving cross-cultural understanding, like using local social media networks, the result of actual participation in local social events and friendship-making remains at an average level. A major problem is the limited friendship zone with local community and residents, as well as difficulties in understanding local habits and etiquette.

These problems are still connected with incomplete English language proficiency. When asking participants to give suggestions to their fellow Chinese new and incoming students about better adaptation outcomes, their feedback reflects that they have noticed the importance of social networks in helping them solve adaptation problems, as expanding social network has become the most popular suggestion. The major strategy that participants use to

improve their socio-cultural adaptation outcome at Monash University include seeking language support, which is also correlated with another common suggestion of improving language and culture learning from those participants.

From the above research data, it is clear to see that participants talk about English language proficiency issues regarding the usability aspect. Their language problem is manifested in the aspects of communicating with local cohorts or non-Chinese roommates, using local social media networks, and participating in local social events for friendship-making. This means participants are seeing the language problem in a more usable aspect rather than a behavioural aspect. This trend can also be seen in participants' suggestions, such as expanding social networks and looking for language support services being the most popular suggestions among participants. They are all concerns about the intercultural sojourner's language proficiency at an external and contextual angle, that is, the usability features of the intercultural sojourner's adaptation problems. Therefore, it can also be linked to the socio-cultural adaptation aspect for Chinese international students' adaptation problems at Monash University.

Theoretically, seeing language as a socio-cultural element is also supported by previous scholars. According to Hall (1997), language grows from the social environment, and acts as the medium which represents thoughts, ideas, and feelings in the cultural context. Kramsch (1993) also states that with the help of all verbal and non-verbal signals, language reflects the revolution of culture elements in human system. The arguments of previous researchers also support the viewpoint of seeing language issues in a socio-cultural way, that also supplies the interpretation of my research data.

The above discussion has revealed that in this research, for Chinese international students' cross-cultural adaptation problems at Monash University, the English language

proficiency issue continues to play a major role in the socio-cultural adaptation field. This has also been concluded in previous researchers' statements, and in this research, it has been confirmed as well.

5.1.2 Concluded but not confirmed

Apart from the concluded findings that have been confirmed in this research, there are also concluded findings that have not been seen in this research. In this research, although I have designed questions related to pre-departure preparation topics, the participants' feedback scarcely reflects this aspect.

5.1.2.1 The pre-departure preparation

From previous literature, pre-departure preparation has been mentioned as an important approach for improving Chinese international students' socio-cultural adaptation result. For example, Zhou et al. (2008) drew on the Searle and Ward (1990) model for their study and found that better pre- and post-departure preparation might lead to adaptations that are more fruitful for the Chinese international student cohort. Yan's (2011) study also analyses cross-cultural adaptation difficulty for Chinese international higher education students in America. The difficulty comes from the contradiction between Chinese students' unrealistic expectations of the American culture and the actual reality awaiting them in American society. Yan's (2011) finding fits with Jenkins and Galloway's (2009) research, which illustrates that even in familiar social environments for Chinese students, such as Taiwan, the incorrect assumption of social condition can cause adaptation problems. This impact happens in several aspects, such as social cognition, social behaviour, and stress coping, which can lead to the macro level of culture shock problems. According to these findings, culture shock also influences Chinese students' adaptation to American society. Based on this finding, it is suggested that Chinese international higher education students and their parents should make comprehensive and accurate pre-departure preparation before they start their overseas life (Yan & Berliner, 2011).

Back to the research data, it is not obvious that participants have reported the importance of pre-departure preparation in their socio-cultural adaptation experience. Among all the interview participants' feedback, only LL and CF have made slight statements on pre-departure preparation regarding to their socio-cultural adaptation experience. LL concludes that although pre-departure preparation can help improve her daily-life adaptation, after the arrival it still requires "*taking action and be braver*" in daily life to get adapted. Her response mainly reflects the sub-theme of the daily life essentials, in relation to the broader topic of living in a foreign country. When talking about her strategy for getting a better adaptation result, CF mentions using social media network as a major pathway of acquiring information in both pre-departure and post-arrival stages. Her strategy is mainly reflected in the sub-theme of intercultural understanding, it slightly relates to the scale of making friends. The above two parts are the only connection between the topic of pre-departure preparation and the research data. Therefore, it is not obvious to emphasise the importance of pre-departure preparation in participants' socio-cultural adaptation experiences in this research.

5.1.2.2 Discussion: considering pre-departure preparation from a different angle

Initially, I think the topic of pre-departure preparation can also be classified under the socio-cultural adaptation field. However, after interpreting the literature and research data, both materials suggest to me that the pre-departure preparation issues are not only connected with socio-cultural adaptation. As Yan (2011) has indicated in her research, the difficulty for Chinese international students in American schools comes from the contradiction between their unrealistic expectations of the American culture and the actual reality of the American society. Further to these effects, Chinese international students became more negative in their attitude towards interacting with the new social context. This is more of a behavioural and internal perspective to examine the pre-departure preparation issues. Jenkins and Galloway's (2009) research also indicate that the impact of incorrect assumptions around social condition happens

in the area of social cognition, social behaviour, and stress coping. It is also manifested more in a behavioural aspect, rather than specific interaction with socio-cultural context. From the research data, although I have collected data in respect of the suggested value of pre-departure preparation in socio-cultural adaptation aspect, such as using social media network as a major pathway of acquiring information in pre-departure stages, there are also data that indicate need to consider this topic in a behavioural way. LL talks about her thoughts that after arrival still requires "*taking action and be braver*" in daily life to get adapted in the overseas life, and her suggestion to fellow Chinese international students is positive about putting pre-departure preparation into practice. This is a more considered attitude in thinking about pre-departure preparation issues, and the effect may be more behavioural.

The previous literature and data from this research have indicated that the pre-departure preparation topic is not only related with the socio-cultural adaptation aspect, but it also has connection with the psychological adaptation aspect (e.g., Xia, 2009; Ying & Liese, 1991; Zheng & Berry, 1997). My research design focuses more on the socio-cultural adaptation field; therefore, my initial goal is to discover pre-departure preparation in relation to participants' usability of objective cultural settings. The collected data shows a deficiency in this respect, therefore, to better understand the pre-departure preparation issues in Chinese international students' cross-cultural adaptation procedure, further study in the psychological adaptation field is also required.

5.1.3 Confirmed but not concluded

In this part, the research findings that have not been found in previous research studies will be discussed. In this research, there are two major findings that have not clearly been seen in previous cross-cultural adaptation research on Chinese international students in English language speaking countries. These two findings are: Concerns with specific overseas life problems and Adopting gamification approaches for help.

5.1.3.1 The concern of specific overseas life problems

The first major finding of this study that has not been clearly seen in previous studies is the concern of specific overseas life problems for Chinese international students at Monash University. This problem is more connected with the sub-theme of daily-life essentials affairs and atmosphere. Although the survey result of both sample groups has indicated that the evaluation of daily-life essential and atmosphere is between neutral positive to major positive respectively, in both groups' interview results participants have still raised adaptation problems that belong to these two sub-themes.

Looking into specific interviewee feedback in the non-gamified group, participants report similar experiences that the in-store shopping is enjoyable, but the online shopping experience is not so pleasant. The same trend can also be seen in the transport aspect, as participants appreciate the fully covered public transport services, however the low efficiency of public transport is disturbing for them. Participants also report lacking information on satisfactory accommodation and safety, this is another flaw in the daily-life essential field.

The above three aspects of consideration have also been expressed by interviewees in the gamified group. On the atmosphere scales, participants give a majorly positive response, as their regular contact with original family members in China helps ease the pressure of independent living in Melbourne. Feeling loneliness when living independently in Melbourne is also mentioned in the gamified group's interview result, which indicates that it is also a common problem for Chinese international students in their overseas study experience at Monash University. The general social vibe in the local community attracts participants and leads to positive feedback from them. However, participants still encounter adaptation problems when facing some specific occasions in everyday life such as seeing a doctor or doing a part-time job, due to the social system working differently between Australia and China. This is also in relation with the gamified group's reflection of the inconvenience of social services

in their atmosphere sub-theme feedback.

From the review of previous literature by Ward and her colleagues (e.g., Searle & Ward, 1990; Ward & Kennedy, 1999), although the scales of adapting to local accommodation, using the transport system, and going shopping have been involved in the SCAS instrument, it is not specifically investigated in previous cross-cultural studies. For example, Yan's (2011) study analyses cross-cultural adaptation difficulty for Chinese international higher education students. The difficulty comes from the contradiction between Chinese international students' unrealistic expectations of the American culture and the actual reality awaiting in American society (Yan, 2011).

In his study, it is clearly mentioned that Chinese international students have met problems with regard to different socio-cultural contexts. However, it is not specifically pointed out in aspects such as shopping, transport, or accommodation, but only in the general category of socio-cultural difference. Another study presented by Belford (2017) confirms that international students can face cross-cultural transition issues in aspects such as culture shock, social interaction and friendship development while living and studying in an overseas context. However, the cross-cultural transition issues in specific topics such as shopping, transport, or accommodation are also not pointed out.

From the above scholars' study, although Chinese international students' socio-cultural adaptation problems in general foreign contexts have been pointed out, no specific problem in their daily-life experience has been identified. Looking into the findings of this study, interview participants have expressed their concerns, not only in the general non-adaptation to the destination country's daily life, but also point out their concerns in specific topics such (i.e., shopping, transport, accommodation). Furthermore, they have also expressed their expectations of getting assistance in those aspects to have a better socio-cultural adaptation outcome. Therefore, for this research, the first confirmed but not concluded finding of cross-

cultural adaptation is the concern of specific overseas life problems by Chinese international students at Monash University.

5.1.3.2 The possibility of adopting gamification

The second major finding of this study that has not been clearly seen in previous studies is the possibility of using gamification to help Chinese international students to improve their socio-cultural adaptation outcome. In the review of literature, scholars have provided possible suggestions for Chinese international students to improve their socio-cultural adaptation outcomes. As language proficiency is a main problem for Chinese international students, the most common suggestion for Chinese international students is having a better English language skill level.

Pang's (2007) study of Chinese international students' cross-cultural adaptation in the US suggests that Chinese international higher education students might be expected to have better English language for specific study purposes in American social contexts. If not solved quickly, English language problems cause significant delay in academic achievements (Collier & Thomas, 1989), or even discrimination in further career development in Australia (Singh, 2019). Therefore, the main point for Chinese international students to improve their socio-cultural adaptation outcome in an English language context is linked with English language proficiency issues. Likewise, there are also other considerations for Chinese international students to improve their socio-cultural adaptation outcome. Tong (2014) argues, for example, that:

> *… schools function as a microcosm of the larger society and create opportunities for Chinese international students to try out the sociocultural adaptation strategies they employ to make sense of the similarities and differences between their primary (native) and second (school/mainstream) cultures (p. 94).*

This means international education providers can offer content such as cross-cultural

disciplinary inquiry projects, which are helpful to promote students' intercultural awareness (Spires, Paul, Himes & Yuan, 2018). Gao (2014) argues that institutions and governments need to foster and sustain close connections between local students and sojourner students, to increase those cross-cultural groups' satisfaction and adaptation. Moreover, Scally and Jiang (2019) suggest that it is helpful for international students to get support if the university staff have more international awareness, especially with similar backgrounds to the incoming students. With effort from both students and education providers, available research suggests that it is possible to offer better cross-cultural adaptation experiences to Chinese international higher education students entering an Australian university. However, all these considerations have no connection with the novel cross-sector approach of gamification.

From the non-gamified group's interview result, participants offer their attitudes towards accepting gamification or not. WW's attitude towards gamification is positive in most scenarios, except for his daily life because he thinks that gamification can bring extra burden for him. Louis and CF have clearly indicated that they can accept gamification techniques in their life, especially in expanding their social circle (LZ) and triggering motivation by rewards (CF). JW, YL, YXL and MT have all indicated that their acceptance of gamification depends on the content design of activity, and that if the content makes them feel dumb and naïve (JW and MT) or focusing on teamwork rather than personal action (YXL) or cannot implement the initial design notion (YL), then it is hard for them to accept. Apart from those specific design flaws, their acceptance of gamification approaches is on the positive level. SF thinks that if a gamification activity can make use of multiple technologies into cooperation, then her acceptance can be improved. LL has not clearly indicated her tendency of acceptance towards gamification approaches, as she only mentioned that the successfully implementation of design notion is important for a gamification project.

In general, interviewees' feedback on bringing gamification to enhance their socio-

cultural adaptation at Monash University is on a positive level. According to participants' experience and opinions, they think that gamification approach can be helpful with the improvement of engaging in university environment, expanding social circle, and triggering motivation for self-exploring, and that is reflected by the scale of interpersonal relations. All this feedback on the gamification approach is not seen in previous research on Chinese international students' socio-cultural adaptation studies. Therefore, based on these participants' feedback, the second confirmed but not concluded finding of cross-cultural adaptation in this research is the possibility of using gamification to help Chinese international students to improve their socio-cultural adaptation outcome.

In conclusion, there are two major findings in this research that have not clearly been seen in previous cross-cultural adaptation research on Chinese international students in English language countries, including Australia. These two findings are all on the factual level. The first confirmed but not concluded finding is the concern of specific overseas life problems by Chinese international students at Monash University. The second confirmed but not concluded finding of this research is the possibility of using gamification to help Chinese international students to improve their socio-cultural adaptation outcome.

5.1.3.3 Discussion: linking socio-cultural adaptation problems to gamification

From the previous literature of studying Chinese international students' cross-cultural adaptation topic, the major conclusion that has been made is that the language barrier often emerges as a core issue. However, in this research, the participants have raised not only problems of English language proficiency, but also other problems such as transportation, shopping, and accommodation in their overseas daily life. In every aspect participant offer detailed concerns about their socio-cultural adaptation problems and possible improvements that can be made. Connecting with their feedback on the language and culture scale that is on the neutral negative position, it is clear to see that although participants still treat English

language issue as an important problem, the portion of this difficulty is not in a major amount as previous researchers have stated (e.g., Gill, 2007; Pang, 2007; Spencer-Oatey & Xiong, 2006;). On the contrary, the lack of English language proficiency plays more as the actual cause of participants' adaptation problems.

The focus point for Chinese international students to think about their socio-cultural adaptation problems is moving from the language proficiency itself to more specific problems that occur in their daily life. These specific daily-life problems are all related to Chinese international students' interaction with objective elements in their new cultural settings. Their usage of public services, their shopping experiences, their accommodation arrangements, even their leisure and recreation activities, all these problematic areas are manifested in Chinese international students' usability concerns in their overseas social context. This manifestation also proves that in Searle and Ward's (1990) theory, usability issues can cause an intercultural sojourner's adaptation problems in target socio-cultural contexts. It also indicates that in my conceptual framework, usability problems exist for Chinese international students at Monash University, and this further leads to their socio-cultural adaptation problems.

