

Cultural Perspectives on Research Compliance: Exploring International Masters Students from
Confucian-Heritage Cultures Conducting Research in the United States

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

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August 2025

Abstract

Now more than ever, we are becoming a globally internationalized society. Each year, many international students, particularly those from Confucian heritage countries such as China, Korea, and Taiwan, travel to the United States (U.S.) to pursue a graduate degree that requires research. These CHC sojourners face several challenges, as they must navigate new academic requirements for performing research and writing academic papers. Additionally, they have the challenge of learning and applying the specific rules and regulations that explicitly govern the use of live animals for research.

Currently, there is limited research addressing the adjustment of CHC international students in the U.S., and even less exploring those who perform graduate research with animals. The literature reviewed and data collected offer deeper insights into the intercultural experiences of CHC master's students during their transition into animal research with non-USDA-covered animals while in the U.S. Five CHC sojourners were interviewed using a qualitative phenomenological approach. The data analysis revealed that CHC sojourners encounter multiple challenges while performing research in master's programs in the U.S., including linguistic and cultural barriers; difficulty with research rules comprehension and training; and a lack of mentorship. This study can be useful across multiple disciplines in higher education, including education, research, and healthcare. This research topic is an important area of study as it identifies the gaps in the current literature and the findings may inform future practice, policy, and research regarding the experiences and needs of CHC graduate students and serve to promote recognition of the above challenges for not only the study participants (CHC students), but as well as Asian sojourners in general, while conducting any research.

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Chapter One: Introduction

In this chapter, I will provide some background on the challenges that CHC graduate students face while in the U.S., with a particular focus on those who engage in animal research. The purpose of the study, along with the statement of the problem, is presented to help explain the importance of researching graduate students from Confucian cultures who perform research using animals. The research questions and philosophical framework guiding the study, as well as the overall significance of the study, are presented and discussed. An outline of methodology, along with a discussion of trustworthiness, delimitations, and limitations, is also included. Definitions of terms used in the study are provided. Finally, this chapter concludes with a summary of its key points.

Imagine arriving in a new country to start a new chapter in your life, graduate school! You're excited about this new journey; however, that excitement quickly fades when you discover that you not only need to navigate a new language, city, and culture, but also the intense and unfamiliar training required to conduct research in your host country. This is a startling truth that many Asian sojourners (short-term visitors) from Confucian heritage cultures face when they travel to the U.S. to pursue a graduate degree.

The number of international students worldwide has steadily increased, and the U.S. has been the most frequent destination for international students to study abroad (IIE, 2024; Okai, 2020). Approximately 39% of international sojourners travel to the U.S. to gain a graduate degree (Stewart-Rozema & Pratts, 2022). According to the Institute of International Education's [IIE] Open Doors report (2024), the authoritative source of data on international student enrollment, 78% of international scholars engaged in STEM, research, and teaching activities at U.S. colleges and universities in the 2022-2023 academic school year, "3 out of 4 international

scholars performed research in the United States” (IIE, 2024). Therefore, in this borderless age of globalization and internationalization of education, research collaboration performed by international students and their host countries has become a fast-growing and ever-changing area.

Of the international students traveling to the U.S. to perform research while in graduate school during the 2022-2023 academic year, over 112,552 came from Confucian Heritage Culture (CHC) countries, primarily from China (IIE, 2024). Asian students, at 9.8% compared to white students at 66%, constitute a large percentage of the total number of international students enrolled in graduate-level education in the U.S. (Nam, 2023). The Open Doors report for 2024 confirms that out of the top ten countries that send international students to the U.S., three (China, South Korea, and Japan) are CHC countries.

Confucianism is a major cultural tradition in East Asian cultures and regions, which include but are not limited to China (also known as mainland China), Taiwan, South Korea, Japan, Vietnam, and Singapore. The CHC countries primarily practice Confucianism, which is known as one of the most prominent traditions in the world, “rooted in Chinese culture and nurtured by Confucius and Confucians” (Ng, 2009; Yao, 2000, p. 17). Many of these Asian students, who include over 76,000 Chinese graduates, came to the U.S. to study in majors that require performing animal-related research (DesJardins, n.d.). Often, when transitioning to do research in the U.S., these Asian graduates are unfamiliar with the rules, regulations, and cultural differences of the host institution while performing animal research. These new rules and regulations include the many federal, state, and institutional requirements that are set in place for the use of animals in research. The substantial number of CHC students traveling to the U.S. to perform animal research while earning a graduate degree prompts the necessity to explore their educational needs more deeply through various methods.

Background of the Problem

According to Bound and colleagues (2021), many international students seek cross-cultural learning experiences abroad because “their home countries often had more limited high-quality university options” (p. 163). The graduate student enrollment rate in the United States has increased by 10% over the past two years, accounting for more than 62% of international students studying in the country (IIE, 2024). The U.S. educational system is continually strengthened economically and culturally by the flow of individuals and knowledge across its borders. For every three international students in the U.S., one U.S. job is created, resulting in a total of over 335,000 U.S. jobs being created or supported by international student enrollment and their financial contributions to the U.S. economy (Anderson, 2022). For many of these students, studying in science, technology, engineering, and mathematics (STEM) related fields has facilitated access to job opportunities that they may have never had in their home countries. In turn, their important contributions to STEM fields enhance public and private research initiatives and create jobs that support the U.S. (Hubbard, 2022). Another important benefit of international students in the U.S. is their cultural diversity. Today, U.S. students can experience other cultures without leaving their college campuses (Anderson, 2022). This cultural exchange is seen at every level of the educational system, from exchange students to scholars in higher education.

Asian international students make significant contributions to the U.S. economy. Therefore, with a large number of Asian students traveling to the U.S., there is a need to understand their effects on the American culture through their academic experiences. We already know that through their tuition, housing, transportation, dining, and consumer goods, Asian international students contribute an upwards of \$28 billion to the U.S. economy per academic

year (Hubbard, 2022); but we need to better understand how to support these students and retain them in college and then in our economy.

Despite the positive economic and cultural contributions, there can also be negative effects on the sojourner and the American culture. When people think of Asian graduate students in the U.S., they often envision high-achieving students who excel academically. However, a closer examination by origin group, such as CHC students, reveals a more complex picture of the difficulties many Asian sojourners face (Min, 2019). U.S. colleges and universities are ill-equipped to support the growing influx of diverse Asian international graduate students throughout their academic journey (Chatterji & Yin, 2022; Tan, 2019). To sustain its vast Asian international student population, higher education host institutions must support, invest in, and welcome all international students.

CHC students bring a rich cultural heritage to American society. Asian graduate students from CHCs face challenges based on their cultural differences, such as language barriers (Gautam et al., 2016; Rodriguez et al., 2019; Wu & Hammond, 2011), cultivating critical thinking skills (Tran, 2013; Wang & Wu, 2023; Yuan, 2022; Zhang & Chan, 2021), collectivism versus individualism (Shuai et al., 2015; Thanh et al., 2008; Yuan, 2022), and understanding new academic expectations while creating appropriate interactions and relationships with instructors and the local community (Rodriguez et al., 2019; Tan & Yates, 2011; Wu & Hammond, 2011; Yuan, 2022). These sojourners also must contend with the failure of faculty and administrators at their host institution to understand their educational needs and challenges. Many of the challenges they face while in the U.S. stem from a lack of understanding of how their cultural diversity affects their learning abilities and methods. There are numerous studies (Liu, et al., 2020; Pritchard, 2011; Rodriguez et al., 2019; U.S. Dept of Education, 2016; Wang & Wu, 2023;

Wu & Hammond, 2011; Xie, 2021) that examine, as a homogeneous group, the challenges that Asian college students endure. Most research focuses on undergraduate students (Brunsting et al., 2018; Perry, 2016; Smith, 2015; Wu & Hammond, 2011) and does not differentiate between countries of origin, academic major, or cultural influences. The tendency is for Western studies to view all Asians as a homogeneous group with the same outward and inward characteristics, despite their ethnic diversity in language, beliefs, values, and educational systems. Despite their cultural diversity, Confucianism unites many Asians as they share some cultural commonalities (Rastogi, 2007). Researching CHC graduates, who are culturally similar but not identical, will enable more comprehensive data on their specific academic needs. This information can then be used to compare the cultural differences among CHC sojourners and Westerners.

Challenges Faced

Graduate school is a challenging endeavor for most. For CHC graduate sojourners working with animals at an institution in the U.S., the challenges they face are multifaceted. They not only face the same general challenges that come with attending college, but they also must contend with novel social and educational experiences, new language idioms, academic expectations, and cultural nuances, including the performance of animal research.

Many Asian sojourners have experienced ‘culture shock’ for decades (Anjalin et al., 2017; Kim, 1988; Oberg, 1954; Xiaoqiong, 2008; Xie, 2021; Yook, 2013) while in the U.S. Ward and Searle (1991) state that culture shock is the result of the loss of familiar cultural cues, which leads to a negative emotional reaction. The study of culture shock among international students has led to the development of well-established ‘stress and coping’ models (Zhou et al., 2008). Despite the growing knowledge around providing support for international students facing

culture shock, there are few resources (financial or emotional support) available for CHC students traveling to the U.S. to earn a graduate degree.

Treating others with respect, possessing practical knowledge, fostering relationships, and valuing one's parents and family are characteristics that most college students in the U.S. possess to some degree (Ng, 2009; Xiong, 2017). However, for Asian graduates from CHC cultures, these are more than just personality characteristics; they are deeply embedded cultural values and beliefs. These differing cultural influences can create challenges in adjusting to U.S. graduate school and performing animal research (Imafuku et al., 2015; Taylor & Alvarez, 2020). Often, when transitioning to researchers in the U.S., CHC graduates are unfamiliar with the general rules, regulations, and cultural differences that are a part of the host institution while performing their research (Joffe et al., 2016). The regulations governing animal research in the U.S. are even more specific and intricate, as they are continually changing and being modified at the federal, state, and institutional levels (National Academy of Sciences, 2010). This adds more layers of difficulty for comprehension and application for newly sojourning CHC graduate students.

Statement of the Problem

There is an increasing number of CHC students attending graduate school in the U.S. (IIE, 2024), and their important contributions to American society and multinational companies must be explored. Literature exists that speaks to international students' challenges and adjustment to the American higher education system (Wu et al, 2015; Wu, 2007; Hechanova-Alampay et al, 2002; Petress, 1995; Barratt & Huba, 1994); however, there is little research that has been performed that explores their graduate *experiences* (Le & Gardner, 2010; Zhang, 2016). Even less research explores their graduate experiences, particularly when they conduct animal research in the U.S.

In general, the public and academic environments in the U.S. and Asia have a basic understanding of the need for animal welfare regulations and guidelines (Joffe et al., 2016; Kopp, 2012; Phillips et al., 2012). However, the lack of research examining CHC graduate student perceptions and understanding of animal welfare and research guidelines increases the challenges of how to best serve their needs and promote animal welfare, while they engage in graduate animal-related research in their host institution. Specifically, there is a significant gap in the research regarding how these sojourners perceive their experiences of navigating a new set of guidelines used in animal research while in the U.S. (Imafuku et al., 2015). By exploring the diverse experiences of this population, the host campus and faculty can gain a deeper understanding of and better facilitate their academic success.

Purpose of the Study and Research Question

The purpose of this study is to understand the essence of the lived experiences of Asian graduate students from Confucian-heritage cultures who perform animal-related research at a research-intensive institution in the U.S. This study aims to gain a deeper understanding of the intercultural experiences of CHC graduate students as they transition into animal researchers in the U.S. Through a qualitative, interpretative phenomenological approach, I seek to explore and interpret the subjective and individual experiences, perceptions, and cultural influences of a group of Asian graduate students from Confucian-heritage cultures, as they navigate performing animal research in the U.S.

I will use an Interpretative Phenomenological Approach (IPA) (Smith, 1996), to explore this topic and answer my research questions: What are Asian CHC graduate sojourner's experiences while engaging in animal research while studying in the U.S., and how do their

perceptions of the new culture influence their understanding and navigation of animal welfare and compliance rules and regulations in the U.S.

Methodology

A phenomenological methodology was employed in this study, as I sought to understand the lived experiences of Asian graduate students from Confucian heritage cultures as they perform animal research. Recognizing that my participants' research experiences are subjective and significantly influenced by their cultural perceptions, I will specifically use an interpretative phenomenological analysis (IPA) approach (Smith, 1996) to explore their authentic lived experiences. This explicit phenomenological method can aid in my understanding of the research experiences of Asian CHC students within the context of their culture. An overall qualitative methodology will allow my participants to describe how they interpret their experiences in a real-time context (Merriam & Tisdell, 2016). According to Lopez and Willis (2004), an IPA approach enables participants to express their subjective experiences, which are influenced by their social, cultural, and political contexts. In Smith's (1996) position paper on IPA, he explains how this methodological approach seeks to offer an 'insider's perspective. Later, Smith (1999) notes that IPA is ideal for studies that focus on specific individuals or groups as they navigate individual situations or events in their lives. For the Asian CHC students in this study, performing animal research is a specific requirement for them during graduate school; thus, this approach is well-suited for my research.

Significance

The demographics of U.S. colleges and universities are rapidly changing and becoming diverse communities with a multitude of racially and culturally distinct groups (Lee, 2006; Smith et al., 2007). Contributing to this population is the large and increasing number of international

students studying in the U.S. (Thomas, 2006). International students are integral to U.S. higher education, and their enrollment enables universities to offer graduate-level classes to American students that would not otherwise be available. Graduate education could not function without international students (NAFSA, 2003). Therefore, it is essential to understand the unique learning needs of each diverse population to ensure their continued enrollment and success in U.S. academia.

Asia remains the largest region sending international students to the U.S., accounting for almost 80% of total U.S. international enrollments (IIE, 2022). With them, Asian international students bring talent and cultural diversity to U.S. campuses (NAFSA, 2003). These graduate students make important contributions to teaching and research, particularly in the scientific fields. While studying in the U.S., Asian international students encounter challenges related to language, cultural differences, and social norms (Lacina, 2002; Wu et al., 2015). These challenges have been well-documented; however, there has been a lack of literature available that specifically focuses on the challenges faced by Asian international CHC graduate students from CHCs when conducting research using animals in their host institutions. The need is clear. Rather than withdrawing our support for CHC students' higher educational needs, we must evaluate the educational strategies currently set in place and design a new curriculum and environment that supports their educational needs. Researchers should study the lived experiences of various international student populations as they perform research in graduate school. After all, the intercultural interactions between foreign and domestic students in higher education begin the process of preparing all students to be effective global citizens.

Our world is becoming increasingly globalized. As a society, we share many different cultural traditions and objects from a global perspective, such as music, food, clothes, and

holidays. Being global citizens means being globally minded individuals and communities. As a society, we must demand equality and diversity by promoting global citizenship through social responsibility and actions. This research study adds to a global understanding of CHC sojourners' integration into American society.

Many sojourners travel to the U.S. temporarily for college or work but end up staying and becoming a more permanent part of American society. This study provides some practical impacts that CHC sojourners can have on the society in which they study. The study also demonstrates practical uses for this study, as well as for future studies.

Finally, this research can serve to broaden the areas focused on by researchers. This study can be useful across multiple disciplines, such as various subjects in academia and education, research, and healthcare. This research topic is an important area of study, as the findings may inform future practice, policy, and research regarding the experiences and needs of CHC graduate students, as well as Asian sojourners in general, when conducting any research. This investigation may also be important because it can highlight the ways in which cross-cultural learning influences and shapes student decision-making, leading to methods by which policymakers can support all international graduate students as they perform animal research in their host countries. The useful contributions made by this study can help build global citizens by allowing a stronger and more united relationship between international students, their home countries, and the U.S.

Theoretical Framework

The theoretical framework used in this study was David A. Kolb's Experiential Learning Theory (ELT) (1984), viewed through a cross-cultural lens. Kolb's aim for the ELT was to create a learner-centered approach that explains how experience is transformed into consistent

knowledge by the learner. Kolb explains his theory as a “holistic integrative perspective on learning that combines an individual’s behaviors, cognitions, perceptions, and experiences” (Kolb, 1984, p. 21). Using this lens, overlaid on Kolb’s learning theory, it highlighted the need to consider the individual Confucian cultural backgrounds of the study participants performing animal research and move away from grouping all Asian students’ experiences together. A cross-cultural lens helped to understand how CHC students’ lived experiences, beliefs, and perceptions of their social and cultural environment affected their learning abilities and experiences as new animal researchers in the U.S. Kolb’s widely used experiential learning theory continues to have a significant influence in several professional areas, including education, psychology, medicine, nursing, general management, computer science, accounting, and law (Kolb & Kolb, 2004). The ELT provides a means of conceptualizing and identifying the different learning preferences and corresponding environments that are consistent with an individual’s different learning styles (Kolb, 1974). Applying a cross-cultural lens to Kolb’s ELT enabled me to examine and better understand the study population’s culturally diverse learning needs through their interactions within the host culture, and to provide specific learning strategies for improved cross-cultural learning in animal research.

Delimitations

This study focuses on the experiences and reflections of Asian international graduate students in narrative form, examining their understanding and development of critical thinking in the U.S. The study excluded non-Asian international students and those in undergraduate programs. The study further narrows the research to CHC graduate students who perform research using live animals. The teaching effectiveness of critical thinking is not examined.

Limitations

This study focuses on the perspectives and experiences of CHC sojourners while conducting animal-related research with non-USDA covered species; therefore, this study does not include graduate students within CHC culture who do not perform animal research or those who use USDA covered species. Additionally, the participants in this study are not in doctoral programs, therefore have a shorter timeframe in which to learn and work with non-USDA covered species. Lastly, the intention was to have equal representation of both dominant genders (male and female); however, the study participants identified as four males and one female.

Definition of Terms

The following terms served as a guide for this study.

Adult Learner – Individuals older than 21 years that seek to gain knowledge in various settings (formal, nonformal, and informal). Adult learners are often categorized as a learner “whose age, social roles, or self-perception, define them as adults” (Merriam and Brockett, 2007, p. 8).

Asian- a native or inhabitant of Asia; a person of Asian descent (Merriam-Webster, n.d.).

Confucian Heritage Culture (CHC) - For the purposes of this study, CHC are described as a group of Asian nation-states that share Confucian values (Park, 2011).

Confucianism – a construct of thought and behavior originating in ancient China. Confucianism has a strong influence on the local culture of several East Asian countries.

Culture Shock - a series of emotional reactions and anxiety caused by loss of all familiar signs and symbols of social change (Oberg, 1954)

International students – For the purposes of this study, international students are those who were born in countries other than the U.S. and speak languages other than English at home (Corrigan, 2014).

Interpretative Phenomenological Analysis (IPA) – used to explore in detail how participants make sense of their personal and social world through exploration of experiences or events (Smith & Osborn, 2007; Smith, 1996).

Model Minority Myth – a stereotype first coined by William Pettersen (1966), that is used to compare Asians to other minority groups, that has a negative connotation for Asians by oversimplifying complex issues of race, class, and discrimination, and ignoring the many obstacles that Asian Americans and other minority groups face (Blackburn, 2019; Petterson, 1966).

Sentience - feeling or sensation as distinguished from perception and thought (Merriam-Webster, n.d.); means that animals are sentient beings with thoughts, feelings, and individual personalities (World Animal Protection, n.d.).

Vivisection - the practice of performing operations on live animals for the purpose of experimentation or scientific research (Oxford Dictionary, n.d.).

Chapter Summary

Chapter One introduced the readers to the background of the problem by describing the challenges faced by CHC graduate sojourners performing animal research in the U.S. By identifying the gap in the literature, this chapter highlighted the significance of researching this topic.

The next chapter offers a detailed review of the literature on adult learning in higher education and specifically CHC students. The theoretical framework is explained further in Chapter Two.

Chapter Two: Review of Literature

Roads were made for journeys, not destinations. - Confucius

Introduction

Chapter two begins with a review of the relevant literature. This chapter starts with an overview of Adult Education and Adult Learning. It then outlines the theoretical framework, Kolb's Experiential Learning Theory, and examines it through a cross-cultural perspective. Next, the chapter reviews the literature on the challenges faced by international students from Confucian heritage cultures, including socio-cultural and academic difficulties encountered during graduate studies in the U.S. Following this, it offers an in-depth look at animal welfare and animal research in the U.S. and CHC countries. Finally, the chapter explains why this literature was selected and its relevance to the research goals.

Searching for Literature

According to Roberts (2010), performing a literature review requires a great deal of organization and skill. Without a thorough literature search, "you will not acquire an understanding of your topic" (Hart, 1998, p. 1). For this literature search, I used both theoretical and empirical studies across various disciplines to provide an extensive and comprehensive background of the literature. I used the university's OneSearch and Google Scholar to gather initial literature on my topics. Some of the topics explored included Asian international college students in research in the U.S., challenges faced by Asian students in the U.S., Confucian heritage culture learning styles, and CHC students in the U.S.

I then focused my search by researching references within my initial literature findings. I then organized the literature under specific headings through thematic analysis. Common themes that emerged were differences in learning styles, such as rote memorization versus group

discussions; basic cultural differences that affected participants' ability to learn, like the lack of English proficiency; the fear of losing face and disappointing one's family; and difficulty with reading and writing for academic studies.

Adult Education and Adult Learning

Adult education is an intensely personal endeavor in which adults seek to improve themselves or their society through engaging in activities to gain knowledge and skills (Houle, 1972; Lindeman, 1926; Merriam & Baumgartner, 2020; Merriam & Brockett, 2007). In a foundational text focusing on adult education in the U.S., Merriam and Brockett (2007) stated adult learning is a form of educational practice that can be distinguished from adult education. The authors define adult learning as "activities intentionally designed for the purpose of bringing about learning among those whose age, social roles, or self-perception define them as adults" (2007, p. 8). They further explain that adult education is concerned with specific learning outcomes, while adult learning is a cognitive process, both internal and specific to the learner. Rogers (2014) agrees that the two concepts are distinguishable, stating that "learning is much wider than education" (p. 12). Adult learning is not only responsive to the context in which it takes place, but it is intimately related to that world and plays an important role in the local environment and culture (Jarvis, 2012; Merriam & Baumgartner, 2020). Adult learning is a social construct; therefore, it does not occur apart from the world in which the learner lives (Jarvis, 2012). Instead, according to Merriam and Baumgartner (2020), it is an interactive process that includes any activities that adults engage in beyond traditional schooling. They continue to say, "what one needs or wants to learn, what opportunities are available, the way one learns, all are to a large extent determined by the society in which one lives" (p. 25). According to Jarvis (2006), learning is intrinsic to living; therefore, it is essential for human life itself.

The American Association for Adult Education (AAAE) (1926) was established during the 1920s. The AAAE was the first professional organization in the U.S. that broadly focused on *adult* education. In 1951, the organization became the Adult Education Association of the United States of America (AEA/USA). The purpose of the ‘new’ organization was to facilitate communication among all professional and non-professional adult educators in the emerging field of adult education (Adult Education Association, 1994). Another thirty years later, in 1982, the association merged with the National Association for Public Continuing Adult Education (NAPCAE), becoming the American Association for Adult and Continuing Education (AAACE) (Henschke, 2007). Today, the nationally recognized AAACE hosts an annual conference, which includes a pre-conference hosted by the Commission of International Adult Education and the Commission of Distance Learning and Technology. The organization also publishes the three leading adult education journals, *Adult Education Quarterly* (AEQ), *Adult Learning* (AL), and the *Journal of Transformative Education* (JTED) (AAACE, n.d.). The AAACE provides a platform that supports cross-cultural research like is provided in this study. This study used various journals published by the organization to gather the most recent and relevant studies on CHC students, international students in research, and challenges faced by Asian students in the U.S.

Adult education is a practical field of inquiry, and research has primarily focused on improving practice within the field. Eduard Lindeman is considered a major philosopher of adult education in the U.S. His early work focused on community (1921) and working with groups (1924). Then, in the same year as AAAE’s inception, Lindeman published *The Meaning of Adult Education* (1926). Lindeman, who was directly influenced by John Dewey, described adult education through a broad lens, stating that the whole of life is learning; therefore, there is no

ending in adult education, and it is not confined to adults, instead adulthood and maturity defines its limits (Lindeman, 1926; Smith, 2020). He believed that the goal for adult education should be to improve both the individual and society (Merriam & Brockett, 2007).

John Dewey, another prominent American philosopher, educator, and social reformer of that time, is widely recognized as one of the most influential thinkers in education (Karafillis, 2012). Like Lindeman, Dewey believed that individuals' experiences should not be separated from their social environment (Merriam & Brockett, 2007). In Dewey's text *The School and Society* (1900), he states, "individualism and socialism are at one" (p. 19). Dewey believed that learning occurs through experiences and within a social environment. His focus on learning from experience led to the publication of *Experience and Education* (Dewey, 1938), a foundational piece of literature in discussions of experiential learning. Dewey was a strong advocate for the application of pragmatism in education (Merriam & Brockett, 2007). From a pragmatic perspective, Dewey explored 'morals' in education (Karafillis, 2012). In two of Dewey's most significant works on education, *Moral Principles in Education* (1909) and *Democracy and Education* (1916), Dewey claimed that all education is moral education and "the moral responsibility of the school, and of those who perform it, is to society" (Dewey, 1909, p. 7).

Self-directed learning (SDL) is a process in which individuals have direct input in the planning and completion of what, how, and when they will learn (Merriam & Brockett, 2020). Several scholars have laid the foundation of SDL in adults. In Cyril Houle's *The Design of Education* (1972) he unknowingly defined adult learning through an SDL lens. Houle stated that adult education is the process by which individuals, alone or with others, can plan their own learning by seeking to improve themselves or their society. This definition implied, for the first time, that individuals had the control to improve themselves through education. Even though

Houle has not been thought of as a direct contributor to SDL, he has influenced research on the subject. In his text *The Inquiring Mind* (1961, 1993) Houle conducted a seminal study that would shine a light on self-directed learning as an area of research inquiry (Brockett & Donaghy, 2005).

Houle has had a direct influence on two of SDL's most prominent contributors, Allen Tough and Malcolm Knowles, both of whom were doctoral graduates of the University of Chicago under Houle's supervision (Brockett & Donaghy, 2005; Merriam & Brockett, 2020). Tough and Knowles developed a linear model in which "learners moved through a series of steps in a self-directed manner to reach their learning goals" (Merriam & Baumgartner, 2020, p. 144).

Like Tough, Knowles continued to study practices related to self-directed learning and adult education. Knowles introduced the European term 'Andragogy,' also known as the Adult Learning Theory, into the U.S. in 1968 (Knowles, 1980, 1984). He described the theory and term [Andragogy] as the art and science of engaging adult learners in the learning process. In Knowles' texts *The Adult Learner: A Neglected Species* (1973) and *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (1980), he states that andragogy is different from pedagogy based on "four crucial assumptions about the characteristics of adult learners" (p. 44). He then lists the characteristics as 1) an individual's concept of themselves move away from dependency and toward self-direction, 2) adults continually add to a growing reservoir of experience, 3) adults become ready to learn and develop for personal growth, 4) they become more problem centered than subject centered in learning (p. 44-45). Four years later, Knowles added his last two assumptions, 5) adult learners' motivations are internal rather than external, and 6) adult learners need to know why they need to learn something (Knowles, 1984; Merriam & Baumgartner, 2020). Through Knowles' six assumptions for adult learning, he has helped

other scholars identify who adult learners are and how to facilitate their learning. His contributions echo through every aspect of education.

Adult Learners

Defining who the adult learner is has been an ongoing debate. The term "adult learner" typically refers to someone who has reached maturity; however, there is a distinction between mental maturity and legal maturity, which is based on age (Rothwell, 2020). According to Scruton and Ferguson (2014), adult learners include any learners aged 19 and above, who may be studying part-time or full-time for a variety of reasons. While Rabourn and colleagues (2018) define adult learners as students who are over the age of 21 when entering college. Rothwell (2020) agrees that the term adult learner implies someone who engages in learning beyond the traditional school age of 7 to 21. According to the National Center for Education Statistics (2023), the enrollment rate for adult learners ages 18 to 24 in U.S. higher education declined from 41 percent in 2010 to 38 percent in 2021. However, it notes that Asian students in this same age group make up the largest percentage of those enrolled, at 60 percent. Today, adult learners over the age of 25 represent nearly 40 percent or 8 million learners enrolled in U.S. higher education (Gallagher, 2021; National Center for Education, 2023).

Adult learners are often perceived as having specific characteristics beyond their age. Common characteristics of adult learners include part-time enrollment in higher education, full-time employment, and often these students care for dependent children (Rabourn et al., 2018). These part-time students are sometimes considered, by some in higher education, as “second chance” or “retread” learners (Kasworm et al., 2000). Fenwick and Tennant (2020) characterize adult learners in the context of a person’s life. They describe adult learners as having unique cultural, political, physical, and social dynamics that influence what they choose to learn and

how they choose to learn it. Therefore, the adult learner brings a vast reservoir of experience to the learning situation and prefers self-direction in determining the goals and outcomes of their learning (Ross-Gordon, 2003).

Foley (2020) takes a combined approach, describing adult learning as both age-specific and a social construct in which adult learners are identified culturally. In *The Handbook of Adult and Continuing Education* (2020), the authors state that adult learning is a circuitous pathway, influenced by diverse factors in every social context. They point out that an adult's readiness to learn is closely related to the developmental tasks associated with their social role.

International Graduate Students as Adult Learners

All adult learners, regardless of their country of origin, bring with them a vast amount of experience and knowledge (Ross-Gordon, 2003). Like domestic adult learners, international adult learners enroll in higher education at colleges and universities in the U.S. Typically, international adult learners choose to come to the U.S. for a specific program or area of study. These learners also bring with them unique cultural and social dynamics that influence what and how they choose to learn (Fenwick & Tennant, 2020).

Like any domestic adult learner, the international adult learner encounters numerous challenges in the pursuit of higher education. However, there are added layers of challenge for international adult learners, such as acclimation to a new country and culture, language barriers, an unfamiliar educational system, gender-role adjustments, and even social isolation (Graham & Donaldson, 1999; Mwaura, 2008). Also, international adult learners face financial hardship due to “the exorbitant costs associated with being an international student” (Hunter-Johnson, 2022, p. 287). The adult CHC learners in this study faced these same challenges collectively, but also individual personal challenges. The CHC students in this study preferred self-direction in

determining the goals and outcomes of their learning, as do many adult learners in the U.S. (Ross-Gordon, 2003).

Forms of Adult Education and Learning

The adult classroom demographic has continued to change, particularly over the last five years (Milner, 2021). A class no longer consists of similarly aged adults sitting in a room with a teacher or instructor at the front giving lectures. Today's classrooms are diverse in their demographics, location, and method of delivery (Milner, 2021). Post-COVID-19 online learning has excelled dramatically. This online learning surge has only aided the different learning concepts available (Djidu et al., 2021; Schrenk et al., 2021; Sim et al., 2021). Around the world, professionals and novices alike can engage in the same learning, whether it is learning how to change the oil in your car or learning how the digestive system works.

Various forms of adult learning have existed throughout time and across all cultures. There is extensive research on the different kinds of adult learning, which moves away from teacher-centered instruction to a more learner-centered approach (Knowles, 1984). The three commonly recognized forms of adult learning are formal, nonformal, and informal learning (Coombs & Ahmed, 1974). Coombs and Ahmed's 1974 definitions of the various forms of adult learning would become the most frequently cited for describing these concepts (Ross-Gordon et al., 2016). There is considerable overlap and interaction between the three forms of learning (Merriam & Brockett, 2007).

Formal learning is defined as a chronological institutionalization among a hierarchical structure (Coombs & Ahmed, 1974). Merriam and Brockett (2007) add that formal learning is often funded by the public with the goals of the state in mind. They continue to say that this form of learning is "most visible in industrialized nations" (p. 169). In an analogy by Coffield (2000)

he compares the three learning styles to an iceberg. He states that “the section above the surface of the water would be sufficient to cover formal learning, but the submerged two thirds of the structure would be needed to convey the much greater importance of nonformal and informal learning” (p. 1).

Non formal learning is any organized educational activity that takes place within the community and focuses on topics that are important to that community (Coombs & Ahmed, 1974). Nonformal education is often associated with traditional and indigenous education or international development programs and is supported by nongovernmental organizations (NGOs) (Merriam & Baumgartner, 2020). Coombs and Ahmed (1974) published a report for the World Bank Group titled *Attacking Rural Poverty: How Nonformal Education Can Help*. The publication was based on the results of a research study looking at how to improve adult education in developing countries. The study used a diversified sample of ongoing nonformal education projects and programs in Africa, Asia, and Latin America. The authors focused on how nonformal learning as opposed to formal learning was more well-suited to provide these countries with adequate education on agriculture. They stated, “even if physical facilities and teaching staffs were adequate and essential reforms of structure and curricula were achieved, it is doubtful that *formal education* as presently conceived could satisfy many of the most crucial developmental needs” (Coombs & Ahmed, 1974, p. v).

Both formal and nonformal learning methods are important, but most learning in adulthood is conducted in an informal and self-directed manner (Merriam & Baumgartner, 2020). Informal learning as described by Coombs and Ahmed (1974) “is the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment” (p. 8). Informal learning is beneficial for all

adults, but with the growing number of older adults each year there has been an increase in informal education to support their needs. Since the early 1960s the U.S. has implemented several organizations to support older adults' learning, such as the Road Scholar programs and Lifelong learning institutions (Jarvis, 2007; Merriam & Baumgartner, 2020). Tennant and Pogson (1995) argue that society should have an interest in promoting the idea of lifelong learning to all ages in the U.S.

All forms of learning are affected by society and the individuals that make up that society. Therefore, promoting learning throughout one's entire life would benefit more than just that individual. Lifelong learning is a vague term with highly varied definitions. Jarvis (2007) defined lifelong learning as the process of "transforming experience into knowledge and skills...resulting in a changed person" (p. 123). While Blow (2022) states that lifelong learning means to continuously take advantage of and pursue various opportunities in a wide range of settings to improve personal and professional growth. Both definitions, despite being fifteen years apart, describe how learning throughout one's life allows them to take advantage of opportunities for change within themselves and their community. Scruton and Ferguson (2014) add that lifelong learning is an overarching term that refers to "learning that can take place after formal education and includes: post-compulsory education or training, vocational skills or education, adult education, continuing education and continuing professional development" (p. 11).

The U.S. movement toward lifelong learning, which has also been phrased as Life-wide and Life-Deep (Jarvis, 2006; Lee & Flemming, 2012) began in the 1960s and 1970s, but outside of the U.S. lifelong learning was already being practiced (Merriam & Brockett, 2007). The term 'lifelong learning' gained recognition in the U.S. due to the influence of the United Nations

Educational, Scientific, and Cultural Organization (UNESCO) after WW II (Jarvis, 2004; Titmus, 1999). Then in the late 1970s, UNESCO took the lead in promoting lifelong learning in the U.S., but by the early 1990s UNESCO had withdrawn their support for the educational movement (Merriam & Brockett, 2007). However lifelong learning did not end or simply fade away, instead it has continued to grow within the U.S. Several scholars, such as Davis (2000), Day (1999), Munn (2003), and Spindler (2000) have all contributed to the professional development of the lifelong learning concept by focusing on the development of teachers and instruction. Outside the U.S., Peter Jarvis's scholarly contributions to the theory of lifelong learning have been widely recognized in U.S. adult education. Jarvis (2007) contends that "Lifelong learning is about being and becoming" (p. 135). In a 2016 study by the Pew Research Center, they found that 73% of adults consider themselves lifelong learners and every year with the growing number of aging adults and increased accessibility to technology, the number of lifelong learners continues to grow.

Experiential Learning Theory

Malcolm Knowles' *Adult Learning Theory* focuses on including learners in all aspects of planning their own learning (Knowles, 1980). Knowles (1973) when referring to adult learning, makes it a point to say that the better understood a theory is, through that theory's explanation of phenomenon and guidelines for actions, the more likely an individual is to reach their learning goals. Today several theories in adult learning focus on specific ways in which to approach learning, such as Andragogy, Self-Directed, Transformational, and Experiential learning (Knowles, 1980; Merriam & Baumgartner, 2020).

For this study, David A. Kolb's Experiential Learning Theory (ELT) (1984) is particularly valuable for understanding the lived experiences of Asian graduate students from Confucian-

heritage cultures who perform animal-related research while in the U.S. Experiential learning is a constructivist learning theory characterized as ‘learning by doing’ (Dewey, 1938). The philosophical foundations of experiential learning are extensive and there have been many contributors. The most influential contributors to the development of the philosophy behind experiential learning are John Dewey, Jean Piaget, Kurt Lewin, and David A. Kolb (Facemire, 2022). In response to John Dewey’s call for a theory of experience to guide educational innovation, each one of these foundational scholars made experience a central role in their theories of human learning and development. They each researched how one’s individual experience has an effect on their gain of knowledge.

Kolb did not pose his experiential learning theory as a replacement for behavioral, cognitive, or constructive learning theories that came before him, but rather as a “holistic integrative perspective on learning that combines an individual’s behaviors, cognitions, perceptions, and experiences” (Kolb, 1984, p. 21). Experiential learning is differentiated from other forms of learning (cognitive and behavioral) because they do not take a ‘whole person’ view when evaluating a person’s learning abilities; instead, they focus more on the creation and manipulation of one’s thoughts and experiences (Kolb & Kolb, 2017; Kolb, 1984).

Kolb’s Experiential Learning Theory

Kolb is an American psychologist, professor, and educational theorist (Kolb, 2022; Institute for Experiential Learning, n.d.). Since the early 1970s, Kolb’s Experiential Learning Theory’s (1971) principles and practices “have been widely adopted to create curricula and conduct educational courses and programs” (Kolb & Kolb, 2017, p. 8). Kolb’s aim for the ELT was to create a learner-centered approach that would explain how experience is transformed into consistent knowledge by the learner. Bergsteiner, Avery, and Neumann (2010) state that

“Individuals create knowledge from experience rather than just from received instruction” (p. 30). The role of experience in learning is why Kolb’s ELT has gained widespread acceptance in today’s adult education. Kolb and Kolb (2017) point out that “more and more educators are experimenting with experiential learning practices such as service learning (Bielefeldt et al. 2011; Brower 2011), problem based learning (Gurpinar, Bati & Tetik 2011; Bethell & Morgan 2011), action learning (Revans 1980; Keys 1994; Foy 1977), adventure education (Fuller 2012; Timken & McNamee 2012), and simulation and gaming (Taylor, Backlund & Niklasson 2012; Shields, Zawadzki & Johnson 2011; Schaefer et al. 2011)” (p. 8). Kolb (1974) states that his ELT provides a means of conceptualizing and identifying the different learning *preferences* and corresponding environments that are consistent with the different learning styles of adult learners.

When developing his experiential learning theory, Kolb (1974, 1984) contends that he chose the word “experiential” for two reasons. First, the theory illustrates the perspectives of nine prominent scholars who made ‘experience’ a central theme in their theories on learning and development (Kolb, 1974, 1984). They are William James, Kurt Lewin, Carl Rogers, Carl Jung, John Dewey, Jean Piaget, Lev Vygotsky, Paulo Freire, and Mary Parker Follett (Kolb 1984; Kolb & Kolb, 2017; Kolb & Plovnick, 1974). Second, he chose to use the word ‘experiential’ “to emphasize the important role that experience plays in the learning process” (Kolb, 1984, p. 19; Kolb & Plovnick, 1974, p. 4). The nine scholars above were highly revered by Kolb and each contributed to his development of experiential learning in several ways. William James was considered the father of American psychology and the originator of experiential learning in his text *The Principles of Psychology* (1890), on the philosophy of Radical empiricism and his contributions to the dual process theory (William James & Psychology, 2016); Kurt Lewin, as an

action researcher, contributed major practical implications to leadership styles (Kolb, 2021); Carl Rogers who is considered one of the founders of fathers of humanistic psychology (1947) provided the direction of focusing on experiences as central to the fully functioning person and self-actualization in his process of experiencing (Kolb, 2021; Perera, 2023); Carl Jung's specialization provided a radical scientific form of experiential learning and integration (Kolb, 2021); John Dewey supported James's ideas and made many additional contributions to the subject of experiential learning in education (Roberts, 2003); Jean Piaget contributed to experiential learning with his deep knowledge of constructivism; Lev Vygotsky focused on the cultural and social contexts of experiential learning with his proximal zone of development (Bruner, 1984); Paulo Freire greatly contributed to experiential learning with his theory of naming experience in dialogue among equals (Kolb, 2021); and Mary Parker Follett connects educator and learner in her theory of creative experience (Follett, 1924; Kolb, 2021). Kolb synthesized these foundational scholars' works into a basic experiential learning approach to help integrate some of the common themes into a systematic framework that could help solve problems faced in learning and education (Kolb, 2021; Kolb & Kolb, 2017).

Kolb's learning theory is based on six propositions that are influenced by the work of nine esteemed scholars (Kolb, 1984; Kolb & Kolb, 2017). The six propositions guide the facilitation of the experiential learning approach and posit the following: 1) Learning is best conceived as a process, not in terms of outcomes; 2) All learning is relearning (continual); 3) Learning requires the resolution of conflicts between contrasting modes of adaptation to the world; 4) Learning is a holistic process of adaptation to the world and integrates the person's thinking, feeling, and behaving; 5) Learning results from synergetic transactions between the person and the environment; 6) Learning is the process of creating knowledge (Hayden &

Osborn, 2020, p. 4; Kolb, 1984, p. 26). There is a substantial intersection between the propositions of the experiential learning theory, even though they are presented as distinct elements. The ELT propositions can be used to effectively teach adult learners and professionals. In an article by Hayden and Osborn (2020), they describe how the propositions can be used in several ways to administer career assessments to career service professionals (CSP). Using propositions 3, 4, and 5, they were able to assess the professional's thoughts and feelings associated with different experiences and generate awareness of the assessment structure "while also creating empathy for clients who complete assessments" (Hayden & Osborn, 2020, p. 6).

Kolb (1984) stated, "Learning is the process whereby knowledge is created through the transformation of experience" (p. 38). The learning styles, as well as the learning cycle, comprise his experiential learning theory, which explains Kolb's insights on transforming experiences into knowledge. Kolb's ELT has two distinct parts (Appendix A). First, he states that learning should follow a four-stage cycle (Kolb, 1984). The cycle describes how experience is translated into concepts and, in turn, serves as a guide for new experiences. Second, he explains that there are four separate learning styles which can be better understood as the cognitive processes required to acquire knowledge (Kolb, 1984, 2021; Kurt, 2020; Kolb & Plovnick, 1974; McLeod, 2017). When designing his learning theory, he makes it clear that he does not assume all individuals are identical. He continually stresses the viewpoint that learning is not the same as forming habits (Kolb, 1984). His insights allow scholars to recognize that learners should not memorize a body of knowledge. Instead, they should experience it. Jerome Bruner (1966, as cited in Kolb, 1984) stated that "knowing is a process, not a product" (p. 27). Kolb, too, believed "learning is best conceived as a process, not in terms of outcomes" (Kolb, 1984, p. 26). As an alternative, Kolb suggests that "the psychological structures that govern learning allow for the emergence of

unique individual adaptive processes that tend to emphasize some adaptive orientations over others” (Kolb, 2021, p. 98). In this quote, Kolb was trying to express how the complexity of learning allows adult learners to learn differently and that his learning cycle and styles are not the end of all.

The Learning Cycle. Kolb’s theory (1984) (see Appendix A) is best known through the four-stage model of the experiential learning cycle. He called it an ‘experiential learning cycle’ to “tie it clearly to its intellectual origins in the work of Lewin, Dewey, and Piaget” (p. 20). Then, he developed his learning cycle based off models of the experiential learning processes by these same scholars (Kolb, 1984). He included the word ‘experiential’ in the title “to emphasize the central role that experience plays in the learning process” (Kolb, 1984, p. 20). While developing his learning cycle, he used three models as references. First, he focused on two noteworthy properties of the Lewinian Model of Action Research and Laboratory Training developed in the 1940s (Kolb, 1984). These two models emphasized the here-and-now concrete experience to test various concepts and that “research and laboratory training are based on feedback processes” (Kolb, 2021, p. 33). Second was Dewey’s philosophy and model of experiential Learning. Dewey’s foundational piece of literature on experience, *Experience and Education* (1938), set the groundwork for discussing experiential learning (Roberts, 2003). In Roberts’s (2003) interpretation of Dewey’s experiential learning theory, he explains how Dewey believed that experience, in collaboration with the social environment, plays a paramount role in adult learning. Kolb took aspects of how experience and the social environment work together and intertwined them in his learning cycle. Kolb utilized Dewey’s description of how learning transforms the emotions underlying concrete experiences into meaningful actions (Kolb, 2021; Miettinen, 2000). Third, Kolb incorporated ideas from Jean Piaget’s Model of Learning and

Cognitive Development, which describes how people construct new knowledge and understanding based on their previous experiences (Kolb & Kolb, 2005). In all three of the learning models used by Kolb (1984), learning is described as a process whereby knowledge is “continuously modified by experience” (p. 26). “No two thoughts are ever the same” because no two people experience the same (Kolb, 1984, p. 26).

Experience plays a central role in the learning process. Experiential learning advances from a “different set of assumptions” than other forms of learning (Kolb, 1984, p. 26). First, our thoughts and ideas are not fixed or absolute, but they are created, then modified, and created again in a different way (Kolb, 1984). Kolb believed that while learners progressed through the stages of the experiential learning cycle, they transformed their experiences into new or adapted knowledge. With each new experience, learners can apply their current understandings and integrate them with new observations (Kurt, 2020). Kolb’s experiential learning cycle presents a profoundly different view of the learning process. Many of the previous theorists who studied experience believed that knowledge was developed in a linear way from not knowing to knowing. However, Kolb defined learning as an ongoing process of learning, unlearning, and adapting based on personal experiences, followed by the process of learning again (Kolb, 2021; Kolb & Kolb, 2017). Kolb’s four-stage cycle illustrates his assumption that learning arises from a combination of understanding and transforming one's experiences (Kolb, 2021).

Kolb (2005, 2021) claims that his cycle is designed to produce resolution through a dual analysis of action and reflection or experience and abstraction. The recursive process is responsive to different learning situations and guides the learning process between the different modes of Concrete Experience (CE)- action, Reflective Observation (RO)- reflection, Active Experimentation (AE)- doing/experience, and Abstract Conceptualization (AC)- logical thinking

(Kolb & Kolb, 2005; Kolb & Plovnick, 1974). As mentioned earlier, Kolb suggests that knowledge must be grasped and then modified. He claims there are two primary dimensions of the learning process. For these two dimensions, he discusses situations or learning circumstances. I will use those same terms when describing the modes of his learning cycle. The first dimension has two opposite modes of *acquiring experience*: 1) concrete experience and 2) abstract conceptualization (Kolb, 1984). In the concrete experience step, an individual must allow themselves to be fully immersed, without bias, in a new situation. The abstract conceptualization step enables learners to creatively develop concepts based on their observations and draw logical conclusions about the experience (Kolb & Plovnick, 1974). In the second dimension, the two opposite modes are 3) reflective observation and 4) active experimentation. These two modes allow the experience to be transformed into knowledge (Kolb & Kolb, 2005). During reflective observation the learner actively observes a situation from multiple perspectives. In contrast, during active experimentation the learner plans on how to test something and then physically tests that theory.

“Learning arises from the resolution of creative tension among these four learning modes” (Kolb, 2021, p. 51). If learners are to be effective, Kolb determined that they need to be able to pivot into any one of the four different learning modes. The result of this discovery was the development of the four different learning *styles*. Kolb determined that the process of learning could begin at any point within his experiential cycle, and varying interactions with the cycle are associated with different styles or preferences of learning (Hayden & Osborn, 2020).

Learning Styles. Kolb's experiential learning theory identifies four learning styles, which are based on his four-stage learning cycle. The four general learning styles are Diverger (feeling and watching), Converger (doing and thinking), Assimilator (watching and thinking), and

Accommodator (doing and feeling) (Kolb, 2021; Kolb & Plovnick, 1974; McLeod, 2017). Kolb believed that learning styles emerged through genetics, life experiences, and the demands of an individual's environment. "Different learning styles reflect learning preferences that can change with the situation" (Bergsteiner et al., 2010, p. 30). Kolb states that depending on our past life experiences and the demands of our present environment, most of us will develop a preference for a learning style that emphasizes some learning abilities over others (Kolb & Kolb, 2017; Kolb & Plovnick, 1974). He claims that specific learning styles are determined by how a person moves through the learning cycle. Kolb created the Learning Style Inventory (LSI) to evaluate the individual learning styles people experience as they move through the learning cycle to better assist their learning needs (Kolb & Kolb, 2017). He based his findings on both his 1984 and 1999 research, as well as his clinical observations of patterns associated with Learning Styles Inventory scores (Kolb & Kolb, 2017). During this research, he concluded that an individual's preferred learning style is influenced by various factors such as culture, social environment, personality, educational experiences, or career role, and current tasks (WentworthInst Tech, 2015). His collective research led him to develop the four styles of learning (divergent, assimilative, accommodative, and convergent). Based on Kolb's earlier work in 1974, below is a summary of the characteristics of the above four learning styles (see Appendix A).

Each learning style falls in between two steps in the learning cycle. The Accommodator style is situated between the active experimentation (AE) step (doing) and the concrete experience (CE) step (feeling). This type of learner performs "best at Concrete Experience (CE) and Active Experimentation (AE)" (Kolb & Plovnick, 1974, p. 25). They prefer to work in teams while using hands-on and trial-and-error methods. During the learning process, they often ask themselves 'what if' and 'how' type questions. Accommodators depend on others for

information rather than seeking scientific knowledge on their own (Kolb & Plovnick, 1974). Therefore, they often act on “gut feelings” rather than logical analysis (Kolb & Kolb, 2005). These learners can quickly adapt to change within their immediate environment (Kurt, 2020).

The Diverger style of learning falls between the Concrete Experience (CE) step (feeling) and the Reflective Observation (RO) step (watching). This type of learner likes to take an original and creative approach to learning. They prefer to work in teams and tend to be emotionally and creatively driven (Kurt, 2020). Their preference is to generate ideas by “brainstorming” (Kolb & Kolb, 2005). Like the accommodator style, they prefer hands-on activities. They seek the opportunity to be creative (Kurt, 2020). For the Diverger, “His greatest strength lies in his imaginative ability” (Kolb & Plovnick, 1974, p. 23).

Converging learners like to work independently. This learning style falls between the Active Experimentation (AE) step (doing) and the Abstract Conceptualization (AC) step (thinking). That is why this type of learner tends to excel with technical problem-solving tasks. They approach problems by asking ‘how’ type questions (Kolb & Kolb, 2005; Kurt, 2020). Kolb and Plovnick (1974) state “his greatest strength lies in the practical application of ideas” (p. 23), rather than with social and interpersonal issues (Kurt, 2020).

Assimilators are positioned between the Abstract Conceptualization (AC) step (thinking) and the Reflective Observation (RO) step (watching). They do their best when they can examine facts and review the experience in its entirety. They tend to enjoy designing experiments and working on projects from start to completion. Assimilators prefer to work alone, using a logical approach to problem-solving that emphasizes inductive reasoning (Kolb & Plovnick, 1974; Kurt, 2020). Key characteristics of this learner are logical organization and a strong sense of control while leaning on the facts. They accomplish this by asking questions like ‘what is there to know’

(Kolb & Kolb, 2005). They enjoy taking large amounts of information and putting it into logical formats.

Learning styles are not fixed psychological traits. Instead, they are a consistent pattern of characteristics and behaviors that each of us possesses. “Each of us in a unique way develops a learning style that has some weak and strong points” (Kolb & Plovnick, 1974, p. 21). Sojourners in general do not have fixed learning styles. Specifically, sojourners from CHCs require appropriate training tailored to different learning styles prior to engaging in animal research, enabling them to perform research at a level necessary for success and maintain animal welfare. The question then becomes how the educational system [university] provides the training needed if they do not understand what CHC students are experiencing. They should first understand CHC students’ perceptions around what they are experiencing while performing research; what they are or are not understanding; and how they prefer to learn. Kolb’s ELT can act as a framework to gain insight into how these CHC graduate students understand and make sense of the regulatory oversight required for using research animals in the U.S.

ELT Through a Cross-Cultural Lens

The future of experiential learning is expanding. Kolb has revisited the surplus of critiques several times in his updated iterations of the experiential learning cycle. Kolb stated in his original work from 1984 that knowledge is continually created from experiences and then recreated as a result of those experiences. Just as Kolb critiqued himself and acknowledged that his initial research was conducted prior to the 2000s and did not include other cultures, he has since conducted research after 2000, encompassing other cultures (Kolb, 2021). Kolb researched cultural differences in his learning styles. In the article “Are There Cultural Differences in Learning Style?” written by Joy and Kolb (1984) the authors provide insights into the role that

culture plays in learning, drawing on empirical evidence that suggests learning style variations are influenced by cultural background. The authors found several comparative studies that concluded there are significant differences in a learners' learning style preferences among the different countries. The authors use these studies as a starting point for exploring whether culture had an impact on learning style and, if so, which dimensions of culture shape their learning style preferences. Joy and Kolb used Kolb's ELT as the framework for categorizing cultural differences from the large-scale Global Leadership and Organizational Effectiveness (GLOBE; 2004) study. Which included 533 respondents from seven different nations and allowed sufficient data for the authors. As a result of their research Joy and Kolb concluded that culture "does indeed significantly influence learning style" (p. 84).

Critiques and Analysis of Kolb's Work

There is a plethora of papers written that critique Kolb's seminal experiential learning theory (cycle and styles). These critics comment from various perspectives and fields, including training, management, informal education, adult education, business education, lifelong education, nursing, and psychology. In a session of Fenman's Train the Trainer series, Clare Forrest's (2005) article "Kolb's Learning Cycle", contends that there are several issues with Kolb's ELT. First, Forrest states that one issue is that multiple steps can occur at once and steps can be jumped or completely skipped. Second, she adds that Kolb's cycle portrays only western culture. Jarvis (1987) also points out that Kolb does not consider different cultural experiences or conditions other than the Western. Jarvis further adds in his critique of Kolb's model, that there is "an over-simplification of reality, and learning is a very complex set of processes" (p. 24).

In Garner's paper *Problems and Inconsistencies with Kolb's Learning Styles* (2000) he states that Kolb overemphasizes the learning styles' flexibility. Garner continues by saying that

the more a behavior is performed the more likely that behavior will be chosen; therefore, a stable action is created. Garner then states that Kolb did not take into consideration and thus recognizes that learners' predispositions (from previous experiences) will lead them to take a distinct approach to learning (Garner, 2000). These are aspects I have taken into consideration in this study. Do students perform an action out of habit or choice? Like students before them many of these sojourners begin their studies without prior experience in performing animal research in the U.S. and are unfamiliar with the regulations governing it. Once they are trained, they can then start to develop routines and possibly form habits for performing various research related procedures. For this reason, providing them with guidance on how to perform animal research appropriately is essential when they first arrive in the U.S.

Rodgers (1996) critiques Kolb's theory by stating "learning includes goals, purposes, intentions, choice and decision-making, and it is not at all clear where these elements fit into the learning cycle" (p. 108). A 1984 study by Fox concluded that Kolb's Learning Style Inventory was not a sufficient indicator of individuals' learning styles. Kolb's own critique of his work stated there are some limitations to the experiential learning theory. As he developed his influential work and updated his research over the next two decades, he primarily considered research conducted between the 1970s and 1990s. He also focused on American-based research and did not study other cultures. That is why this study uses Kolb's ETL overlaid with a cross-cultural lens. This lens allowed me to examine each step of Kolb's ELT including the four learning steps (concrete, reflective, abstract, and active) and four types of learners (accommodator, divergent, assimilator, and converger) with the perspective of international students in mind. Specifically, sojourners from CHCs.

Confucian Philosophy

Some scholars have grouped Confucianism with various religions such as Buddhism, Christianity, Hinduism, Islam, Judaism, and Taoism. Slote and De Vos (1998) dispute the grouping by stating that Confucianism “is not an organized religion” (p. 3). In contrast, Yook (2013) and Youlan (1966) define Confucianism as simultaneously being both a religion and a philosophy based on a moral code. Despite whether Confucianism is thought of as a religion or philosophy it has “exerted a profound influence on East Asian political culture as well as on East Asian spiritual life” (Slote & De Vos, 1998, p. 3). As such, Confucianism has become a common thread that emphasizes ‘cultural universalism’ rather than ethnic distinction or separation and has created shared aims among many East Asian cultures and their education, family, and work (Samovar et al., 2010; Tang & He, 2010). Confucian philosophy is a construct of thought and behavior originating in ancient China. Confucius (551-479 BC), known as Kongfuzi or Master Kong (Sun, 2004; 2008), is thought to have “founded” the Confucian school of thinking, or Confucianism (Seok, 2021). However, some critics state that Confucianism is a way of life that was established long before Confucius (Tu, 1998).

Confucius devoted his life to teaching, and education has become a major theme in Confucianism (Tan, 2017; Tu, 1998). In the *Analects*, (14:24) Confucius claims “I have never grown tired of learning, nor weary in teaching others what I have learned”. Confucius’s wisdom attracted many followers and students, not because he was viewed as an enlightened one, but because he himself embodied the virtues of Confucianism (Sun, 2008; Yao, 2000). Confucius examined many important ideas that helped build the foundation for his teachings. Before Confucius, education was limited to the privileged, but he reformed the concept of education by making it accessible to all social classes (Sun, 2004). He promoted maintaining a harmonious

government and society through his social and political teachings (Sun, 2008). Confucius often emphasized the importance of compassion within a society and the need for rulers to gain the trust of their people, which he achieved through his teachings and guidance (Confucius, 1963; Wilson, 1900).

The collection of his teachings, which would later be compiled and recorded by devotees after his death, became the *Analects (Lun Yu)*. The *Analects* are compiled of conversations between Confucius and his disciples and authentically keep a record of his words and deeds (Friedrich et al., 2011; Xiong, 2017). The *Analects* are composed of twenty books that contain about five hundred independent passages. According to Xiong (2017), the *Analects* occupy a very important position in Chinese educational and cultural history. As a philosopher and teacher, Confucius influenced far more people today through the *Analects* than he was able to during his lifetime. Confucius lived by and taught five ingrained virtues recorded in the *Analects*: *Ren* (Humanity), *Yi* (Righteousness), *Li* (Ritual/ propriety), *Zhi* (Wisdom), and *Xin* (Faithfulness) (Havens, 2013; Yao, 2000). I will elaborate briefly on three of them *Zhi*, *Ren*, and *Li* (specifically filial piety-*Xiao*).

Education (Zhi). *Zhi* is translated as practical wisdom. As a person learns, they create thoughts around their experiences, then once they reflect on their thoughts and experiences, those actions can lead to knowledge. This knowledge, in turn, becomes a specialized form of understanding, *practical wisdom*, or *zhi* (Havens, 2013). Confucius believed that the prosperity of Confucianism depended on the self-cultivation of its morals and virtues through education. Which is why Confucius believed education is the development of the whole person and should not be offered solely based on an individual's social status (Chao, 1971; Ng, 2009).

Confucianism describes that through education, virtues are developed, and individuals are transformed into moral beings (Bahtilla & Xu, 2021; Ng, 2009).

Humanity (Ren). Confucius was a true humanist, and his ideas reflected the social needs of the Chinese culture (Havens, 2013; Kelen, 1974). One idea that permeates the entire philosophical system of Confucianism is humanity (*Ren*). This is the ‘ultimate goal’ of the three main virtues discussed here. It is considered the only virtue that can exist alone within a social construct and is consistent across all cultures (Havens, 2013; Yao, 2000). *Ren* is the totality of morals and the summation of ethics through consideration, sympathy, and compassion for others (Sun, 2004; Taguchi, 2018). Through ethical treatment of others, Confucianists believe that an individual’s moral character leads to more virtuous behaviors, such as respect, altruism, and humility (Rosker, 2023). Confucius believed in man’s proclivity to be a good and humane person, but this needs to be cultivated through education (Confucius, 1963). Humanity is highly valued in Confucian culture. Confucius contends that “the common people need *ren* more than water and fire” (15.35).

Confucianism’s ideal of humanity encompasses the internal self through cultivating cognitive, aesthetic, and moral responsiveness that goes beyond outward behaviors (Tan, 2018). These inward and outward displays of emotion can be difficult to translate among Confucians. Confucian society is expected to exhibit outward calmness and maintain control over undesirable emotions, such as jealousy, anger, hostility, aggression, and self-pity. “Openly expressing one’s emotions is considered inappropriate and unwanted” (Park & Chi, 1999, p. 4). In a paper published by Seok (2021) on “Emotions in Early Chinese Philosophy,” the author describes the differences in philosophy and psychology of emotions between Western and Chinese cultures. According to Seok, in Western culture, one’s emotions are often

juxtaposed with their actions, and Westerners can express “strong desires or passions that can conflict with rational reasoning and reflective thinking” (sect. 1.1). Whereas, in Chinese cultures emotions are characterized as irrational and they challenge rational thinking (sect. 1.2).