Apart from the exact problems that have been identified by participants, another finding from the research data is the participants' attempt at improving their socio-cultural adaptation outcome in a novel perspective. In the previous research, scholars offer suggestions to improve Chinese international students' adaptation issues with regard to aspects of social and educational dimensions. Tong (2014) argues, for example, that international education providers can offer help to promote international students' positive cross-cultural adaptation outcome. Gao (2014) states that institutions and governments need to foster and sustain close connections between local students and sojourner students, to increase those cross-cultural groups' satisfaction and adaptation. Moreover, Dai (2018) suggests that it is helpful for international students to get support if the university lecturers have more cross-system

communications with their colleagues in overseas partner institutions. Likewise, from another angle, if international students can keep a positive attitude and focus on the ultimate value of completing their study tasks, it can also be helpful for them to get adapted in an overseas learning environment (Gan, 2009). With effort from both students and education providers, available research suggests that it is possible to offer better cross-cultural adaptation experiences to Chinese international higher education students in Australian universities in traditional perspectives.

However, after interpreting research data collected from interview participants, I have noticed that the current Chinese international students at Monash University have also started to seek new directions to improve their socio-cultural adaptation outcome. By asking questions in relation to gamification topics, I have found that participants mostly know the concept of gamification before they join into this research. They have also had experience in gamification via activities other than university orientation programs, their acceptance of introducing gamification to help their study and daily life is also on the positive level. Some of the participants (such as CF) even intentionally used this approach in previous working experience and have positive evaluation of it. All these findings have indicated that gamification is a possible new approach to help Chinese international students to improve their socio-cultural adaptation outcome at Monash University. In my conceptual framework, this finding can also provide evidence to connect the surface level with the core level, that is, the topic of gamification in education, as it will also be the next part of the discussion chapter.

5.2 Gamification in education

In this section, I will discuss the correlation between gamification in education and the research findings. The nature of gamification concerns more than the game itself. It is not just using game or game elements in other fields, but also considering aspects such as game design, game techniques, and game thinking (Cheong, Filippou & Cheong, 2014). Based on Werbach and

Hunter's (2012) gamification element theory, a complete list of gamification elements has been generated and serves as a reference for further studies (Kanazawa, 2020, see Appendix E). This section also provides reflections on the middle level of my research design, as it investigates the influence of gamification on people's external and internal aspects.

The findings towards gamified orientation programs will be illustrated first. By examining the three chosen gamification programs that have been used by faculties at Monash University, the use of gamification elements can be clearly revealed. *Amazing Race*, the Faculty of Education's gamified orientation program, is a two-day orientation program that is designed for the new and incoming undergraduate education students. The program includes a set of activities with gamified components that aim to provide fun for participants while they are completing the orientation process. Table 4.12 in Chapter 4 shows the gamification element that has been used in this program. The Faculty of Engineering offers an orientation activity with gamified approaches for both undergraduate and postgraduate students. The activity is named *Spaghetti Marshmallow Challenge*. The aim of this activity is helping new engineering students to get familiar with their courses, illustrating an idea of innovative thinking methods, as well as increased mutual understandings. Table 4.13 in Chapter 4 shows the gamification element that has been used in this program. The Faculty of Art Design & Architecture also has a gamified orientation program named *Press Play*. This program is designed for new Master of Design students. Table 4.14 in Chapter 4 shows the gamification elements that have been used in this program.

Analysis of the three gamified orientation programs shows that all these programs have used the component of "team" and "communication" to improve interpersonal communication among participants. These game design elements are used to increase students' mutual communication and understanding via a pleasant and low-pressure context, to offer induction for new university students. The use of "team" and "communication" can also be helpful for

Chinese international students to improve their English language skills and get familiar with the overseas study environment. Another similar usage of game element among these three programs is that they all introduce “achievements” and “rewards” into the process. The notion of “achievements” is to provide a sense of accomplishment to the students. It allows them to track their progression for the participation. The “rewards” offer stimulation for students to keep their motivation of participation. To allow a clear view of how those gamified orientation programs have used the game elements, Table 5.5 below shows the incorporation of the above-mentioned common game elements in each program’s design.

Table 5.5. Common game elements in each program

Gamified programs / Game elements	**Amazing Race**	**Spaghetti Marshmallow Challenge**	**Press Play**
Teams	Signed up in different teams	Team up activity	Team up activities
Communication	Cooperating to complete the goal	Cooperating during the activity	Ice-breaking activity and cooperating in the session
Achievements	Completing additional tasks on each site	Final structure from each team	Products of each team
Rewards	Small prize for the winning team	Ovation and prize	Catered lunch

All these elements can be helpful to demonstrate the impact of gamification technology in the education context. However, to specifically investigate its influence on cross-cultural adaptation purpose, further discussion is required. The following sections will discuss the findings within relevant literature. As in the previous part, I will compose the discussion in a similar sequence. Firs I will display aspects of this study that confirmed previous research about gamification in education. Second, aspects that could be expected to have arisen in research findings but were only to be found in the review of literature and not in this study will be illustrated, and why these absences exist will be discussed, based on the analysis of the findings. Lastly, the final aspect of this section will discuss key aspects of research findings that were

not found in previous research, that also support further discussion of research contributions to the knowledge.

5.2.1 Concluded and confirmed

As with the previous section, this part will first discuss the research findings that have been confirmed in other researchers' studies. Gamification represents the usage of game elements and game design techniques in non-game contexts (Werbach & Hunter, 2012), it concerns both game elements and game design techniques, and non-game contexts. Game elements and game design techniques link to the components of building a game-like system, and non-game contexts are the utilisation of gamification theories and designs (Werbach & Hunter, 2012). Gamification concerns more than the game itself, it also contains game design, game techniques, and game thinking (Cheong, Filippou & Cheong, 2014). Kanazawa (2020) has developed a complete list of gamification elements (see Appendix E) using Werbach and Hunter's (2012) gamification element theory, and this offers the reference for me to study gamification in this research. Through the study of gamification issues, I have identified two major points that have been mentioned in previous research, which are the usage of gamification elements and the improvement of engagement in orientation activities.

5.2.1.1 The elements in gamification

From the deconstructive analysis of these three gamification programs, the usage of gamification elements has been demonstrated. All these elements have been adopted to enhance participants' experience of joining into the orientation activities, as well as bringing fun to ease and relax the participants. The attempt at using gamification elements to benefit orientation program participants is in accordance with previous scholars' studies, such as Dicheva et al., (2015), who have mentioned that airline companies use points and rewards in loyalty programs to keep customers, and IT companies use achievement systems to improve their productivity.

Cheong, Filippou & Cheong (2014) have also given examples of gamification implementations in people's daily life, as follow:

> *(1) LinkedIn, which uses progress bars to encourage users to complete their profiles, (2) EpicWin, in which users get points for completing items from their to-do lists, and (3) Fitocracy, in which users get points for exercising. (p. 234)*

Business products like *LinkedIn*, *Nike+* and *Foursquare* have all provided successful examples of using gamification elements to improve their productivity (Dicheva et al., 2015). When looking into the educational section, gamification applications and studies are still in progress (Dicheva et al., 2015). Researchers have already found that gamification has the potential to benefit educational activities in many aspects, for example, improve students' engagement (Dicheva et al., 2015), create collaboration in social interaction (Jagoda et al., 2015) and increase students' self- efficacy (Banfield & Wilkerson, 2014). As revealed in this research, the three selected gamification orientation programs have also adopted the gamification elements and focus on the topic of improving participants' engagement and collaboration, and this is correlated with the conclusions of previous gamification studies. Therefore, the first concluded and confirmed research finding in this section is the adoption of gamification elements in selected orientation programs.

5.2.1.2 The improvement of engagement

One main benefit that can be gained from gamification approaches is that it can help improve participant's engagement to boost the study that has been conducted (Dicheva et al., 2015). For example, Bartel and Hagel's (2014) study combines mobile learning and game-based learning and aims to use gamified designs and mechanics to increase students' motivation and engagement in university education. By adopting a gamification approach named Extended Mobile Gaming Education (eMgage), Bartel and Hagel (2014) find that it is possible for the

mobile gamification system to increase the engagement of university students. They have also pointed out that the study of gamification needs to be more extended to provide integrated understandings.

Apart from academic studies, there is also a field practice hold by Spence and his colleges (2012) in University of Toronto. This practice adopts gamification approaches in a library orientation tutorial session, which aims to solve the engagement problems during the sessions. As a result of the adaptation of gamification techniques, the teaching team reports that gamification has encouraged student engagement via adding personalised and fun elements into the session (Spence et al., 2012). In all the engagement gamification studies that are mentioned above, the results are shown to be majorly positive toward adopting gamification approaches to improve student engagement.

With the analysis of selected gamified orientation programs in this research, all these programs have adopted gamification elements that can be helpful to foster the sense of engagement for participants. In the program of *Amazing Race*, participants are signed up in different teams and cooperatively complete the goals. Each team competes to earn points and try to win the activity. All these elements can offer participants an engaging atmosphere to enjoy the orientation program. The activity of *Spaghetti Marshmallow Challenge* also uses team and cooperation elements to improve communication function during the process. It uses points, achievements, and competition as well, to create engagement and fun for participants. The program of *Press Play* also contains team and communication elements to boost participants' interaction. Although this program has no feature of competition, it still uses achievements, rewards, and progression elements to improve participants' engagement.

From the above analysed data, it is obvious to see that these three gamified orientation programs contain the consideration of improving participants' engagement. This design notion fits with previous scholars' argument (i.e., Bartel & Hagel, 2014; Dicheva et al., 2015; Spence

et al., 2012) that one major benefit of using gamification is to improve participants' engagement with the target product. Despite the exact effect of these three programs, from the theoretical design level, according to the implementation of such engagement-related elements, the notion of using gamification approach to enhance students' experience of participation in these gamified programs is clearly associated with the theoretical guiding of gamification. Therefore, in the gamification in education topic, the second concluded and confirmed research finding is using gamification elements to improve engagement in selected orientation programs.

5.2.1.3 Discussion: An affect in both directions

The elements adopted into three gamified orientation programs reflect the stress point of the upgrades. Adding these elements to the original orientation activity aims to enhance participants' enjoyment throughout the entire program, and further boost their motivation and participation in every aspect of university life. These selected gamification elements are all working in the objective way, and this can be seen in each program that the introduction of gamification elements is adding related components to the original program design. For example, all these programs have used the elements of *team* and *communication* to improve interpersonal communication among participants.

The original activity design of orientation programs does not contain the component of teaming up and interacting with each other but is rather in a conventional format of giving lectures and tutorials. By adding the components of teaming up and communicating with peers, the orientation program is more accessible for participants to experience, and therefore their engagement in the orientation activities can be enhanced. The improving of participants' accessibility can also be seen in other components, such as *points/scores*, *competitions* and *leader boards* that have been used in each program. All the attempts to add components to the orientation activity work on participants' physical presence and experience in gamified orientation programs. From this perspective, the adopting of gamification elements offers

external aspects, that is, trigging students' satisfactory of self-improvement during the orientation. This affect provides support of external benefits in gamification, which manifests in the core level of my conceptual framework.

From another angle, the adoption of gamification elements such as *team*, *communication*, *achievements* and *rewards* also indicate that those programs want to create a more engaging and attractive atmosphere for participants. Teaming up and discussing the task with each other, completing the challenges and unlocking the achievements, even earn further rewards, and all these attempts make the orientation program more like an enjoyable game in a pleasant environment. Like game players get attracted by the games and want to play the game voluntarily, the usage of gamification elements also aims to make students feel that the orientation program is an enjoyable and playful event. It is worth joining in, and more importantly, participants are willingly to join in. This fosters participants' inner motivation of joining by using gamification approaches (Piasecki, 2019). As gamified orientation programs use this approach to design the activity and aim to attract participants' motivation of joining, the manifestation of gamification's internal benefit on motivation can also be revealed, which is also contained in my conceptual framework. However, this manifestation of internal motivation is not as obvious as the external utilisation benefits of gamification elements in the data analysis. Therefore, it leads to the next part of concluded findings that has not yet been seen in this research.

5.2.2 Concluded but not confirmed

In accordance with the previous section on socio-cultural adaptations, apart from the concluded findings that have been confirmed in the research data, there are also concluded findings of gamification that have not been covered so far in this research. In this part, I will reveal the major fact that has not yet been confirmed in this research, and that is the internal effect of gamification.

5.2.2.1 The effect on the internal aspect

The true intention of using gamification is to bring fun elements into non-game products, and yet also enhance users or participants' motivation to boost their productivity (Werbach & Hunter, 2012). This argument has also been confirmed by other scholars. For example, as mentioned by Vassileva (2012), a web-based social application which related to gamification approach could motivate users to participate and even change their behaviour at a certain level. This effect is related to behaviour economics' view of motivation and can be linked to psychological theories such as Maslow's need-based theories or Alderfer's acquired need theories (Vassileva, 2012). Likewise, Wild and Möller (2015) have pointed out that in the education sector, the core idea of introducing gamification is to decrease, or at least vary the subject's cognitive load, in order to offer more acceptable knowledge acquisition. These arguments have shown that the implications and effects of gamification can be manifested in the behavioural psychology field. Through the link to behavioural psychology in cross-cultural adaptation study (Spong & Kamau, 2012), there is a possibility to locate gamification approaches in cross-cultural studies and contribute more to the development of gamification research. In general, the theoretical driving force of making gamification approaches work relates to the psychological concept of motivation.

However, when looking into the research data, participants in the gamified group have given the feedback more in relation to objective concerns. For example, when talking about the improvement in interpersonal relations, participants' responses admit to having more frequent chances of talking to non-Chinese cohorts, rather than getting generally motivated and encouraged to talk more with those groups. In other aspects such as study and local atmosphere, participants also report improved navigation skills and better usage of local social media networks. All the concerns relate to objective entities and tools. On the intercultural understanding, participants report willingness and being capable of engaging with local

community. This is the only feedback from the participants that mentions their psychological changes, and it is too vague to do a deeper analysis.

5.2.2.2 Discussion: Focus point variations

Ward and Kennedy (1999) have mentioned that the theoretical foundation of cross-cultural adaptation comes in two aspects, which are psychological adaptation and socio-cultural adaptation. Psychological adaptation is influenced by elements such as personality, life changes, coping styles, and social support. On the other hand, socio-cultural adaptation is more likely to be influenced by factors regarding culture learning and social skills acquisition. This study aims to investigate participants' personal experience of their overseas study, such as language, academic skills' acquisition, overseas study life with regard to accommodation, shopping, and transport, rather than their behaviour and personality changes. From this perspective, the focus point of this study is located on the socio-cultural aspect for subjects, not on the psychological effect. In the findings of this research, no clue of how these gamified orientation programs help participants to improve their cross-cultural adaptation outcome through specific psychological method has been revealed. Although there is participants' feedback that talks about their changes in willingness to engage with local society, however it is only in one sub-theme of the data collection instrument, and the response is not sufficient to prove the connection on internal motivation of gamification. Therefore, the only concluded but not confirmed finding of the gamification topic in this research is examining the effect of gamified orientation programs on the psychological level.