Confucianism emphasizes the importance of education in developing a virtuous character. It emphasizes that without humanity and morals knowledge cannot be achieved. Confucius thought that gaining knowledge without also acquiring moral judgment was dangerous (Sun, 2004). Confucius believed that individuals could begin to develop an all-encompassing sense of virtue through Ren and that the most basic step to fostering Ren was expressed through our relationships. Of these relationships, the filial relation is most important (Park & Chi, 1999).

Filial Piety (Xiao). Filial piety is an important theme in Confucianism (Guo et al., 2022; Laidlaw et al., 2010; Wang, et al., 2009). There are five social relationships that are important to Confucianism: parent–child, husband–wife, older sibling–younger sibling, friend–friend, and ruler–subject (Greenholtz, 2003; King et al., 2015; Park & Chi, 1999; Rosker, 2023). According to Wang and Song (2010), there is an allegiance and obligation to parents and children are expected to respect and care for them throughout their lives. “Filial piety is how a person treats their parents and elders” (Havens, 2013, p. 36). Confucianism places a strong emphasis on respect for elders and the family unit, which is based on the idea that every member has a defined set of roles and mutual obligations (Havens, 2013; Park & Chi, 1999). Wang et al. (2009) contend that for East Asians, Confucian family values shape and influence their children’s psychological traits, including their values, beliefs, attitudes, and behaviors. In a study by Guo and colleagues (2022), 651 adolescents were given standardized academic

achievement tests in reading and mathematics along with a questionnaire. The parents also completed questionnaires individually at home. Guo et al. measured students' filial piety by the Dual Filial Piety Scale-Chinese version and determined that there is a correlation "between filial piety and academic achievement and subjective wellbeing" (p. 6). When adolescents show love and gratitude for their parents, they are more likely to take the initiative in learning and be more autonomous. Which contributes to better academic achievements. These adolescents also have a positive relationship with their parents (Guo et al., 2022). This study is important to CHCs because childhood and the relationship with one's family are the first roles a person has in life (Havens, 2013). Wang and colleagues (2010) state that filial piety plays a key role in determining intergenerational relationships among CHCs. Therefore, it is believed that "strong social relationships are essential and expected to last a lifetime" (Jeyabalasingam, 2011, p. 32).

In Confucianism, social relationships are both hierarchical and reciprocal, where all individuals are interconnected (Kim, 1997). Bedford and Yeh (2021) define two culturally sensitive parent-child interactions or motivations that are a part of Confucian daily lives. The authors note that earlier research on filial piety has made the mistake of viewing it as "a static set of beliefs or attitudes and practices anchored in traditional norms" (p. 2). In fact, there are two distinct schemas for child-parent interactions. First, Reciprocal filial piety expresses true affection and gratitude for the parents' daily sacrifices. Children who develop this type of interaction with their parents tend to respect and support their parents more as they age. Bedford and Yeh state that the second schema is Authoritarian filial piety, which demands obedience to authority and the fulfillment of the child's obligations. In this schema, children honor and comply with their parents' requests even when they disagree with them. Rebellious

against one's parents is unacceptable in CHC and results in harsh consequences. In traditional Chinese society being "unfilial" was considered a crime!

Confucianism asserts that the key to achieving a well-balanced life lies in how we treat others. We should not limit our kindness to only our family, but should respect our lineage, leaders, parents, spouses, neighbors, and friends. These relationships are a crucial aspect of developing moral character and fostering harmony. In Yook's (2013) text he explains how the strong filial piety mindset is fading among the younger generations, which causes a clash in beliefs as some parents are living by the traditional Confucianism mindset, which expects respect and obedience from their children.

Impacts of Confucian Heritage Culture on Education

Asian sojourners traveling to the U.S. to pursue a graduate degree bring with them extensive knowledge. Their educational backgrounds are often rigorous, competitive, and deeply rooted in Confucianism. To fully understand their experiences and perceptions on performing animal research in the U.S., one must first understand the role their culture has in their learning. In this section, I examine the structure of CHC's educational system and common traits of CHC students. Then I compare my findings to challenges faced by CHC students pursuing a degree in Western higher education.

The history of CHC's education system is deeply rooted in Confucianism (Li, 2016; Sun, 2013; Tan, 2017, 2018; Walton, 2023). These countries share the common tenets from Confucius's teachings and learning practices (Bhandari & Lefebure, 2015). The overarching idea of Confucianism is to educate people to be 'good humans' (Lam & Truong, 2014). This idea aligns closely with Confucius, who believed that human nature's propensity to be good and live in harmony needed to be cultivated through education (Ng, 2009; Wan, 1980). By the

early twentieth century, the structure of CHC's educational system had been modernized (Bhandari & Lefebure, 2015; Education NC, 1989), with the notable exception of Japan, which had undergone accelerated modernization during the 1860s to the 1880s (Bhandari & Lefebure, 2015).

John Dewey, a 20th-century philosopher of education, is renowned worldwide for his progressive educational movement (Pring, 2007). As a visiting professor in the early 1900s, Dewey spent two years in China (1919-1921) delivering lectures at universities and colleges that had a lasting impact on China's educational reform (Dewey, 1903; Huajun, 2019; Wang, 2019). During that same period, many Chinese intellectuals were dissatisfied with the current political and economic circumstances, and they “admired the democracy and industrial development of Western countries” (Hoyt, 2006, p. 12). According to Wang (2019), Dewey offered a pragmatic approach to education that China was seeking at the time. After Dewey's stay in China, he published *Democracy in Education* (1903). In his article, he stated that the efforts in China at the end of the late 1800s were successful in building up the mindset for democracy, but what was still needed was to allow and encourage individuals to *enter* this mindset. By 1924, Dewey's influence in China had declined significantly (Hoyt, 2006; Wang, 2019).

During this modernization of the educational system, Confucius's values and teachings evolved into a uniform educational system across CHC countries (Education NC, 1989; Marginson, 2011). This now uniformed educational system shared some commonalities but also had very distinct differences among the countries that made-up Confucius culture. Li (2016) states that during the reform, the East Asian educational system watched as the newly united countries attempted to ‘Westernize’ their systems, curricula, and pedagogies. Li

continues by explaining that the great undertaking to modernize CHC learning was in response to criticisms from both outsiders and CHC leaders. Criticisms stemmed from the thought that traditional learning was outdated because it practiced rote learning for exams; encouraged students to be passive; and was teacher-centered, while Western learning emphasized “critical thinking, autonomy, creativity, and self-expression” (Li, 2016, p. 38).

In a literature review of education in various Confucian contexts, Schenck (2015) noted that CHC countries share deeply ingrained ideas of Confucianism, and many of these key aspects have spread throughout all of East Asia. He adds that the degree to which these cultures integrate Confucianism into *their* educational systems all depends on the individual country. China is a primary example because it is one of the largest Asian nation-states and comprises one-fifth of the world's population; it has over 56 different ethnic groups residing within its borders alone (Park & Chi, 1999; Tang & He, 2010). Confucius’s teachings have had a great impact on China’s diverse ethnic culture and educational system (Leung, 1998). According to Park and Chi (1999), “most Chinese believe in Confucianism, which has a great deal of influence in China as well as in other parts of Asia” (p.3). The history of China’s educational system has been well studied, but far less research has been conducted on the modern Chinese educational system (Bahtilla & Xu, 2021). Today in modern China, Confucianism plays a significant role in both learning and teaching (Wan et al., 2018). Confucianism is not only a dominant social aspect in China but also in other CHC countries such as South Korea, Singapore, and Vietnam; however, Confucianism is not as greatly revered in Japan (Clark, 2014; Ng, 2009; Min, 2012; Teon, 2016).

The Confucian educational system has been modernized to some degree, but it also retained some of its ‘traditional’ characteristics. Marginson (2011) describes how the current

or ‘modern’ Confucian that influences educational systems in CHCs has four key interrelated features, a strong nation-state policy driver with close supervision and control; rapid growth of tertiary participation with households funding tuition costs rather than the state; a ‘one chance’ national exam which focuses social competition and family investments; and increasing investment in research science along with leading research universities. Lastly, the ‘new’ Confucian educational systems are characterized by rapid growth in educational participation with accelerated research quantity and the improvement of leading research institutions (Marginson, 2011).

Despite being one of the major cultures in an ever-changing world, “Confucianism has remained relatively stable” (Leung, 1998, p. 25). This is attributed to the family’s role in perpetuating Confucianism within the educational system and its role in shaping the character and social responsibility of its students (Leung, 1998; Ng, 2009). The CHC educational systems have retained some key characteristics that need further examination: rote Learning, hierarchical relationships, collectivism, and filial piety.

Rote Learning. CHC is associated with rote learning or being superficial learners who tend to rely more on memorization for learning than their Western counterparts do (Ho, 2020; Kember, 2016; Tran, 2012). A significant amount of research has explored CHC learners with the notion that they use a repetitive or rote learning style (Kember, 2016; Li, 2016; Wang, 2013). Rote learning is a technique based on memorization of facts through repetition; its learners are thought to have little to no understanding of the content (Tan, 2015). The West views rote learning as an undesirable approach, which, when employed by Western students, has been associated with unfavorable learning outcomes (Fong & Yuen, 2016; Kember, 2016).

In a study by Li, Burke, and Plunkett (2022) the researchers sought to investigate whether Chinese international students are deep or surface learners. Their study compared the experiences and perceptions of Chinese international students (CIS) and Australian domestic students (ADS) regarding learning in Australian universities. They used the Biggs and colleagues (2001) 3P model, which claims that student learning is “influenced by their characteristics, learning environment, and learning outcomes” (p. 153). After data were collected and analyzed from 147 participants, the authors found that “rather than relying heavily on surface approaches, CIS demonstrated the use of a combination of surface and deep approaches, suggesting that their approach is more rounded than current literature suggests” (p. 163).

Additionally, research confirms that despite CHC students utilizing rote learning techniques, they still performed well in a variety of tests administered to them (Li, 2016). This inconsistency has become known as the ‘paradox of the Chinese learner’ (Kember, 2000, 2016; Li & Wegerif, 2014; Watkins & Biggs, 1996). In 2012, the Program of International Student Assessment (PISA) was administered to 15-year-olds in 57 Asian countries and regions, determining that the ‘paradox of the Chinese learner’ is prominent among most CHC students (Kember, 2016; Li & Wegerif, 2014). Even though researchers have proved that CHC students are practicing rote learning techniques and still excel in retaining knowledge, many researchers continue to call rote methods foolish and mindless memorization, students acting like tape recorders, and students engaging in plagiarism (Li & Cutting, 2011; Zhang & Chan, 2021).

Confucianism clearly differs from several aspects of Western thinking and its educational system, but did these different methods originate with Confucius? There is debate

among scholars over whether modern educational teaching methods within the classroom of CHCs stemmed from Confucianism. One subject of debate is rote learning and the ability to be reflective. Compared to Western learning methods, which encourage students to engage in debate to actively acquire knowledge, CHC students are portrayed by some scholars as being weak in analytical and reflective skills, and as being unable to think independently or logically (Tan, 2015; Wang, 2013). These same scholars attribute this perceived weakness to Confucianism. However, there are scholars who do not believe that the rote memorization methods stem from Confucius's teachings (Dennehy, 2015). Li and Wegerif (2014) argue that Confucian culture is not solely responsible for promoting rote learning, and based on the *Analects*, Confucius's teaching methods actually encouraged critical thinking. Confucius focused on "thinking in the context of relationships and responsibility rather than thinking as an individual achievement" (p. 22). Bahtilla and Xu (2021) argue that Confucius did not encourage his students to memorize material, but instead encouraged them to be engaged, motivated, and take ownership of their learning through critical thinking. According to Tan (2015), Confucius advocated for a firm foundation of learning through critical reflection. Confucius did not encourage rote memorization, but he did recommend memorization with understanding, because he felt it allows students to see big picture goals and understand their subjects (Ark, 2013).

Hierarchical Relationships. Confucianism is an all-pervasive aspect of CHC's educational system that permeates all relationships (Muench et al., 2022; Schenck, 2015). Yook (2013) states that relationships in the educational system are often hierarchical between teacher and student in these CHC countries. Chen, Liang, and Tan (2021) state that "teacher authority refers to the power that is recognized by students," and students are expected to obey

their teachers (p. 50). The typical CHC classroom is ‘teacher-centered’ with the expectation that teachers hold all the wisdom and must be respected (Tran, 2012). However, according to Rosker (2023), in Confucianism, hierarchical relationships do not always mean that there is clearly one subordinate party, and these relationships “oblige the ruler to be just and responsible towards his subjects” (p. 2).

In traditional Confucian countries, teachers are expected to provide moral guidance for students, as well as discipline students when necessary (Yook, 2013). However, this relationship does not permeate through all CHC countries. For instance, Singaporean students view their teachers as friends, whereas in China, Japan, and Vietnam, teachers are highly respected and hold a high position in the eyes of students (Mizutani, 2020). An empirical study by Huang and Asghar (2016, 2018) found that many Taiwanese teachers struggle between the traditional Confucian values and teaching methods and the new reform-based approaches that focus on student-centered and inquiry-based teaching. These teachers feel that the ‘new’ ways of teaching are insufficient for preparing their students for national exams.

Collectivism vs Individualism. Cultural traditions influence all aspects of the relationships between individuals and society (Ng, 2009). Wu and Xiong (2021) define collectivism as “an ideological theory that advocates that individuals are subordinate to society and that individual interests should be subordinate to the interests of the group, nation, and the country” (p. 2807). Confucian heritage cultures have been documented to share characteristics of a collectivist society, as they are deeply embedded in a group identity (Kawamura, 2012; Phuong-Mai et al., 2005). As CHC sojourners come to the U.S., they often bring with them a collectivist view of learning (O’Dwyer, 2019). That fundamental notion guided the behaviors

of CHC students at home and sometimes conflicted with their new higher education learning environment in the U.S. (Ching et al., 2017).

Researchers across various disciplines have suggested that Asian international students, including CHC students, should be taught using a method that closely resembles the way they are accustomed to learning in their home country. However, when these CHC students come to the U.S., they are taught using common Western methods, which include student-centered learning, teamwork, and cooperative learning. Thanh and colleagues (2008) conducted empirical research examining the effects of *Cooperative Learning (CL) strategies on the academic achievements of Asian students*. The authors state that Asian educational institutions are under pressure to reform the educational system to compete with Western learning approaches. Their current research concludes that CL failed among Asian students because of the mismatch between the principles of CL and the Asian belief system. “The students were accustomed to learning passively from teachers, taking notes, and preparing for tests and examinations” (Thanh et al., 2008, p. 84), and not learning in groups and gathering their own information through research.

Subramaniam (2008) builds on the concept that Asian students prefer collectivist ways of learning by suggesting that most of these learners “are hesitant to stand out as individuals” and they “rely on teachers to impart knowledge and expect teachers to evaluate their learning” (p. 11). Greenholz (2003) states that in CHCs, the *relationship* is more important than the individual.

Closely related to social harmony and collectivism is the notion of ‘face’. Chen and Hwang (2016) and Ting-Toomey and Kurogi (1998) define face as a sense of one’s worth, dignity, and identity that surrounds their respect, honor, status, and reputation. Face works as a

powerful social force and is found to be particularly important in CHCs (Kim & Nam, 2023). Despite cultural differences, Confucian cultures try to maintain face in various interactions with the public. (Ting-Toomey & Kurogi, 1998). The perception of face is different for those in Asian Confucian-based cultures and U.S. culture. In the U.S., people tend to equate the concept of face with saving one's own face, while in CHCs, face is thought of in terms of 'group face' such as family honor and relational dynamics (Chen & Hwang, 2016; Yook, 2013). This concept is often difficult for Westerners to understand because it is more about how you are viewed by others than your own personal pride and ego.

In 2008, Kawamura states that in most Asian cultures individuals are embedded into a group or a collectivist society where the autonomous self is discouraged. Kawamura continues by saying that students from these cultures do not want to stand out among their peers for fear of humiliation or 'losing face'. The fear of 'loss of face', and feelings of shame is a real concern among these students. Kawamura explains that this fear has made the Western cooperative and individualist style of learning less acceptable to many Asian students. Yeh and Huang (1996) also emphasizes that students from collectivist societies experience 'loss of face' and feel inferior, with shame and guilt for not reaching the goals that were defined by the family or teachers. These feelings can make CHC students very cautious, and they are reluctant to take any initiative in their educational choices.

Saving face does not appear to be a priority for all Asian students, especially the younger generation. Tran (2013) conducted a qualitative study with participants from countries with a CHC. These students all agreed that "maintaining face for teachers does not mean that they have to keep their mouths shut or not confront teachers' opinions" (p. 60). According to Tran, the students did think they had to find ways they could express themselves with respect

for their teachers. All the students felt that the teachers possessed great knowledge and deserved respect. They did not feel they were passive but instead felt they had a balance in individualism and collectivism.

Opposed to the idea that Asian students are all collectivists in the way in which they prefer to learn, Wong (2004) suggests that Asian students do enjoy a student-centered learning style. That is a style that is tailored to each student's individual needs. In a qualitative study by Wong (2004) nine Asian international students from different disciplines, year levels, and countries of origin were interviewed to determine their perceptions of their learning experiences while in the U.S. The study concluded that most of the students preferred a more student-centered or individualist style of learning.

In the textbook, *Asian Perspectives on Psychology*, Kim (1997) wrote a chapter titled *Asian Collectivism: An Indigenous Perspective*. He compares individualism and collectivism among the Asian population (Confucianism) as compared to the West (Liberalism). He describes how Confucianism has played and continues to play a major role in East Asian education by promoting collectivism in society. "In modern East Asia (China, Japan, and Korea), liberal ideals have penetrated these societies to compete with Confucian philosophy (p. 154). These Western beliefs are then propagated through the socialization of Asian children. Kim describes the independent person as one who emphasizes internal attributes, has boundaries that define the self from others, and achieves self-fulfillment through freedom of choice. In contrast, he describes the interdependent person as sociocentric, holistic, collective, allocentric, and relational. He concludes by stating that if we are to teach CHC students in the U.S., then both independent and interdependent individuals must find a way to work together, and that this process begins with equality and equity.

Although collectivism is significant from a historical point of view, in the modern world it is not focused on as much as it used to be. “It has been noted that although the ‘Confucian values’ of collectivism and conformity are often stressed, individualized learning strategies are favored by many Chinese students” (Wang, 2013, p. 62). Biggs (1996) adds that Chinese students do engage in one-to-one interaction with the teacher and peer discussions outside the classroom regularly. Shuai, Shuyue, and Hailiang (2015) state that even though many research studies suggest that Asians are collectivists while Westerners are individualists, it is important to point out that there is “growing evidence that challenges this stereotypic notion” (p. 23). In their article Individualism and collectivism transition in Chinese college students: Evidence from after 70s, 80s, and 90s, the researchers examined empirical evidence as well as conducted a study with interviews and distributed questionnaires to college students who attended college after the 70s, 80s, and 90s. They collected 48 questionnaires from after the 1970s, 45 from after the 1980s, and 56 from after the 1990s. Then they followed up with these individuals through in-depth interviews. They define a major turning point in collectivism versus individualism among Asian students as the reform in 1978, which allowed for the Western ways of individualism to infiltrate the Chinese culture. Thus, creating a “Chinese style” of individualism (p. 24). At the end of the study, the authors found that overall Asians do still rely on their family and friends, but while in their social or work environments they lacked collectivism. In particular, the individuals who attended college after the 70s “inherited the patriotism from the older generation”, while the individuals who attended college after the 80s were “opening up” and expanding their ways of thinking and beliefs. Finally, the individuals who attended college after the 90s are “growing up in the information age” and are more open-minded with “a strong sense of independence and good performance

of self-awareness” (p. 29).

Kim (1994) describes individualism as having three primary features. First, it places an emphasis on autonomy. Second, it allows individuals to separate themselves from certain relationships. Third, individualism relies on conceptual rules and norms to guide individuals’ thoughts, feelings, and actions. In Kim’s (1997) section on Individualism and collectivism, he describes how the increase of individualism in the West is closely tied to the development of science (p. 149). He continues to say that in traditional Asian countries, they upheld collectivism as a moral and philosophical basis for social order. In modern East Asian countries, “liberal ideals have penetrated these societies to compete with Confucian philosophy” (p. 154).

Renzhi and colleagues (2013) conducted a study to determine whether the Chinese version of the Individualism and Collectivism Scale (ICS-C) is a reliable measure of individualism and collectivism among 1,760 Chinese students, aged 14 to 23 years. The researchers examined age and gender-related differences in individualism and collectivism as assessed by the ICS-C. They were able to verify that the scale could be used to determine the age differences among the students as they correlate to individualism and collectivism. Their findings showed that individualism in Chinese culture is increasing with the younger generation. Stating that the younger generations of learners are becoming “progressively more aware of societal appeals on individualism” (p. 6).

Although a pattern emerges showing that younger Asian generations are moving toward individualism, it does not mean that this is the best move for everyone. Zhang and Han (2021) stated that a connection exists between collectivism and strong social support, which is not found in individualism. Instead, individualism is associated with a higher level of

depression because individuals tend to reflect on their differences, which can make them feel isolated in a new country. Wang (2013) propose that it is acceptable to assume that collectivism and individualism are changing due to China's rapid shift towards modernization, urbanization, and globalization. This changing trend can be found in all aspects of the lives of individuals from a CHC.

Academic Challenges for CHC Students in the West

According to the Institute of International Education (IIE, 2023), 90,800 international scholars engaged in research and teaching activities at U.S. colleges and universities in the 2021/22 academic year. This is an overall increase of 6% from 2020 to 2021 (IIE, 2023). The Open Doors report for 2022 confirms that out of the top ten countries that send international students to the U.S., four (China, South Korea, Taiwan, and Japan) are Confucian Heritage Culture (CHC) countries. Despite a 26% decline over the past 3 years, China still sends more international scholars to the U.S. than any other country (IIE, 2023). Even with CHC students' eagerness to study in the U.S., they face a myriad of challenges upon arrival (Gautam et al., 2016). The search for literature on the academic and social challenges faced by international students in U.S. colleges and universities yielded numerous results. Chinese students were studied far more extensively than those from any other Confucian culture. Most of that literature focused on undergraduate students, with only a small number of studies focusing on graduate students, even smaller yet were the number of studies that focused on CHC student's academic and social challenges (Lin & Shertz, 2014; Rodriguez et al., 2019; Tan & Weidman, 2013; Wu & Hammond, 2011). Overall, the literature does confirm that both undergraduate and graduate CHC students face very similar challenges, which include language barriers (Gautam et al., 2016; Rodriguez et al., 2019; Wu & Hammond, 2011), challenges around cultivating critical

thinking skills (Tran, 2013; Yuan, 2022; Zhang & Chan, 2021), collectivism versus individualism (Phuong-Mai et al., 2005; Shuai et al., 2015; Thanh et al., 2008; Yuan, 2022), and understanding new academic expectations (Tan & Yates, 2011; Wu & Hammond, 2011; Yaun, 2022).

Research shows that Asian sojourners experience more language and academic challenges in the U.S., than other international students (Ching et al., 2017; Rodriguez et al., 2019; Yaun, 2022). In a study by Sato and Hodge (2009) the authors argue that “there is a void of studies on Asian students’ experiences” (p. 137), despite the numerous graduate programs in the U.S. In their study, the authors sought to understand how Asian sojourners interpret their graduate school experiences. The researchers interviewed three male and three female students from CHC countries, asking them various questions about their experiences while enrolled in their masters program. The recurrent themes in Sato and Hodge’s study resembled those in other research examining the challenges faced by CHC students in U.S. academia. They included stress associated with language differences, academic challenges, trouble forming interpersonal relationships, and conflicts with emerging self-awareness. The participants’ language challenges were not due to language learning deficits, but instead to language differences such as idioms and accents. Academically, most participants struggled with reading and writing assignments, as well as time management. They had difficulty rendering their thoughts onto paper by the assignment due date. Their ability to form relationships varies. Several students were able to make strong connections with others on campus, while some participants could not form that close relationship during their sojourn. Lastly, Sato and Hodge considered the participants’ construction of ‘emerging self-awareness’ as a major theme. Each participant described how they gained a deeper understanding of their identity and Asian culture, values, and beliefs while developing an overall appreciation for their heritage. As demonstrated in Sato and Hodge’s study,

academic challenges are prevalent among newly arriving international students. These challenges can be both psychological and physical. Language is a primary example of a challenge that has both psychological and physical implications for international sojourners.

Language Barriers

“The English language is both a bridge and a barrier for international students” (Cloate, 2016, p. 1). This quote by Cloate adequately summarizes that the English language can successfully connect different cultures by creating a bridge between them, while at the same time acting as a roadblock for communication between international students and their U.S. hosts.

Language proficiency has long been a concern for many international students who come to the U.S. to continue their education in colleges and universities. For CHC students, English language proficiency plays an essential role in their successful transition and integration into the U.S. higher education system. As CHC students arrive in the U.S., they are initially met with language barriers in both the community and the classroom. In a 15-month longitudinal case study, Wu and Hammond (2011) utilized mixed methods (surveys, interviews, and observations) to explore the impact of language proficiency on CHC students’ academic performance. A questionnaire was given to 40 students at three different time points during the year. Only eight students (four male and four female) from five regions (mainland China, Taiwan, Thailand, South Korea, and Japan) were selected as interview participants. Wu and Hammond’s study highlighted that the everyday use of English was much more varied for CHC students than was expected based on their pre-session courses in their home countries. These courses helped CHC students build a general linguistic foundation and enabled them to pass standardized tests, like the TOEFL (Test of English as a Foreign Language) or the GRE (Graduate Record Examination) but had not adequately prepared them for English speaking and writing within the U.S. class

setting (Gautam et al., 2016; Martirosyan et al., 2015; Yaun, 2022). The participants in Wu and Hammond's study explained how "first-language users spoke more quickly, sometimes using colloquialisms and non-standard accents" (p. 430). Many participants described struggling to follow lectures and keep up with their writing assignments.

The impact of language proficiency and academic comprehension for CHC graduate students continued to be highlighted in a later study by Lin and Sherz (2014). Their qualitative, phenomenological study identified academic-related linguistic challenges experienced by CHC graduate students at a northwestern university. The study results not only strengthened the overarching themes but also added complementary insights and experiences from the participants. The participants of Lin and Sherz's study described how learning the English language often placed substantial stress on them while trying to comprehend lectures. The students expressed that this was especially true, "when professors speak fast or use slang or idioms with which students are not familiar" (p. 22). The participants also found it difficult to join in classroom discussions because they felt inadequate at expressing what they truly felt and wanted to say. These language barriers are further exploited by the fact that their host instructors are not adequately equipped to support the different levels of English language proficiency in their classrooms. At the end of their study, Lin and Scherz provide recommendations to improve communication with international students as well as support their learning in the classroom. "Instructors should carefully select reading materials, design appropriate course assignments and assessments, and use a variety of resources (e.g., visuals, texts, audios, videos) to support student learning in the classroom" (p. 27).

Language proficiency is central not only to the academic success of CHC students but also to their social adjustment in the U.S. (Andrade, 2006; Wu & Hammond, 2011). In the

second arm of Lin and Sherz's (2014) study, they focused on the social challenges experienced by CHC graduate students as these sojourners attempt to integrate into their host culture. The participants expressed that they often felt anxiety and a lack of confidence in speaking while in social settings. They continued to describe how trying to develop friendships with the host students was difficult and very stressful. Lin and Sherz discovered that one contributing factor to their anxiety and stress in social settings was that Asian international graduate students often base their social relationship expectations on *their home cultures*. The authors concluded that is why Asian international graduate students were often considerably let down by their social interactions in the U.S.

In a broader study, Gautam, Lowery, Mays, and Durant (2016) demonstrate how language proficiency has an impact on international students' social adaptation while in the U.S. In their qualitative study, in-depth interviews were conducted with six international students at a university in the southern region of the U.S. The participants represented a wide variety of cultural backgrounds and included three graduates and three undergraduate students. Language difficulties were one of the emergent themes that affected each participant. Gautam and colleagues (2016) point out that international students have a harder time establishing close connections because of their differences in social interactions, which left many international students feeling lonely and isolated in their new host environment. Other scholars who focus on international student challenges also noted that the lack of proficiency in speaking the native language of the host culture can leave students feeling alienated and deprived of social engagements (Perry, 2016; Rodriguez et al., 2019). Martirosyan (2015) adds to this idea by stating that one contributing factor to CHC students feeling isolated is their lack of confidence in

their English language speaking and comprehension skills, as well as having difficulties with reading and writing in English.

More recently, a qualitative case study by Rodriguez, Chavez, and Klauber (2019) focused specifically on seven international graduate students enrolled at a large, public, research university in the southern U.S. The study's aim was to understand the challenges they experienced in adapting. The participants were interviewed, and, as the literature and previous research predicted, they too identified a major barrier in both their academic and social settings: a lack of English language proficiency. The researchers pointed out, "An interesting finding was that Asian international students seem to have greater difficulty making friends with locals compared to their European peers" (p. 52). The authors contributed this to discrimination, stating that discrimination often manifests in the form of feelings of inferiority and have a detrimental impact on international students' psychological well-being.

In an essay by Fang, Guo, and Yu (2022) the authors state that East Asian students are most hindered by the English language barrier. They continue by saying that these students found it difficult to comprehend and keep up with their professors because they not only spoke fast, but they also spoke in a different manner. Often, to avoid embarrassment, many Asian international students use a 'silent strategy' rather than participating in class conversations. Wu (2018, 2023) thinks that many Asian international students sometimes remain silent in the classroom because they are unfamiliar with contextual knowledge and have a fear of embarrassment or 'losing face'. Fang and colleagues (2022) state that this 'silent strategy' has been unsuccessful and only leads to discrimination by their peers. Instead, the authors suggest that Asian international students should learn more about their host countries' cultures and speaking habits to help them integrate upon arrival.

According to Ching and colleagues (2017), social isolation may also be a result of the language barrier that international students face in U.S. colleges and universities. For example, newly sojourner students can have emotional challenges related to stress and loneliness (Giovenco et al., 2022). Gautam and colleagues (2016), Rodríguez, Chavez, and Klauber (2019), and Giovenco and colleagues (2022) confirm that research has shown that CHC students' lack of a familiar environment, close friends, and a social network create a sense of loneliness and isolation. Perry adds that in his literature review *Comparing international and American students' challenges* (2016) he discovered that many international students felt 'left out' and preferred to make friends with others from their own nationality or a similar background. Lin and Scherz (2014) also discovered that the Asian graduate students whom they interviewed felt excluded because they had not formed social connections while on campus. Gautam Rodríguez, Chavez, and Klauber (2016) expressed, wanting to socialize with others who share similar interests is not uncommon among Asian international students. However, even with similar interests, some Asian students still have difficulties making social connections in the U.S. He concludes this is because the Western culture emphasizes individualism, assertiveness, and self-sufficiency, while Asian students come from an interdependent environment that relies on collectivism and already established family groups. In a 2022 study by Giovenco and colleagues, 7,012 students from the University of North Carolina at Chapel Hill were surveyed to the degree to which they were self-isolating and manifesting feelings of depression or loneliness around isolation. The results concluded that self-isolation varied by demographic and student characteristics. Of the 1,016 Asian graduate or professional students in the study, 79% self-isolated, and 66% of those Asian graduate students who self-isolated had increased depression or loneliness.