5.2.3 Confirmed but not concluded

In this part, I will discuss the research findings with regard to gamification that have not been found in previous literature. Like the last part, this part also contains only one finding of gamification application that has not been clearly seen in previous research, which is the usage

of non-digital based form of gamification.

5.2.3.1 The non-digital based form of gamification application

For the selected three gamified orientation programs, all their content is delivered in the form of an activity. The essence of *Amazing race* is an exploration tour within the campus area. By adopting gamification elements, it has been formed as a treasure hunt – competing in hunting for treasure, collecting, and bringing it back for rewards. Within all the activities, the most important part is that every team needs to visit designated sites within the university campus and complete tasks on that site. It is a way for students to get familiar with the university campus environment and facilities. For *Spaghetti Marshmallow Challenge*, the nature of this program is a session within a series of orientation activities by the faculty. Although participants cooperate to win the competition by using limited materials and following restrictive rules, and yet also get familiar with their future course content, this gamified orientation program is still limited as an intervention within a larger orientation program.

Regarding *Press Play*, this program replaces the entire week 1 sessions for new Master of Design students and is more like a short-term course for new students. In this program, a set of activities is deployed based on the different topics within the area of design courses, which includes visual design, photo design, character design, etc. Although it has used gamification approaches to deliver the demonstration of course content and try to make the entire program an enjoyable and playful game-like activity, the nature of this program is a series of courses for students. Therefore, as a conclusion, for all three gamified orientation programs (*Amazing race, Spaghetti Marshmallow Challenge and Press Play*) that have been selected in this research, their original forms of delivering their content with gamification approaches are activity, session and course, respectively. These programs are all real-life based, and none of them uses digital applications in their progress.

In the topic of gamification study for student orientation and induction in an Australian

higher education context, there is only one that specifically investigates this topic, which is Fitz-Walter, Tjondronegoro and Wyeth's (2011) "*Orientation passport: using gamification to engage university students*". This study has designed a gamified mobile application which aims to improve new university students' orientation experiences in an Australian university. Through the investigation, researchers find that the overall results offer a positive suggestion of using gamification methods to improve students' orientation experiences (Fitz-Walter, Tjondronegoro & Wyeth, 2011).

When expanding the range of review, more gamification studies with specific focus points have been found. Whitton (2009), Piatt (2009), and Sierra and Stedman (2012) have presented positive findings when researching the use of gamification in the student induction and orientation aspects. However, all these studies have developed gamification programs with the use of digital tools as well. The above research has indicated that the digital application is an important part of gamification in education study, however this research provides analytical findings that gamification can also be used in the form of non-digital based, real-life activities, to provide students better orientation experience. The trait of adopting gamification elements in non-gamified products determines that it is possible to bring gamification approach in real-life based activity without the implementation of digital devices. Compared with previous studies, on the topic of gamification in student orientation and induction study, this research provides evidence to support that non-digital based form of gamification application can also be effective. Therefore, the major finding in this research on gamification in education that has not been clearly seen in previous research is the usage of gamification approaches in non-digital based forms.

5.2.3.2 Discussion: gamification's effect on socio-cultural adaptation

Previous research has shown the potential of gamification in the education sector. Gamification elements can be supportive to the social learning activity (Gianetto, Chao & Fontana, 2013;

Simões, Mateus, Redondo & Vilas, 2015). The usage of interactive response systems can be helpful to enhance emotional engagement and provide more satisfying and exciting learning experiences for students (Sun & Hsieh, 2018). There is little doubt that gamification can bring exciting, entertaining, and challenging processes to classic pedagogy to create enhancement (Piasecki, 2019), however it is still rare to bring gamification and culture learning topics together. This is the goal that my research aims to explore.

Among previous discussions, the adoption of gamification elements in the three selected orientation programs has been illustrated to work on the external benefits for participants' experience. The usage of gamification elements focuses more on enhancing students' participation outcome via objective assistance. It includes, for example, offering more interaction with facilities and tools, and providing more chances for students to access the context and environment. According to those examples, the focus of such adoption is majorly located on the external side of gamification's benefit. This trait offers the link to connect gamification approaches with socio-cultural adaptation problems, as socio-cultural adaptation is also the sub-class of cross-cultural adaptation from an objective perspective.

As mentioned above, socio-cultural adaptation concerns cross-cultural the sojourner's adaptation issue in the usability and accessibility in target cultural setting. It also represents the examination of cross-cultural adaptation issues from an objective angle. As it also concerns the adaptation problems in an actual way, the study of socio-cultural adaptation problems also explores sojourners' interaction with facilities, tools, services and contexts in the objective world. As the gamification approach used in the orientation programs also mainly concern participants' experience on the objective side, to best match the gamification and socio-cultural adaptation study, the form of events in the actual world is the most appropriate one to choose. Real-life activities can offer the playground for introducing gamification approaches into socio-cultural adaptation study, where all the elements are in an objective base. Here the connection

between gamification approach's effect and the socio-cultural adaptation problem of Chinese international students at Monash University has emerged, and the vehicle that brings these two topics together is the non-digital based form.

Following the last part of gamification in education, as the link between gamification and socio-cultural adaptation has been established, the next section will combine these two topics. This will indicate the importance of where this research stands, and what exact findings this research can provide, to answer the research question. Therefore, the next section of this chapter will discuss the relevant issue.

5.3 Connecting gamification and socio-cultural adaptation in the educational field

In this section, I will discuss the influence of gamification on socio-cultural adaptation. The clue to composing this section is the relation between gamification approach and the SCAS, that has also been embedded in my conceptual framework. This section will also follow the sequence of previous section, the first part displaying aspects of impact of gamification on the socio-cultural adaptation, the second part represents aspects that could be expected to have arisen in research findings but were only to be found in the review of literature and not in this study, then the last part reveals research findings that were not found in previous research, as well as supporting further discussion of research contributions to the knowledge. This section serves the purpose of combining the first two layers in my research design and creating the base to raise my central research question.

The findings of gamification approaches' impact on participants will be illustrated first. According to the interpretation of interview data collected from the gamified group, a major influence that the gamification approach has brought to the participants is improving their engagement within the university context. This includes presenting and navigating skills, participation, and interaction in academic and social events, as well as communication with

non-Chinese cohorts. Participants' interview feedback also shows that in the academic adaptation aspect, they have mentioned that their presentation skills and navigation skills have received an improvement after joining in the gamified orientation programs. Participants also think that by joining the gamified orientation program, the participation in classroom discussion and communication with local cohorts are sufficient, as well as their social and communication skills being improved. In the daily-life adaptation aspect, participants gave positive feedback in adapting to local lifestyle, as well as using non-Chinese social media networks to boost understanding towards local life. They also understand the importance of engaging with the local community as well as getting used to local etiquette and are willing and capable to put it into practice to improve their daily-life adaptation experience. Table 5.6 below shows the connection between participants' response and the research sub-themes.

Table 5.6. Gamified group's interview result in sub-themes

Sub-theme	Result
Study	Presentation skills and navigation skills have received an improvement after joining in the gamified orientation programs
Interpersonal relation	By joining the gamified orientation program, the participation in classroom discussion and communication with local cohort are adequate
	The social and communication skills have been improved
Atmosphere	Using non-Chinese social media networks to boost understand towards

	local life
Intercultural understanding	Willing and capable to engaging with local community

In addition to the improvements, an expectation from participants has been revealed that interpersonal relations are the only sub-theme which can be improved by adopting a gamification approach. This is because, from participants' viewpoint, the gamification approach can be helpful with the improvement of engaging in the university environment and expanding social circle. It reflects that due to the participants recognising that their interaction with other students has been improved by the gamification approach, they then have further expectation of more effective impact from this perspective. It is a supplement to illustrate the impact of gamification on improving student engagement.

As mentioned in the early section of this chapter, all the sub-themes are designed based on the SCAS. Thus, all interviewees' feedback in the gamified group can also be reflected on the SCAS model. The sub-themes that are involved in the feedback of improving student engagement are study, interpersonal relations, atmosphere, and intercultural understanding. In relation to the SCAS list, the scale of "coping with academic work" in the study sub-theme, "expressing your ideas in class" and "talking about yourself with others" in the interpersonal sub-theme, "getting used to the pace of life" in the atmosphere sub-theme, and "making friends" in the intercultural understanding sub-theme can be seen in interviewees' responses. Table 5.7 below shows the relatedness of interviewees' feedback and the SCAS.

Table 5.7. Gamified group's interview result and the SCAS

Sub-theme	Result	SCAS
Study	Presentation skills and navigation skills have	Coping with academic work

	received an improvement after joining in the gamified orientation programs	
Interpersonal relation	By joining the gamified orientation program, the participation in classroom discussion and communication with local cohort are adequate	Expressing your ideas in class
	The social and communication skills have been improved	Talking about yourself with others
Atmosphere	Using non-Chinese social media networks to boost understanding towards local life	Getting used to the pace of local life
Intercultural understanding	Willing and capable to engage with local's community	Making friends

Regarding other important points in the gamified group's interview result, their attitude towards introducing gamification into their overseas study life is in a neutral positive position. They have pointed out that the gamified orientation program can provide essential information to students for their adaptation. The defect of gamified orientation program has also been mentioned; that it is lacking daily-life-related information in the content. Through the participation in the gamified orientation program, participants' social and communication skills

have been improved. Other aspects that have been improved include presentation skills and navigation skills. For the least helpful aspect, participants have mentioned that the gamified program is lacking academic skill development. Other non-helpful aspects include failure to forge long-term friendships and connections between new students. In the following section, the findings will be discussed with relevant literature.

5.3.1 Concluded and confirmed

This section is mainly about a combined topic of gamification and socio-cultural adaptation study, therefore the literature and findings discussed in the following parts are more practical than previous sections and focus more on the factual level than the theoretical level. This part is a general discussion about the impact of gamification on socio-cultural adaptation and shows how and where this research fits into the field.

5.3.1.1 The impact of gamification on improving student engagement

As mentioned in the previous section, one main benefit that the chosen gamified orientation programs can bring is improving engagement. Therefore, it is also necessary to examine whether any specific impact of improving students' engagement has been brought to Chinese international students in this research. Accordingly, among the data collected from survey and interview participants in the gamified group, one major influence that gamified orientation programs have brought to Chinese international students' socio-cultural adaptation at Monash University is the improvement of their engagement in their overseas study life. It has been reflected in the following specific aspects: improved presentation skills and navigation skills, sufficient participation in classroom discussion and communication with local cohort and improved social and communication skills. Among the interpretation of the three gamified orientation programs' design structure, one main aim for those programs is using elements of teams and communication to enhance participants' interaction and communication.

This effort has brought positive influence on Chinese international students, as can be

seen in the interview result that participants have reported improvements on their presentation skills, social and communication skills, and participation in classroom discussion. All these improvements can be linked to the SCAS items, as Ward and her colleagues (i.e., Searle & Ward, 1990; Ward & Kennedy, 1999) have argued that the variation of these items can reflect influences on the cross-cultural sojourner's socio-cultural adaptation result. For Chinese international students, scholars have also presented arguments about their engagement issues in English language context. For example, Pan and Wong (2011) have pointed out that Chinese students experience a greater cultural distance in the host society, therefore it is more possible for them to disengage from the overseas social context and encounter cross-cultural adaptation problems. Spencer-Oatey and Xiong (2006) also argued that Chinese students' lack of interaction with British nationals has caused adaptation problems for their overseas study outcome.

All the evidence illustrates the importance of engagement for Chinese international students in an overseas context. By improving correlated SCAS items, the gamification approach can be beneficial to improve Chinese international students' engagement at Monash University in the findings of this study. This is also correlated with previous scholars' arguments, such as Bartel and Hagel's (2014) finding that it is possible for the mobile gamification system to increase the engagement of university students. Spence and his colleges (2012) have also reported that gamification can encourage student engagement via adding personalised and fun elements into the educational session. The ultimate function of using components of game mechanics in an educational context is motivational via creating user engagement and loyalty (Vassileva, 2012), which can also be seen from the interpretation of research data in this study.

5.3.1.2 The impact of gamification on having a positive intercultural attitude

Apart from engagement, gamification in education has another major study orientation, which

is motivation (Alsawaier, 2018). According to the previous part of this chapter, this research has no investigation of the psychological level of gamification approach, from the data of both sample groups, but it can still reflect a finding regarding the topic of motivation. When examining research data from the survey and interview results of non-gamified groups, one fact is that the participants have realised the importance of having a positive attitude towards the adaptation process in specific aspects such as proactive communicating and exploring local communities. According to the data examined from the survey result of non-gamified group, in the academic adaptation aspect, although participants' connection with non-Chinese cohorts during on-campus student life still shows a neutrally negative reflection, they are making positive efforts to learn the importance of cultural difference. For the daily life adaptation aspect, participants' resistance to jetlag problems can be a positive trial for their independent living without family members in Melbourne. When asked to give advice to fellow new and incoming Chinese international students, participants have also suggested having a proactive willingness to explore in a new country and cultivate cultural learning ability.

According to the data examined from the interview results of the gamified group, participants have also shown their efforts in striving for a better adaptation outcome. Through participating in the gamified orientation programs, participants' feedback shows that their social and communication skills have been improved, and the chance for participation in classroom discussion and communication with local cohorts are adequate. This has also offered more pathways for participants to understand local culture, as mentioned by the interviewees that their understanding of the lifestyle in Melbourne improved through their orientation experience.

Participants also gave positive feedback about adapting to local lifestyle, as well as using non-Chinese social media networks to boost understanding towards local life. Although participants still evaluate their interaction with local cohorts in an intermediate degree from the

survey result, the interview results have also shown that participants understand the importance of engaging with local community as well as getting used to local etiquette and are willing and capable to put it into practice, in order to improve their daily life adaptation experience. This influence of participating in the gamified orientation programs is in accordance with the non-gamified group's suggestion of having a proactive willingness to explore in a new country and to cultivate cultural learning ability. From this perspective, the impact of gamification on having a positive intercultural attitude is revealed.

As Berry (2005) argues, good socio-cultural adaptation depends on positive intercultural attitudes. If Chinese international higher education students want to have a better socio-cultural adaptation outcome, the available research suggests that they need to be positive about such uncomfortable processes of adjustment and engage in cultural interaction, in order to get a better understanding of cultural differences (Ruble & Zhang, 2013). The findings from interpreting collected research data support Berry's (2005) argument. However, maintaining a positive attitude with no motivation is difficult, as the topic of motivation is a major benefit that gamification can bring. Vassileva (2012) has mentioned in her study that the components of game mechanics are motivational via creating user engagement and loyalty.

This is also one connection which links together gamification techniques and educational purposes. Simões and his colleges (2013) have also claimed that the gamification framework can be beneficial for educational purposes and help in motivating students. Other studies about motivation via gamification such as Bartel and Hagel (2014), and Landers and Callan (2011) have also mentioned that gamification technologies have the potential to influence participants' behaviour from a motivational aspect. This is to suggest that the educational gamification study has a major benefit of bringing motivation to subjects. In this research, as Chinese international students have the requirement of being more proactive in their socio-cultural adaptation, and through the gamified orientation program, participants have

reported that they have been more positive in exploring and adapting to the social and cultural context in their overseas life, therefore it is obvious to see the impact of gamification on making Chinese international students have a positive intercultural attitude at Monash University.