Additionally, some international students attributed their limited social connections and interactions to the fact that they had to devote more time to their academic studies than their U.S. peers (Rodriguez et al., 2019). As previously mentioned, Asian students from Confucian cultures tend to exhibit strong relational traits associated with collectivism, whereas students from the U.S. tend to exhibit strong individualist characteristics (Ching et al., 2017; Kim, 1997; Mei-Ching Ng, 2009). When CHC sojourners travel to the U.S. to obtain a degree, they are often faced with having to learn in the western individualist environment. By participating in class activities, CHC students can adapt to the Western teaching model more quickly (Girardelli, 2016; Zhang et al., 2022). Yaun (2022) describes how many Asian sojourners feel that U.S. teachers highlight working in groups or teams too frequently. In a study by Tang (1999) questionnaires were distributed to 114 Chinese students and 195 U.S. students, and the results confirmed that U.S. students have a higher tendency toward cooperation and group activities than competition, while Asian students displayed the opposite tendencies. They have a higher propensity towards competition than cooperation. Tang stating that this strong variation may be a result of Asian students having to compete against their fellow peers for admission into higher education in their home countries (Tang, 1999). Starting in junior high or earlier, students in CHC countries face rigorous selection of the best students for access to the top universities and careers (Dashdorj, n.d.).

Critical Thinking Skills

Critical thinking is considered an essential goal of higher education in the U.S. (Annis & Annis, 1979; Facione, 1992; Lucas, 2019; O'Sullivan & Guo, 2010; Yan, 2022). Using critical thinking while seeking a degree in higher education is such an invaluable skill that it has become marketable (Egege & Kutieleh, 2004). However, studies show that cultivating critical thinking

skills is a common challenge for students from CHC countries. In a paper by Wu (2023) the author states there is limited information on the frequently used perspective that Asian international students do not articulate their thoughts well in their host country. Wu adds that this issue and perspective need to be closely examined further. Wu (2023) and Yaun (2022) stress that the Confucian learning environment is test-oriented, with instructors focusing more on test preparation and memorization of content, rather than critical thinking skills, “If the students spend time on self-reflective thinking rather than memorizing, they will end up with limited time to prepare for the exams” (Yaun, 2022, p. 314). CHC countries contend that innovation is not prioritized over acquiring knowledge, but that it must be gained through respect and conformity with the culture (Wu, 2023). In several studies on critical thinking, CHC students state that they were sometimes afraid to question their teachers because it is considered extremely disrespectful in their home countries (Wu, 2020, 2023; Yaun, 2022).

Yan (2022) conducted a comparative analysis between seven Chinese international students and five U.S. students in a large public university in the U.S. Her study indicated that Chinese and U.S. students experience critical thinking differently. She suspects this is partly because Chinese students consider themselves outsiders and are learning critical thinking skills for the first time, whereas U.S. students practice critical thinking daily. Schenck (2015) contends that to promote critical thinking skills among international CHC students, innovative training strategies must be utilized that complement the rigid Confucian social structure they were taught in while in their home countries.

New Academic Expectations

The transition into graduate school is difficult for anyone and as international students enter graduate programs in a new host country these challenges are often heightened (Wu &

Hammond, 2011). Cultural challenges due to cultural differences do not occur in isolation and are interconnected for international sojourners. Culture appears to be at the center of most academic and social challenges faced by international students. Their cultural identities can be contested due to differences in their understanding of their host culture (Forbes-Mewette & Nyland, 2008; Newsome & Cooper, 2016). Language proficiency along with comprehension, syntax, and context, are all important parts of understanding culture (Harsch, 2017). With the lack of social connections, networking, and a stable socially constructed learning environment, several challenges stem from language comprehension for international students studying in the U.S. (Schumann, 1986). Additionally, there is often a failure to meet academic goals, an inability to comprehend some directions and assignments that require the use of critical thinking skills, and an increase in psychological stress and self-isolation (Brown & Holloway, 2008; Schumann, 1986).

Academic Research Expectations

With all these already known challenges around language, CHC students also encounter the new challenge of learning ‘research’ language. A requirement of graduate programs in the U.S. is that students must perform research (U.S. Department of Education, 2020). There are certainly varying types of research that must be performed depending on the student’s academic program and goals; however, the research community has a culture that is all its own. The rules and guidelines are different, the terminology and language used are different, the academic expectations are different, and the overall environment is one of prestige and determination. Performing research lends an entirely new layer of difficulty for CHC sojourners’ adaptation to academic life while in the U.S.

Academic research can involve conducting extensive research and then documenting your findings by writing papers or journal articles. You may then need to present your findings orally or in poster presentations. The cultural shift from a general academic student to researcher requires dedication and commitment due to the numerous new social nuances that must be acquired in the host environment. One research culture expectation is that studies need to be written up and shared or published. CHC students may feel threatened by this new academic challenge, especially when “there are large volumes of research information and materials” that require in-depth analysis (Kelly & Moogan, 2012, p. 28; Oberg, 1960; Yook, 2013). Inadequate language proficiency can cause CHC students to lack self-confidence, motivation, and the ability to communicate openly and effectively while sharing their ideas in a group setting. This can decrease their success as new academic researchers in the U.S. Adequate language proficiency is necessary to facilitate understanding of a new set of oversight regulations governing their experiments. Rodriguez, Chavez, and Klauber (2019) state that language proficiency can also impact assignment quality, comprehension of classroom lectures, and the ability to successfully complete oral and written exams. Rodriguez and colleagues (2019), along with O’Dwyer (2016) and Wette (2020), states that language proficiency is needed for Asian students to learn how to properly write research papers without plagiarizing. O’Dwyer (2016) state that research shows, that Asian students do not have the same academic requirements in their home countries for citing other’s work and that they [Asians] are known as having “tendencies to plagiarize” (p. 11). For these reasons, CHC students performing research could benefit greatly from having additional resources available to them that facilitated their verbal and written research skills.

Gastel and Day (2022) share that when publishing scientific research, English and a standard Western format are the norm around the world. Learning to write academic papers while

in college is a skill that does not come easily. It takes a lot of practice and dedication to be able to articulate your thoughts from the other side of a pen. This becomes especially hard for English as a second language students. According to Wette (2020), although several academic disciplines share similar attributes, each one is “a complex, dynamic, and heterogeneous entity” (p. 105). In science research, each discipline “differs in the way research and scholarship are conceived, conducted and reported” (Wette, 2020, p. 116). Researchers argue that specific disciplines require specific language, including the specific terminology that drives the understanding of the concepts within that discipline (Wette, 2020). For example, in animal research, terms like ‘husbandry, genotype, and oversight’ are common, yet these terms do not cross all scientific disciplines. Some words may have different meanings among different research disciplines. These literary expectations are often not voiced by professors performing and overseeing research, yet there is the belief that their graduate students will use appropriate scientific language (Gastel and Day, 2022).

As Asian students from CHCs travel to the U.S. to perform animal research while in graduate school, they will face some academic and social challenges. Communicating verbally is key to their social connections while in their host country, and challenges tend to accumulate due to their deficit in English-speaking abilities. Thus, the lack of English proficiency can lead to isolation and loneliness in these sojourners. CHC students come from cultures where it is normal to be with others, whether it is family, friends, or the community. However, while in Western culture, which prides itself on ‘alone time’ and ‘being independent’, there can be social conflicts that lead to isolation, loneliness, and depression. There are many academic differences, such as being expected to be outspoken in the classroom and participating in diverse group work

activities. These differences, along with the challenge of trying to learn the rhetoric of the English language, lead to stress among these CHC students.

Lastly, language is important to CHC students performing research because the graduate research culture requires discipline specific language and skills that are not often taught, but these new researchers are expected to know. The multitude of challenges experienced by CHC sojourners are a direct reflection of cultural differences. So why does one endure it? International students travel for the opportunity to learn while they expand their own culture, beliefs, and values. They often want to build a social network, gain confidence, and gain broader insights into their chosen field of study.

Animal Welfare

Society has expressed a growing interest in how we treat animals or Animal Welfare (AW), both nationally and internationally (Hewson, 2003). However, AW is a nebulous concept that is sometimes interchanged with terms such as an animal's 'well-being' or 'quality of life' (Bayne & Turner, 2019). Animal welfare applies to any animal in every situation. Animals raised for food or fiber, pet animals, zoo animals, wildlife, and research animals all deserve consideration for their well-being. Within the last few decades, AW concepts have gained a broader outlook and now consider "the perspective of the animal, rather than just the animal's value to humans" (Kipperman, 2015, p. 502). In developing thorough interpretations of AW, many scholars and organizations started by asking the questions, "*what does it mean?*" and "*How is it measured?*". After reflecting on these questions, the interested parties created an array of definitions for AW. The American Veterinary Medical Association (AVMA) describes AW as "how an animal is coping with the conditions in which it lives" (para. 1); while the World Organization for Animal Health (WOAH) states "animal welfare is a complex and multi-faceted"

(para. 1). AW is multi-dimensional with “scientific, ethical, economic, cultural, social, religious and political dimensions” (WOAH, n.d., para. 1). With its diversity, AW has gained enough recognition that it has become globalized.

Similarly, Brown and Winnicker (2015) define AW as “a measurable state in an animal which may be related to the adequacy of an animal's ability to cope with the environment” (p. 1653). While Fine and Weaver (2018) focused on our human responsibility to animals used for research in their definition stating, it is “the relationships people have with animals and the duty they have to assure that the animals under their care are treated humanely and responsibly” (para. 1). The American College of Animal Welfare (ACAW) is an AVMA specialty group with the mission to advance AW through education, certification, and scientific investigation. They adopted their general definition of AW in 2010, and it states, “Animal welfare refers to the state of the animal. Assessment of welfare includes consideration of the animal's health, behavior, and biological function” (ACAW, n.d.; Brown & Winnicker, 2015).

There is variation in AW definitions, therefore, institutions and organizations must try to make sense of all the definitions and then provide appropriate oversight and care to their research animals. This lack of consistency in commonplace definitions is why there are still societal questions as to who will protect the animals and ensure that their needs are met. This question becomes especially important in the context of animals used in research. AW is the foundation for good laboratory animal research. “Welfare is an important consideration of veterinary medicine as a whole, but particularly in the areas of research, teaching, and testing” (Brown & Winnicker, 2015, p. 1655). There are several established regulations and policies that ensure AW among research animals, but husbandry staff and veterinarians are the direct contact providers ensuring AW in daily research. Each research facility in the U.S. is required to have an attending

veterinarian (AV), who has the primary role of overseeing veterinary care (Guide, 2011). The AV is also responsible for providing guidance to investigators (Bayne & Anderson, 2015; Guide, 2011). The veterinary team within animal use facilities must provide care to all animals used for research. “This responsibility extends to monitoring and promoting animal well-being at all times during animal use and during all phases of the animal's life” (Guide, 2011, p. 105). Animal welfare is a multifaceted notion that includes both the physical and mental health of *all* animals.

Research Animals

A research animal is any animal used in any type of experiment that involves the collection and analysis of data for scientific or medical discovery (Hasenau, 2021; Research Animals, n.d.). Research animals include broad groups of animals like wildlife, zoo animals, various aquatic species, reptiles and amphibians, avian species, and an array of small and large domesticated mammals. Worldwide, it is estimated that over 150 million animals are used every year for scientific purposes (Carbone, 2021; Taylor & Alvarez, 2020). Approximately 95% of all research is done on rodents, with rats and mice being the most commonly used (Schipani, 2019). Research animals are used in a variety of studies across a wide array of disciplines. Regardless of their role in research, they need to be protected.

Unfortunately, no accurate figures are available to determine precisely how many animals are used in experiments worldwide. The USDA Annual Report of Animal Usage for Fiscal Year 2019 estimates that the number of laboratory animals used in both public and private institutions in the U.S. was 797,546. However, these statistics are significantly underestimated, as they do not include mice, rats, and fish, which are not covered by the USDA's *Animal Welfare Act* (NC3Rs, n.d.; SOR, 2019; USDA, n.d.). Speaking of Research (SOR) (2019), an international advocacy group that aims to provide accurate information about the importance of animal

research in the biomedical, behavioral, and life sciences, states that in 2020, the U.S. was the largest user of animals for research experiments. The U.S. used approximately 12-24 million vertebrate animals plus almost 800,000 rats and mice (SOR, 2019). In 2015, Taylor and Alvarez (2019) attempted to do a comprehensive count of animals used globally for research. They “applied a prediction model, based on publication rates, to estimate animal use in 142 countries” (p.196). Their final figure was that 192.1 million animals were used globally for research in 2015. There has not been a similar global study to calculate accurate numbers of animals used in research since then.

The States United for Biomedical Research (SUBR) defines biomedical research as the use of animals to study the processes and genetic and environmental factors related to disease in humans. SUBR states that animals are good models for human disease because they are biologically similar to humans. According to the Foundation for Biomedical Research (FBR) (2021), research animals play an essential role in changing health outcomes and defeating illnesses. “In the U.S., 95% of animals that are used for research are rats, mice, and other rodents; 4% are fruit flies and zebrafish; and 1% are monkeys, dogs, and cats” (FBR, 2021, p.11). The major areas of animal research include drug research, testing of vaccines, biological and cancer research, diagnostics, and education (Baumans, 2004; Hrapkiewicz et al., 2013). A large portion of animal research is carried out in institutions that have both research and teaching. Education using animals includes a wide range of disciplines, such as veterinary science, animal science and biology, human medicine, pharmacy, and psychology (Animal Ethics, n.d.; NC3Rs, n.d.). All these disciplines have student researchers (undergraduate and graduate) performing most of the animal experiments.

Animals in Confucian Culture

Cultural differences can influence an individual's behavior and attitudes towards animals, thereby affecting animal welfare policies in that country (Kroeber & Kluckhohn, 1952). There are sociocultural changes that occur when individuals from different cultures interact with one another. This is because all cultures vary in their beliefs, values, assumptions, language, mannerisms, and communication patterns (Gudykunst & Kim, 1984). It is *our culture* that prepares us to interpret others' verbal and nonverbal messages (Hall, 1976). "Each culture has its own rich array of meaningful signs, symbols, gestures, emotional connotations, historical references, traditional responses, and - equally significant - pointed silences" (Hall & Whyte, 1960, p. 7). Confucian culture is deeply rooted in traditional customs and beliefs (Zhang, 2016). One aspect of CHC that has not received the attention it deserves is the relationship between humans and animals (Kelch, 2014). A cultural comparison of the human-animal relationship worldwide has revealed that both culture and religion influence people's attitudes towards animals (Zinsstag, n.d.). Different cultures are expected to have differing views about the value of animals, but they are also expected to consider how they treat animals and ensure animal welfare (Kelch, 2014). Although it is not universally true, most people believe they have a moral and ethical duty to treat animals humanely (Proctor et al., 2013).

Animals have always held a powerful symbolic place in Confucian culture (Cao, 2018). However, a symbolic reverence for animals does not always translate into an all-encompassing compassion for them (Chan, 2015; Kelch, 2014). Donald Blakeley (2003) conducted a thorough review of Confucian perspectives on animal welfare, drawing on the *Analects*. In his paper, he explained how animals were respected, albeit in a utilitarian manner; they were used as food, gifts, protection, and even as sacrifices. In addition, Cao (2018) states that in these classical texts,

there is no mention of “animal suffering or alleviation of animal suffering” (p. 57). Confucius did not directly mention any treatment, killing, or sacrifice of animals in the *Analects* (Cao, 2018; Blakeley, 2003). However, several scholars have determined that the classical texts *imply* that Confucianism does support the humane treatment of animals and that Mencius, one of Confucius’s influential followers, states that kindness and love should be extended to all things (including animals) (Blakeley, 2003; Chan, 2015). According to Kelch (2014), one overarching principle in Confucianism seems to be the “concept of continuity and kinship between humans and animals” (p. 423). Unfortunately, this positive aspect of Confucianism has not saturated the overall culture within all CHC countries. Many of these CHC countries appear to be unopposed to the use of animals in research (Cao, 2018, 2022; Bayne & Wang, 2014; Gao, 2020; Kelch, 2014). However, mindsets in some of these prominent countries, like China, are starting to shift toward increased reverence and concern for animals. The move toward recognition of animal prosperity appears to be more generational (Carnovale et al. 2021; Kelch, 2014). “The young in China frequently have attitudes distinguishable from their elders on animal issues and have more compassion for the disadvantaged” (Kelch, 2014, p. 433). Still, in many of these countries, animal welfare has not yet reached a societal concern (Carnovale et al. 2021). Currently, the problem is that with so many different cultures, it is difficult for CHC countries to develop successful, efficient, and congruent standards that advocate for the humane treatment of animals used in research, while still maintaining their cultural perspectives. The younger generations must understand and apply their knowledge to future generations until all areas of the world have an understanding of animal welfare and its needs. Perhaps with increased intercultural sensitivity and tolerance it will create some beneficial insights which lead to cohesiveness that can be achieved within animal welfare (Greenholz, 2003).

Animal Welfare and Research

The human-animal bond has existed for thousands of years; therefore, the concern for animal well-being has also existed (Fine & Weaver, 2018; Lord et al., 2020). Animal welfare is of the upmost importance in animal research. For graduate international students to successfully complete their graduate work involving animals, it is essential for them to quickly grasp the regulatory oversight required to protect animals used in research.

For thousands of years, animals have held an essential role in the lives of people. The exploitation of animals is a global phenomenon, as virtually every culture utilizes animals for various purposes, including food and fiber, transportation, scientific research and teaching, entertainment, companionship, and assistance with work and daily living tasks (Kelch, 2014; Lord et al., 2020). Concern for their well-being has existed for as long as the human-animal bond has (Fine & Weaver, 2018). However, not every country around the world recognizes animal rights, has laws that protect animals, or holds ethical beliefs about the humane treatment of animals. To understand animal research and what oversight it requires, we need to start with a brief history of animal rights in CHCs and the West and what animals are considered research animals; then we can discuss the regulatory oversight bodies that govern animal research in both the U.S. and Confucian cultures.

The first references to animal experimentation go back to the Greek philosopher Aristotle's (384–322 bc) work. He conducted dissections and revealed internal differences among animals (Fox & Bennett, 2015). It was not until the 1500s that interest in science and research began to increase. Dogs and pigs were commonly used in public anatomical demonstrations, and vivisection led to great discoveries and understandings in anatomy and physiology (Fox & Bennett, 2015).

Throughout history, the concept of ‘Animal Rights’ has not been a silent subject around the world. In the East, religion has always had a central role in animal rights (Szűcs et al., 2012). Followers of Jainism, Hinduism, and Buddhism believe that man and animals were equal, and the Islamic religion teaches “to treat animals in a bad manner is to disobey Allah’s will” (Orzechowski, 2020; Szűcs et al., 2012, p. 1503). Confucian heritage culture also has beliefs around animal treatment and welfare. According to Fan, in his 2010 publication, "How Should We Treat Animals?" A Confucian reflection suggests that Confucians uphold three distinct moral attitudes, including “devotion to one’s parents, benevolence to the people, and caring for animals” (p. 80). Fan adds that Confucians also have a saying, “we should be loving to animals” (p. 80). These empathetic views help guide animal rights in East Asian countries.

In the U.S., the first American colonial record of animal protection or welfare legislation dates back to 1635, when it prohibited tearing wool from living sheep. Then, in 1641, the Massachusetts Bay Colony passed legislation that provided protection primarily for animals used as farm labor (Davis, 2015; Orzechowski, 2020). Later in the 1800s, activists began to treat animal welfare as a barometer for human morality, and several minor judicial acts were developed in response to animal cruelty groups (Orzechowski, 2020). Then, over 200 years later, in 1866, the American Society for the Prevention of Cruelty to Animals (ASPCA) was formed (Davis, 2015; Robinson, 2019). As a result, the U.S. passed federal legislation for the ‘28-Hour Law’ in 1873. “It required that farm animals be provided food, water, and rest at least once every 28 hours during transit” (Bayne & Anderson, 2015, p. 24). In 1876, Great Britain passed the first bill protecting animals used in experiments, the *Cruelty to Animals Act*. The act required licenses for researchers who performed painful procedures or used anesthesia during animal research (Patterson-Kane and Golab, 2013).

Before the turn of the 20th century, one of the first laws was the *Lacey Act (1900)*, which banned the illegal trafficking of wildlife. In 1950, after World War II, there was “an awakening in awareness of, and concern for, animal welfare in the research setting” (Brown & Winnicker, 2015, p. 1655). In response to the significant demand for affordable food following the war, there was a rapid industrialization of production methods, which was also evident in animal slaughter and processing procedures (Duncan, 2019; Harrison, 1964). Ruth Harrison revealed and criticized the intense and cruel slaughterhouse and production methods for poultry, beef, veal, swine, and even rabbits in her book *Animal Machines* (1964). Her book caused such an uproar that the British government investigated and developed their own definition for animal welfare; “Welfare is a wide term that embraces both the physical and mental well-being of the animal. Any attempt to evaluate welfare, therefore, must consider the scientific evidence available concerning the feelings of animals that can be derived from their structure and functions and from their behavior” (Duncan, 2019, p. 17). This was only the beginning of animal welfare and oversight.

During the twentieth century, about two dozen animal rights societies and animal rights movements were formed (Orzechowski, 2020). They included, the *Humane Methods of Slaughter Act (1958)* which required that animals be stunned into unconsciousness before slaughter; the *Animal Welfare Act (AWA) (1966)* which is the only Federal law in the U.S. that regulates the treatment of animals in research; the *Endangered Species Act (1973)* that protects fish, mammals and birds listed as threatened or endangered, which was later amended to include some fauna; the *Animal Enterprise Protection Act (1992)* which makes it a federal criminal law with a fine or up to one year in prison for “disrupting” animal enterprises (research, teaching, breeding, etc.); and the *PACT (Preventing Animal Cruelty and Torture) Act (2019)* that makes

crushing, burning, drowning, suffocating, impaling or sexual exploitation of animals a federal crime (Animal Legal Defense, n.d.; Congress.gov, n.d.; Orzechowski, 2020; Robinson, 2019).

The *Animal Welfare Act*, which remains the primary federal animal protection law today, is the most important law governing the treatment of animals used in research. According to Rollins (1990), the AWA was rectified in response to owners' concerns over their pets being taken and sold to research labs. Although the other acts are not as widely known to the public as the AWA, they are still in place and active. In fact, in late 2021, the *Lacey Act* was amended to cover some wood products (boxes, trunks, etc.) and essential oils (cedarwood, bois de rose, etc.) from being trafficked and sold (Implementation of Revised Lacey, 2020).

In 2019, the *United Nations Convention on Animal Health and Protection (UNCAHP)* was introduced as a global initiative for animal protection (UNCAHP, 2018). The initiative acknowledges the importance of animal sentience and human responsibilities towards them, but it has not been adopted. In fact, there is currently no worldwide treaty governing the protection of animal welfare (International & Foreign, n.d.). However, numerous animal activist groups operate worldwide. Like today, many animal advocacy groups formed throughout history have preferred prevention over prosecution (Davis, 2015). These animal protection groups initially focused on animals in the public eye, but their attention then shifted to the animals behind closed doors used in research (Lord et al., 2020).

Comparison of U.S. and CHC Animal Welfare

Concerns over AW have become one of the most significant international issues today (Wu, 2017). With this global perspective on how animals are treated, it becomes clear why understanding the regulations and guidelines for care, use, and treatment of animals is so crucial. This is not simply an individual government concern, but a genuinely global ethical concern. Wu

(2022) asserts that international AW is driven by two primary forces. First, there is an “increasing awareness of animals as sentient beings” (p. 19). Second, there is the current international public interest and scrutiny concerning how laboratory animals are treated, alongside its organized lobbying by AW groups, in response to concerns over the ethical treatment of *all* animals worldwide (Bayne & Anderson, 2015; Wu, 2022).

Proctor, Carder, and Cornish (2013) conducted a comprehensive, systematic review of 2,562 papers spanning two decades, focusing on animal sentience, and determined that animal sentience is regularly measured and studied with scientific rigor. They found that the number of articles published on animal sentience increased from 1990 to 2011. The increase in the number of people wanting to understand and provide care for animals’ mental well-being is good news. This recognition means that people acknowledge animals are sentient creatures, and that their understanding of this has numerous benefits for humans, animals, and science.

Transparency. Both the U.S. and Confucian countries face transparency concerns, which are intricately connected to AW. Animal research transparency and the public’s perception of it is a hot topic internationally (Hadley, 2012). Two of the key principles associated with the success of international AW initiatives are an understanding of local audiences and contexts, or the ‘public view’, and the promotion of a more informed animal research culture. According to Sinclair and colleagues (2022), our perceptions shape our intentions, our motivations, and our behaviors, and in doing so, our realities. The public’s view concerning the ethical treatment of animals used in experiments is a controversial topic in modern science. Part of the reason is that it is hard to differentiate the facts from over-exaggerated, fallacious news. When information is hidden, it naturally prompts the public to question, “what is being hidden and why?” (Holder, 2017, p. 93). Animal research is often secretive around the world, and the lack of transparency

makes it difficult to determine the plight of the animals or to verify that all rules and regulations are properly followed (MacArthur Clark et al., 2019; Pilgeram, 2022). Transparency and openness are important aspects for every research institution, especially “when it helps the public understand a complex issue such as animal research” (Holder, 2017, p. 93). Varga and colleagues (2010) agree that “more transparency will increase public confidence in the appropriate conduct and regulation of animal research”, which will in turn help to maintain public acceptance (p. 500). Brunt and Weary (2021) suggest that institutions must engage with the public to provide greater transparency regarding the use of animals in research in order to gain their trust. The lack of transparency causes researchers to “devote even more resources to combatting the public perception that they are not transparent” (Holder, 2017, p. 93)

The 3Rs. Besides general transparency, another important issue for the U.S. and CHC countries that perform animal research is *what* information should be made available to the public, when most people know little to nothing about animal research activities and guidelines (Merkes & Buttrose, 2019). Hadley (2012) asks, is it a lot to expect researchers to self-assess their conduct against the rules and regulations set in place by the governing agencies? He continues with if researchers are obeying the law and any applicable institutional norms and guidelines for the ethical conduct of research, it is unreasonable to view animal use data as a researcher’s dirty linen” (p. 111). Essentially, if all the guidelines are being followed, then why hide what you are doing? As Hadley (2012) states, this could be because it can be argued that greater transparency can help the cause on *both sides* of the animal research debate.

One way of combating the debate against animal research, is to allow the public to enter the world of laboratory animal science (MacArthur Clark et al., 2019). For example, in the U.S. many state or regional biomedical research associations have long-standing programs that

provide opportunities for students, teachers, policymakers, and others to learn about and tour animal research facilities (MacArthur Clark et al., 2019, p. 39). Some critiques argue “a purely educational approach is unlikely to change the values that are often at the heart of public concerns” (Brunt & Weary, 2021, p. 3). Another way to combat the negative press is to include Russell and Burch’s (1959) concept of the 3Rs (Replacement, Reduction, and Refinement). The 3Rs are recognized around the world. The CHC countries in this literature review, apart from Vietnam, which has no regulatory oversight for animals used in research, all incorporate the 3Rs in animal research. The use of the 3Rs is a universal principle that connects multiple countries. However, the degree to which each country commits depends on if the 3Rs are required or suggested for best practices.

The types of animals that are protected within these CHC countries or the U.S. vary. Most countries, such as the U.S., China, Japan, Korea, and Singapore, protect domesticated animals, some production or farm animals, and certain wildlife. Every CHC country has some variation of AW regulations or guidelines; however, these countries tend to group domesticated pet animals, wildlife, and research animals under the same general laws and regulations. Many of these rules and regulations are in place to benefit humans and are not intended to promote the welfare of animals. They do not make distinctions between animals used for research, those kept as pets, or those used for food or fiber. This is distinctly different from the U.S., which clearly makes distinctions between the two groups. The USDA protects domesticated pet animals, farm animals used for food or fiber, as well as specific animal species used in research. The U.S. has separate governing bodies that focus on regulating and protecting animals used in research, such as IACUC and OLAW.

Regulatory Oversight. Another characteristic that CHC countries share with the U.S. is their reliance (to some extent) on self-regulation. The U.S., Japan, and Korea all have more formal rules for conducting ‘in-house’ inspections of their animal research facilities (Ahn et al., 2021; NIH, n.d.; SCJ, 2006). China has an administrative self-regulatory law, but physical inspections are not required (Kang et al., 2022). South Korea is the only CHC country that performs post-approval monitoring (PAM), which is required in the U.S. after a research study is approved (Ahn et al., 2021). Although several CHC countries have mechanisms in place for self-regulatory oversight, there is minimal follow-through and even less formal government oversight for research animals or research experiments in these countries.

In the U.S., a large portion of self-regulation is performed through an Institutional Animal Care and Use Committee (IACUC) (NIH, n.d.). The IACUC is an internal institutional regulatory agency required to be in place according to both the AWA and the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (AWA, n.d.; Clarkson-Bennett, n.d.; NIH, n.d.; Riley, 2018). The PHS Policy is not a federal law, but institutions must comply with their standards to qualify for PHS funding (NIH, n.d.). The policy is based on the concept of ‘enforced self-regulation’ (NIH, n.d.).

China, Japan, Korea, and Singapore require an IACUC or Ethics Committee to be in place, while Taiwan and Vietnam do not. The IACUC’s role is to oversee, guide, and regulate the use of animals in research (NIH, n.d.). Institutions that have an IACUC in place use the committee in different ways. For example, the IACUCs in Japan and Singapore are like the IACUCs in the U.S., providing “boots on the ground” oversight. In all three countries, the IACUC helps educate researchers while providing guidance and oversight (Kong, 2010; NUS, n.d.; SCJ, 2006). The IACUC’s primary role in Korea is to educate researchers on the 3Rs, and it

must adhere to all guidelines established by the Laboratory Animal Management Committee (LAMC) (Ahn et al., 2022).