5.3.1.3 The impact of gamification on English language proficiency

As mentioned in the early section of this chapter, the English language proficiency issue is still a major problem for Chinese international students at Monash University. According to the data examined from the survey result of the non-gamified group, for the academic adaptation aspect, the communication problems in educational context is positive but not satisfactory for respondents. Although respondents are positively trying to learn the importance of cultural difference, their connection with non-Chinese cohorts during on-campus student life still shows a neutrally negative reflection. Regarding the daily life adaptation aspect, as Chinese international students, while respondents feel positive about getting along with non-Chinese roommates, they still preferred to live with their co-nationals.

When talking about the cross-cultural interaction issues in their daily life, respondents give a mainly neutral and intermediate level evaluation. It also fits with the communication in academic life issues, as the respondents do make efforts to improve cross-cultural understandings, like using local social media networks. The result of actual participation in local social events and friendship-making remains at an average level. The non-gamified group's interview feedback reflects a similar trend found in language proficiency related topics. For the academic adaptation, participants admit that their English language proficiency can determine their adaptation outcome regarding language and culture understanding. Well-developed English language proficiency can improve the cultural understanding result, while lacking English language proficiency can slow down their adaptation progress.

For daily-life adaptation, a major problem is the limited friendship zone with local community and residents, as well as difficulties in understanding local habits and etiquette.

These problems are also connected with incomplete English language proficiency. When asking participants to give suggestions to their fellow Chinese new students for a better adaptation outcome, their feedback reflects that they have noticed the importance of social networks in helping them solve adaptation problems, as expanding social networks has become the most popular suggestions. The major strategy that participants use to improve their socio-cultural adaptation outcome at Monash University includes seeking language support, that is also correlated with another common suggestion of improving language and culture learning from those participants, who have also shown that language proficiency continues to play an important role in Chinese international students' socio-cultural adaptation at Monash University.

When examining the data from the gamified group, participants' feedback on language related topics has also occupied a large portion. Participants' interview feedback shows their presentation skills and navigation skills have improved after joining in the gamified orientation programs. They think that through participating in the gamified orientation program, the participation in classroom discussion and communication with local cohorts are sufficient, although it is still not enough for them to build long-term friendships and connections with other students. By joining the gamified orientation program, participants' social and communication skills have been improved. For the atmosphere related scales, participants give positive feedback in adapting to local lifestyle, as well as using non-Chinese social media networks to boost understanding towards local life. For the intercultural understanding scales, although participants still evaluate their interaction with local cohorts in an intermediate degree from the survey result, the interview results have also shown that participants understand the importance of engaging with local community, as well as getting used to local etiquette, and are willing and capable to put it into practice, in order to improve their daily life adaptation experience.

From the above feedback, by participating in the gamified orientation programs, participants have received improvements in the aspects of better presentation skills, sufficient participation in classroom discussion and communication with local cohorts, improved social and communication skills, as well as better understanding of the lifestyle in Melbourne. All these improvements are associated with the English language proficiency issue so if English language proficiency is still on a low level, then none of these improvements can happen. Therefore, the impact of gamification on improving English language proficiency has been revealed.

In conclusion, among the data collected from survey and interview participants in the non-gamified group, one major problem that inhibits Chinese international students' socio-cultural adaptation at Monash University is the language proficiency issue. This issue is manifested in limited connection and interaction chances with non-Chinese cohorts for both academic and daily life, as well as lack of English language assistance and culture learning support in both academic and daily life. This finding matches previous researchers; arguments, such as Pang's (2007) study of Chinese students' cross-cultural adaptation in the US, which proposes that poor English language ability has posed the greatest difficulty for Chinese students to adapt to daily life in America. Spencer-Oatey and Xiong (2006) have also argued that Chinese students' lack of interaction with British nationals has caused adaptation problems, especially in language and communication aspects. They further reported that "interviewees reported clash of values and lack of things in common as reasons for their low level of social interaction with British people" (Spencer-Oatey & Xiong 2006, p. 50). Gill (2007) also argues that the low level of English language proficiency and the lack of subject knowledge have placed a burden on Chinese students' adjustment processes.

These findings indicate that for Chinese international higher education students in British universities, a poor level of English language proficiency can be a key problem for their

adjustment in the local context. According to the literature and findings in this research, English language proficiency issue is still a major barrier for Chinese international students to obtain a better socio-cultural adaptation outcome in English speaking countries, including Australia. According to the finding of this research, by participating in the gamified orientation programs, interviewees' English language proficiency related issues have undergone an improvement. In fact, according to Borges et al. (2016), 7.69% of gamification research projects are focusing on language education.

Gamification in student orientation and induction studies held by scholars such as Whitton (2008) and Fitz-Walter, Tjondronegoro and Wyeth (2011) have also shown the potential of improving students' language and cultural learning ability by deploying gamification techniques in orientation program design. All these gamification studies have shown the possibility of using gamification to benefit language proficiency for international students, including Chinese international students, to further improve their socio-cultural adaptation outcome in overseas contexts.

5.3.1.4 Discussion: Practical improvements from gamification

When combining the two topics of gamification and socio-cultural adaptation, this research has three findings that reflect the impact of gamification technique on Chinese international students' socio-cultural adaptation outcome at Monash University. These three are that gamification has an influence on improving student engagement, gamification can make Chinese international students have a positive intercultural attitude, and gamification can benefit language proficiency for Chinese international students to further improve their socio-cultural adaptation outcome at Monash University. All the findings have been confirmed in other research with similar topics, which provides solid support for this research. All these improvements are manifested in the socio-cultural aspect of Chinese international students' adaptation problems at Monash University.

The gamified orientation programs use gamification elements to enrich the enjoyability of their activities, and hence create an engaging atmosphere for Chinese international students who participate in them. Those components of gamification elements are working on Chinese international students' accessibility to and usability of the actual facilities and services within the university, and further broadening their connection with the university context. This benefit has also encouraged Chinese international students to be more open and relaxed in exploring the university. It reflects the benefits of gamification for socio-cultural practices, as well as a slight benefit in psychological encouragement.

Finally, with the help of English language development that has been encouraged by the gamification elements such as teamwork and communication, Chinese international students' English language proficiency has also been enhanced. This improvement of socio-cultural adaptation also comes from the practical adoption of gamification elements in the language and communication aspect. According to this benefit, it also proves that gamification can provide practical help in Chinese international students' socio-cultural adaptation issues. Therefore, in conclusion, the major improvements that gamification can bring to resolve Chinese international students' cross-cultural adaptation problems are mainly in the socio-cultural adaptation field, which has been confirmed in both previous research and this study.

5.3.2 Concluded but not confirmed

Like previous sections, in this section there are also concluded findings that have not yet been covered in this research. In this part, there are two findings that could be expected to have arisen in the findings but were only to be found in the critical review of literature. These two findings are the immersive context and the usage of simulation technique.

5.3.2.1 The immersive context

Examining the previous research on gamification of student orientation and induction, one obvious method that is used by the researchers is creating an immersive context by using

gamification approaches to conduct the research. For example, the study conducted by Fitz-Walter and his colleges (2011) designed a gamified mobile application which aims to improve new university students' orientation experiences in an Australian university. Participants were closely connected with this mobile application, as most of the gamification activities need to be completed within the virtual environment created by this application. Through the investigation, researchers found that the overall results presented a positive suggestion with regard to using gamification methods to improve students' orientation experiences (Fitz-Walter, Tjondronegoro and Wyeth, 2011).

Although issues have been found that need future investigations, the study offers a supportive viewpoint on using gamification to create student engagement. Whitton (2008) led another research project in the United Kingdom called the Alternate Reality Games for Orientation, Socialization, and Induction (ARGOSI). This project was conducted at Manchester Metropolitan University in 2008 (Zhou & Fang, 2014). The ARGOSI's main aim was to provide a novel and engaging alternative to traditional student induction (Whitton, 2009). By offering a gamified program called *Viola Quest*, the project aimed to improve students' induction experience. The purpose of this program was to help students to develop basic library study and information skills, create social networks, and have an enjoyable induction experience through the activity of solving a series of puzzles in the storytelling of this game-like project. According to Whitton (2009), the entire project achieved its aim of developing and piloting a program with alternate reality game features for student induction. Piatt (2009) presents another research project at the University of Brighton in the academic year 2006/2007. It aimed to help the first-year students at the University of Brighton get better involved in the higher education environment. The purpose of the project was to help new students make better use of online and offline resources, to provide information to students who missed induction content, and to enhance students' social activity in their school life (Piatt, 2009). The research

project used a gamified program called *Who is Herring Hale?* This program was mostly delivered via e-mail and online blogs to participating students. Throughout the entire project, participants follow the lead of digital material and try to solve puzzles that guide the next step of the program. At the end of this activity, the participants would have the chance to reveal the truth of the ultimate puzzle, as well as experience the complete story of this adventure (Piatt, 2009). The author pointed out that this program has encouraged students' engagement, through aspects such as offering tasks that require students to work together and help each other. The feedback from participants confirms the helpfulness of the game, as they have mentioned that playing the game helps to figure out missing information, offer new perspectives, and provide fun as well (Piatt, 2009). All the above studies have shown the importance of immersive context in gamification studies.

On the topic of socio-cultural adaptation research, having an immersive environment is also important for cross-culture sojourners to improve their adaptation outcome. Ng, Tsang and Lian (2013) concurred with Ward and Kennedy's (1993) theory finding that social support from local friends and society can bring a benign effect to cross-cultural sojourners. Gao (2014) also argues that institutions and governments need to foster and sustain close connections between local students and sojourner students, to create a supportive environment around those students, and also increase those cross-cultural groups' satisfaction and adaptation outcome.

These arguments have also shown the importance of immersive context in helping cross-cultural sojourners to have a better socio-cultural adaptation outcome. However, from the interpretation of data in this research, while the selected gamified orientation programs have adopted gamification elements to satisfy participants, none of these programs has created an immersive environment for participants to enhance their socio-cultural adaptation experience. The program of *Amazing Race* is a competition activity, as the focus for participants is to win the competition, not immersing themselves in order to experience a unique story or

context. The *Spaghetti Marshmallow Challenge* is a session that needs participants to perform tasks. It also does not contain immersive content for participants to have a unique experience. Although the *Press Play* lasts longer than the other two gamified programs, it still serves as a short-term course for the participants. The stress point for *Press Play* locates on letting participants get familiar with course content via activities, rather than creating an immersive context to allow participants to experience course content pleasantly. Therefore, according to the above discussion, the first absent finding for this research is the immersive context in using gamification to improve Chinese international students' socio-cultural adaptation outcome.

5.3.2.2 The technique of simulation

Using a gamified system and program, even game itself, in studying cross-cultural topics is not rare to see in academic fields. For example, Ward, Furnham and Bochner (2005) have mentioned six different techniques in the training techniques for crossing-culture purpose, and one of those techniques is the simulation method. The simulation regards operating imitations of real-life processes (Sisk, 1995), and the manifestation of this technique is found majorly in simulation games. Ward and her colleagues (2005) have introduced four simulation games, which include the BAFA BAFA game (Shirts, 1973), the Bamga game (Steinwachs, 1995), the Markhall simulation (Blohm, 1995) and the Ecotonos (Saphiere, 1995). Although none of those games and simulations are digital based, it is still strong evidence that earlier scholars have already used the form of game to help intercultural sojourners to overcome cross-cultural problems.

Early simulations suffer from limitations in effectiveness, however they still show positive traits for simulations, such as creating a highly involved environment and having immediate effect (Ward, Furnham & Bochner, 2005). For specific illustration, on the topic of socio-cultural adaptation, there are also scholars proposing arguments that draw experience from the concept of simulation. For example, Tong (2014) argues that school functions as a

microcosm of the larger society. If used appropriately, simulation can create opportunities for Chinese international students to try out the socio-cultural adaptation strategies they employ to make sense of the similarities and differences between their primary (native) and second (school/mainstream) cultures (Tong, 2014). This is an illustration of how to use the technique of simulation to improve Chinese international students' socio-cultural adaptation outcome. With the help of gamification elements, such as sandbox and virtual reality tools, it is more convenient to build a simulative environment that can be more attractive and helpful for Chinese international students.

Through the analysis of the three gamified orientation programs above, all these programs have used the component of *team* and *communication* to improve interpersonal communication among participants. Other components such as *points/scores*, *competitions* and *leader boards* have been used in separate programs. However, neither program uses simulation as a design component, nor uses simulation as a form to conduct the entire gamified program. Although participants from the gamified group report their socio-cultural adaptation outcome have been improved in aspects such as increased social and communication skills, it has not been tested and fostered through trials in a simulative environment. It is learned directly from their experience of participating in the gamified orientation programs, or their self-reflection on the experience of joining gamified orientation programs. Therefore, from the research data, it is not possible to show that simulation is an important technique to study the cross-cultural adaptation issue.

5.3.2.3 Discussion: The limitations in program design

As discussed above, the adoption of gamification in helping improve Chinese international students' cross-cultural adaptation works mainly in the socio-cultural adaptation aspect. Specifically, the actual combination of gamification approach and socio-cultural adaptation issue is reflected as the embedding of gamification elements into the orientation programs.

From this perspective, the main body of this adoption is the orientation program itself, and gamification elements only act as a supplement to improvements.

The design of all three gamified orientation programs reflects their focus on using the gamification elements to help students go through the orientation stage better and get an increased intercultural transaction result. Their aims are not to build a gamified world that attracts the participants to focus on the program itself; it is not designing a game. The real goal is to get participants more engaged by the content of orientation activity with gamified elements, offering them assistance through their participation. This feature indicates that the gamified orientation programs are still in the form of real-life based activity, rather than a precisely designed system that simulates designated contexts and provides an immersive experience. Due to this limitation and variation on program design notion, the adoption of gamification elements into Chinese internationals students' cross-cultural adaptation issue has the deficiency of lacking immersive context and simulation technique, which have been introduced in previous literature.

5.3.3 Confirmed but not concluded

In this part, the research findings regarding gamification on Chinese international students' socio-cultural adaptation outcome that have not been included in previous literature will be discussed. This part contains only one finding of gamification use to improve Chinese international students' socio-cultural adaptation outcome that has not been clearly seen in previous research.

5.3.3.1 The requirement of improving specific overseas life-problems

As has been confirmed in the above sections, one main problem for Chinese international students at Monash University continues to be the English language proficiency problem. However, when investigating the data from the gamified group, in addition to the influences, there are also concerns from the participants for gamified orientation programs to better benefit

Chinese international students. Specifically, in the academic adaptation topic, interviewees have reported demands that still need improvement. These demands include lack of transdisciplinary support, lack of navigation activities across campus areas, and insufficient understanding of learning and teaching methods and skills. Participants also report a major demand for understanding cultural differences and developing friendships with non-Chinese students. They think that through participating in the gamified orientation program, while the participation in classroom discussion and communication with local cohorts are adequate, it is still not sufficient for them to build long-term friendships and connections with other students.