Overall, there is a significant shortfall in AW monitoring in these CHC countries compared to the U.S. (Kang et al., 2022). There are no standard mechanisms set in place to monitor AW and then provide the appropriate punitive repercussions or enforcement of the regulations. China's *Guidelines for the Humane Treatment of Laboratory Animals (2006)* does specify 'some penalties' for individuals and repeat offenses but does not provide specifics on whether it is monetary, imprisonment, or a 'slap on the hand'. Furthermore, abuse of laboratory animals is not considered a criminal offense under Chinese law (Rogers, 2019). Both Korea and Singapore state that violations are punishable by fines and imprisonment; however, the amount of time in prison is 'dependent on the offense' in Korea and up to a year in Singapore (Ogden et al., 2017; Murnaghan, 2019; Retnam et al., 2016). Both Taiwan and Vietnam amended their standard laws to add penalties for AW violations, but like China, Taiwan does not make animal cruelty a criminal offense, but only an administrative offense (Wu, 2017; Wu & Wu, 2021). Vietnam has only added penalties for those engaging in illegal wildlife trafficking, not for AW violations to domestic or research animals (Wu, 2017; Wu & Wu, 2021). In fact, most of these countries do not specifically mention research animals in any of their animal welfare regulations. Instead, their laws are written only to cover domestic, farm, and wild animals.

The Importance of Literature Reviewed

As I reflect on the challenges CHC sojourners face in understanding and navigating the various rules and regulations that govern animal research in the U.S., I think of key concepts such as regulatory burden, comprehension, application, and stress. I want to gain a holistic understanding of CHC sojourners' experiences and perceptions of performing research using

animals. Through the literature review, which encompassed various subjects and current studies on Asian sojourners in the U.S., I gained deeper insights into the cultural challenges faced by Asian CHC graduate students during their time in the U.S. This literature reviewed was relevant to my research goals because it directly reflected the expected cultural influences on CHC learners, in turn, allowing solutions to the cultural challenges faced by these sojourners while learning in the U.S., such as language barriers (Gautam et al., 2016; Rodriguez et al., 2019; Wu & Hammond, 2011), challenges around cultivating critical thinking skills (Tran, 2013; Yuan, 2022; Zhang & Chan, 2021), collectivism versus individualism (Phuong-Mai et al., 2005; Shuai et al., 2015; Thanh et al., 2008; Yuan, 2022), and understanding new academic expectations (Tan & Yates, 2011; Wu & Hammond, 2011; Yaun, 2022).

In this study culture was reviewed extensively, including CHC sojourners' Confucian culture and their academic culture, as well as animal welfare culture and U.S. research culture. The literature indicates that culture has a significant impact on people's attitudes towards animals and animal welfare, and more importantly, the institution's culture has a substantial influence on the degree of compliance with oversight and corrective actions (Bayne & Wang, 2014; Wu, 2022). In Asian Confucian countries, culture is the overarching factor that determines what AW laws will be established and how they will be enforced (Wu, 2022). Even though *Asia* is a term used to describe qualities from each country as a whole, research clearly shows that each country is independent of the other and has its own set of cultural values, beliefs, and rules. Even though the research allowed me to review each country independently, with collective traits, this factor can make it challenging for policymakers to try to implement teaching standards for these students. Research does show there are some cultural similarities that can be focused on, but the smaller, ingrained nuances would need to be addressed through further research.

While researching adult learners, I reviewed literature that focused on adult second language learners. In a study by van Niejenhuis, Otten, and Flache (2018), the authors examined the role of trainable intercultural personality traits and the widely assumed link between immigrants' second language (L2) learning and their cultural integration in the host country. Results from this study suggest the importance of social perceptual personality traits in the cultural integration of sojourners. The social aspects surrounding the ability to learn a second language are important for CHC sojourners during graduate school because a unique academic 'language' must be learned while performing graduate research.

Adequate language proficiency is necessary to facilitate understanding of new regulations governing their experiments. Rodriguez, Chavez, and Klauber (2019) state that language proficiency can have an impact on the quality of assignments, comprehension of classroom lectures, and the ability to successfully complete oral and written exams. Graduate programs in the U.S. require that students perform research (U.S. Department of Education, 2020). The review of literature in this study demonstrates that there is a need for CHC graduate researchers to learn to write academic papers during their college years (Gastel & Day, 2022). The literature also describes how many of these sojourners may feel threatened by this new academic challenge, especially when "there are large volumes of research information and materials" that require in-depth analysis (Kelly & Moogan, 2012, p. 28; Oberg, 1960; Yook, 2013).

In a text by Andrew (2012), the author explores the social construction of age in the context of second language learners in Mexico. Andrew states that the age identity of adult language learners plays an important role in the process of acquiring and using English as a second language. She further describes how historical research posited that once children reach puberty, their innate language-learning mechanism is no longer available and language

development is no longer possible, or exceptionally difficult to learn. Andrew also points out that, on the other hand, there is a lack of any real evidence demonstrating a sudden drop in language-learning ability at the end of puberty, and that learning a second language is influenced by social and contextual aspects. Andrew states that learning a second language as an adult is a social and cultural phenomenon acquired and learned through social interactions. “Language learners are seen as social beings who actively participate in interactions with others in socially constituted communicative practices” (p. 19). This study is important because my research participants are second language learners.

The literature chapter also elaborates on what animal welfare is and its importance by comparing CHC to the U.S. animal regulatory and oversight. In studies by Bayne and Anderson (2015) and Wu (2022), there is an increase in international public interest and scrutiny concerning how laboratory animals are treated worldwide. Proctor, Carder, and Cornish’s (2013) wide-scale review of over two thousand papers over a span of two decades, focused on animal sentience and determined that animal sentience is regularly measured and studied with scientific rigor. All three of these studies are important to my research because they demonstrate the growing need for conducting qualitative research with individuals who work with animals. They also demonstrate that there is currently a lack of knowledge, other than a few superficial studies, on perceptions of animal use in invasive and non-invasive research. Additionally, there are no studies that review the cultural influences on the use of animals in research. This is a novel research area that needs attention.

Literature also supports my use of Kolb’s Experiential Learning Theory (1984) as a theoretical framework for understanding CHC learning styles. In his theory, Kolb claims that his experiential learning theory uses a “holistic integrative perspective on learning” (p. 21), which

integrates the total person into all the stages. In the ELT, “knowledge results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41). Kolb’s 1984 cycle describes the two dialectically related modes for grasping experience -concrete experience (CE) and abstract conceptualization (AC) -and for transforming those experiences, reflective observation (RO) and active experimentation (AE). Kolb (2015) further explains that experiencing, reflecting, thinking, and acting are not separate, independent entities, but are intricately related to one another in their dialectical opposition. Kolb explains that he initially used ETL in a simplistic and pragmatic manner. However, later he expanded his learning styles to encompass “different ways of engaging the learning cycle” (Kolb, 2015, p. 56; Kolb & Kolb, 2013).

Kolb’s learning styles are not to be viewed as psychological traits, but rather as a dynamic state resulting from synergistic transactions with the environment (Kolb, 2015). A cooperative environment is needed in animal research. Working with animals for research requires hands-on skills, and individuals with two learning styles (accommodator and diverger) as described by Kolb, tend to prefer hands-on experiences for learning. By understanding the perceptions of students performing research, they can be applied to learning styles to discover learning preferences that may not have been evident in past studies. Kolb’s cycle and styles can provide insight into how CHC students grasp and transform knowledge of the variations in regulatory oversight.

According to Nisbett (2023), Asians tend to emphasize the importance of context and relationships, whereas Westerners often hold a more deterministic and narrow view of the world. By utilizing CHC graduates’ cultural orientations within Kolb’s learning cycle, the results can offer a new perspective on knowledge creation from cultural variation among different styles.

These learning styles can manifest themselves as variations among the primary research methods and patterns of learning. This can be useful in my research because I draw on aspects of CHC to develop more comprehensive approaches to teaching CHC sojourners, enabling them to gain an understanding of AW and its importance in animal research.

Chapter Summary

Chapter Two begins by providing an in-depth analysis of the theoretical framework employed in this study, Kolb's Experiential Learning Theory (ELT; 1984). The chapter then reviews current literature on Asian sojourners as adult learners. This chapter provides a detailed background of Confucianism and the cultural challenges faced by Asian CHC graduate students while in the U.S. Chapter Two provides a solid foundation for understanding animal welfare and regulatory oversight. Finally, the chapter elaborates on the differences surrounding animal research in the U.S. and CHC countries. Lastly, the chapter discusses why this literature was chosen and how it is relevant to my research goals.

Chapter Three: Research Methodology

Introduction

This chapter offers a detailed explanation and reasoning for choosing an interpretive phenomenological research design. Specifically, an Interpretative Phenomenological Analysis (IPA) methodology is applied to answer the research questions: *What are the experiences of Asian CHC graduate students when engaging in animal research while studying in the US, and how do their perceptions of the new culture influence their understanding and navigation of animal welfare and compliance rules and regulations?* The chapter begins with an overview of ontology and epistemology, the research design, and an in-depth review of Interpretative Phenomenological Analysis (IPA). Then, it describes the research process and procedures of data recording and analysis. The chapter concludes with a summary.

Research Design and Rationale

Through qualitative inquiry, researchers seek to interpret and share others' perspectives and experiences, as well as their own, on some aspect of the social condition (Glesne, 2016). A commonly used paradigm in qualitative research is the interpretive paradigm (Creswell, 2014; Merriam, 2009). The interpretive paradigm is an approach to qualitative research that emphasizes the subjective experience of individuals and the interpretation of their meanings and experiences (Creswell, 2014). An interpretive paradigm attunes your senses to the richness of the lives around you and to the complexities and particularities of people's actions and words (Smith, 1992). According to Glesne (2016), in interpretive inquiry, "you are not seeking to get at the *truth* of a setting or situation but trying to understand all available perspectives and their contexts" (p. 45). Researchers using an interpretive approach aim to uncover meaning toward a deeper understanding of the issues involved.

Specifically, the research design for this study employed the Interpretative Phenomenological Analysis (IPA) approach, which falls within the interpretivist paradigm. This approach, rooted in qualitative aspects, aimed to provide detailed examinations of personal lived experiences (Matua Ga & Van Der Wal, 2015; Smith & Osborn, 2015).

Ontology/Epistemology

Ross-Gordon, Rose, and Kasworm (2016) state that epistemology is concerned with knowing and how we know what we know. Epistemology defines ‘the nature of knowledge’ through the relationship of the knower (researcher) to the known (researched) and interprets or makes meaning of events and actions (Glesne, 2016; Ross-Gordon et al, 2016). Based on the concepts of epistemology (making sense of my participants’ experiences), I was led to use concepts of challenges faced and normal versus abnormal.

Ontology, as a socially constructed concept, is the process of understanding the nature of real-world evidence (empirical data) and how it relates to the broader structural and cultural issues that influence claims to truth (Grbich, 2013; Glesne, 2016). According to Glesne (2016), what you believe to be knowledge shapes and serves to justify your methodology and your theoretical perspectives. The ontological premise underpinning this phenomenological study was the belief that there are multiple constructed realities through varied experiences (Denzin & Lincoln, 2018). This constructivist ontological approach required that I seek in-depth qualitative inquiry through my participants’ experiences. The ontological or real experiences that adults bring with them influence their learning perspectives. By using ontology (empirical data), I expanded my knowledge of the culture and the challenges faced by my research participants (Grbich, 2013).

The interpretive inquiry approach is believed to have emerged as a response to the Positivist philosophy (Gemma, 2018; Mackenzie, 1981; Nelson, 2014; Passmore, 1943). Rogers (2020) claims that the interpretive approach “stands in contrast to positivism and holds that reality is subjective, socially constructed, and a composite of multiple perspectives” (para. 3). To better understand this approach, it is necessary to review the basic ideas of positivism. Positivist researchers are concerned with the natural world. Under the positivist philosophy knowledge is gained from reason and logic. It includes factual knowledge gained through observation (the senses) and measurements (Nelson, 2014; Park et al., 2020). Positivism is based on quantifiable observations and fact gathering that lead to statistical analyses (Park et al., 2020). Interpretive inquiry is sometimes known as anti-positivism (Flick, 2014) because it argues that truth and knowledge are subjective (Gemma, 2018).

The epistemological assumptions of a phenomenological paradigm are subjective and focus on understanding human behavior (Hussey & Hussey, 1997). An interpretive epistemological approach enabled me to uncover the knowledge necessary to understand my participants’ reality. Through this approach, I can develop an understanding of the experiences and social interactions of CHC graduate sojourners performing animal research in the U.S. Epistemology allowed me to emphasize how meaning and truth is constructed through social interactions in the world. During the interview process, I paid close attention to how the participants constructed meaning from their experiences. Through this interactive process, my interviews enabled me to construct innovative ideas and gain a deeper understanding of the experiences of Asian graduate students performing animal research in the US. Kvale (2011) suggests that interviews are best suited for in-depth probing of individual opinions, beliefs, or values, and allows the researcher to interpret the meaning of the described phenomena. When

considering how meaning develops, epistemology encourages us to learn about lived experiences directly from those who lived through them. That is why my interviews provided valuable insights.

Research Method

Qualitative Inquiry

This study was interpretative and qualitative in nature as it aimed to explore and interpret the subjective experiences and perceptions of a group of Asian graduate students from Confucian-heritage cultures, who perform animal research at a university in the US. According to Glesne (2016), qualitative research involves taking life experiences and interactions and converting them into text. A qualitative approach enabled participants to describe how they interpret their experiences in real-time contexts (Merriam & Tisdell, 2016), while the researcher sought to “make sense of actions and narratives and the ways in which they intersect” (Glesne, 2016, p. 1). According to Mayan (2009), “qualitative inquiry has contributed to science by making the taken-for-granted world visible in unique and sometimes jarring ways” (p. 9). The research participants in this study were a minority group that had not been studied in the context of performing animal research; they were, in their own right, unique, with stories that are taken for granted. CHC countries comprise a diverse group of cultures that share an overarching belief in Confucianism. This specific group of people, comprising of individuals in science-related disciplines that require research to be performed during graduate school, had not been studied collectively in this context. The use of qualitative inquiry allowed me to gain a deeper insight into transition concerns experienced by CHC sojourners navigating college while trying to be successful in performing animal research. “Humanness is a key element of qualitative research;” this is not only done with people but “through people from different disciplines with different

perspectives and life histories” (Mayan, 2009, p. 12). Each of the study participants had their own life histories that influenced their perceptions of animal research and shaped their experiences of performing research under the guidance of U.S. regulations. Yin (2016) states that qualitative research is used for “capturing the perspectives of the individuals being studied. These perspectives can represent the meanings given to real world events by the people who live them” and these accounts are not the values or preconceptions held by the researchers (p. 9). Several factors influence qualitative research, including the socio-cultural context and the environment in which the research takes place. The researchers themselves also play a vital role in how the research will be interpreted (Dodgson, 2017). I aimed to discover and understand the perceptions of CHC sojourners, not based on how I felt or what I did; therefore, a qualitative inquiry method was best suited for my study. Qualitative design enabled me to employ a discovery-oriented approach when studying CHC sojourners, which was appropriate to this study because it allowed me to access the thoughts, feelings, values, and actions of participants and how they themselves interpreted them.

Qualitative inquiry has many research methods, and according to Glesne (2016) and Grbich (2013), the five common approaches are ethnography, narrative inquiry, phenomenology, and case study. These approaches can share many of the same data collection techniques, but they are all differentiated by their purpose or research questions (Dodgson, 2017). Ethnography is a form of qualitative study that shares the beliefs, social interactions, behaviors, and perceptions that occur within groups, teams, organizations, and communities (Reeves et al., 2008). Narrative inquiry uses first-person accounts to explain an individual’s experience through stories (Merriam, 2002). Case study is an in-depth description and analysis of an individual, group, institution, or community (Merriam, 2002). Case study is most often used to explore an

extraordinary situation (Cruz & Tania, 2017). Finally, phenomenology is the study of lived experiences while “focusing on the essence or structure of experience” (Cruz & Tania, 2017; Merriam, 2002, p. 7). According to Patton (2002), phenomenological and case study approaches are the two most used forms of qualitative methods.

Phenomenology

Phenomenology is an approach to qualitative research with a specific focus on uncovering the essence of consciousness within experience (Husserl, 1913). Phenomenology is referred to as a study of ‘lived experiences’ in the natural world and focuses on the “essence of one’s perceptions and experiences of any given phenomenon” (Glesne, 2016, p. 290; Lavery, 2003; Moran, 2005). Edmund Husserl (1859-1938) is often referred to as the father of phenomenology (Moran, 2005). Husserl described phenomenology, especially interpretation, as studying lived experiences as they are in the external world. Therefore, there is a need for ‘bracketing’ our internal assumptions to exclude all preconceptions of the phenomena. (Moran, 2000; 2013; Shahbazian, 2015, Smith et al., 2022; Tuohy et al.). Polkinghorne (1983) stated that Husserl’s focus was on understanding or comprehending human experience as it is actively guided by human intention (Lavery, 2003). Another name that is often associated with phenomenology is Martin Heidegger (1889-1976). Heidegger was Husserl’s student and is known for diverging from his mentor’s views of phenomenology, which include ‘bracketing’ the researcher’s presuppositions (Lavery, 2003). “In Heidegger’s view, before we come to understand anything explicitly, we already have a pre-conception or pre-supposition of it” (Tomkins & Eatough, 2018, p. 7). From this thought, Heidegger developed hermeneutic phenomenology, which has a central focus on ‘*Being and Time*’ and ‘*intersubjectivity*’ (Smith et al., 2022). Hermeneutics introduced the concept of ‘Dasein’, which means ‘there-being’ in

German. According to Heidegger, Dasein' highlights that we are always embedded and engaged in the world (Lavery, 2003). He described hermeneutics as the understanding and interpretation of human experience as it is lived, "being-in-the world" (Alsaigh & Coyne, 2021; Lavery, 2003, p. 24; Tomkins & Eatough, 2018). Hans-Georg Gadamer (1900-2002) also studied hermeneutics and was influenced by the work of both Husserl and Heidegger. However, his focus was on extending Heidegger's work into practical applications (Lavery, 2003). He viewed hermeneutics as happening through interpretations and saw it as a philosophy of understanding between the researcher and the participant. (Lavery, 2003; Tomkins & Eatough, 2018). In both Husserl's phenomenology and Heidegger and Gadamer's hermeneutic phenomenology, they all take the approach of self-reflection by the researcher to identify biases and assumptions, but rather than bracketing them like Husserl's phenomenology does, hermeneutics considers them essential to the interpretive process (Lavery, 2003).

Interpretivism Paradigm

Interpretivism has its origins in the 18th century, with Giambattista Vico, a philosopher and anthropologist (Gemma, 2018; Seidel, 1996). Seidel (1996) wrote about Vico's historical significance and contributions to the 'idea' of interpretation in phenomenology. Vico (as cited in Seidel, 1996) stated that when conducting research, "the *part* must be interpreted in terms of the *whole*" and that "part and whole form a circle in interpretation" (p. 7). My understanding of this statement is observed in terms of individuals and society. Individuals must be viewed in relation to their social context, and in turn, it can be inferred that their social settings influence who they are as individuals. Therefore, my interpretations of the study participants (graduate students from CHC) were viewed in the context of both their individual cultures, beliefs, and experiences, as well as their social settings, research discipline, and stage of transition.

In the 19th century, several philosophers including Max Weber, Wilhelm Dilthey, and Edmund Husserl were referred to as *idealists* because they believed “a world exists independently of the knower”, but “the world cannot exist independently of the mind--or of *ideas*” (Glesne, 2016, p.9). Max Weber, a German sociologist and idealist, is credited with being a fundamental influence on interpretivism (Chowdhury, 2014). However, Weber was both praised and criticized for his explanations of interpretive sociology (Burger, 1977).

Although the inception of the interpretivist approach dates back to the 18th century, it was not until the 1970s that this paradigm gained prominence in educational research and became widely recognized (Gemma, 2018; Taylor & Medina, 2013). The interpretivist educational approach is strongly influenced by such philosophical underpinnings as anthropology, phenomenology, hermeneutics, and critical realism (Gemma, 2018; Mackenzie & Knipe, 2006; Walsham, 2006). During this same time, the interpretivism approach shifted away from strict scientific methods and focused more on the variations between individuals and their social relationships.

Interpretivism’s overarching theme is that ‘people are not easily measured, and that individuals’ experiences are subjective. Mackenzie and Knipe (2006) contribute to the theme by stating that the interpretivist approach aims to understand human experiences. Interpretivism is used to understand and make meaning of an individual’s experiences, with the belief that reality is subjective and constructed by the individual (Goldkuhl, 2012; Lather, 2006). Subjectivity is a key aspect to interpretivism (Gemma, 2018; Gichuru, 2017; Schwandt, 1994). While analyzing an individual’s experiences from a subjective point of view, the interpretive researcher also pursues “context-specific meanings, rather than seeking generalized meaning” (Schwartz-Shea & Yanow, 2011, p. 23). Different people can experience the same event differently because they

construct their own realities. As researchers, we cannot assume that all people will have the same perceptions of the same experiences. Culture can significantly impact an individual's perception of an experience.

Researchers can never completely separate themselves from their own values, beliefs, or biases. These aspects will inevitably inform the way in which they collect, interpret, and analyze data (Gemma, 2018). Interpretive researchers “do not set out to test key concepts defined before the research has begun” (Mackenzie & Knipe, 2006, p. 18). Instead, they tend to rely upon the "participants' views of the situation being studied" (Creswell, 2003, p.8) and recognize the impact of their own background and experiences on the research. This paradigm is more prevalent in social sciences, and according to Taylor and Medina (2013), it “aims to understand other cultures from the inside” (p. 4).

All interpretive research should follow a common set of principles as suggested by Klein and Myers (1999): 1) it must be naturalistic; social phenomena must be studied within its natural environment; 2) the researcher is often considered part of the data collection or an instrument and must rely on their observational skills and ability to extract the correct information while putting aside their personal bias and preconceptions; 3) the data must be interpreted from the subjective perspectives of the social participants and provide ‘thick description’; 4) the participants verbal and non-verbal language must be correctly represented; 5) the research is not concerned with finding specific answers, instead it aims to make sense of phenomena; and 6) interpretive research is cyclical. Although Klein and Myers developed these principles for evaluating interpretive research in Information Systems, they can be applied to other fields of study, such as education. These principles are pertinent to educational research for two key reasons. First, interpretivist researchers immerse themselves in their participants’ environment,

and each will have an impact on the others' perceptions and experiences. This learning from one another is a trait of Albert Bandura's Social Learning Theory (1977). His theory describes social learning as a form of human behavior that involves continuous reciprocal interactions among cognitive, behavioral, and environmental influences. Interpretivism has been used in numerous studies, not only in the field of sociology.

Second, Klein and Myers' six principles for evaluating interpretive research are pertinent to educational research because language in education is more than just verbal interactions. Ensuring that the participants' voices (both verbal and nonverbal) were accurately represented was crucial to my in-depth analysis of CHC graduate experiences in animal research. Having an effective understanding of a culture's language and communication methods is vital to understanding how that culture learns (Alston, 2020). If I wanted to learn from my participants, I had to be conscious of both their verbal and nonverbal cues.

Interpretative Phenomenological Analysis

An interpretative phenomenological analysis (IPA) (Smith, Jarman, & Osborn, 1999) was employed to answer my research questions. I strived to explore authentic lived experiences and discovered contributory meanings for CHC graduate students' perceptions of animal research oversight. This approach was well-aligned with my goals and research questions for this study, as it focused on how participants interpreted and made meaning of their experiences, translating them into perception (Patton, 2002). IPA is a type of social action theory that focuses on studying people's perceptions of the world (Goldkuhl, 2012). This approach aligned with my research goals because my participants' culture had an influence on their learning perceptions. The study participants' subjective perceptions of the world helped identify their individual research experiences within the context of the research culture. According to Lopez and Willis

(2004), the interpretive phenomenological approach allows participants to express their subjective experiences that are influenced by their social, cultural, and political contexts.

The origins of Interpretive Phenomenological Analysis (IPA) can be credited to Health Psychologist Jonathan Smith (Smith et al., 2009). This qualitative form of research has an idiographic focus, which means that instead of producing generalized findings, it aims to offer insights into how a given person, in each context, makes sense of a given situation (Reid et al., 2005; Smith et al., 2009; Smith & Larkin, 2022). The researcher's prior knowledge and/or experience of the phenomena under investigation is integral to the study (Noon & Hallam, 2018; Smith et al., 2009). IPA is defined as the examination of an individual's lived experiences and how that individual makes sense of those experiences (Charlick, et al. 2016; Smith et al., 2009; Smith & Larkin, 2022), but it is “coupled with a subjective and reflective process of interpretation” (Reid et al., 2005, p. 20). Pietkiewicz and Smith (2014) observed that IPA integrates ideas from traditions, phenomenology, and hermeneutic phenomenology, “resulting in a method which is descriptive because it is concerned with how things appear and letting things speak for themselves, and interpretative because it recognizes there is no such thing as an uninterpreted phenomenon” (as cited in Miller et al, 2018, p. 241). Researchers use IPA to explore individuals' “meaning making” related to certain significant life experiences (Pietkiewicz & Smith, 2014). IPA looks beyond the surface level of the phenomena and, with thick descriptions, develops a deeper understanding of that phenomenon. This type of research cannot be generalized as it involves interpreting individuals' experiences, opinions, feelings, and so on (Noon & Hallam, 2018; Smith et al., 2009).

Reid, Flowers, and Larkin (2005) state that IPA has been widely used in health psychology, but that it “is particularly suited to researching in ‘unexplored territory,’ where

theoretical pretext may be lacking” (p. 23). Therefore, this study used IPA to answer the research questions because there was very limited data available on how graduate students from specific cultural backgrounds perceive the oversight required for performing animal research in the U.S. This type of research involved engaging in conversations through face-to-face interviews with study participants, aiming to understand their experiences and perceptions of animal research and its oversight practices (Creswell, 2009; Richie & Lewis, 2003).

Data Collection

Participant Selection and Recruitment

The research study population consisted of graduate students from Confucian heritage culture countries, such as Mainland China, Taiwan, Japan, South Korea, Vietnam, or Singapore, who were currently enrolled at a university in the US. Both male and female participants were sought. Each participant performed research that involved live animals, while studying at a four-year research-intensive (R1) institution in the U.S. The reasoning for selecting participants from an R1 institution was prompted by the limited number of existing studies on international student persistence, which had been conducted at small, private institutions, using interviews with a small number of international students enrolled (Choi & Nieminen, 2012). By using larger, public research institutions, it allowed me to solicit participants from a specific demographic who focused on animal research while in the U.S. (Farrugia et al., 2012; Wang, 2020). According to NBC News (2024), there are 277,398 Chinese international students studying in the U.S.

In qualitative research, the appropriate sample size for a study can be ambiguous, and the researcher’s sample size may vary depending on the study's focus (Merriam & Tisdell, 2016). Rodriguez (2011) informs us that researchers often try to sample too many people and ask too many questions. Miller, Chan, and Farmer (2018) states that there is no set number of interviews

that must be conducted in IPA, while Smith, Flowers, and Larkin. (2009) and Pietkiewicz and Smith (2012) suggest that studies taking an IPA approach should use smaller sample sizes, because it allows for a richer in-depth analysis for sharing an experience that could be inhibited with a larger sample size. IPA should be extremely focused on a small number of relevant experiences (Turner, 2017). The goal of IPA is not to create generalized assumptions about your participants; “With IPA, we aim at producing an in-depth examination of certain phenomena and not generating a theory to be generalized over the whole population” (Pietkiewicz & Smith, 2012, p. 4). The sample size for this study was to be between five and ten adult international students from the CHC countries listed above. By narrowing my focus to this specific Asian culture, I was able to gather sufficient empirical data on their culture and analyze a relatively narrow set of cultural perceptions, concerns, and traditions, which made my data analysis more manageable. This smaller sample size provided an opportunity to examine the similarities and differences between my participants, as the amount of qualitative data recorded was manageable (Pietkiewicz & Smith, 2012). I employed inclusion criteria stating that my participants must be adults, 21 years of age or older were considered adults for this study; they must have been performing animal research within a university; and their native or first language could not be English, I offered a translator in their native language if they preferred. If a translator was needed, I allowed more time for the interview process to account for translation time. The above inclusion criteria were included in the initial contact email.

At the start of the study, my position as Compliance Coordinator within the Institutional Animal Care and Use Committee (IACUC) at a Veterinary college in the South gave me access to individuals who performed biomedical research with animals at various research universities. I was able to reach out to some of the principal investigators (lead researchers on an animal

protocol) and other IACUC personnel at other research universities across the U.S. and asked if they have visiting scholars or students from East Asian countries who might be interested in participating in a study. According to Roulston (2011), network selection can be used to locate a sample population for research participants when the study population *is rare or difficult to find*. Networking is a form of purposeful sampling that is particularly suitable for qualitative research (Merriam & Tisdell, 2016).

After identifying potential participants, I emailed them and asked if they would be interested in participating in my study. In that email, I included a summary of my research goals and questions; the interview format and timeframe; some sample questions covering broad subject areas, such as demographics, experiences, and perceptions while performing animal research in the U.S.; and their knowledge of the research guidelines, regulations, or laws for performing animal research in the U.S. If the individual met the inclusion criteria and chose to voluntarily participate, they emailed me back. After confirming their willingness to participate, we arranged a date and time for the interview that was convenient for the interviewee. The interview time and day were both the preference of the interviewee (Glesne, 2016). Prior to the interview, I emailed the participants a copy of the Informed Consent Form for their review. In phenomenological studies, researchers need to obtain ‘informed consent’ or ‘written permission’ before a study begins (Creswell, 2012). Signed consent forms were recorded prior to interviews.

Kemper and colleagues, 2003, (as cited by Suri, 2011) state that researchers must carefully identify sampling strategies that are conceptually aligned with their study purpose. Morse and Niehaus (2009) concur with and add that sampling strategies are intended to maximize the efficiency and validity of your data. Therefore, I employed purposeful sampling, a method widely used in qualitative research (Nikolopoulou, 2022; Palinkas et al., 2015). In the

purposeful sampling strategy, participants are selected “on purpose” because they fit a particular profile, unlike random sampling, which deliberately includes a diverse cross-section of ages, backgrounds, and cultures (Etkan et al., 2016). Purposeful sampling is a non-random, selective, or subjective sampling method of choosing members of the population to participate in surveys that concentrates “on people with particular characteristics, who will better be able to assist with the relevant research” (Etkan et al., 2016, p. 3; Patton, 1990). In an article by Nikolopoulou (2022), she claims that “purposive sampling is best used when you want to focus in depth on relatively small samples”, or “a particular subset of the population that shares certain characteristics” (para. 2). With that in mind, my purposeful sample was Asian CHC graduate students performing animal research within a university in the U.S. For this study, my purposeful sampling technique was Homogeneous sampling (Palinkas et al., 2015). This type of sampling aims to study participants who share similar traits or specific characteristics (e.g., age, cultures, jobs, or life experiences) (Etkan et al., 2016; Nikolopoulou, 2022). Purposeful sampling was already used to reduce variation, and homogeneous sampling was used to further simplify the data and describe a particular subgroup of individuals (CHC students) more in depth.

Conducting Interviews

Interviews were conducted as a means of gaining access to the participants’ experiences and insights. Mayan (2016) states that an interview is not a direct representation of the participants’ lives; instead, it is a representation that has been filtered through the participants’ relationship with the interviewer and the interviewer's interest. As part of the IPA approach to this study, the participants’ interpretations of their experiences as Asian graduate students performing animal research functioned as the filter through which I represented my findings. There are two general processes for interviewing participants: structured and unstructured.

Structured interviews are dependent on the researcher following a strict format for asking questions exactly as they are worded and not deviating between participants. In contrast, unstructured interviews do not follow a strict order, and the researcher is free to move through the subject areas as needed, rather than adhering to specific questions (Atkinson, 2017). A third option, which is often more common, is the semi-structured interview. This type of interview possesses elements of both the structured and unstructured approaches, but typically “more closely resembles the unstructured than the structured process” (Dipboye, 1994, p. 81). Kvale (2011) states that semi-structured interviews attempt to “understand themes of the lived daily world from the subjects' own perspectives” (p. 2). Semi-structured interviews and follow-up interviews served as the primary source of data for this study. I conducted follow-up interviews on an as-needed basis. The follow-up interviews were used to fill in gaps for missing or unclear information from the initial interviews. I contacted participants for follow up interviews by email. I chose semi-structured interview questions because they allowed me to build rapport with my participants and encourage meaningful reflection and sharing of “hidden” experiences (Miller et al, 2018; Rubel & Okech, 2017). Dougherty (1999) notes that interviews should not only be about eliciting information from participants, but also about deeper understandings of their experiences. I conducted in-person or video interviews. According to Irani (2018), in-person interviews are considered the ‘gold standard’ for qualitative research; therefore, I tried to conduct in-person interviews. Bogdan and Biklen (2007) explain that an interview is a purposeful conversation between two people, but qualitative researchers employ more open-ended and inquiring questions during interviews that meet the high standards.

My interviews ranged from 60 to 90 minutes in length, providing ample time for participants to respond to each question. Any follow-up interviews were up to 30 minutes. Noon

and Hallam (2018) offer as a reference that “IPA interviews generally last at least an hour” (p. 76). Glesne (2016) concurs and states that “An hour of steady talk is generally a suitable length before diminishing returns set in both parties” (p. 110). With my participants’ permission, I audio-recorded and video-recorded our conversation. I used approximately 10 semi-structured, open-ended, probing questions to elicit crucial information that is often not observable, such as feelings, thoughts, and intentions. Probing-type questions are often used to uncover the underlying cause of a phenomenon and to do justice to the complexity of the topic (Glesne, 2016). Patton (2002) describes an interview with open-ended and probing questions yielding in-depth responses about the participant’s experiences, perceptions, opinions, feelings, and knowledge. I started each interview with an informal conversation about my research goals and answered any questions as an ‘ice breaker’. Bogdan and Biklen (2007) state that there needs to be a period to ‘break the ice’, because the participants are typically strangers.

The participants that I interviewed considered English their second or even third language. Therefore, my observations were crucial to accurately interpreting their verbal and nonverbal nuances. IPA can be useful in educational studies when investigating the lived experience of “individuals with speech and language difficulties, or those of whom English is not their first language” (Noon & Hallam, 2018, p. 81). Glesne (2016) emphasizes that cross-cultural research brings with it the recognition of either new gestures or new meanings in familiar gestures. She adds that an important aspect of the interview is that interactions will vary depending on the makeup of the participants and the willingness of the interviewer to learn how to interact appropriately according to the cultural standards of the people they are interviewing. I narrowed my cultural familiarity to CHC students. Lam (2017) states that a usual form of Asian communication is silent gestures. Lam continues by saying that these gestures are abundantly

used in everyday life, and many Asians use them instead of talking in various scenarios. Being able to view my participants' silent gestures was an added layer of communication that I needed to interpret. These silent gestures included the interviewees' emotions as well as their visible body language and facial expressions. Qualitative researchers rely on participants' verbal and nonverbal communication, as well as their actions and reactions to the interview questions, to tell a story. "At the heart of an interview session are the verbal and nonverbal exchanges that occur as the interviewer gathers information" (Dipboye, 1994, p. 83). Body language, such as posture, gestures, facial expressions, and eye movements, is a necessary tool for interpreting research participants' attitudes or feelings. "Each gesture or movement can be a valuable key to an emotion a person may be feeling at the time" (Pease & Pease, 2006, sect. 5). Some researchers claim that between 70-90% of all meaning is derived from body language (Spence, 2020) and these verbal and nonverbal gestures can reveal an individual's state of mind, his or her attitude, feelings, intentions, and personality traits (Coleman et al, 2023; Glesne, 2016).

Pseudonyms were used in this study to protect the participants' identities. The pseudonyms consisted of three-letter names starting with "A" and continued alphabetically, assigned to individuals based on their interview order (**see Table 1**).

During the interviews, I took field notes and memos. Field notes are commonly defined as a data-gathering strategy that consists of written records of observational data, including descriptions of social interactions and the context in which they occurred in the field (Montgomery & Bailey, 2007; Strauss, 1987). I took handwritten field notes during the interviews, which were used to describe the setting; my participants' body movements and gestures; and my interpretations of my participant's emotions and feelings during the interview.

Table 1
Participants Enrolled in this Study

Pseudonym	Ann	Bob	Cal	Dan	Ely
Country of Birth	China	Taiwan	S. Korea	S. Korea	China
Gender	Female	Male	Male	Male	Male
Age	24	29	31	25	22
First Language	Chinese	Chinese	Korean	Korean	Chinese
State Attending School in	New York	Pennsylvania	New York	Tennessee	New York
Type of Degree	Masters	Masters	Masters	Masters	Masters
Major or Department	Nutrition	Genome Science and Technology	Psychology	Animal Science	Psychology
Worked with Live animals in home country	No	No	Yes	No	Yes
Performing research with Live Non-USDA Animals	Yes	Yes	Yes	Yes	Yes

Creswell (2013) and Patton (2002) conclude that field notes have become an essential component of rigorous qualitative research because they enhance data and provide rich context for analysis. These comprehensive field notes allowed me to take a holistic view while reflecting on the interview as it unfolded overtime. Detailed field notes about the overall study setting help the researcher gain a robust understanding of the participants' lives, while contextualizing their responses to the phenomenon of interest (Phillippi & Lauderdale, 2017). Glesne (2016) examines the importance of having descriptive notes and that your observations and interview notes should be expanded later. I will expand my notes on paper after the interviews so that there is a detailed account of the interview to keep for as long as I need. Field notes should be both descriptive and analytical; and even a year later enable you to visualize the moment, the person, the setting, and even the mood of the participants (Glesne, 2016).

Memos, on the other hand, are a ‘snapshot’ of the *researcher’s* thoughts, ideas, insights, moments of confusion, hunches, interpretations, and feelings, rather than a description of the social context at a given stage of the research (Birks et al., 2008; Grbich, 2013; Mayan, 2016; Saldana, 2013). Memos are a widely used ‘noting process’ in qualitative research with the intent to develop and link different ideas or themes from your reflective thoughts as they occur while analyzing data (Glesne, 2016; Grbich, 2013). Saldana (2013) states that the purpose of memos is not only to document but to reflect on the coding process and emergent patterns, categories, subcategories, or themes in the data. By taking reflective style memos during the interviews, I was able to record my own feelings and prejudices as sources of bias (Bogdan & Biklen, 2007). Charmaz (2016) states that memos allow the researcher to “step back and ask, ‘What is going on here?’ and ‘How can I make sense of it?’” (p. 163). Charmaz adds, “memos are about creating an intellectual workplace for the researcher and therefore must be written with complete freedom” (p. 164). Once I recorded all my data, I transcribed the interview recordings and included my field notes and memos.

Data Analysis

According to Marshall and Rossman (2006) data analysis “is the process of bringing order, structure, and interpretation to the mass of collected data” (p. 154). To organize my data after transcription, I began with coding. There are two main types of coding: deductive and inductive, and both approaches are employed in qualitative research methods (Skjott-Linneberg & Korsgaard, 2019). Deductive coding is collecting data with predetermined themes or a predefined set of codes that you expect to find based on your existing knowledge or that have been established from previous research about the phenomenon. While Inductive coding is a method of coding that allows the data to determine your themes. This is also known as ‘open

coding' (Denzin & Lincoln, 2018; Glacier & Strauss, 1967; Linneberg & Korsgaard, 2019; Saldana, 2013). In inductive coding, data analysis moves from description to interpretation via the process of coding. Combined with an interpretive analysis, this can be a useful way to analyze the interview data (Merriam & Tisdell 2016; Miles et al, 2014; Grbich, 2013). "The inductive approach is relevant when doing an exploratory study" (Linneberg & Korsgaard, 2019, p. 263). My research was exploratory in nature; therefore, I gathered and analyzed the data using an inductive approach that was adapted as the study progressed and relevant categories emerged (Glacier & Strauss, 1967).

I have used Otter.ai in the past and chose to use that same transcription platform for this study. Austin and Sutton (2014) contend that all recordings should be transcribed verbatim and checked for accuracy against the audio recording. I transcribed my data exactly as it was recorded. Mayan (2016) states that "the researcher cannot possibly take down everything that is happening in the setting; he or she must make choices about what and what not to write down" (p. 66). That is why Mayan (2016), adds that the researcher should go to the interview with a list of questions that they will be watching for. Some of these questions include 'what is happening in the interviewees surroundings?' their facial expressions; their hand gestures as well as body movements; and even the tone of their voice. I brought a notebook to each interview and wrote down my field notes and/or memos, adding basic topics set for each interview. Some of the topics included setting, body language, and emotions. The very nature of qualitative research requires the researcher to assume a reflexive stance in relation to the research situation, the participants, and even the data as it is being recorded (Birks et al., 2008).

Thematic analysis is a process to identify themes that emerge from the data. The themes are identified through coding (Fereday & Muir-Cochrane, 2006). Thematic analysis was suitable

for my research because it was flexible and allowed me to explore my participants' views, opinions, and experiences on animal research. I used a six-phase guide by Braun and Clarke (2006) to take a systematic approach to analyzing my data. The steps are: 1) familiarization of the data; 2) coding (2 cycles); 3) generating themes; 4) reviewing themes; 5) defining and naming themes; and 6) writing up findings (Clarke & Braun, 2013; Maguire & Delahunt, 2017).

I began thematic analysis by reading all my data and then re-reading it to familiarize myself with what my interviewees were 'saying' and experiencing. Next, I did two cycles of coding. I did not use any specialized software to develop my code. Instead, I used the process of hand-coding as suggested by IPA guidelines (Smith et al., 2009). According to Boyatzis (1998, as cited by Fereday & Muir-Cochrane, 2006), "a 'good code' is one that captures the qualitative richness of the phenomenon" (p. 83). In Word, I used the *highlight* feature to create my initial descriptive codes. "Descriptive Coding summarizes in a word or short phrase – most often as a noun – the basic topic of a passage of qualitative data" (Saldana, 2013, p. 88). Descriptive coding was used to group and label the data into "chunks", so that it was more manageable to review. I highlighted (in assorted colors) broad categories (e.g., challenges, rules, confusion), then assigned entire sentences to the same color that corresponded. This allowed me to quickly find quotes when needed. For the second cycle of coding, I used Simultaneous Coding (Saldana, 2013). This coding process is used to investigate interrelationships with multiple meanings due to social interactions. "This type of coding may also help you see both 'the bigger picture' and 'the trees in the forest' at work in the data" (Saldana, 2013, p. 82). While conducting simultaneous coding, I used the *comment* feature to assign a second code to the previous codes (e.g., inequality added to adaptation).

Once the two rounds of coding were complete, the categories were revised into initial themes by combining and refining them (Chang & Wang, 2021). The next two steps reviewed the themes, clumped them together by related themes, and defined themes- “identify the ‘essence’ of what each theme is about” (Braun & Clarke, 2006, p. 92). For these two steps, I used the *copy and paste* feature to move themes with the same code into an Excel document. I identified the ‘essence’ of each theme in a separate column. The final step was to document my findings.

Qualitative research does not use power analysis to determine the required number of interviews but instead employs the criterion of saturation as an indicator of the end of data analysis (Strauss & Corbin, 1998). I knew when I was done because no innovative ideas or concepts emerged. According to Miles and Huberman (1994), qualitative methods place primary emphasis on saturation (i.e., obtaining a comprehensive understanding by continuing to sample until no new substantive information is acquired). Glaser and Strauss (1967) add that saturation is when themes and categories in the data become repetitive and redundant. I monitored the data for saturation during the coding process.

Phenomenological Bracketing

Bracketing (also called epoché) is vital to phenomenological research (Thomas & Sohn, 2023). In *The Crisis of European Sciences and Transcendental Phenomenology* (1970) Husserl and Carr argue that a prerequisite for scientific inquiry should be that thoughts and emotions are bracketed. They further explain that the researchers’ ideas and theories have not been deleted, only set aside, and can be accessed again for descriptive purposes. During bracketing, accurate interpretation is needed, which Ashworth (1996) states “is dependent on communication with research participants” (p. 20). Creswell (2009) suggests that researchers should begin their study by describing their own experiences with the phenomenon to offset any biases before examining

their participants' experiences. Ashworth (1996) states "Bracketing is solely for the purpose of allowing description to be carried out in as undistorted a way as possible" (p. 19).

Bracketing was employed in this phenomenological study to enable me to set aside my preconceived notions and attitudes about the rules and regulations that govern animal research in the U.S; instead, I actively listened and recorded my participants' experiences as they presented them. During my data analysis, I drew on my own experiences to help make sense of the data. My unique perspective on the subject was useful in understanding my participants' feelings. Bracketing my emotions and paying exclusive attention to the participants' experiences per se took self-discipline (Ashworth & Greasley, 2009).

Positionality and Reflexivity

As a researcher, I was the primary instrument used to record my data. Thus, readers need to know my identity as a researcher, because "it is assumed that each reader will take away something different from your text and further interpretations and deconstructions will occur in an ongoing manner" (Grbich, 2013, p. 114). As a researcher and unique individual, I cannot separate my background, life experiences, or memories from my daily actions. Instead, reflecting on them and expressing my own positionality was critical to my research. This self-reflection helped me filter my impressions of the experiences and the perceptions of my participants. Grbich (2013) indicates that self-reflexivity involves a heightened recognition of oneself and how one's beliefs have been constructed, framing their interactions with their research.

I positioned myself as a Caucasian American, middle-aged woman. I was a doctoral student in the Adult Education program at a university in the southern U.S. I was also a staff member employed by one of the study universities. My role was as a Compliance Coordinator in the Institutional Animal Care and Use Committee office. I did not have supervisory capabilities

for faculty, staff, or students performing animal research. However, I did conduct oversight for every researcher using animals at that university. Anyone participating in an animal research protocol received animal-related training from me prior to commencing their animal work. From 2019 to 2022, I taught over 90% of the required training classes for animal users wanting to perform research. Starting in 2022, I taught around 25% of the required training classes.

Therefore, it was possible that some of the participants may have recalled my name and that I was in an oversight role for their research at that university. This relationship provided me with access to international students and offered some insight into their study-related challenges.

While performing oversight, I often observed that international students had great difficulty understanding why certain rules were in place or recognizing how to learn more about the oversight laws, regulations, and guidelines for performing animal research. When asked, many international students displayed an apparent language barrier that prohibited their understanding. That is what struck my interest in providing better training for these students in a manner they could comprehend more easily. First, I needed to gain a deeper understanding of their experiences and perceptions regarding their masters research activities.

I am attuned to the realization that as I began my research, my positionality had an enormous influence on the entire research study. Establishing an interviewee's trust in me was sometimes a challenge. Yet, my knowledge of the subject helped make rapport building simpler for successful interviews. I believe that my experience over the years of working in animal research has given me insight into the lives of these students performing animal research and has helped me become a more empathetic listener. I informed my interviewees that in my final write-up, their identities and locations (individual labs) would remain hidden. I had already conducted several in-class interviews with Asian students who had worked in animal research, and based on

that research, it was possible to get my participants to open up to me about their experiences while performing animal research.

To be reflexive is to be able to examine and react to one's own emotions, motives, and situation (Cambridge Dictionary, 2021), which enhances the internal validity of the study (Merriam, 2012). Mayan (2016) and Barry and colleagues (1999) define reflexivity as recognizing your involvement throughout the research process as well as being conscious and self-aware of your own assumptions. As a researcher, I reviewed my role in the research process and how I affected the research. I was also sensitive to “how relations of power operate in the research process” (Reid et al., 2017, p. 50) and how my own position of power in oversight affected my relationship with the participants.

Trustworthiness

Qualitative researchers aim to understand human phenomena. It is crucial that the researcher be aware of personal biases, such as prior knowledge or personal experiences related to the phenomena or events being studied. Researchers achieve this by being the instrument; therefore, the validity of qualitative research is based on the researcher's ability and effort to ensure that the findings are congruent with reality (Golafshani, 2003). As the instrument in my own research, I took several steps to ensure trustworthiness was achieved. First, I maintained field notes and memos that helped make the data analysis process transparent. My memos included reflective notes on my feelings and impressions of the phenomenon. I then bracketed any biases based on my experience, culture, and memories, and referred to those as needed.

Second, I used triangulation as a form of validation. The use of triangulation has been debated for years from both the logical empiricist and interpretivist perspectives (Glesne, 2016). However, Glesne continues by saying that it can be used to identify inconsistencies in your data.

That is why I used triangulation as one method to confirm the trustworthiness of my study. In this study, triangulation was achieved through the collection of multiple data sources and the review of transcripts by participants (Patton, 2002; Merriam, 2009). Each source of data (empirical studies, journals, online databases such as Google Scholar and ERIC, and state and federal agencies) provided me with the opportunity for comparison and added depth to the study. Saldana (2013) claims “data triangulation refers to the combination of different data sources that are examined at different times, places, and persons” (p. 779).

Third, I continually engaged in member checks with my participants during their interviews. I would restate or summarize the information they shared with me throughout the interview process. This gave them the opportunity to immediately correct my understanding of what they had said.

Finally, I examined my personal biases and assumptions about the ongoing research, such as believing that the participants would not trust a Caucasian researcher; that they would dislike training; that they would prefer reading papers over discussing them; and that they would be reluctant to open up to me.

Chapter Summary

This chapter explored the research methodology, positionality, and issues of trustworthiness. Qualitative methodology, specifically interpretative phenomenological analysis, was followed. The IPA approach was best suited for understanding the lived experiences and perceptions of the study participants because it has the primary goal of investigating how individuals make sense of their experiences (Pietkiewicz & Smith, 2014). The credibility of this

qualitative research was established and maintained through the recognition of my positionality and reflexivity. After all my data was recorded and analyzed, the findings were reported. I wanted my participants and colleagues to see me as someone who is making valid contributions to animal research education.

Chapter Four: Findings

In this chapter, I present my findings. Through an examination of the interviews conducted with the study participants, three primary challenges emerged: 1) linguistic challenges, 2) challenges associated with academic research reading and writing, and 3) cultural challenges. I employed an interpretative phenomenological analysis approach to understand the participants' experiences by uncovering several challenges. I begin by reviewing the demographics of the participants and then analyzing their lived experiences.

Question One: *What are Asian CHC graduate sojourner's experiences while engaging in animal research in the US?*

Question Two: *How do their perceptions of the new culture influence their understanding and navigation of animal welfare and compliance rules and regulations?*

Demographics and General Information

The CHC students in this study were also adult learners. As adult learners they brought with them a vast array of previous knowledge and experiences. Even though most of them had not performed research using live animals in their previous undergraduate work, their master's research was very personal for them. Each participant made the intentional decision and then journey to the U.S. to earn their master's degree. As adult learners the context in which they choose to learn has an important role on how they learn. As adult learners, a couple of the participants held jobs while in graduate school. Bob and Ely mentioned working a few hours a week around campus, even though the question of work was not directly examined in this study.

Several of the participants were hesitant about being recorded, and one requested to be excluded from the camera. About halfway through each interview, the participants became more comfortable with the interview process. They appeared to relax both physically and mentally.

They were more willing to share details about their experiences at that point. A rapport was established. Several of the participants spoke English well, while a couple spoke in a more broken form of English. Each participant varied in their comfort level when it came to sharing negative aspects of their experiences performing research with non-USDA covered animals.

Participants

For this study, five participants were interviewed. Three participants were studying at a university in New York, one at a college in Pennsylvania, and one at a university in Tennessee. Despite aiming to have an equal representation of the genders, the interviewees included four males and one female, with ages ranging from 22 to the early 30s. All five CHC students were in Masters programs and working with non-USDA covered animals, such as rodents and poultry. The participants varied in their level of English proficiency and their adaptability to unfamiliar environments and social structures. Thus, they have both similar and different perspectives on their current learning experiences.

Ann

Ann was very personable and relaxed. She appeared well-rounded and not very stressed. Ann stated she was happy to be in the U.S. Prior to traveling to the U.S. to earn her master's degree in nutrition, Ann had no experience performing animal-related research. She states that while at her university in the U.S., she was trained to work with various animal species by her professor, peers, and a regulatory group, the name of which she could not recall at the time. She stated that she felt she had an open line of communication with her peers and professors and that she could share her thoughts with her professors.

Bob

Bob was tense and anxious. He sat very upright with his hands on his lap. When asked about his training experiences he stated that he had trouble comprehending long lectures and he did not like class participation. Bob did not have prior animal research experience, but he had some research experience while performing research with oil palms in his home country. His major in the U.S. was Genome Science and Technology and his master's program required a lot of animal research.

Cal

Cal was friendly and open about expressing his thoughts. He was very mature in his thoughts and views. He was most concerned about “doing things correctly” to please others. He spoke of his family influence and the need to be successful in his education, “so yeah, I just want to approach to the highest level of science, so that's why I came here.”. Cal had previous research experience and worked with rodents in his home country (S. Korea) before coming to the U.S. to earn his masters. Cal spoke of the differences in his home country and the U.S. for performing research.

Dan

Dan came to the U.S. having had some plant research experience while in S. Korea. He expressed his feelings of isolation while in the U.S. and was homesick because he did not have friends yet. He also shared that he wanted to please his parents back home. Dan explained that he had a hard time comprehending lectures in the U.S. and he did not like group projects or discussions. He was more guarded and reserved about his personal feelings and experiences while in the U.S. Dan did become more relaxed during the interview but never fully opened up.

Ely

Ely was very goal oriented. He said his struggles were in academic writing and oral presentations. He did get help from his peers on group presentations and academic writing for his research. Ely did research with rodents in China and is continuing his studies for Cancer biomarkers here in the U.S. He said his training was not hard, but “more restrictions in the U.S., but they need to be there” (Ely). Ely’s research study was complicated and intense, requiring a lot of critical thinking and problem-solving.

Differences in Confucian Heritage Culture

All five participants came from CHC countries. Ann from West China, Bob from Thailand, Cal and Dan from South Korea, and Ely from Central China. Confucian influence is prevalent in the participant’s home countries. The history of CHC’s educational system is profoundly embedded with Confucianism (Li, 2016; Sun, 2013; Tan, 2017, 2018; Walton, 2023). As the participants traveled to the U.S. to pursue a graduate degree as Asian sojourners, they came from educational backgrounds that were rigorous, competitive, and deeply rooted in Confucianism.

CHC students face challenges based on their cultural differences, such as language barriers (Gautam et al., 2016; Rodriguez et al., 2019; Wu & Hammond, 2011), cultivating critical thinking skills (Tran, 2013; Wang & Wu, 2023; Yuan, 2022; Zhang & Chan, 2021), collectivism versus individualism (Shuai et al., 2015; Thanh et al., 2008; Yuan, 2022), and understanding new academic expectations while creating appropriate interactions and relationships with instructors and the local community (Rodriguez et al., 2019; Tan & Yates, 2011; Wu & Hammond, 2011; Yuan, 2022). While analyzing my data I discovered that all the participants experienced two or more of these documented challenges while in their masters programs and performing animal

related research. These challenges emerged during my analysis as the lived experiences of the participants began to resemble each other. I also discovered new challenges specific to CHC sojourners as they performed research using animals. By using Smiths qualitative, interpretative phenomenological analysis (IPA) approach for data analysis, four major themes related to challenges that CHC sojourners faced emerged.

All quotes in this study are written exactly as they were spoken. This exact dictation lends to the cultural differences expressed by the study participants.

Challenges

In this section, I provide a summary of the prevalent challenges encountered by the study participants across various research disciplines as CHC graduate sojourners engaged in research involving animals. The primary themes encompass difficulties associated with the English language, cultural barriers, and the educational process related to performing and composing research in the U.S. These principal themes subsequently evolve into subthemes that elucidate the participants' experiences and perspectives regarding the challenges they faced.

Linguistic Challenges

The study participants are sojourners who have learned English as a second or even third language. These non-native English-speaking CHC students often face linguistic challenges unique to college settings, such as participating in classroom discussions and comprehending academic language and concepts. Prior experience and understanding of the English language, along with the amount of time spent using English daily, significantly impact CHC students' English language proficiency while in the U.S. All five participants perceived the lack of language proficiency as a problem regardless of their years of study. Both Ann and Ely had pre-

sessional English courses in their home country of China but at different levels. Ann stated, “I started learning English early,” while Ely said:

I actually went to an international department during high school; everyone in my class is going to study abroad Canada, Australia, America, and we spend a lot of time on English and prepare for SAT. The class is helpful.

Therefore, both Ann and Ely felt more at ease with English when it was presented in a structured format. Ely talked about his realization that academic language was not always presented in a structured format like he learned in China:

Formal English like we learned in China is easier than now in U.S. People speak fast and most of my classmates in lab are from here [U.S.] I have an easy time with English compared to some of my classmates.... I learn better when I can talk about it with my professor.

Despite Ann and Ely having spent more time studying English than some of the other participants, they still faced challenges because the classroom was less formal and structured compared to their classes in China, and their U.S. peers and the professors often spoke using idioms or research jargon that they did not understand. Ann explained how she felt Asians are stereotyped:

They say we [Asians] are all smart and know a lot, I feel very ashamed because I do not understand all the research. I do not understand all the language and meaning of many words. I worry about my grades and if my professor like me...it is a lot of pressure.

The other participants, Bob, Cal, and Dan still did not feel as comfortable speaking in English. Dan shared “English is harder now in the U.S.”. “We did not learn many expressions used here [U.S.]” (Cal). Bob shared his difficulty with English as a second language. “[I] did not

speak English at home and now English harder with classmates....it is not what we learned in school...there are many different word meanings”.

Participating in class discussions has been identified by several scholars and researchers as a challenge for Asian students studying in the U.S. This was an aspect that each participant in this study, too, expressed a dislike for. Each participant shared how they dreaded joining class discussions, group projects, or presentations. For Cal, the language barriers he faced caused him difficulty in understanding long lectures. “I record lectures to my phone and listen to the recorded lectures over and over.” This, in turn, led him to avoid participating in class discussions or group projects: “I don’t like group projects because everyone speaks around me and too fast” (Cal). He was not alone; Dan also struggled to understand his instructors and felt like he was falling behind: “in my classes they try to talk about everything even not related. I get confused.” The feeling of not keeping up made Dan feel inferior regarding his education and skills, and he often found himself shutting down in class. Dan shared:

I not good at talking in class. I not know all words and get confused, I not like when they [peers] all stare at me. I want to be better at English...for better research. I could do more and understand more. I feel nervous to talk with professor and classmates.

Bob also expressed his anxiety around speaking in class because he used broken English, “I sometime feel uncomfortable and stupid when I speak in class.... I not know if it the right word or meaning.”

All the participants shared that their stress levels increased because they had to translate their thoughts in their home language first to understand it, then back into English to answer questions in class. Therefore, it was challenging for them to participate spontaneously in class discussions. Ann stated that she did not feel comfortable talking aloud unless she was prepared:

I cannot easily or quickly come up with the words to make the sentences that I want to use. In class I am always thinking about the second meaning of the lecture...I do not want to answer when I do not understand. I will feel stupid.

Bob described how he worried about what his peers thought about the time it took him to respond, “I have to think longer to respond...my classmates might think I do not understand, or I am stupid”. He added that he wanted to fit in with his classmates during discussions but could not, “I do not like to talk because I have things to say but cannot and the subject changes to something else quickly.” Like Bob and Ann, Cal avoided class discussions for the fear of being perceived as stupid or not understanding the subject being taught, Cal stated “in my home country I am liked and feel confident talking...in U.S. I do not like group projects”. He added “I want to do the work with others, [but] they no understand what I thinking to say”. Dan did not want to join class discussions he was not prepared for. He stated that he thought some class discussions wasted time and were not valuable, “how can you get information if you only talk about material.” Ely, on the other hand, believed that some class discussions were helpful, “sometimes discussion can relate to class material.... I like to hear from classmates, but sometimes they speak too fast, and they [are] hard to understand.” Each participant shared how they wanted more time to prepare for class discussions and papers. “If I could be ready for group talk I would have more to say” (Ely). “I want to read much before class... I want to do better when talk to professor” (Dan).

In Confucian culture, the instructor presents the material, and students listen, but students do not usually actively participate in class discussions. While in Western culture, students are expected to listen and form their own opinions and ideas about the material presented and share their ideas with others. This is a significant difference between CHC and Western culture that

often causes considerable anxiety and stress for CHC sojourners performing research with animals in a new culture, as they must communicate their research openly.

Cultural Barriers

Traditional Confucian culture prioritizes family and society over the individual; wherein family and social networks serve as critical support systems for individuals. This dynamic can pose significant challenges for sojourners arriving in the United States independently and lacking established social connections. In this study, participants articulated the difficulties each faced due to the absence of a support system upon their initial arrival in the United States. Some participants continue to grapple with this issue.

Interpersonal and social relationships are both crucial for success in college and in performing research. Students must build interpersonal relationships to contribute to their overall well-being (Lin & Sherz, 2014). Finding a support system was important to each participant. While the initial lack of support system and social relationships among the study participants caused them to experience anxiety, depression, and feelings of isolation; they all eventually developed some form of interpersonal and social relationships that helped to guide them in performing research. Cal shared how when he first started his masters program, he did not have that support system:

I had no one that help me while learning to do research with mice.... I would like to have people that could give me advice on how to do procedures... people in my lab were nice but no one understand me and so I worked on research by myself.

Cal later developed interpersonal relationships with several peers and his PI, “When I have idea, I can just go talk to them [peers]. Like, without even do any background study, I just say, hey, I think about this, do you think it's gonna work?”.