The same demand has also appeared in participants' feedback on the language and cultural scales. By joining the gamified orientation program, participants' social and communication skills have been improved, however there are still problems in specific cultural understanding aspects, such as dining habit and on-campus accommodation style. In the daily- life adaptation aspect, participants also express requirements around specific aspects in their daily life. These aspects include accommodation safety, public transportation efficiency and shopping experience. Participants have also reported their concern about missing content on daily-life essential guidance during their orientation experiences, as it lacks relevant information in the gamified orientation program content. In conclusion, among the data collected from participants in the gamified group, there remain demands for gamified orientation programs to better benefit Chinese international students. These requirements and expectations are:

- more assistance of transdisciplinary support, navigation activities across campus area, and understanding of learning and teaching methods and skills
- more assistance for them to build long-term friendships and connections with other students
- specific cultural understanding aspects such as dining habit and on-campus accommodation style

- more guidance on daily-life essential content.

From the literature, using gamification to help international students in solving their socio-cultural adaptation problem remains more reflected on problems such as engagement and motivation. Fitz-Walter and his colleges' (2011) study indicates that it is positive to use gamification methods to improve students' orientation experiences via creating student engagement. Moreover, Sierra and Stedman's (2012) research summarises that gamification implementation can also make participants more engaged in orientation events. Whitton's (2008) study provided an effective and appropriate chance for students to meet library learning outcomes, as well as offering an enjoyable induction experience.

The feedback from participants of Piatt's (2009) study confirms the helpfulness of gamification, as they mentioned that participating in gamification projects helps to figure out missing information, offer new perspectives, and provide fun as well. Although there are a variety of focus points in the gamification research above, none have clearly mentioned the specific overseas life problems. On the other hand, in research on cross-cultural adaptation for Chinese international students, while scholars have noticed the necessity of studying specific overseas life problems, such as how Ward and her colleagues (i.e. Searle & Ward, 1990; Ward & Kennedy, 1997) have put relevant items into the SCAS list, when combining the cross-cultural adaptation study with the instruments of gamification, it is still not clear evidence to show its importance to the specific overseas life problems for Chinese international students. Therefore, as a conclusion, for this research, the first and foremost confirmed but not concluded finding is the requirement of Chinese international students to address their specific overseas life problems with the help of gamification approaches.

5.3.3.2 Discussion: A further requirement for gamification

The finding of using gamification to improve Chinese international students' socio-cultural adaptation outcome reflects specific requirements and expectations. These requirements and

expectations are not typically seen in previous gamification studies. However, it does not mean gamification can do nothing in these aspects. For example, to fulfill Chinese international students' demand of improving navigation skills, the gamification elements of *social discovery* and *social treasure* can be used to increase their movements and interaction within local social contexts. If they want to build long-term friendships and connections with other students, elements such as *mentorship* and *cooperation* can provide help.

If they need to clarify specific aspects of cultural understanding, the gamified orientation program designer can use elements like *mini-quests* and *branching choices* to enrich the content of the program. In general, all the demands can be classified with specific gamification elements in the design aspect, which requires more specific consideration. On a more practical level, there are also well-developed gamification products that can be introduced to fix designated socio-cultural adaptation problems. In the business sector, airline companies use points and rewards in loyalty programs to keep customers; IT companies use achievement systems to improve their productivity; the government uses virtual combating systems to help recruiting soldiers for military purposes (Hu, Zhang & Rhea, 2016). In the education field, well-designed gamification products have also been put into use for specific purposes. For example, Piatt (2009) presents a gamified program at the University of Brighton to help the first-year students to get better involved in the higher education environment. Fitz-Walter and his colleagues (2011) have designed a gamified mobile application which aims to improve new university students' orientation experiences in an Australian university. Basaiawmoit, Somos, Szalai, Szabo and Deva (2015) have created a logical gamified system called *Virtuoso*, in order to conduct their research on teamwork efficiency in entrepreneurship education. Gamification has already become a novel method to improve the quality of education programs.

If Chinese international students at Monash University have more specific requirements on improving their socio-cultural adaptation problems, it is certain that the education provider

can draw experience from gamification approaches. It works not only for the orientation purpose, but also for a longer perspective of those students' entire overseas study journey. No matter whether seeing this issue from the gamification element itself or a better designed gamified program's angle, in both respects, there are more formats to use gamification approaches to help Chinese international students on their socio-cultural adaptation problems.

5.4 The contribution to complexity theory

In the conceptual framework, the root level of the model is occupied by complexity theory. Complexity theory studies have been adapted from the field of science into the social sciences, being employed to examine the emergent behaviour that occurs in many complex systems such as the stock market or the human brain (Casti, 1994). It usually begins from the examination of simple behavioural activities, and then links those pieces into a collective system in a more complex form. The two major features of complexity theory are non-linear and mutual influence (Bondarenko & Baskin, 2016). I have drawn on these two interrelated traits as the major connection that links all the other components in my conceptual framework together. Although in the research data, it has no clear findings in relation to the theoretical foundation of complexity theory, there is still evidence that confirms the usage of complexity as the foundational theory for explaining my findings. In the following section I will present this evidence as well as my analysis. This section is the supplement of my research foundation, which has been reflected at the root level of my research design.

5.4.1 The gathering of empirical data

Through the analysis of my data, every scale in the SCAS (see Appendix B) has been validated in my analysis of Chinese international students' cross-cultural adaptation problems. One basic fact is that all the participants have used their own experience of overseas study life as evidence to answer the questions in survey and interview, therefore the data that are provided by those

participants falls entirely into the empirical category.

As Ward and Kennedy (1999) have mentioned in their research, the theoretical foundation of two cross-cultural adaptation outcomes in the SCAS (psychological and socio-cultural) also originated from previous empirical studies (Ward & Kennedy, 1999). From this original perspective, Ward and Kennedy's (1999) model offers a more clear and adaptable structure to study cross-cultural adaptation issues faced by Chinese international higher education students in Australian higher education context. According to Ward and Kennedy (1999), psychological adjustment is influenced by elements such as personality, life changes, coping styles, and social support. On the other hand, socio-cultural adaptation is more likely to be influenced by factors regarding culture learning and social skills acquisition. From both aspects, all the indexes in the SCAS are measured based on research subjects' personal experience and evaluation, therefore are all categorised as empirical data.

In this research, all the findings are also collected and interpreted from participants' empirical viewpoints and, furthermore, all the correlated SCAS scales have been manifested within the research data. All these segmentations of participants' empirical data come together later to assemble as the entity of Chinese international students' cross-cultural adaptation problems. The way of conducting the research fits with the notion of complexity system, as the aim of developing complexity theory is to study compound subjects by breaking them into branches and pieces (Casti, 1994). Moreover, the relationship between each participants' empirical feedback can indicate that not only the branches are important, but the information that is generated from the connection of that feedback is crucial as well. It also proves that complexity systems can be manifested in the relationship of each component, and sometimes it is even more important than the components and branches themselves (Manson, 2001). In general, my research studies Chinese international students' cross-cultural adaptation problems by examining the detailed empirical branches under the topic. This is conducting the research

in the complexity system's formation.

5.4.2 The non-curvilinear pattern

Historically, studies about positive temporary cross-cultural adaptation showed a more continuous and ascendant trend since the 1960s. Scholars such as Oberg (1960) and Dodd (1987) were influential because their research about the developmental and growth-facilitating opportunities of cross-cultural adaptation promoted the idea that psychological discomfort would, in the end, lead progressively to more positive psychological adaptation during the temporary period in the unfamiliar context. Oberg (1960), for example, presents a four-stage model for adjusting to culture shock. This sequence of cross-cultural adaptation includes four parts that he labels as the "honeymoon-crisis-recovery-adjustment" sequence. Extending Oberg's model, Austin (2007) describes the stages of people's cross-cultural experience as moving from a "clash of different cultures" to "resolved in new cultural context", and finally to "adjust in new culture". Such stage model theories can also be summarised as proposing a psychological adjustment sequence of fascination, frustration, resolution, and adaptation, which offers a standard model type for cross-cultural studies (Austin, 2007). Recognising the limitations of the simple linear approach, researchers then began examining the impact of time on the process of cross-cultural adaptation.

To make the stage model more comprehensive and specific, scholars such as Lysgaard (1955) and Gullahorn and Gullahorn (1963) combined learning curve theories with cross-cultural adaptation studies. Lysgaard (1955) presents the curvilinear relationship between the psychological reactions of cross-cultural sojourners, and the length of time the sojourners reside in the context of target culture setting. This curve theory is called the U-curve. Furthermore, Gullahorn and Gullahorn (1963) extend the U-curve to a W-curve theory that contains a re-entry phase during the sojourner's cross-cultural experience. As the content is built based on historical cross-cultural studies, the SCAS has also involved the trait of

curvilinear. Ward and Kennedy (1993) has revealed that socio-cultural adaptation follows a learning curve with rapid improvement over the first few months of cross-cultural transition, further fluctuating with newly acquired culture-specific skills, and likewise, psychological adjustment is more variable over time although the greatest difficulties are experienced at the earliest stages of cross-cultural transition. These descriptions have notified that in cross-cultural studies the comparing over time, or following a curvilinear pathway is common to see.

However, in the analysis of my research data, the feature of chronic progress in participants' cross-cultural adaptation process is not clearly reflected. In the interpretation of survey and interview data, participants majorly give evaluative feedback on their socio-cultural adaptation experience in a non-continuative form. For example, in the survey and interview responses, participants feel positive in the study related scales, though there are still flaws during their adaptation process. These flaws include underdeveloped information acquiring skills, insufficient usage of academic support units, and feeling the uselessness of orientation materials. However, these flaws are not mentioned in a time-based sequence, it is not because they have underdeveloped information acquiring skills, so then they have the further requirements of academic support units. In fact, all the flaws are parallel distributed among participants' feedback, and yet not following a sequential or causal relationship.

This distribution can be seen in other aspects when interpreting the research data, such as in the daily-life essential scales, participants' survey result reflects that their satisfaction on public transportation and online shopping are in a moderate degree. Specifically, participants report experiences that in-store shopping is enjoyable, but the online shopping experience is not so pleasant. The same trend can also be seen in the transportation aspect, participants appreciate the fully covered public transport services, however the low efficiency of public transport is disturbing for them. Nevertheless, neither the different aspects in shopping nor the different aspects in transportation have shown a causality between them, not manifesting the

feature of different stages in participants' socio-cultural adaptation process.

All these aspects have been reflected in the sub-theme of daily-life essentials, linking with the scales of using the transport system and going shopping. Although fragmented pieces of data can reflect the trait of causality, such as in the atmosphere scales, participants give a majorly positive response, as their major explanation is that the regular contact with original family members in China helps them to ease the pressure of independent living in Melbourne. However, it is not sufficient to illustrate the progression between different cross-cultural adaptation stages in participants' overseas study experiences. The absence of curvilinear pattern fit with the trait of non-linear in the complexity system theory, that provides additional support for the theoretical foundation of this research.

5.4.3 The trait of comparison in the study

As mentioned in the above section, the trait of curvilinear pattern can bring comparative approach in cross-cultural study, however, it is not the only manifestation of comparative approach in this topic. In the theoretical foundation of cross-cultural study, the comparative method is a commonly used approach to generate new knowledge. For example, Hofstede's (1984; 1994; 2011) cultural dimension model contains six dimensions: power distance, individualism vs. collectivism, uncertainty avoidance, masculinity vs. femininity, long-term orientation vs. short-term orientation, and indulgence vs. restraint. Typical dimensions such as individualism vs. collectivism, masculinity vs. femininity, long-term orientation vs. short-term orientation, and indulgence vs. restraint all contain the component of comparison between two different aspects.

Other scholars have also proposed the comparative element in their theory, such as Ward, Furnham and Bochner (2005). In their cross-cultural contact process theory, the cross-cultural transition is the fact that brings cross-cultural sojourners from one cultural context to another, including life changes and intercultural contact. More specifically, the intercultural

contact includes two levels' manifestation. At the intergroup level, intercultural contact can be seen in the following four different forms: genocide, assimilation, segregation, and integration. These forms are proposed by the attitude and strategy with which one culture group treats another culture group. At the individual level, intercultural contact can also be classified into four forms: 'passing', exaggerated chauvinism, marginality and biculturality. These forms are introduced according to the intercultural sojourner's relationship and strategy towards the host culture. Generally, it also contains comparative methods in studying between intercultural sojourner's original culture and host culture. Therefore, comparative approach is a commonly used research method in cross-cultural studies.

In this research, according to the validated number of responses in each sample group the amount is not on the same, or even similar, so it is not applicable to use a comparative approach to analyse research data (See Table 5.8). However, although on the quantitative level it is not comparable for the data analysis in this research, on the qualitative level, among all the interview participants' responses there is still feedback that uses comparison to provide the information.

Table 5.8. Response number in each sample group

Survey response in non-gamified group	Survey response in gamified group	Interview response in non-gamified group	Interview response in gamified group
111	47	9	4

Among interview participants' feedback in the non-gamified group, MT has clearly provided comparative statements for her adaptation experience. In the academic adaptation aspect, MT talks about her adaptation experience in two different stages. At the undergraduate stage, her overall academic adaptation is majorly negative, especially in low English language skill and limited campus navigating area. Later in the postgraduate stage, her academic adaptation

encounters an obvious boost. She thinks this is because of her improvement in engaging with the campus environment and student services, as well as her higher English language proficiency. She also thinks that one major reason causing her adaptation problem is that most Chinese international students that have previous higher education experience in China, including herself at that time, are always in a passive attitude with regard to their study since it is normal in most Chinese universities. In the daily-life adaptation aspect, MT also compares her two different stages' daily-life adaptation experience. At her postgraduate stage, the well-developed communication skill has benefited her engagement with the local community. In contrast, at her undergraduate stage the daily-life adaptation experience was not positive due to her lack of willingness to communicate, as well as being afraid of making mistakes and losing face. She also admits that the pathway of acquiring information was not broad when she first arrived at Melbourne, which also causes communication issues for her daily life adaptation outcome. The means of communication is also different between Australia and China, as in Australia most people prefer to use emails and in China phone calls and text messages are more popular.

From MT's response in both academic and daily-life adaptation aspects, it is clear to see her comparison of adaptation experience in different stages, as well as the slight mention of comparing between different countries. Among other interview participants, fragmental comparison on the socio-cultural experiences between countries is also made. For example, when JW talked about her academic adaptation, she made a comparison between Monash University and her previous undergraduate institution in China, as the academic skills and integrity were not quite strict in her undergraduate institution, but now at Monash University the lecturer spends a large portion of time to explain why academic skills and integrity are important. LZ completed her undergraduate study in America, and she also made comparisons between her American education experience and current Australian education experience. She

admits that although she has previous study experience in America, the academic requirements in Australian universities are still different from Americans', and this demands extra time and effort to explore and acquire the specific requirements in Australian higher education sector.