Like Cal, the other study participants wanted someone, such as a mentor, to guide them in all aspects of research, from hands-on procedures to writing and presenting their findings. Each participant eventually found a mentor and several of the participants spoke of how their support system and mentors instilled confidence in them and supported them in ways they had not been supported in their home countries. Dan spoke of his relationship with the lab's TA (teaching assistant). He shared that his TA was around his age and very accessible, so he would ask him questions about the research projects, especially the hands-on procedures. "He [TA] is very helpful... guides me on how to give injections." Ann shared a similar relationship with her PI:

I really admire him, [if] my experiment comes out differently from what he expect, he never accused me like, you're doing this wrong or like, did you forgot this? He's always like, Oh, that's very interesting. Let's analyze, let's see what might be the possible explanation based on this result.

Bob stated that his PI acted like a mentor to him and was very hands-on with the research and teaching. He said, "he helped me choose my topic and guide me in my project". He also added that his PI would stay late and help him understand the language that accompanied his research area. Bob spoke of his PI as more than a mentor but also a friend.

Even though mentors were a great way for the participants to develop social relationships and feel confident in their research with animals, some of the participants still struggled with developing interpersonal relationships with their peers because of overarching cultural differences. Participants were asked if they felt confident in doing research in graduate school, and Bob explained how the cultural differences in age and social hierarchy varied between the U.S. and Taiwan:

I feel like in America is more open about our opinion, and you don't have to care much if the other person that you talk to is like older than you or not, like in Asian culture. Here is really not going to, like show disrespect to the elder or someone that's older than you so here I think is open to the opportunity, you know, like, expressing your opinion.

Ann also noted differences between interpersonal relationships in CHC culture and the U.S., stating, “in my home country I [female] can do research some, only some, not what I want to study”. This aspect of gender differences among her own culture played a vital role in her interpersonal interactions with her peers and professors while in the U.S. Ann talked about how the interpersonal relationships that she developed with her PI and a few close peers made her feel more confident and at ease with performing research, “it's more well doing research academically, it's more relaxed, relaxing in U.S. compared to in China”.

Each participant expressed how they initially missed home and the social and interpersonal relationships they had in their home countries because they did not have other students from their countries of origin that they could easily talk to in their native language. Then the participants expressed how after some time had passed, they began to develop strong interpersonal and social relationships and were overall happy to be in the U.S. Ely especially enjoyed his “freedom,” saying, “I like it here because I have more opportunity.... I can choose my research topic.” Bob shared that “after research and graduation, I want to stay in the U.S”.

Different Research

CHC education is shaped by social connections and ethnic balance. Consequently, CHC places less emphasis on research protocols and regulations compared to Western academia. The research participants expressed varying opinions regarding the guidelines they needed to understand prior to performing graduate-level research involving animals in the U.S. The

analysis revealed subthemes related to training differences, including variations in resources and formats, as well as understanding of the rules.

Training. Graduate students in the U.S. who perform animal-related research are required to undergo training provided by federal, state, and institutional regulatory oversight bodies. The Institutional Animal Care and Use Committee (IACUC) is a federal regulatory oversight body that is required at every institution that uses live animals in research studies. The IACUC at the different institutions all have the same federal guidelines, but the material can be presented differently by each institution. Additionally, any needed species-specific or procedure-specific training is the PI's responsibility to teach. Performing any research, especially research that uses live animals, requires a lot of resources. Training in various formats is the primary resource provided to researchers across the U.S. when preparing to perform animal research. Any university or college that performs research using live animals is required to provide training for its researchers, but this training can be presented in any format they deem appropriate. Each study participant explained that they had to go through specialized training that taught them the rules and regulations for performing animal research; as well as hands-on training that demonstrated how to perform various research procedures. Each participant completed a training course specific to their college or university. After completing a semi-formal training course, they received additional training within their respective labs, which was presented in various formats but always included hands-on training. This practical training was widely liked by the participants, even though CHCs commonly focus more on memorizing academic material rather than doing tasks.

Study participants were asked to describe how their training, including the rules and regulations, was presented to them. They expressed similar formats among the three different

states where they attended graduate school. The three participants from New York were primarily trained in their lab with hands-on techniques. They had accompanying literature on the rules and regulations, which they were provided to read on their own. In Tennessee, research training was presented as a guided PowerPoint tutorial and hands-on training, both of which were provided by the institution. The PI had to add supplemental training for any tasks that were specific to their protocols. Pennsylvania required its research students to read training material and take a quiz on the rules and regulations, as well as having hands-on training.

Ann, Cal, and Ely all expressed differing opinions on their training in New York. Ann stated, “I read a lot, many things,” but “I like hands-on, it’s easier to learn, not too much reading, easier to communicate with others when there’s questions”. Ann also learned hands-on faster and felt more confident after being shown how to do the procedures. She stated, “I know procedures now...I can do it easily”. Cal shared how he was taught and his opinions on the methods. Then he added that he had to ask many questions in the lab so he could understand the procedures.

I want to know procedures well, how to handle mice right good...I like when I can do tasks. I learn the [hands-on] procedure from like people that are in upper class...I can ask questions freely like no one think I am dumb...I ask many questions. I like to show me again so I learn it [procedure]. I have reading material that were made by school so that is how I learn guidelines, like rules...they are hard”.

Cal added that he was audited by the regulatory body overseeing the use of animals in research, and he shared that “one day they [IACUC] came to review me, and I was very nervous. I did have [animal] handling training but not sure if it was like right good.” Ely shared a similar experience in learning the procedures through hands-on training. Ely stated:

When I have to work with animal I know how because I did procedure with professor. He show me each thing, like how to hold mice and where give injection, I can do now alone, I like that. I not learn from reading, like I learn from professor show me.

All three participants also spoke of how they felt their training could be improved. One aspect that they all expressed was that the trainers spoke fast and were hard to follow at times and that made learning the rules and procedures even harder.

Dan stated that in Tennessee, training for animal research was different from his previous plant research but that more resources were available for his research now in the U.S. Dan stated:

I did not have [animal] research before, and the rules are hard to do... you have to do more things for animals. Here I need to take more recordings and look at more... I had a lot more training here.

Dan also discussed how it was a personal decision to attend a college in the U.S. because he wanted more independence and wanted to avoid work being done improperly. When Dan was asked to elaborate on what he meant by improperly, he said that he had experienced firsthand cutting corners in research while in his home country, “we not always do the proper method”. He shared a story of his peer improperly disposing of chemicals to avoid letting the PI know the experiment had failed. Then Dan spoke of how he had to be careful not to make mistakes and waste valuable resources in his home country. He said:

I have to say that even huge difference because like in my country, we have limited resources. So that is why, like when I do the experiment, I need to be really careful, [because] my professor will not allow me to fail so many times. They (professor) watch us and sit right next to us. Here not like that.

Initially, Bob did not think there was much difference between animal research training in Pennsylvania versus animal research training in Taiwan, stating that “there’s not so much different policy compared to here...we have IACUC for our research”. He added that he had experienced regulatory oversight including inspections and species-specific training in his home country. However, once he started to perform animal research in graduate school, he realized that the rules in the U.S. were more rigorous. Further insights revealed that he had similar procedural training but not as much critical thinking or analytical reasoning, while in his home country.

The five participants were required to learn specific tasks according to the institutions’ individual regulatory oversight body. However, each institution presented the training in various formats such as written, electronic, verbal, and hands-on. All participants preferred verbal and in-person training over PowerPoint presentations or videos. Through data analysis, it became clear that the CHC students preferred in-person training because it fostered stronger social connections, which they were accustomed to in Confucian cultures. The in-person training allowed them to actively see a procedure and facilitate real time engagement in a semi-structured environment as well as receive real-time feedback.

The way in which the rules were presented during training at the participants’ institutions influenced their confidence in their labs and their handling of animals for research. All the participants, except Bob, who performed previous research, explained how they were initially unaware of the existence of animal research agencies.

Rule Comprehension. Understanding how CHC students comprehend and interpret rules and regulations that guide animal researchers was an important question in this study. Some of the participants had difficulties in comprehending the required research specific rules and regulations while in the U.S. They did not always understand *why* they needed to do a task a

certain way. Bob stated that “In lab I want to know why I need to do task certain way, but I do not know. I think research is difficult I need to do twice as much work to complete task as my peers”. Cal also thought research was difficult because he too did not always understand the reasoning behind the tasks:

“When in lab I tried to ask a lot of questions to help understand the goal. In my first lab I did not understand the reason for the project and my professor got mad with me, I switched labs now my professor explains it better”.

Similarly, Ely did not comprehend all the details of his research project and could not add additional insights, “did not understand why we perform the study like that, so my professor ask me questions I not know”.

There was no “buy-in” by the CHC students for many of the research rules and regulations because they do not fully understand why they are doing tasks a certain way. Many of these laboratory tasks are directly governed by outside federal and state regulatory bodies. When researchers are unfamiliar with these different regulatory oversight bodies, they often do not understand the additional required steps that must be performed in order to stay in compliance. Therefore, participants may not adhere to said rules as closely.

Each participant had to comprehend and then apply a new set of unfamiliar rules for performing animal research in their US college or university. They each stated that they learned how to perform the task but also shared that it was because they had learned it from repetition and not true comprehension. Each participant could easily replicate almost any of the hands-on procedures without fully understanding the *why* behind their actions. Ann shared that she easily mimicked tasks, “I do like my professor show me”. Indicating that she did tasks as she was told, but when asked ‘why did you do that task that way’ she had no answer. Ann also stated that

“everything is in patterns in Chinese exams... We do not have much critical thinking... the rules are good... I understand them”. Dan was focused on appeasing his professors and saving face. He shared how he completed task with little thought behind it, “I can do the task well and want to have my professor happy with me... I do task quick and over and over”. Cal too shared how he wanted to “do things right” but did not put much critical thinking into his tasks, “I weigh the animal every day, check the animals, I know what to look for and if something is wrong, I contact the professor. I do this every day. I not think about my reason, to understand, our study means I do same checklist every day. Cal further explained that he simply repeated the steps of the tasks being taught and felt comfortable with those actions while in his lab “I feel good about injections”, but he confirmed that he did not always understand why he was doing a task a certain way. For example, Cal explained how he was told to write everything down that related to the experiment including time, procedure, outcome, and so on. He shared, “I do not understand why we record everything like that”. Ely also shared his lack of understanding of why he did task a certain way and why he did those tasks. Ely said, “I like to memorize things, and they [the rules] are not to memorize”. His university taught primarily hands-on techniques that did not require a lot of structured memorizations. “I do them and learn from TA and professor... I know I need to follow more rules than just by my professor, but they are hard to understand.... I know how to do the task, so I get it done”.

Even though the participants became proficient at replicating tasks and procedures they did not always gain the critical thinking skills associated with that task, therefore, they could not apply or comprehend the task beyond its physical measures. Ann, Cal, and other participants could not answer in depth reasoning questions about their study. When asked, by their peers and professors, to explain a procedure several of the participants mentioned that they sometimes

became stressed and felt stupid. The anxiety around explaining a task or procedure had a cultural component, because the participants did not want to “lose face” or have their families disappointed in them. Several of the participants appeared to be very critical of themselves. The disconnect in their understanding of their own comprehension of the rules was an important finding of this study. The participants could not critically analyze the task deeply enough to explain *why* they performed certain tasks or why they performed those tasks in specific ways.

Rule comprehension is an important part of research that must be taken seriously. A couple of the participants shared how they felt there was a different level of seriousness and importance of the research rules used in the US compared to some CHCs. For example, Cal stated:

Well, here like the whole policy where we talk about policies, really like serious thing, like we cannot break the policy. So like, for example, I, when I did the training for the biosecurity lab level two it showing a lot of notes and showing the damage what students were supposed to do in this case, what students should not do in the biosecurity lab level two, and what they can do. But in my country, we also know about that, but we don't really think that seriously.

Bob also shared how the rules in his home country were not taken as seriously as in the US. Bob said, “we followed rules but here is more strict and important...you can get in trouble and then not be able to do your research”.

Prior to working with animals for research, the participants stated that they each lacked basic knowledge of animal ethics and welfare. Therefore, it is essential for students to gain a comprehensive understanding of, and to actively incorporate, the appropriate rules for working with animals in research. After interviewing each participant, I found that the participants had an

inadequate grasp of experimental techniques because of their lack of comprehending the rules and regulations for performing research with animals. For example, most of the participants were unfamiliar with the various quality control measures that had to be in place as they performed research on animals and the standards that had to be met in order to produce reliable results.

The participants wanted to be shown how to do a task and to be given time to review written material at their own pace. Even though the participants took to the hands-on part of their training, there was also training that encompassed a more comprehensive and analytical component to learning and performing animal research. The participants all wanted to be compliant with the research rules and perform good research, but their lack of rule comprehension caused them to not fully understand the *why* behind doing different research tasks.

Academic Research Reading and Writing

When the study participants were asked if they found reading and writing academic papers on their research difficult, all of them stated that they did. Some had slightly varied reasons. The primary reason among all participants was that they tended to read academic texts slowly to better understand the content. They needed more time for both reading and writing.

Reading. Ely stated, “International students spend a lot of time reading”. The participants shared that to comprehend the material, they had to read slower, look up word meanings, and often re-read the material several times. Ann shared a difficult situation she experienced with academic reading:

We were asked to read others research papers in groups and discuss what they were about, it was very hard for me, and I did not like it. Other group members finished reading before me and were talking about the paper and so I felt confused.

Bob also indicated that “reading in English is challenging” for him. He shared how he often spent more time reading in his room than going out and it made him feel lonely. The participants expressed how they needed more time to read before class, which took up most of the time they would be able to socialize. Ely shared, “My roommate goes out a lot, but I have a lot of reading and writing to do”. This makes Ely feel disconnected.

The participants also felt they were slower at reading because some of the words were unknown to them. The lack of understanding of the research jargon specific to animal research made comprehension difficult and had the potential to lead to mistakes. For example, when Ely was given written information that was a step-by-step guide to giving an injection into the muscle, he was able to replicate the hands-on portion but did not understand some of the acronyms or anatomical directional terms. Therefore, even though he gave the injection in the correct location, using the correct method, the injection route that he used did not match what was in the written protocol. This was because when he wrote the protocol, he used the incorrect abbreviations associated with injection routes. He stated that he was reprimanded and had to have additional training. He added, “I did not need more training I knew what to do”. With his lack of understanding all the directional and anatomical terms used in the US, he could not accurately and easily alter his techniques to fit all situations he faced during the study. When working with live animals you must be adaptable to each animal’s individual characteristics. Ely stated:

I just read but not know, understand how to give, like do I hold, like how to hold the mouse...many mouse not easy to hold...no I do not know where to inject, like in leg or abdomen...we not use these same words in China...we not taught them before here.

Ely then described his ideal way to learn tasks “I need them to show me”.

Writing. Writing is crucial at the graduate level because students write for academic learning and to share their research. Several of the participants shared their dislike for writing research papers because it took longer and they spent more time collecting the data because their reading comprehension was slower than some of their peers. Cal explained how writing research papers was difficult for him because he had to produce his own findings and arguments and he had not done that previously, “[while] writing research paper, it hard to argue.... they [instructors] want a final answer.” Dan also found it difficult to write academic papers and shared that while in Korea he did some research, but it was not as direct or final with the research findings, “I didn't know how to present my finding... I never write like this before”.

CHC students often do not have to be as creative with their thoughts and ideas as Western culture but instead need to provide facts because the culture values conformity. This sometimes meant that these cultures would copy and paste printed information without citation, which is known in the U.S. as plagiarism. While in Western culture, plagiarism is heavily frowned upon, it is sometimes encouraged in CHCs. Dan explained how, while in the U.S., he had to rewrite his first research paper because the professor said he plagiarized. He was very embarrassed, “I did not tell my family in Korea.” Dan shared how he had a tough time with both reading and writing academic papers:

I think language structure in English is difficult...I take a longer time to read...I do not always understand like, what the words are explaining in other research papers...I have hard time writing paper because, um I'm nervous over copying [plagiarism]. I was told [by peers] papers on my research were difficult and professors are strict. I feel very afraid of getting in trouble for my writing.

Dan was not alone in his anxiety over writing research papers. Ann shared that she had to reread her academic paper several times and she often felt like she did not know how to express her findings. She stated, “my findings get hard to write because I do not want to do plagiarism...I try to list everything from other authors in my paper, so I do not plagiarism”.

Time Management. Managing time while in graduate school is an uphill endeavor. The more you learn, the more responsibility you gain which in turn requires more of your time. The study participants each expressed how they had trouble with time management. Several of the participants attributed their accumulation of a lot of work to their slower reading and writing times. They are all worried about getting behind in their studies and research projects. “I have papers and chapters to read, and we must work with our animals every day and record data. I have to work hard and spend most of the night doing reading and writing for the next day” (Ely). Bob also explained how he had to spend more time than his peers reading, “I am not fast at reading the textbooks, the chapters are hard”. Dan shared how he often got confused in class and felt lost which made him feel like he was falling behind, “I do not understand some of the talking...I need more time to translate the sentences. I take longer in studies and fall behind sometimes”. Ann shared in their concerns over time management and especially time spent on their academic studies, I work hard to do all the work like reading and lab work and make friends with my roommate. However, as the students experienced more research their time management became more proficient. Cal states “I had a hard time when I arrived keeping up with class work and lab animals, but now I do it. I am better at that” [time management].

Chapter Summary

Chapter four presented data analysis through several themes: linguistic challenges; cultural challenges, differing research, including training and rule comprehension; and

challenges associated with academic research, reading, and writing. Graduate school was already stressful, and the study participants faced the added pressure of learning how to perform animal research while facing these challenges. The participants explained that they needed to familiarize themselves with new academic guidelines for performing research in the U.S., as well as unique rules for working with live animals. They encountered several challenges, some of which have been previously researched among the Asian population, such as language and cultural barriers. However, this study focusing on the Confucian heritage culture of international masters students' learning, uncovered several additional novel discoveries including a lack of research-specific mentorship, preferred training techniques unique to animal research, true comprehension of rules and language versus simply replicating tasks, and the necessity for these CHC sojourners to allocate more time for reading and writing comprehension. These findings are not surprising given that masters students typically engage in a two-year program versus doctoral students who are studying for four years or more. The shorter time frame in which the masters students in this study had to try and acclimate into the new learning environment played a role in their level of adjustment and the time needed for this adjustment.

These new findings lead us now to Chapter Five, where I further interpret and discuss the findings in greater detail regarding implications and recommendations for future research.

Chapter Five: Discussion

In this chapter, I will interpret and discuss the findings that emerged from data analysis. I also present practical and social implications for educational practice, policy making, and society at large. Then the chapter concludes with recommendations for future studies and closing remarks.

In this study, the CHC students' experiences are ones of challenge and triumph. The study findings centered around the importance of training when using animals for research, along with providing an experiential learning environment for hands-on opportunities and establishing mentorship for success. International students from Asian countries are the most prominent group of students traveling to the U.S. for higher education (IIE, 2024; Okai, 2020; Stewart-Rozema & Pratts, 2022). There have been multiple studies that have focused on Asian student's challenges while attending colleges and universities in the U.S. (Gautam et al., 2016; Rodriguez et al., 2019; Shuai et al., 2015; Tan & Yates, 2011; Thanh et al., 2008; Tran, 2013; Wang & Wu, 2023; Wu & Hammond, 2011; Yuan, 2022; Zhang & Chan, 2021). This study narrows down previous literature and focuses on one group of Asian sojourners, students from Confucian heritage cultures (CHC). The CHC students in this study traveled to the United States to attend masters programs and perform animal-related research. Focusing on this narrow group of students allowed for a more defined study and less generalizations about all Asian students and cultures.

Comparable to more generalized studies on Asian students as a homogeneous group, this study found that CHC students faced some of the same challenges. The common theme among previous research and this study is the language and cultural challenges that Asian students face. In addition to well-known language and cultural barriers, two novel findings were discovered

among the CHC students in this study. The findings include the lack of research rule comprehension by CHC sojourners performing animal-related research for their degree and the need for research-specific mentorship.

Research Comprehension and Training

Since animals are valued differently in different cultures, CHCs have different rules and protections that monitor their use in research. The U.S. has some of the strictest regulations and oversight requirements in the world. The extensive number of governing bodies and rules intimidated most of the participants. Four of the five participants had no prior experience with regulatory oversight of animals used for research. Several of the general terms like animal welfare, husbandry, IACUC, and noncompliance were not used in their previous academic careers. Also, there were often lengthy and complex definitions that accompanied these animal research specific terms. The CHC students in this study shared how they were trying to stay on top of their classwork and learn the research terms that other students in their labs already seemed to know and expected them to know as well.

All the participants stated that the rules and regulations that govern animal use in research in the U.S. were different from any rules they had followed previously in academia. Several of the participants shared that most of their research knowledge and training came from their instructors or others in the lab. Therefore, training is of the utmost importance when using animals for research.

Rodriguez, Chavez, and Klauber (2019) state that language proficiency can impact assignment quality; comprehension of classroom lectures; and the ability to successfully complete oral and written exams. Adequate language proficiency is needed to help make learning a new set of oversight regulations that govern researcher's experiments easier to comprehend.

Research rule comprehension challenges were experienced by all the participants during their training. The same challenges that the newly sojournerd CHC students faced outside of college within their new society they also faced while in college along with the additional challenges of learning the rules and regulations that govern over performing research that uses animals. These types of challenges can lead to difficulty in fully developing autonomous research skills.

A common challenge among the participants was their difficulty in writing academic research papers. Several of the participants stated that they had a hard time trying to explain their research methods and findings. Even after successfully working with animals and gathering data they needed to present their findings in research papers and had a hard time describing the research and its findings. They further explained that there were research specific terms that had to be incorporated to justify their findings, as well as research governing bodies such as IACUC that had to approve their research prior to conducting it. Therefore, they each had to learn the rules and regulations that govern animal research and how to apply those rules and only one of the five participants had prior experience in writing research papers. Plagiarism was another aspect of writing papers that several of the participants expressed fear around. They shared how plagiarism is taken more seriously in Western culture compared to Confucian culture. The study participants had to practice more and spend more time working on their papers to be successful. Time management was another barrier while writing academic papers. Each participant had to work on their time management individually. They each described situations where they felt that they were behind or falling behind and had to develop better time management skills. Research papers take copious amounts of information that must be condensed into a publishable size. This was a challenge for the CHC students in this study.

An important academic skill needed by graduate researchers for strong rule comprehension is stellar communication. Excellent communication skills require proficiency in reading and writing, as well as *comprehension* of said reading and writing. A combination of strong communication and research rule comprehension were important to the CHC students performing research because the graduate research culture required discipline specific language and accurate reading and writing skills. These skills are often not taught, but researchers were expected to know them. Graduate students from CHC countries studying within the U.S. continued to face challenges while reading and writing in English, despite being exposed to the English language while in their home countries (Li, 2012). Woo and Hammond (2011) explored the impact of language proficiency on CHC students' academic performance. Like their study and the previous research explored, the participants in this study had difficulty understanding lectures and keeping up with reading and writing assignments. Each participant, compared to their American peers, had to spend significantly more time reading book chapters for their assignments and to gain general knowledge around subject matters. They all felt the time pressure during exams and assignments, which caused them to lack understanding of some of the concepts taught. The five participants also struggled with developing their own research findings and arguments due to lack of language and rule comprehension.

Hands-on Training. Each participant shared that the methods used to train them in the new rules were helpful but could be better if instructors provided more hands-on opportunities through an experiential learning environment. When asked how the participants felt they learned best, each participant shared how hands-on portions of training from outside of the lab, such as the IACUC or USDA inspections, were more helpful than just reading the information; because once again it often took them longer to read and then comprehend the meaning. They also

described that when learning to perform various tasks within the lab, hands-on training was extremely helpful.

By examining CHC students' experiences while performing animal related research through Kolb's Experiential Learning Theory (ELT) (1984) I realized that their prior experiences played a much bigger role in the relationship between the challenges they faced and their research rule comprehension. The ELT was developed from the idea of Knowles and Dewey's 'learning by doing' and focused on a learner-centered approach that would explain how experience, including an individual's behaviors, cognitions, and perceptions, are transformed into consistent knowledge by the learner. Kolb believes that adults can absorb new skills, as well as retain and apply their knowledge when they are engaged in activities and reflection. Kolb's theory emphasized the importance of hands-on learning, self-directed activities, and real-world applications to make learning relevant and memorable for adults.

Two of Kolb's five key aspects of the ELT are active experimentation and concrete experience. The idea of active experimentation concludes that when given the opportunity adults will apply their new knowledge and skills by experimenting with new ideas and making changes based on their reflections. In Kolb's key aspect of concrete experience, he states that adults learn by engaging in new activities or experiencing something in a new way. The participants stated that when they were allowed to take their time and try different methods during research experiments, they were able to recognize what changes should be made to their study and then apply the changes.

The five participants shared how in the U.S. they liked to engage in self-directed tasks more than they did in their home countries. Two of the participants mentioned that they liked learning while in the U.S. because they could be more independent and make more choices for

themselves compared to their home country. Each participant explained how they felt that the research they were performing on animals was relevant to their future goals and had real-world applications. Two participants shared that their work was also important to others, and that they were happy to be part of the research projects that “help real people” (Ann, 2025).

According to Wang, Martin, and Martin (2002), comprehension of language is accomplished through representations of new information merging with previous knowledge. Another one of Kolb’s five key aspects is drawing on past experiences. Kolb states that adults build upon their existing knowledge and skills as they learn new things. This combination of old and new information is only part of how CHC students comprehend the new rules and regulations associated with animal research. Most of the participants also needed to understand the context in which the words were being used. With the lack of context, reading and writing were more difficult than hands-on learning for most of the participants. Even when the participants thought they understood a new term or procedure their ideas and experience could sometimes move them toward an irrelevant perspective or concept. The disconnect in the study participants’ understanding of their own comprehension of the rules was an important finding of this study. The participants could not critically analyze the task deeply enough to explain why they performed certain tasks or why they performed those tasks in specific ways.

Establishing Research Mentorship

Some of the day-to-day challenges that were faced by the study participants stemmed not only from language differences but also from cultural differences, such as social interactions and relationships. A novel theme among all five participants was their desire for research specific mentorship. Mentoring as defined by Roberts (2000) is “a formalized process whereby a more knowledgeable and experienced person actuates a supportive role of overseeing and encouraging

reflection and learning within a less experienced and knowledgeable person, to facilitate that person's career and personal development" (p. 162).

Several studies (Bland et al., 2009; Feldman et al., 2010; Fleming et al., 2012; Ramanan et al., 2002; Yeh and Inose, 2002) that focus on the challenges faced by Asian international students recognized the need for academic and social support for these students. All the study participants shared how they wanted guidance and support at all levels as they progressed through graduate school and performed animal related research. Several of them described their individual challenges, including not knowing anyone on a personal level and having to overcome language and cultural barriers on their own. Unfortunately, on top of those challenges, they also had to learn a new set of rules for working with animals. Sorkness and colleagues (2015) describe how studies have reported that trainees from minority groups typically receive less mentoring than their non-minority peers. They further explain that while a lack of mentoring is not unique to underrepresented investigators, the effect disproportionately impacts those from underrepresented groups, especially those in majority white institutions.

Similar to previous studies by Gautam and colleagues (2016), Martirosyan (2015), and Perry (2016), some of the study participants expressed a preference for making friends with others from their own nationality or a similar background. All the participants shared feelings of uncertainty and intimidation when trying to socialize with American students. Therefore, Lowinger and colleagues (2014, 2016) suggest having a role model from one's own ethnic group because it is more encouraging for international students than having a role model from a different ethnic group. Carr, Holmes, and Flynn (2017) and Yeh and Inose (2002) also stress the importance of co-ethnic mentoring programs because the mentors share the same language and cultural backgrounds, and thus their experience is more relevant to their peer mentees. On the

other hand, a couple of the participants stated that they did not prefer co-ethnic mentorship over other forms of mentorship, and they just wanted help navigating an often-confusing research environment.

Cultural Influences on Research

Language and Cultural Barriers

Research shows that Asian sojourners experience more language and academic challenges in the U.S. than other international students (Ching et al., 2017; Rodriguez et al., 2019; Yaun, 2022). The participants in this study faced both language and cultural challenges while earning a master's degree that requires animal-related research.

Like Sato and Hodge's (2009) study on the challenges faced by CHC students in U.S. academia, this study found that this specific group of students did face difficulties with language comprehension, reading, and writing. Some of these difficulties stemmed from the challenge of participating in class and understanding the new academic language. However, these challenges were not due to language learning deficits, but instead to language differences such as idioms and accents. According to studies by Lin and Sherz (2014) and Wu and Hammond (2011), native speakers spoke fast and with non-standard accents, which caused comprehension difficulty among Asian students. These first-language users also used colloquialisms, idioms, and slang often, which added an additional layer of challenges. Fang, Guo, and Yu (2022) add that the Asian students in their study also had difficulty keeping up with their professor and peers because they spoke fast. Like Lin and Sherz, Wu and Hammond, and Fang and colleagues' study participants, the participants in this study had difficulty understanding the idioms and slang used in the classroom. CHC students attended classes with both native and other international students. The various words, physical gestures, and inflections in their peers' voices elicited

different understandings of the words, which sometimes did not match the CHC students' expected definition of the word. The CHC students had to comprehend different accents, new idioms, and slang words, as well as research specific terms in a relatively short time after arriving in the U.S. This was a major challenge among study participants because of the time needed for them to translate and comprehend the lectures. The study participants tried to record the lectures to listen to them later at a more comprehensible pace, but they still lacked understanding while trying to decipher the various accents and idioms they encountered in class. Like the previous studies mentioned, linguistic challenges created both psychological and physical implications for several of the participants in this study.

Each of the participants in this study described some form of cultural barrier while studying in the U.S. All the participants initially felt isolated because of their cultural differences. A large part of their psychological barrier and social isolation stemmed from the fact that CHCs focus on the society or what is good for the group and not on the individual. When the study participants arrived in the U.S. they did so alone. They had to navigate the new physical and social environment outside of their college or university, as well as within their new academic environment on their own and not as a group.

CHCs can often rely on each other when tackling tasks and students often work together on daily educational assignments. When learning a new subject many CHC students prefer to work in teams while using hands-on and trial-and-error methods (Kolb & Plovnick, 1974). This cooperative learning style allows learners to quickly adapt to changes within their immediate environment (Kurt, 2020). However, the U.S. is a more individualistic society where students must be independent and readily seek help when needed. The study participants had a hard time

creating their support system because of their cultural learning differences. Eventually they all described how they were able to talk to their professors, TAs, or peers.