The participants' usage of comparison reflects the trend that their past and current experiences are all important to their cross-cultural adaptation, and those experiences have all made an impact on their adaptation outcome. This is to say, participants' past and current experience have a shared influence on their adaptation outcome, as those experiences have independence on time basis, but connect on cause basis. From this perspective, the comparison feature in the research data supports another trait of complexity system theory, that is mutual influence.

5.4.4 Discussion: What can be added to support the complexity theory?

From the above sections, although the research data has not clearly supported the complexity theory, there is still evidence that can prove the stabilisation of theoretical foundation in the conceptual framework. Breaking up the entire socio-cultural adaptation problems into branches and collecting participants' empirical data on each scale to study the topic reflects the usage of the core concept of complexity, that is, studying complexity from a simple and behavioural perspective.

The absence of curvilinear pattern of cross-cultural adaptation study in this research supports the non-linear feature of complexity system, and the usage of comparison within participants feedback is the manifestation of the mutual influence feature. All these indications are in the micro perspective within the research, and when looking into a higher level of components in the other levels of conceptual framework, the evidence still exists. The parallel formations of socio-cultural and psychological adaptation, as well as the cross-cultural adaptation and gamification, all indicate the non-linear trait of complexity. On the other hand, the entangled elements of usability and behavioural influences in cross-cultural adaptation, as

well as the external and internal influences of gamification, all reflect the feature of mutual influence. This is to say, in this research, the gamified orientation programs that aim to improve Chinese international students' cross-cultural adaptation outcome can be considered as a complexity system. From this perspective, this evidence can support the usage of complexity theory as a theoretical foundation for my research design.

5.5 Discussing the impact of gamification in education on socio-cultural adaptation problems

This section is the final section of the discussion chapter. All the aspects of the impact of gamification on the socio-cultural adaptation of Chinese international students at Monash, in Australia, or more broadly around the world, will be expanded to encompass this section. By theorising all the findings and discussions within my research design structure, I will illustrate the contribution of my research in this section.

5.5.1 Gallery: What is already known

This part will discuss aspects of the study that have confirmed the research of others. There are five major outcomes that have been shown after connecting research data to the literature. The first manifestation is the usefulness of the SCAS model. According to the research data, all the designated sub-themes can be examined by the scales that are selected from the SCAS list, therefore participants' socio-cultural adaptation outcome can be manifested through the selected items from the SCAS. This is in accordance with Ward and Kennedy's (1999) suggestion that the SCAS is designed to measure different aspects of socio-cultural adaptation outcomes, and it is adaptable to various situations. Based on these facts and this evidence, the theoretical support of the SCAS model has been revealed.

The second manifestation is the reflection of empirical study in cross-cultural research. The process of research data reflects that the research questions can be answered by examining participants' values of cultural understanding. In this research, participants provide their

statements of evaluation regarding different socio-cultural adaptation scales based on their own cultural understandings and experiences, that is, the empirical data. Their values give further evidence for the study of Chinese international students' socio-cultural adaptation problems as well as their evaluations on gamified orientation programs, and then serve to find the main answer to the research questions. From this aspect, the concept of empirical study can be used to interpret collected data and support findings in this research.

The third manifestation is that for Chinese international students at Monash University, the English language proficiency a remains a major issue for their socio-cultural adaptation outcome. Among the data collected from survey and interview participants in the non-gamified group, one major problem that inhibits Chinese international students' socio-cultural adaptation at Monash University is the language proficiency related issue. This issue is manifested in limited connection and interaction chances with non-Chinese cohorts for both academic and daily life, as well as lack of English language assistance and culture learning support in both academic and daily life. This finding matches the previous argument that English language proficiency issue is still a major barrier for Chinese international students to get a better socio-cultural adaptation outcome in English speaking countries, which include Australia.

The fourth manifestation is that it is important to have a positive attitude in the intercultural context. According to the data examined from the interview result of the non-gamified group, participants have shown their efforts of striving for a better adaptation outcome in their overseas study life. In the academic adaptation aspect, participants make positive efforts to learn the importance of cultural difference. For the daily life adaptation aspect, participants' adaptation towards jetlag problems can be a positive reason for their independent living in Melbourne. In another aspect, although the result of actual participation in local social events and friendship-making remains at an average level, participants are still making efforts to improve cross-cultural understanding, such as using local social media networks. All these

efforts make for a better socio-cultural adaptation outcome in Melbourne, and this fits with Berry's (2005) argument that good socio-cultural adaptation depends on positive intercultural attitudes.

The last manifestation is the improvement of student engagement with gamification approaches. Among the data collected from survey and interview participants in the gamified group, one major influence that gamified orientation programs have brought to Chinese international students' socio-cultural adaptation at Monash University is improvement of their engagement in their overseas study life. It has been reflected in the following specific aspects: improved presentation skills and navigation skills, sufficient participation in classroom discussion and communication with local cohort and improved social and communication skills. This fits with the three gamified orientation programs' design notion of using elements of teams and communication to enhance participants' interaction and communication. It is also correlated with previous scholars' arguments, such as Bartel and Hagel (2014), who state that it is possible for the mobile gamification system to increase the engagement of university students, and Spence and his colleges (2012) reports that gamification can encourage student engagement via adding personalised and fun elements into the educational session.

In conclusion, according to the findings of this research, there are five major manifestations that have already been revealed by previous study. On the theoretical level, this research uses empirical data to investigate the usage of SCAS in Chinese international students' socio-cultural adaptation problems. Using the instrument of gamification, this research has found that through improving the element of motivation, it is possible to use gamification approach to ease Chinese international students' language proficiency issue, as well as encourage them to be more positive in their overseas life at Monash University. This research helps this research to find its place within the broader academic field, and also supplies this research with solid foundations.

5.5.2 Boundary: What has not been seen in the research

Regarding what has not been seen in this research, there are five major aspects to show what has not been covered by the research data. The first aspect is the curvilinear pattern in cross-cultural adaptation studies. In the literature, the general cross-cultural study models and theories are usually based on a progress of time sequence. Whether Oberg's (1960) four-stage model for adjusting to culture shock or Lysgaard (1955) and Gullahorn and Gullahorn's (1963) curve theories with cross-cultural adaptation studies are all built on the bases of time sequence, like a progression. However, from the research data, participants mainly give evaluative feedback on their socio-cultural adaptation experience in a non-continuative form. Although fragmented pieces of data can reflect the trait of causality, it is not enough to illustrate the progression between different cross-cultural adaptation stages in participants' overseas study experiences. Therefore, from the research data, it is not possible to discover the differences between cross-cultural adaptation stages, as well as generate knowledge in relation to this topic.

The second aspect is the inapplicability of comparative study approach. In the theoretical foundation of cross-cultural study, the comparative method is a commonly used approach to generate new knowledge. Scholars such as Hofstede (1984; 1994; 2011) and Ward, Furnham and Bochner (2005) use a comparative approach to generate their theories and models for cross-cultural adaptation study. However, according to the collected data from both sample groups, it is not applicable to use a comparative approach to analyse this research data. The first reason is that the valid quantity of feedback in each sample group is not equal, and the second reason is that among all the interview participants' responses, the evidence comparing their socio-cultural adaptation experiences in different periods is vague. Based on these two facts, the comparative study approach is not applicable in this research.

The third aspect is the pre-departure preparation for Chinese international students' better socio-cultural adaptation outcome. From previous literature, such as Yan (2011) and

Jenkins and Galloway (2009), pre-departure preparation has been mentioned as an important approach for improving Chinese international students' socio-cultural adaptation results. However, when looking back to the research data, it is not obvious that participants have reported the importance of pre-departure preparation in their socio-cultural adaptation experience. Among all nine interview participants, only two have made a slight statement regarding pre-departure preparation in relation to their socio-cultural adaptation experience. Therefore, it does not obviously manifest the importance of pre-departure preparation in participants' socio-cultural adaptation experiences in this research.

The fourth aspect is creating immersive context with gamification approaches. Ng, Tsang and Lian (2013) concurred with Ward and Kennedy's (1993) theory finding that social support from local friends and society can bring a benign effect to cross-cultural sojourners. Gao (2014) also argues that institutions and governments need to foster and sustain close connections between local students and sojourner students, to create a supportive environment around those students, and also increase those cross-cultural groups' satisfaction and adaptation outcome. These arguments have also shown the importance of immersive context in helping cross-cultural sojourners to have a better socio-cultural adaptation outcome. Gamification research projects conducted by Whitton (2008), Piatt (2009), and Fitz-Walter, Tjondronegoro and Wyeth (2011) have all indicated that creating an immersive environment with gamification approaches can effectively boost participants' engagement towards a better student orientation and induction experience, further improving their socio-cultural adaptation outcome.

The last aspect is using simulation in cross-cultural adaptation study. Ward, Furnham and Bochner (2005) have mentioned six different techniques in the training techniques for the crossing culture purpose, one of those techniques being the simulation method. Early simulations suffer from limitations to be effective, however they still show positive traits for simulations, such as creating a highly involved environment and having immediate effect

(Ward, Furnham & Bochner, 2005). Through the analysis of all three gamified orientation programs in this research, all these programs have been found to use the components of *team* and *communication* to improve interpersonal communication among participants. Other components such as *points/scores*, *competitions* and *leader boards* have been used in separate programs. However, neither program uses simulation as a design component; not using simulation as a form to conduct the entire gamified program. Therefore, from the research data, it is not possible to show that simulation is an important technique to study the cross-cultural adaptation issue.

In conclusion, there are five aspects that were expected to be seen in the findings, however they only appear in the literature. On the theoretical level, this research has not been able to introduce the method of comparative study to investigate the trait of curvilinear pattern in cross-cultural study. On the factual level, this research is not capable to illustrate the importance of pre-departure preparation in socio-cultural adaptation study, as well as the meaningfulness of using simulation methods to create immersive context for participants to have a better gamification experience. All these absent aspects have indicated the gap between this research and the academic field, and yet provides suggestions for the future direction of continuing study.

5.5.3 Complementary: Theorising gamification in education to support socio-cultural adaptation

In this final section of discussion, I will centralise what I have found through the research data. First, returning to my conceptual framework design, it is shown in a three-level model (see Figure 2.1 in Chapter 2). In the model, on the surface, the central icon *CC* stands for cross-cultural adaptation. There are also two parts on the left and right side of *CC*. The left part, shown as *SC*, represents socio-cultural adaptation, and the right part of *P* stands for psychological. Within these three parts, there are also two blocks of *U* and *B* that stand for

usability change and behaviour change, which are the two major influences in cross-cultural study in relation to socio-cultural adaptation and psychological adaptation (Searle & Ward, 1990). In the middle level, the central icon *G* stands for gamification. *E* and *I* that are placed on the left and right side represent external influence and internal influence, which are the two major influences for gamification to link into socio-cultural field and psychological field (Werbach & Hunter, 2012). At the root level, the central icon *CT* stands for complexity theory. The *NL* on the left side means non-linear, and the *MI* on the right side means mutual influence. These two interrelated traits are the major elements in the complexity system (Bondarenko & Baskin, 2016), as well as the major connection that links all the other components together. The notion of this model is to combine the topic of cross-cultural adaptation and gamification, and my central research question lies in the gap between these two topics.

Here, I will discuss three findings of importance that are supplementary to the central research question. First is that Chinese international students' socio-cultural adaptation problems now show a shift, or at least coexistence, from English language proficiency issues towards more specific cultural learning and support issues. My second contribution is to be able to demonstrate the positive influence that the gamified orientation programs can bring to Chinese international students. The third aspect discusses the evidence from my research that can give direction for further effort in using gamification approaches to help Chinese international students' socio-cultural adaptation outcomes at high-ranking universities such as Monash University.

5.5.3.1 Chinese international students need more than broad English language proficiency support

The first contribution is that Chinese international students' socio-cultural adaptation problems now show a shift, or at least coexistence, from English language proficiency issues towards more specific cultural learning and support issues. According to the data analysis result, one

phenomenon reflected is that language proficiency and its related issues are still playing an important role in Chinese international students' socio-cultural adaptation process. However, based on the participants' feedback, there are also problems other than language proficiency issues. Participants have also pointed out that they have adaptation problems about underdeveloped information acquiring skills, insufficient usage of academic support units, feeling the uselessness of orientation materials, unadaptable for designated social services such as online shopping, accommodation safety and transportation efficiency. All these problems can be classified as the culture learning and support issues. Based on these facts, it is clear to see that Chinese international students have a more clear and specific recognition of their socio-cultural adaptation problems when studying at Monash University. Therefore, the shifting and coexistence of language proficiency issue and cultural learning and support issue is apparent.

5.5.3.2 Gamification brings positive benefits

The second contribution is the positive influence that the gamified orientation programs can bring to Chinese international students. For Chinese international students at Monash University, by participating in the gamified orientation programs, the major influence they can get from those programs is the improvement of language and communication skills. It fits with the program designer's notion that using game design elements such as "team" and "communication" can improve interpersonal communication for the participant. Apart from language and communication skills, another main influence that gamified orientation programs have brought to Chinese international students at Monash University is understanding and engaging with local socio-cultural context. However, it is not clearly connected with any specific design elements or design thinking in the gamified orientation programs. It is more of an indirect promotion for Chinese international students' participation in the gamified orientation group, as they have learnt more local socio-cultural information by communicating with other cohorts during the orientation stage. This research has also revealed that without the

implementation of digital tools, it is still possible to build real-life based gamified orientation programs to assist Chinese international students at Monash University.

5.5.3.3 Evidence of future research directions

The last contribution is the direction for further effort in using gamification approaches to assist Chinese international students' socio-cultural adaptation outcome at Monash University. According to the gamified group's interview feedback, all participants have held the opinion that playing games, to a certain degree, is acceptable and while it does not occupy a large amount of time in their daily life, their attitude towards adopting gamification techniques into university orientation programs is also in a major positive position. It is an acceptable approach for them to gain better socio-cultural adaptation experience. This indicates that using gamification approaches to help Chinese international students improve their socio-cultural adaptation outcome at Monash University is possible.

Participants have also pointed out the deficiency of current gamified orientation programs. This mainly focuses on providing more clear and specific information about how the course and form of learning will be delivered to the students, as well as providing more assistance in transdisciplinary support, navigation activities across campus area, and understanding of learning and teaching methods and skills. According to participants, they also need more assistance on building long-term friendships and connections with other students. Furthermore, the gamified orientation programs are also lacking content on daily-life adaptation topics. These points for improvement are the major focus points for the program designers if they want to make further efforts to help Chinese international students with an improved orientation experience and a better socio-cultural adaptation outcome.

5.5.3.4 Conclusion

In conclusion, according to the findings, there are three major contributions this research can offer. Through the investigation of this research, Chinese international students' socio-cultural

adaptation problems are now showing a shift, or at least coexistence, from language proficiency issues towards more specific cultural learning and support issues at Monash University. With the help of gamification elements that improve interpersonal communication in real-life based gamified orientation programs, it is possible for the institution and higher education provider to improve Chinese international students' socio-cultural adaptation outcome by satisfying their demands on improving specific overseas life problems. These contributions show the value of this research, as well as providing references for further study in this area.

5.5.4 Vision: Summarising the discussion

In this final section I will directly discuss what I have found that is able to answer my central research question:

> *"How do gamification approaches affect Chinese international students' cross-cultural adaptation outcomes?"*

Starting with the creation of my conceptual framework, it is necessary to bring the two grand topics, cross-cultural adaptation and gamification, together. There are many elements and aspects in these two fields, so I think the best connecting point for these two topics is complexity theory. Seeing this combination as a complexity system, it is possible to connect all the elements and aspects within those two topics by adopting the two major traits of the complexity system: non-linear and mutual influence. Rising from the theoretical foundation at the root level of my conceptual framework, the core level is the gamification, and the surface level is the cross-cultural adaptation. In the name of this sequence, my research studies the gamification problems under the specific topic of cross-cultural adaptation problems.

With the investigation of Chinese international students' cross-cultural adaptation problems at Monash University, it is obvious to see that their cross-cultural adaptation problems are mainly manifested in the usability influence aspect, which links to socio-cultural adaptation, with a small connection to their psychological adaptation. Likewise, the

investigation of gamified orientation programs at Monash University also indicates that the current practice of gamification in helping university students to gain better adaptation and transition outcome focuses on the external influences as well. The external influence is also connected with the socio-cultural adaptation experiences.

From another angle, the internal influence of gamification has also been slightly mentioned among research participants, which offers a subtle impact on psychological adaptation as well. The gamified orientation programs used at Monash University can help Chinese international students with their chances of engaging in the university activities, encouraging them to become more positive towards university life, as well as boosting their English language proficiency. However, Chinese international students still have socio-cultural adaptation issues with regard to specific overseas daily life, as well as maintaining long-term relationships with the local community. These demands can be fulfilled with more detailed and specifically designed gamification programs, as it points to the further efforts that I can make in further research projects.

In conclusion, theoretically, the gamified orientation programs at Monash University that are used to help improve students' cross-cultural adaptation problems comprise a complexity system. It mainly offers benefits regarding the socio-cultural adaptation aspect for Chinese international students. With the help of gamified orientation programs, Chinese international students' participation in the university environment and their communication skills have been improved. They have further requirements on improving specific overseas daily life issues that gamification approaches may help. The benefit of gamification on Chinese international students' psychological adaptation problems can only be seen in the improvement of their independence regarding on-campus life. The support of gamification on the improvement of psychological adaptation is not obvious in this research.

Noting the shape of my conceptual framework, it is shown in a diamond form. This

diamond represents the ultimate treasure I can find through my doctoral journey. Currently this diamond is shining more on the socio-cultural side, which means my treasure hunting has found something, but the journey is still far from complete. I hope that I can finish this adventure with the completed diamond form in the near future, as it has clearly indicated my next step on the treasure-hunt map.

Chapter 6: Conclusion

Up to this point, I have illustrated the majority components of my research project. In the past three years, I have gone through the entire process of conducting my research, and also learned a lot from it. With the support from both my supervisors, colleagues, and families, I have been able to focus on this project and discover a series of findings. In this chapter, I will summarise my research and its contribution. Alongside the contribution, there are also limitations due to the restrictions that exist in the research design, and I will also discuss these. Finally, I will talk about the possible future study direction of my research topic. I still have the willingness to explore more on the combination of gamification with educational purpose, therefore it is necessary to have a clear view on the panorama of my research field.

6.1 Contributions of this research

My research links different research fields together, therefore the contributions also manifest in different aspects. In relation to my conceptual framework, the contributions can also be seen in different levels. In the following part, I will respectively talk about those contributions.

On the surface level of my research design, as my research uses Chinese international students' cross cultural adaptation problems as the phenomenal carrier of the research question, the first contribution also locates in this field. From the interpretation of research data, my research finds that for Chinese international students, their socio-cultural adaptation problems are now moving from English language proficiency issues to more specific cultural learning and support issues, or at least coexisting with those problems. According to the research data, language proficiency and its related issues are still playing a central role in Chinese international students' socio-cultural adaptation process in their overseas study life in Australia.

No matter in what context they have encountered cross-cultural adaptation problems, academic or daily life, the most common reason from their perspective is still the inadequacy

of mastering English as a communication tool. However, based on the participants' feedback, there are also more and more problems other than language proficiency issues that emerge. For example, participants have pointed out that they can suffer from underdeveloped information acquiring skills, which can interfere with their gathering of information around their overseas life, and hence slow down their understanding of local socio-cultural context. In the academic area, participants also report the insufficient usage of academic support units and feeling the uselessness of orientation materials can influence their familiarity with the university environment, which can further slowdown their academic experience.

In the daily life aspect, participants also talk about the inadaptability of designated social services such as online shopping, accommodation safety and transport efficiency can be troublesome for their adaptation. The difference of lifestyle between China and Australia is the major cause of these difficulties, but although we can understand and admit its origin, if they do not adjust to these contrasts, Chinese international students' quality of overseas life can be affected, and can cause further disorder in their daily life, and then lead to a possible failure of their study abroad. All these manifestations are revealing that, apart from the language acquisition issue, current Chinese international students have multiple other considerations around good cross-cultural adaptation outcome in Australia. Based on these facts, it is clear to see that Chinese international students have a more clear and specific recognition of their socio-cultural adaptation problems when studying at Monash University. Therefore, it is obvious to see that for current Chinese international students at Monash University, there is a coexisting and shifting trend from language proficiency issues to cultural learning and support issues in their pursuit of a better cross-cultural adaptation outcome.

Then, in the middle level of my conceptual framework, as my research aims to investigate the effectiveness of gamification approach in the cross-cultural adaptation field, therefore the second contribution is at this level. Through the examination of participants'

evaluation on gamified orientation programs at Monash University, the positive influence that the gamified approach can bring to Chinese international students has been revealed. According to the feedback of interview participants, their mastery of communication skills and willingness to communicate have all received an obvious improvement. Therefore, as a summary, for Chinese international students at Monash University, the major influence they can obtain from those programs is the improvement of language and communication skills. From the program designer's perspective, implanting game design elements such as "team" and "communication" aims to improve interpersonal communication for the participants. The feedback from Chinese international students among those orientation programs' participants has indicated that the impact on their communication-related experience is mostly positive and therefore accords with the program designer's intention.

Apart from language and communication skills, for the Chinese international students at Monash University, another major influence from participating in a gamified orientation program is the understanding of and engagement with local socio-cultural context. The gamified programs have created an interactive environment for participants to communicate, in this case it increases the mutual understanding of Chinese international students and the non-Chinese cohorts by messages delivered with more frequent communication. From the interview feedback of gamified orientation program's participants, they express their attitude of understanding and acceptance of local culture and customs in a more positive and inclusive way. However, it is not clearly manifested in the gamified orientation programs that the designers have used any specific design elements or design thinking to stimulate or directly improve on this area. This is to say, the improvement of intercultural understanding and engagement with local socio-cultural context is more indirectly promoted for Chinese international students who participate in the gamified orientation group. They have learnt local socio-cultural information by communicating with other cohorts rather than through the actual

function and components of the gamified orientation programs itself during the orientation stage.

The findings of this research also point to another insight that it is still possible to build real-life based gamified orientation programs without the implementation of digital tools and environments, in order to help Chinese international students to get more adapted at Monash University. With the traditional gamification research trends to combine the concept of gamification with computer science or information technology, for the academic sector it is natural to put gamification into a virtual and digital form to conduct research. However, gamification should not be limited to one form, as games existed within human activity much earlier than those developed in the digital entertainment industry, and it should be acknowledged that the non-digital forms of gamification can also make an impact in various fields. The gamified orientation programs that have been investigated in this research are all in real-life based activities, and according to the feedback of participants, they have all achieved their design purpose to a certain degree. From this perspective, the effect of non-digital gamification approaches can be stressed, as its importance should also be considered.

To sum up, the major contributions of my research are in both the field of cross-cultural adaptation and of gamification. In some cases, my research has confirmed past studies' results, such as that English language proficiency still plays a central role in Chinese international students' cross-cultural adaptation problems in English language speaking countries, and that gamification can be an effective approach in the higher education sector. However, more importantly, my research has made a step ahead in bringing these two areas together.

By investigating the application of gamification techniques for cross-cultural adaptation purposes, my research shows that it can be possible to use gamified approach to benefit Chinese international students' adaptation experience and outcome in an Australian university context. Although there are still flaws in research design and execution, the findings

are reliable due to the comprehensive review of past studies and solid collection and analysis of research data.

6.2 Limitations of this research

As stated above, because there are flaws existing in my research design and execution process, the inevitable limitations sit alongside the research contributions. In this part I will discuss the restrictions that limit my scope of research and provide possible methods to counter these limitations and restrictions.

The first major limitation for my research is in the focus point of the study area in cross-cultural adaptation. In my research, as seen from the literature, the general cross-cultural study models and theories are usually based on a progress of time sequence, such as Oberg's (1960) four-stage model of for adjusting to culture shock, or Lysgaard (1955) and Gullahorn and Gullahorn's (1963) curve theories with cross-cultural adaptation studies. These theories or models are all based on time sequence, like a progression. However, from my research data, although participants give fragmented pieces of data that show the trait of causality, their major feedback on socio-cultural adaptation experience is still in a non-continuative form. Therefore, it is not sufficient to illustrate the progression between different cross-cultural adaptation stages in participants' overseas study experiences. Accordingly, it is not possible to show the differences between cross-cultural adaptation stages in my research, as well as generate knowledge in relation to this area.

Apart from the above aspect, another limitation in the topic of cross-cultural adaptation is the inapplicability of comparative study approach. From the theoretical perspective, the comparative method is a commonly used approach in cross-cultural study. Scholars such as Hofstede (1984; 1994; 2011) and Ward, Furnham and Bochner (2005) use this approach to create their theories and models. However, in my study, it is not applicable to use a comparative

approach to analyse research data. The first reason is that the valid quantity of feedback in each sample group is not quantitatively equal, and the second reason is that among all the interview participants' responses, the evidence comparing their socio-cultural adaptation experiences in different periods is vague. Based on these two facts, the comparative study approach is not applicable in this research, therefore it poses another limitation in the cross-cultural adaptation field. A third limitation in the cross-cultural adaptation field is the pre-departure preparation for Chinese international students. Literature has pointed out that pre-departure preparation plays an important role in improving Chinese international students' socio-cultural adaptation results (e.g., Jenkins & Galloway, 2009; Yan, 2011). However, it is not obvious to see participants mention the importance of pre-departure preparation in their socio-cultural adaptation experience in the research data. Only two of nine interview participants have made a slight statement about pre-departure preparation regarding their socio-cultural adaptation experience. In this case, it reflects a limitation in demonstrating the importance of pre-departure preparation in participants' socio-cultural adaptation experiences in this research. A similar limitation happens on the topic of reciprocal adaptation. Although the importance of reciprocal adaptation has been discovered from the literature, such as the university staff having more international awareness, especially with similar backgrounds to the incoming students, is better for the international students to get support (Scally & Jiang, 2019). The interviewees have also reported relevant consideration, like LZ has expressed her demand for the Chinese-speaking health professionals on campus. However, as the expression from interviewee is also limited in both width and depth of reciprocal adaptation, it is not enough to conduct a systematically analysis on reciprocal adaptation for Chinese international students at Monash University as well.

After addressing issues on the topic of cross-cultural adaptation studies, I will also discuss the limitations existing in the topic of gamification. The first major limitation is the

creation of immersive context with gamification approaches. Previous scholars have already stated the importance of an immersive environment in the cross-cultural transition process. For example, Ng, Tsang and Lian (2013) argue that social support from local friends and society can bring a benign effect for cross-cultural sojourners. Gao (2014) also argues that institutions and governments should apply measurements to foster and sustain close connections between local and sojourner groups. It is beneficial to create a supportive environment around those students, and further improve cross-cultural sojourners' satisfaction and adaptation outcome.

These arguments have also shown the importance of immersive context in helping cross-cultural sojourners to have a better socio-cultural adaptation outcome. In the gamification research field, scholars (e.g., Fitz-Walter, Tjondronegoro & Wyeth, 2011; Piatt, 2009; Whitton, 2008) have also indicated that creating an immersive environment is one of the major advantages of adopting gamification approaches. It can effectively boost participants' engagement and create a better student orientation and induction outcome. According to this advantage, it is helpful to improve the socio-cultural adaptation outcome. However, in my research, due to the data not being collected from a self-designed gamified project, but rather drawing experiences from the already existing gamified programs among faculties in the university, it then lacks control for creating an ideal immersive environment, and therefore has limitations in investigating its effect on cross-cultural adaptation outcomes.

Another limitation is using simulation for the purpose of cross-cultural adaptation study. Ward, Furnham and Bochner (2005) have mentioned six different training techniques for crossing culture purposes; one of those techniques is simulation. Early simulations suffer from limitations to be effective, however they still show positive effects, such as creating a highly involved environment and having immediate effect (Ward, Furnham & Bochner, 2005). Regarding gamification, it has an advantage for creating a simulative environment by gamifying the specific context. Through the analysis of all three gamified orientation programs

in this research, all are found to have used components such as team and communication to improve interpersonal communication among participants. Other components, for example, points/scores, competitions, and leader boards, have been used in these programs separately. However, neither program intentionally uses simulation as a design component, which means not using this technique to deliver the entire program. Therefore, from the research data, there is a limitation to reflecting that simulation has an important effect on cross-cultural adaptation issues.

In conclusion, for this research, in both fields of cross-cultural adaptation and gamification, there are existing limitations. For the cross-cultural adaptation area, this research has not been able to introduce the method of comparative study to investigate the trait of curvilinear pattern in cross-cultural study. Simultaneously, this research is not capable of showing the importance of pre-departure preparation in socio-cultural adaptation study. In the field of gamification, this research is limited in displaying the meaningfulness of using simulation methods to create immersive contexts for participants to have a better gamification experience. Each of these limitations has indicated the boundary of this research and provides insights for the direction of further study.

6.3 Prospects of this research

In the last part of this chapter, I would like to discuss the possible future study direction based on the contributions and limitations of my study. My research is a combination of investigating both cross-cultural adaptation and gamification topics, therefore the direction of further effort is focusing on the application of gamification approaches to help Chinese international students' socio-cultural adaptation outcome at Monash University. Through the analysis of interview feedback, participants in the gamified group have indicated that playing games, to a certain degree, is acceptable to them, and does not occupy a large amount of time in their daily life.

This result can reflect that they hold a major positive attitude towards adopting gamification techniques into university orientation programs. It means that for Chinese international students, gamification can be an acceptable approach to improve their socio-cultural adaptation experience. This provides a possibility for using gamification approaches to help Chinese international students improve their socio-cultural adaptation outcome at Monash University.

Under the current global circumstance of COVID-19 pandemic, the attempt of applying gamification approaches can carry extra meanings for both Chinese international students and Australian higher education providers. Due to the international travel restriction by the Australian government, the international education market has been compressed since early 2020. Most international students, including Chinese international students, can only conduct their study within online distance education methods. The absence of physically attending an overseas study environment raises a highly problematic situation for Chinese higher students who were intending to study in Australia. They can feel confused about this unfamiliar virtual and distant form of higher education. They can be dissatisfied with the missing or insufficient English language environment. More importantly, they may start to question their original choice of study abroad, as it may further lead to an unsuccessful completion of their academic tasks. Problems regarding these topics can be countless, but for seeking countermeasures, gamification approach can perhaps play a role with all the choices.

Although in my research, the gamification approach has no connection with the online and virtual environment, however, it was initially born with the development of the digital game industry. The vast growth of gamification applications in the industry sector is also associated with the form of virtual and digital products. Therefore, gamification is naturally connected with digital and virtual technologies. This connection provides a potential for gamification to assist the current virtual and distance education configuration between Chinese international students and Australian higher education providers. Australian education

providers can design and operate gamified online education programs to help students in a more attractive way, as well as building their reputation with distinctive and high-quality content in those programs. Likewise, Chinese international students can also be benefited by the gamified online education programs. The interesting and fun elements in the program can reduce their negative emotions, such as anxiety and doubt, which will be helpful for them to persist in the study tasks and further complete a high quality of education outcome.

Although all these benefits are still at the hypothetical level, it still illuminates the pathway of adopting gamification for Chinese international students' success in Australian higher education under the current circumstances. This has also provided further study directions for the topic of gamification application in Australian universities.

Apart from possible research prospects, participants have also pointed out the deficiency of current gamified orientation programs. In this perspective, participants mainly mention providing more clear and specific information about how the course and form of learning will be delivered to the students, as well as providing more assistance in transdisciplinary support, navigation activities across campus area, and understanding of learning and teaching methods and skills that are lacking in the current gamified orientation programs. They also need more assistance in building long-term friendships and connections with other students. Furthermore, they have stated, as well, that those gamified orientation programs also lack content about daily-life adaptation topics.

From these statements, it can be proposed that a possible future study direction of using gamification approaches to help Chinese international students at Monash University is in the designing area. For the program designers, if they want to make further efforts to help Chinese international students in improving their orientation experience and socio-cultural adaptation outcome, they need to consider the above appeals from Chinese international students. By designing specific gamified programs to fulfil those needs and requirements from Chinese

students, it is possible to make the utilisation of gamification more effective in the cross-cultural adaptation area.

To sum up, the possible future study direction for my research is pointing to the pathway of designing and running a self-made gamification program. In this program, I can have a better control of the program by targeting those designated needs and requirements from Chinese international students. In this way, the gamified program can unleash its biggest potential in helping Chinese international students to have a better cross-cultural adaptation outcome, and also provide more valuable and specific data to explore the outlook for gamification technology.

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Appendix A: MUHREC Approval Letter

MONASH University

Monash University Human Research Ethics Committee

Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project ID:	16513
Project Title:	Ready Student One: Investigating the effect of gamification approaches in Chinese international students' cross-cultural adaptation process at Monash University
Chief Investigator:	Assoc Professor Zane Ma Rhea
Approval Date:	25/09/2018
Expiry Date:	25/09/2023

Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MUHREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Kind Regards,

Professor Nip Thomson

Chair, MUHREC

CC: Mr Xiao Hu, Dr Hongzhi Zhang

List of approved documents:

Document Type	File Name	Date	Version
Consent Form	Consent form	21/09/2018	3
Explanatory Statement	Explanatory statement	21/09/2018	2
Questionnaires / Surveys	Questionnaire-no-gamify	21/09/2018	2
Questionnaires / Surveys	Questionnaire-gamify	21/09/2018	2
Focus Group questions	Focus group-no-gamify	21/09/2018	2
Focus Group questions	Focus group-gamify	21/09/2018	2
Supporting Documentation	Advertisement	21/09/2018	2

Appendix B: The Socio-cultural Adaptation Scale

1. Making friends
2. Using the transport system
3. Making yourself understood
4. Getting used to the pace of life
5. Going shopping
6. Going to social events/gatherings/functions
7. Worshiping in your usual way
8. Talking about yourself with others
9. Understanding jokes and humour
10. Dealing with someone who is unpleasant/cross/aggressive
11. Getting used to the local food/finding food you enjoy
12. Following rules and regulations
13. Dealing with people in authority
14. Dealing with the bureaucracy
15. Making yourself understood
16. Adapting to local accommodation
17. Communicating with people of a different ethnic group
18. Relating to members of the opposite sex
19. Dealing with unsatisfactory service
20. Finding your way around
21. Dealing with the climate
22. Dealing with people staring at you
23. Going to coffee shops/ food stalls/restaurants/fast food outlets

24. Understanding the local accent/language
25. Living away from family members overseas/independently from your parents
26. Adapting to local etiquette
27. Getting used to the population density
28. Relating to older people
29. Dealing with people of higher status
30. Understanding what is required of you at university
31. Coping with academic work
32. Dealing with foreign staff at the university
33. Expressing your ideas in class
34. Living with your host family
35. Accepting /understanding the local political system
36. Understanding the locals' world view
37. Taking a local perspective on the culture
38. Understanding the local value system
39. Seeing things from the locals' point of view
40. Understanding cultural differences
41. Being able to see two sides of an intercultural issue

Appendix C: Scales for studying Chinese international students' academic and daily life adaptation problems

Scales for studying Chinese international students' academic adaptation problems

1. Understanding what is required of you at university
2. Coping with academic work
3. Dealing with foreign staff at the university
4. Expressing your ideas in class
5. Talking about yourself with others
6. Understanding the local accent/language
7. Understanding cultural differences

Scales for studying Chinese international students' daily life adaptation problems

1. Adapting to local accommodation
2. Using the transport system
3. Going shopping
4. Getting used to the pace of life
5. Living away from family members overseas/independently from your parents
6. Making friends
7. Understanding the local value system

Appendix D: Correlation between Sub-themes and scales

Sub-themes	**Scales**
Study	Understanding what is required of you at university
	Coping with academic work
Interpersonal relation	Dealing with foreign staff at the university
	Expressing your ideas in class
	Talking about yourself with others
Language and culture	Understanding the local accent/language
	Understanding cultural differences
Daily life essential	Adapting to local accommodation
	Using the transport system
	Going shopping
Atmosphere	Getting used to the pace of life
	Living away from family members overseas/independently from your parents
Intercultural understanding	Making friends
	Understanding the local value system

Appendix E: Gamification element list

Points / Points System
Progress / Feedback
Leaderboards / Ladders / Ranking
Guilds / Teams
Physical Rewards / Prizes
Levels / Progression
Badges / Achievements
Random Rewards
Social Discovery
Time-Dependent Rewards
Social Network / Friending / Relationship
Progress Bar
On-boarding / Step-by-Step Tutorials
Social Pressure & Relatedness
Social Status
Experience Points (XP) / Skill Points
Competition / Duel / Combat
Fixed Action Reward or Earned Lunch
Variable-Ratio Schedule Reward
Challenges
Unlockable / Rare Content
Scarcity & Impatience
Investment

Status Points
Boss Battles / Boss Fights
Avatar
Narrative / Journey
Collect & Trade / Resource Acquisition / Transactions
Gifting / Sharing / Social Treasure
Sharing Knowledge / Cooperation
Quests / Quest List
Loss Aversion
Voting / Voice
Anonymity
Gift Points
Expiring Points
Reputation / Karma Points
Signposting
Exchangeable Points / Virtual Currency / Virtual Economy
Choice & Consequences
Countdown Timer
Theme
Customization
MiniQuests
Humanity Hero
Beginners Luck

Evergreen Combos
Certificates
Free Lunch
Unpredictability / Curiosity
Branching Choices
Elitism
Easter Eggs
High Five
Water Cooler
Milestone Unlock
Epic Meaning
Instant Feedback
Lottery / Game of Chance
Booster
Blank Fills
Creativity Tools / Build From Scratch
Alfred Effect
Aura Effect
Anticipation Parade
Group Quests
Flow
Tout Flags
Brag Button
Time Pressure

Progress Loss
Prize Pacing
Mentorship
Social Prod or Nudge
Desert Oasis
Magnetic Caps
Last Mile Drive
Torture Breaks
Virality
Crowning
Recruiter Burden
Conformity Anchors
Glowing Choice
Appointment Dynamics
Visual Storytelling
Protector Quest
Exploration
Urgent Optimism
Evolved UI
Oracle Effect
Evanescent Opportunities
Dangling
Rightful Heritage
Status Quo Sloth

FOMO Punch
Win States
Monitor Attachment
Big Burn
Social Engagement Loops
Plant Pickers
Turns
Blissful Productivity
Sunk Cost Prison/Tragedy
Community Collaboration
Poison Pickers/Choice Perception
Scarlet Letter
Visual Grave
Moats
Collection Sets

Appendix F: Sample questionnaire for the non-gamified group

For the following questions, select scale from 1 to 5 to measure your degree regarding to each cross-cultural adaptation criteria. Scale 1 stands for the most disagree, and scale 5 stands for the most agree.
Through my study at Monash University, I feel that
I have got most of the essential information during the orientation period. 1 2 3 4 5
I can understand the course requirements. 1 2 3 4 5
I can have a clear understanding through the discussion with my tutors/lecturers about my assignment requirements/feedbacks 1 2 3 4 5
I can use essential academic skills to achieve the unit completion in a C, D or HD level. 1 2 3 4 5
I know what the right option is if there is a failure or miss-conduct happens in my course. 1 2 3 4 5
I can express my ideas clearly in class. 1 2 3 4 5
I can communicate with non-Chinese staffs and professionals smoothly at university. 1 2 3 4 5
When talking with my non-Chinese classmates, I can get used to their ways of expression. 1 2 3 4 5
I have been to student association/club activities regularly. 1 2 3 4 5
I have built a friendship or regular social connection with non-Chinese students via student association/clubs. 1 2 3 4 5
I have participated in off-campus student association/club activities (e.g. camping, travel group, etc.). 1 2 3 4 5
I can understand the difference between cultures and use it to avoid the misunderstanding when talking with non-Chinese students. 1 2 3 4 5
I have visited most parts of the university campus. 1 2 3 4 5
I have used university facilities (e.g. library meeting rooms, multi-media devices, etc.) and/or services (e.g. health services, copy/scan, language support, etc.). 1 2 3 4 5
I am well adapted to the academic context at Monash University. 1 2 3 4 5

Through my daily life in Melbourne, I feel that
I prefer to live with Chinese roommates. 1 2 3 4 5
If there are non-Chinese roommates in my accommodation, I can get along with them. 1 2 3 4 5
It is convenient to use the public transport system when I travel around the region. 1 2 3 4 5
I must buy a personal vehicle to make my travel more easily. 1 2 3 4 5
I have a pleasant feeling when shopping at local retailer store/shopping centre. 1 2 3 4 5
It is comfortable for me to do online shopping. 1 2 3 4 5
I can get used to the pace of life here in Melbourne. 1 2 3 4 5
I can get used to live without family members here in Melbourne. 1 2 3 4 5
I need regularly contact with family members in China. 1 2 3 4 5
I have not been affected by the jet lag problem. 1 2 3 4 5
I have been to several local social event (e.g. sport games, concerts, art performances, etc.). 1 2 3 4 5
I use non-Chinese social media networks a lot (e.g. Facebook, Twitter, Instagram, etc.). 1 2 3 4 5
I have got at least one non-Chinese friend that can make long term friendship. 1 2 3 4 5
I have noticed the local etiquette, and intentionally used it to avoid misunderstandings when talking with local residents. 1 2 3 4 5
I am well adapted to the daily life in Melbourne. 1 2 3 4 5

Appendix G: Sample questionnaire for the gamified group

For the following questions, select scale from 1 to 5 to measure your degree regarding to each cross-cultural adaptation criteria. Scale 1 stands for the most disagree, and scale 5 stands for the most agree.
Through my participation of the gamified orientation/induction program, I feel that
I have got a clear understanding of the course requirements. 1 2 3 4 5
I have got a chance to get familiar with the academics from my faculty. 1 2 3 4 5
I have learnt relevant academic skills to help my study in the future. 1 2 3 4 5
I know how to deal with miss-conduct situations if it happens. 1 2 3 4 5
I have got a chance to make oral communication with non-Chinese students/staffs. 1 2 3 4 5
I have developed a friendship or regular social connection with non-Chinese students. 1 2 3 4 5
I have got a sense of cultural differences through the interaction between students from different cultures. 1 2 3 4 5
I have visited most parts of the university campus. 1 2 3 4 5
I have understood the accesses to campus facilities/services 1 2 3 4 5
I have got a chance to access to student association/clubs 1 2 3 4 5
I have learnt some basic knowledge of living in a foreign country (e.g. how to rent and share rooms, how to sign contract, how to prevent our legal rights, etc.). 1 2 3 4 5
I have learnt how to use the public transport system here in Melbourne. 1 2 3 4 5
I have known the major landmarks here in Melbourne (e.g. shopping centres, tourist spots, etc.). 1 2 3 4 5
I have learnt some of the major social events here in Melbourne (e.g. sport games, concerts, art performances, etc.). 1 2 3 4 5
I have got a first impression of the local pace of life here in Melbourne (e.g. working times, holidays, etc.). 1 2 3 4 5
I know how to deal with mental problems (e.g. anxious, loneliness, etc.). 1 2 3 4 5

I have used some non-Chinese social media networks via the program (e.g. Facebook, Twitter, Instagram, etc.). 1 2 3 4 5
I have got a chance to interact with local people and practice my communication skills for further daily life. 1 2 3 4 5

Appendix H: Sample interview questions for the non-gamified group

1. According to your experience of study at Monash University, what is your general feeling of your adaptation to the academic life? What is the best part of your adaptation? What is the worst part?
2. According to your experience of living in Melbourne, what is your general feeling of your adaptation to the daily life? What is the best part of your adaptation? What is the worst part?
3. What is your evaluation of the orientation program you have attended? Does it provide necessary information for you to get adapted to both academic life and daily life?
4. If you have not attended any university orientation programs, what is your approach to get essential information to help you get adapted to both academic life and daily life?
5. What is your attitude towards using gamified approaches to help yourself adapt to the local lifestyle?
6. If there are fellow Chinese international students that enrol to your course, how would you suggest them to get adapted to the local lifestyle?

Appendix I: Sample interview questions for the gamified group

1. According to your experience of study at Monash University, what is your general feeling of your adaptation to the academic life? What is the best part of your adaptation? What is the worst part?
2. According to your experience of living in Melbourne, what is your general feeling of your adaptation to the daily life? What is the best part of your adaptation? What is the worst part?
3. Are you a game player? What is your attitude towards games (all game types)?
4. Do you know the concept of gamification? Do you prefer to use gamified approaches to improve the quality of your daily life?
5. According to your experience of the gamified orientation program, what is your general feeling of the program? Would it be helpful or not? Does it provide necessary information for you to get adapted to both academic life and daily life?
6. Which part of the gamified approach in the orientation program is the most helpful to you? Which part is the worst?
7. If there are fellow Chinese international students that enrol to your course, would you recommend them to participant this gamified program or not?