According to Ching and colleagues (2017), social isolation may be a result of the language barrier that international students face in U.S. colleges and universities. Despite a couple of the study participants having pre-session English courses in their home country, all five participants felt ‘left out’ and isolated due to language and cultural differences. The participants often felt like they were falling behind, which caused feelings of shame, inferiority, and frustration, which led to self-isolation among some of the study participants. The study participants shared how they needed more time to first review the meanings of any unfamiliar words prior to class and were often afraid of looking stupid or missing valuable information because of their lack of understanding. This also caused the participants to self-isolate more. All the participants wanted a chance to prepare ahead of time for class discussions. Therefore, while in class or in the lab, the study participants did not initially like joining in conversations or spontaneous discussions about the material, but for the participants who were further along in their studies, they stated that they found some class discussions valuable and that there was a social aspect that they enjoyed.

Implications for Practice

The study’s findings support existing literature, while also contributing to it. At the most basic level, the findings provide evidence that Asian sojourners from CHCs face challenges stemming from differences between the language and culture in their home country and the language and culture in which they pursue their degree. An additional challenge they faced was the academic challenge of learning the rules and regulations that govern over performing research that uses animals.

Educational Practice and Policy Making. The practice of treating all international students, including CHC international students, as a monolith extends to educational practice and policy making, even though these communities exhibit different trends, face different challenges, and require different solutions. A key barrier to discussing the specific needs of CHC sojourners is the common practice of combining all Asian cultures without meaningfully addressing their differences. The challenges of individual CHC sojourners vary widely. However, much of the discussion surrounding educational practice and policy making overlooks the diversity within and between Asian cultures.

Some of the areas that need to be focused on more heavily include: 1) The recruitment and retention of Asian and CHC students and educators, 2) Promoting the mental health of Asian and CHC students, 3) educational practices that support Asian and CHC students' learning needs in research-specific fields.

The recruitment and retention of Asian and CHC students in higher education is more impactful than often reflected in educational policies. Asian students make up more than 62% of international students studying in the U.S. (IIE, 2024). CHC students contribute to a more diverse and globalized learning environment, enriching educational experiences for all students. Policies that support effective teaching, learning resources, and student support services for this diverse group of students can lead to better academic outcomes. Policies that focus on attracting, retaining, and supporting qualified teachers can also improve the quality of education for CHC students.

Promoting the mental health of Asian and CHC students is crucial for their success in earning degrees within the U.S. In addition to supporting students' learning and academic achievements, educational practice and policies play an important role in meeting students'

social-emotional and mental health needs. Asian cultures are sometimes left out of policy-making conversations, due to the perception that these populations do not require support, given their academic success and overall lower reported prevalence of mental illnesses. The pervasive and harmful nature of the model minority stereotype has likely undermined the allocation of resources to study and serve this population and worsened inequities. Therefore, due to the implicit and explicit biases and Asian students' invisibility, there is a lower contribution from federal research and service funding mechanisms to their mental wellbeing. It is well documented that Asian international students are reluctant to use counseling services. Therefore, counseling services need to be made more readily available. Lowinger and colleagues (2016) also suggested that, whenever feasible, student support services should be advertised as "educational" support rather than "counseling services."

All five participants in this study shared a similarity that has been widely noted in research on Asian college students in the U.S.: many Asian college students feel isolated and homesick during their first semester in college. To lessen their feelings of isolation and homesickness, colleges and universities could host multicultural activities. These events could promote more cross-cultural interactions and help to build respect among different cultures. These types of events could be spread throughout the day and all-around campus. These events could be focused on high international traffic areas around the campus.

Peer mentorship, study groups, and pairing international students with their domestic classmates can be effective measures to help international students adjust to their new culture (Choi, 2006; Hendrickson et al., 2011; Liu, 2017). Several of the study participants mentioned that having a mentor would have been helpful in their first semesters. They described how they had some support from their instructors or TAs, but a mentor would be someone at their level in

terms of actively conducting research. Two participants also stated that they would like mentors who spoke the same language as they did. Choi (2006) argued that more experienced international students could provide helpful advice on coping strategies to new international students because they have a broader perspective of the social and academic culture. Colleges and universities should consider implementing peer mentoring programs to strengthen international students' academic research skills. This would include mentoring students in reading and writing research papers.

Adult and higher education educators can use this study to inform their practice and better prepare themselves when working with this group of learners. Instructors play a significant role in how these international sojourners can succeed in the classroom. For example, study participants shared their difficulties around learning about the rules and regulations for conducting research with animals. They indicated that they learned most of the hands-on procedures during physical labs and that when the rules were presented to them, they were difficult to understand because they were only written. A suggestion for policymakers would be to implement educational practices that support the learning needs of Asian and CHC students in research-specific fields. Such as presenting research rules and regulations in multiple formats as well as providing a website that allows for anonymous questions. CHC students are less likely to publicly ask questions because they want to "save face," but several participants stated that they would ask questions if the process were anonymous.

Students from Confucian cultures have a strong tendency for behaviors such honoring the instructor's role by listening rather than speaking. This social conformity can be problematic for CHC sojourners earning a graduate degree in the U.S. Educators from different cultural backgrounds need to be able to support students by understanding their individual needs and

different learning methods. Spontaneous oral participation during class can cause great distress among CHC students. Therefore, educators should try to create a comfortable learning environment in which CHC students feel comfortable getting uncomfortable or experiencing discourse. Educators need to avoid generalizing individual student behavior.

The study's findings reveal that the study participants face challenges that native English-speaking students typically do not. That is why more research needs to focus on these culturally specific challenges rather than as a combined 'every student's' problem. Many of the challenges faced by CHC students stem not only from a lack of English proficiency but also from cultural differences that have an equal impact on how these students learn and participate in academic studies and graduate-level research. There could be more extensive benefits for students by creating policies that not only focus on one aspect of learning but instead review all challenges and successes both collectively and individually.

Recommendations for Future Studies

The impact of education policies reverberates across the entire U.S. educational system, affecting students, teachers, and administrators. This study sheds light on CHC graduates' sojourners' experiences while engaging in animal research in the U.S. and their understanding and navigation of animal welfare and compliance rules and regulations. Depending on the individual's experiences, cultural beliefs, and situational contexts, the study participants interpret and understand the rules and regulations that govern animal research in the U.S. differently. Therefore, it is vital for educators and policymakers to think through different elements that influence international students' learning based on their cultural backgrounds to promote an environment in which students can study and learn without feeling anxious or embarrassed. One element that influences international adult learners' time and education while in the U.S. is the

degree they are seeking. Most master's programs are shorter duration than doctoral programs. The time difference can have a major impact on student learning and comfort level with the native language. It is recommended that studies be performed that review both master's and doctoral programs.

Although CHC students make positive contributions to their host countries' educational and social environments, they also face challenges. These challenges need to be studied individually and in greater detail. The two novel findings from this study, the need for research-specific mentorship and the lack of research rule comprehension by CHC sojourners conducting animal-related research, should be explored further while seeking deeper experiential experiences.

Closing Remarks

The American culture is diverse. Therefore, when international students traveling from a more conformist society enter the U.S., they can become overwhelmed with its diversity. These students often face a variety of challenges that stem from their cultural backgrounds. Understanding the specific challenges faced by CHC students provides opportunities for building programs in U.S. colleges and universities that are more accommodating and inclusive. It is not as simple as saying "one single thing" was the reason CHC students struggled as animal researchers during graduate school in the U.S. Instead, it was a combination of cultural and linguistic challenges intertwined with the lack of appropriate resources, such as mentorship, and the failure of the educational system to train its instructors to look beyond the daily lesson plan and see the student as an individual with individual needs. The final important thread to be found in the students' discussions on research rule comprehension was the idea that language ability

was not the only aspect that determined their comprehension, but instead, it was a multitude of reasons and experiences.

Due to the small number of participants, this study cannot and does not claim that it represents the perspectives of all CHC students conducting animal research in the U.S. Further studies with a larger population of participants are recommended to expand knowledge and provide more insight into the needs of CHC students. Although this study provides a limited viewpoint of a small population, it offers educators and policymakers some starting points to consider and further explore the challenges faced by specific Asian cultures and how to aid them in their research careers while in the U.S.

References

- ACAW- American College of Animal Welfare (2010). About The American College of Animal Welfare. Retrieved from <https://www.acaw.org/>.
- Act on Welfare and Management of Animals. (2005). Act on Welfare and Management of Animals (Act No. 105 of 1973). Japanese Law Translation. Retrieved from <https://www.japaneselawtranslation.go.jp/en/laws/view/3798/en>.
- Ahn, N., Park, J., & Roh, S. (2022). Operational issues of the Institutional Animal Care and Use Committee in Korea. *Journal of Veterinary Science*, 23(4).
- Alsaigh, R. & Coyne, I. (2021). Doing hermeneutic phenomenology research underpinned by Gadamer's philosophy: A framework to facilitate data analysis. *The International Journal of Qualitative Methods*, 20(4), 1-10. DOI: 10.1177/16094069211047820
- Alston, S. (2020, September 28). Behavior: Verbal and non-verbal communication. *HeadTeacher*. <https://www.headteacher-update.com/best-practice-article/behaviour-verbal-and-non-verbal-communication-send-classroom-practice-teachers-1/230809/>
- Andrade, M. S. (2006). International students in English-speaking universities: Adjustment factors. *Journal of Research in International education*, 5(2), 131-154.
- Andrew, P. (2012). The social construction of age: Adult foreign language learners. *Multilingual Matters*.
- Animal Legal Defense. (n.d.). The legal voice for all animals. Retrieved from <https://aldf.org/>.
- Anjalin, U., Mazumdar, A., & Whiteside, E. (2017). Asian students' experience of culture shock and coping strategies. *Journal of Education and Social Development*, 1(1), 7-13.
- Annis, D., & Annis, L. (1979). Does philosophy improve critical thinking? *Teaching Philosophy*, 3, 145–152.

- Ashworth, P. (1996). Presuppose nothing! The suspension of assumptions in phenomenological psychological methodology. *Journal of phenomenological psychology*, 27(1), i-25.
- Ashworth, P., & Greasley, K. (2009). The phenomenology of ‘approach to studying’: the idiographic turn. *Studies in Higher Education*, 34(5), 561-576.
- Atkinson, J. D. (2017). *Qualitative Methods*. In Journey into Social Activism: Qualitative Approaches. Fordham University Press. <http://www.jstor.org/stable/j.ctt1hfr0rk.6>
- Austin, Z, & Sutton, J. (2014). Qualitative research: getting started. *The Canadian Journal of Hospital Pharmacy*, 67(6), pp. 436-440. doi: 10.4212/cjhp. v67i6.1406. PMID: 25548401
- AWA-Animal Welfare Act. (n.d.). National Agricultural Library. Retrieved from <https://www.nal.usda.gov/animal-health-and-welfare/animal-welfare-act>.
- AVMA- American Veterinary Medical Association (n.d.). <https://www.avma.org/>
- Bahtilla, M. and Xu, H. (2021) The Influence of Confucius’s Educational Thoughts on China’s Educational System. *Open Access Library Journal*, 8, 1-17. doi: [10.4236/oalib.1107370](https://doi.org/10.4236/oalib.1107370).
- Bandura, A. (1977) *Social Learning Theory*. General Learning Press
- Baumans, V. (2004). Use of animals in experimental research: an ethical dilemma? *Gene therapy*, 11(1), S64-S66.
- Bayne, K., & Anderson, L. C. (2015). Laws, regulations, and policies affecting the use of laboratory animals. In *Laboratory Animal Medicine* (pp. 23-42). Academic Press.
- Bayne, K., & Turner, P. V. (2019). Animal welfare standards and international collaborations. *ILAR journal*, 60(1), 86-94.
- Bayne, K., Wang, J., & Pang, W. (2018). Oversight of animal research in China. *Laboratory Animals*, 263-291.

- Barry, C. A., Britten, N., Barber, N., Bradley, C., & Stevenson, F. (1999). Using reflexivity to optimize teamwork in qualitative research. *Qualitative Health Research*, 9(1), 26-44. doi: 10.1177/104973299129121677. PMID: 10558357.
- Bedford, O., & Yeh, K. H. (2021). Evolution of the conceptualization of filial piety in the global context: From skin to skeleton. *Frontiers in Psychology*, 12, 570547.
- Bergsteiner, H., Avery, G. C., & Neumann, R. (2010). Kolb's experiential learning model: critique from a modelling perspective. *Studies in Continuing Education*, 32(1), 29-46.
- Bhandari, R., & Lefébure, A. (Eds.). (2015). *Asia: The next higher education superpower?* New York: Institute of International Education.
- Biggs, J. B. (1996). Western misperceptions of the Confucian-heritage learning culture. In D. A. Watkins & J. B. Biggs (Eds.), *The Chinese learner: Cultural, psychological, and contextual influence* (pp. 45 – 68). Hong Kong/Melbourne: Comparative Education Research Center/ Australian Council for Education Research.
- Birks, M., Chapman, Y. & Francis, K. (2008). Memoing in qualitative research: Probing data and processes. *Journal of Research in Nursing*, 13(1), 68–75.
DOI:10.1177/1744987107081254
- Blakeley, D. N. (2003). Listening to the animals: The Confucian view of animal welfare. *Journal of Chinese Philosophy*, 30(2), 137-157.
- Bogdan, R.C. & Biklen, S.K. (2007). *Qualitative Research for Education: An Introduction to Theory and Methods* (5th ed.) Allyn & Bacon.
- Brown, L., & Holloway, I. (2008). The initial stage of the international sojourn: excitement or culture shock? *British Journal of Guidance & Counselling*, 36(1), 33-49.

- Brown, M. J., & Winnicker, J. (2015). American College of Laboratory Animal Medicine, Laboratory Animal Medicine.
- Brunt, M. W., & Weary, D. M (2021, July 8) Perceptions of laboratory animal facility managers regarding institutional transparency. PLOS ONE 16(7): e0254279.
<https://doi.org/10.1371/journal.pone.0254279>
- Brunsting, N. C., Zachry, C., & Takeuchi, R. (2018). Predictors of undergraduate international student psychosocial adjustment to US universities: A systematic review from 2009-2018. *International journal of intercultural relations*, 66, 22-33.
- Burger, T. (1977). Max Weber, interpretive sociology, and the sense of historical science: a positivistic conception of Verstehen. *The Sociological Quarterly*, 18(2), pp. 165-175
- Cambridge Dictionary (2021). Reflexivity. Cambridge Dictionary.
<https://dictionary.cambridge.org/dictionary/english/reflexivity>
- Cao, D. (2022). Key animal law in China. In *Routledge Handbook of Animal Welfare* (pp. 392-399). Routledge.
- Carbone, L. (2011). Pain in laboratory animals: the ethical and regulatory imperatives. *PLoS One*, 6(9), e21578.
- Carnegie Classifications. (n.d.). Graduate Instructional Program Classification. Carnegie Classification of Institutions of Higher Education. Retrieved from
<https://carnegieclassifications.acenet.edu/carnegie-classification/classification-methodology/graduate-instructional-program-classification/>.
- Carnovale, F., Jin, X., Arney, D., Descovich, K., Guo, W., Shi, B., & Phillips, C. J. (2021). Chinese public attitudes towards, and knowledge of, animal welfare. *Animals*, 11(3), 855.

- Carr, M. L., Holmes, W., & Flynn, K. (2017). Using mentoring, coaching, and self-mentoring to support public school educators. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 90(4), 116-124.
- Chan, B. S. (2015). Animal Ethics, International Animal Protection and Confucianism. *Global Policy*, 6(2), 172-175.
- Chang, C. C., & Wang, Y. H. (2021). Using Phenomenological Methodology with Thematic Analysis to Examine and Reflect on Commonalities of Instructors' Experiences in MOOCs. *Education Sciences*, 11(203), 1-15. doi.org/10.3390/educsci11050203
- Charlick, S., Pincombe, J., McKellar, L., & Fielder, A. (2016). Making sense of participant experiences: Interpretative phenomenological analysis in midwifery research. *International Journal of Doctoral Studies*, 11, 205-216. Retrieved from <http://www.informingscience.org/Publications/3486>.
- Charmaz, K. (2017). The power of constructivist grounded theory for critical inquiry. *Qualitative Inquiry*, 23(1), 34-45. <https://doi.org/10.1177/1077800416657105>
- Chatterji, R and Yin, J. (2022, January 26). Education Policies Need To Address the Unique Needs of Asian American and Pacific Islander Communities. Center for American Progress. <https://www.americanprogress.org/article/education-policies-need-to-address-the-unique-needs-of-asian-american-and-pacific-islander-communities/>
- Chen, R., & Hwang, K. K. (2016). Nation, face, and identity: An initial investigation of national face in East Asia. *Frontiers in Psychology*, 7, 1557.
- Ching, Y., Renes, S. L., McMurrow, S., Simpson, J., & Strange, A. T. (2017). Challenges facing Chinese international students studying in the United States. *Educational Research and Reviews*, 12(8), 473-482.

- Choi, S. H. J., & Nieminen, T. A. (2012). Factors influencing the higher education of international students from Confucian East Asia. *Higher Education Research & Development*, 32(2), 161–173. <https://doi.org/10.1080/07294360.2012.673165>
- Chowdhury, M. (2014) Interpretivism in Aiding Our Understanding of the Contemporary Social World. *Open Journal of Philosophy*, 4, 432-438. doi: 10.4236/ojpp.2014.43047.
- Clark, N. (2013, October 22). Everyday Confucianism in Taiwan. Berkley center retrieved from <https://berkeleycenter.georgetown.edu/posts/everyday-confucianism-in-taiwan>.
- Clarke, V. & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2), 120-123.
- Clarkson-Bennett, H. (n.d.). Animal Testing in Japan. *Red Orange Peach*. Retrieved from <https://redorangepeach.com/animal-cruelty/testing-in-japan/>.
- Cloate, R. (2016). The relationship between international students' English test scores and their academic achievements.
- Congress.gov. (n.d.). Legislation PACT Act. <https://www.congress.gov/>
- Coleman, L. I., King, T., & Turner, W. G. (2022). *Competent Communication*. LibreTexts.
- Confucius. (1963). The humanism of Confucius. *A source book in Chinese philosophy*, 14-48.
- Confucianism in Vietnam (2022, February 23). Vietnam Tour Company retrieved from <https://www.vietnam-tour.biz/confucianism-in-vietnam/>.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). Sage.
- David Kolb (Psychologist Biography). (2022, Feb. 16). Practical Psychology. Retrieved from <https://practicalpie.com/david-kolb/>.

- Dashdorj, Z. (2019, March 29). Educational Competition Makes Asian Countries More Competitive. Austrian Economics Center. <https://austriancenter.com/educational-competition-asia/>
- Davis, J. M. (2015). The history of animal protection in the United States. *The American Historian*.
- Dennehy, E. (2015). Learning approaches and cultural influences: a comparative study of Confucian and western-heritage students. *Journal of Further and Higher Education*, 39(6), 818-838.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). *The SAGE Handbook of Qualitative Research* (5th ed.). Sage.
- Dewey, J. (1903). Democracy in education. *The elementary school teacher*, 4(4), 193-204.
- Education, N. C. (1989). *The Formative Stage*, edited by William Theodore de Bary and John W. Chaffee.
- Dewey, J. (1938). *Experience & Education*. Free Press.
- Dipboye, R. L. (1994). Structured and unstructured selection interviews: Beyond the job-fit model. *Research in Personnel and Human Resources Management*, 12, 79-123.
- Djidu, H., Mashuri, S., Nasruddin, N., Sejati, A. E., Rasmuin, R., Ugi, L. E., & Arua, A. L. (2021). Online learning in the post-Covid-19 pandemic era: Is our higher education ready for it?. *Jurnal Penelitian Dan Pengkajian Ilmu Pendidikan: E-Saintika*, 5(2), 139–151. <https://doi.org/10.36312/esaintika.v5i2.479>
- Dodgson, J. E. (2017). About research: Qualitative methodologies. *Journal of Human Lactation*, 33(2), 355-358.
- Dougherty, S. (1999). Autobiography: Telling our stories. *Montessori LIFE*, 11, 40-41.

- Duncan I. J. H. (2019). Animal Welfare: A Brief History, In: Hild S. & Schweitzer L. (Eds), *Animal Welfare: From Science to Law*, pp.13-19.
- Dwyer, S. C. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods*, 8(1), 54-63.
<http://creativecommons.org/licenses/by/2.0>.
- Egege, S., & Kutieleh, S. (2004). Critical Thinking: Teaching Foreign Notions to Foreign Students. *International Education Journal*, 4(4), 75-85.
- Evaluating the contribution of interpretative phenomenological analysis Jonathan A. Smith
Health Psychology Review Vol. 5, No. 1, March 2011, 9-27
- Facione, P. A. (1992). Critical thinking: What it is and why it counts. Insight Assessment. Measured Reasons, CA: Estados Unidos.
- Fan, R. (2010). How Should We Treat Animals? A Confucian Reflection. *Dao* 9, 79–96
<https://doi.org/10.1007/s11712-009-9144-7>
- Fang, H., Guo, Z., & Yu, M. (2022, July). How Asian International Students are Treated in America and Following Considerations. In *2022 3rd International Conference on Language, Art and Cultural Exchange (ICLACE 2022)* (pp. 486-491). Atlantis Press.
- Fenwick, T., & Tennant, M. (2020). Understanding adult learners. In *Dimensions of adult learning* (pp. 55-73). Routledge.
- Fereday, J. & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 1-11.

Fine, A. H., & Weaver, S. J. (2018). The human-animal bond and animal-assisted intervention.

Oxford textbook of nature and public health: The role of nature in improving the health of a population, 132-138.

Flick, U. (2014) *An Introduction to Qualitative Research* (5th ed.), Sage.

Foley, G. (Ed.). (2020). *Understanding adult education and training*. Routledge.

Fong, R. W., & Yuen, M. T. (2016). The role of self-efficacy and connectedness in the academic success of Chinese learners. *The psychology of Asian learners: A Festschrift in honor of David Watkins*, 157-169.

Forbes-Mewett, H., & Nyland, C. (2008). Cultural diversity, relocation, and the security of international students at an internationalized university. *Journal of Studies in international Education*, 12(2), 181-203.

Forrest, C. (2004). Kolb's learning cycle. Train the Trainer 12. Available at: www.fenman.co.uk

Foundation for Biomedical Research FBR (2021). Do you know the real animal testing and research facts? Retrieved from <https://fbresearch.org/biomedical-research/animal-testing-facts>.

Fox, J. G., & Bennett, B. T. (2015). Laboratory animal medicine: historical perspectives. In *Laboratory animal medicine* (pp. 1-21). Academic Press.

Fox, R. D. (1984). Learning styles and instructional preferences in continuing education for health professionals: A validity study of the LSI. *Adult Education Quarterly*, 35(2), 72-85.

Friedrich, T. L., Stenmark, C., & Mumford, M. D. (2011). Creative climate.

- Gallagher, s. (2021, Aug 11). It's Time to Reboot Our Thinking About Adult Learners in a Digitally Transformed World. EdSurge. <https://www.edsurge.com/news/2021-08-11-it-s-time-to-reboot-our-thinking-about-adult-learners-in-a-digitally-transformed-world>
- Gao, L. (1998). Cultural context of school science teaching and learning in the People's Republic of China. *Science Education*, 82(1), 1–13.
- Gao, L. (2020). The laboratory animal legal system of China, dA. Derecho Animal (Forum of Animal Law Studies). DOI <https://doi.org/10.5565/rev/da.500>
- Garner, I. (2000). Problems and inconsistencies with Kolb's learning styles. *Educational Psychology*, 20(3), 341-348.
- Gastel, B., & Day, R. A. (2022). *How to write and publish a scientific paper*. ABC-CLIO.
- Gautam, C., Lowery, C. L., Mays, C., & Durant, D. (2016). Challenges for global learners: A qualitative study of the concerns and difficulties of international students. *Journal of International Students*, 6(2), 501-526.
- Gemma, R. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse Researcher*, 25(4) pp. 41–49. DOI: <https://doi.org/10.7748/nr.2018.e1466>
- Giovenco, D., Shook-Sa, B. E., Hutson, B., Buchanan, L., Fisher, E. B., & Pettifor, A. (2022). Social isolation and psychological distress among Southern US college students in the era of COVID-19. *Plos one*, 17(12), e0279485.
- Girardelli, D., & Patel, V. K. (2016). The Theory of Planned Behavior and Chinese ESL Students' In-class Participation. *Journal of Language Teaching & Research*, 7(1).
- Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Sociology Press.
- Glesne, C. (2016). *Becoming Qualitative Researchers: An Introduction* (5th ed.). Pearson.

- Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597-607. <https://doi.org/10.46743/2160-3715/2003.1870>
- Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. *European Journal of Information Systems*, 21(2), 135-146. DOI: 10.1057/ejis.2011.54
- Grbich, C. (2013). *Qualitative Data Analysis, An Introduction* (2nd ed.). Sage.
- Greenaway, R. (2007). Experiential learning articles and critiques of David Kolb's theory.
- Greenholtz, J. (2003). Socratic teachers and Confucian learners: Examining the benefits and pitfalls of a year abroad. *Language and intercultural communication*, 3(2), 122-130.
- Gudykunst, W. B., & Kim, Y. Y. (1984). *Methods for Intercultural Communication Research. International and Intercultural Communication Annual, Volume VIII*. Sage Publications, Inc., 275 South Beverly Dr., Beverly Hills, CA 90212.
- Guide for the Care and Use of Laboratory Animals: Eighth Edition. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12910>.
- Guo, X., Li, J., Niu, Y., & Luo, L. (2022). The Relationship Between Filial Piety and the Academic Achievement and Subjective Wellbeing of Chinese Early Adolescents: The Moderated Mediation Effect of Educational Expectations. *Frontiers in Psychology*, 13.
- Hadley, J. (2012). Telling It Like It Is: A Proposal to Improve Transparency in Biomedical Research. *Between the Species*, 15(1), 0021.
- Hall, E. T. (1976). *Beyond culture*. Anchor.
- Hall, E. T., & Whyte, W. F. (1960). Intercultural communication: A guide to men of action. *Human Organization*, 19(1), 5-12.
- Han, J. S., & Lee, G. H. (2013). Laboratory animal welfare and the three Rs in Korea. *Alternatives to Laboratory Animals*, 41(4), P45-P47.

- Harrison, R., (1964). *Animal Machines*. Vincent Stuart, London.
- Harsch, C. (2017). Proficiency. *Elt Journal*, 71(2), 250-253.
- Hasenau, J. J. (2021). Definitions of research animal, laboratory animal, laboratory animal veterinarian, research veterinarian, and research animal veterinarian. *Journal of the American Veterinary Medical Association*, 258(3), 254-255.
- Havens, T. (2013). Confucianism as humanism. *CLA Journal*, 1, 33-41.
- Havens, T. (2013). Confucianism as humanism. *CLA Journal*, 1, 33-41.
- Hayden, S. C., & Osborn, D. S. (2020). Using experiential learning theory to train career practitioners. *Journal of employment counseling*, 57(1), 2-13.
- Hewson, C. J. (2003). What is animal welfare? Common definitions and their practical consequences. *The Canadian veterinary journal*, 44(6), 496.
- Ho, S. (2020). Culture and learning: Confucian heritage learners, social-oriented achievement, and innovative pedagogies. *Diversity and Inclusion in Global Higher Education: Lessons from across Asia*. Singapore: Palgrave Macmillan, 117-159.
- Holder, T. Public perception matters. *Lab Animal* 46, 93 (2017).
<https://doi.org/10.1038/labani.1239>
- Hoyt, M. W. (2006). John Dewey's legacy to China and the problems in Chinese society. *TCI (Transnational Curriculum Inquiry)*, 3(1), 12-25.
- Huang, Y. S., & Asghar, A. (2016). Science education reform in Confucian learning cultures: policymakers' perspectives on policy and practice in Taiwan. *Asia-Pacific Science Education*, 2(1), 1-22.

- Huang, Y. S., & Asghar, A. (2018). Science education reform in Confucian learning cultures: Teachers' perspectives on policy and practice in Taiwan. *Cultural Studies of Science Education*, 13(1).
- Huajun, Z. H. A. N. G. (2019). Dewey and Chinese education: A centennial reflection. *Beijing International Review of Education*, 1(4), 586-591.
- Huang, G. H. C., & Gove, M. (2012). Confucianism and Chinese families: Values and practices in education. *International Journal of Humanities and Social Science*, 2(3), 10–15.
- Humane Society International. (2022, March 2). Leading NGOs urge greater cooperation between EU and Vietnam to tackle trafficking of African wildlife. Retrieved from <https://www.hsi.org/news-resources/ngos-urge-cooperation-between-eu-and-vietnam-to-tackle-trafficking/>.
- Husserl, E., & Carr, D. (1970). The crisis of European sciences and transcendental phenomenology: An introduction to phenomenology philosophy. Northwestern University Press.
- Hrapkiewicz, K., Colby, L. and Denison, P. (2013). Introduction to Laboratory Animal Medicine. John Wiley & Sons, Inc
- International Aid for Korean Animals (IAKA). (n.d.). South Korea's Animal Protection Laws. Retrieved from <http://koreananimals.org/south-koreas-animal-protection-laws/>.
- Institute of International Education. (2023). Open doors. Retrieved from <https://www.iie.org/Research-and-Insights/Open-Doors>.
- Implementation of Revised Lacey Act Provisions. (2020, March 31). *Federal Register*. Retrieved from <https://www.federalregister.gov/documents/2020/03/31/2020-06695/implementation-of-revised-lacey-act-provisions>.

- Institute of Laboratory Animal Resources (US). Committee on Care, & Use of Laboratory Animals. (1986). Guide for the care and use of laboratory animals (No. 86). US Department of Health and Human Services, Public Health Service, National Institutes of Health.
- International and Foreign Animal Law Research Guide. (n.d.). Georgetown University Law Library. Retrieved from <https://guides.ll.georgetown.edu/InternationalAnimalLaw/treaties>.
- ILRI (International Livestock Research Institute). (n.d.). Vietnam. Retrieved from <https://www.ilri.org/where-we-work/east-and-southeast-asia/vietnam>.
- Irani, E. (2019). The Use of videoconferencing for qualitative interviewing: Opportunities, challenges, and considerations. *Clinical Nursing Research*, 28(1), 3-8.
doi.org/10.1177/1054773818803
- Jarvis, P. (1995). *Adult Learning in the Social Context*. Croom Helm.
- Jarvis, P. (1995). *Adult & Continuing Education*. (2nd ed.). London: Routledge.
- Jeyabalasingam, S. (2011). Women in transition: Experiences of Asian women international students on US college campuses.
- Kang, M., Long, T., Chang, C., Meng, T., Ma, H., Li, Z., ... & Chen, Y. (2022). A Review of the Ethical Use of Animals in Functional Experimental Research in China Based on the “Four R” Principles of Reduction, Replacement, Refinement, and Responsibility. *Medical Science Monitor*, 28.
- Kassiani Nikolopoulou. Revised on December 1, 2022. What Is Purposive Sampling? Definition & Examples. Scribbr. <https://www.scribbr.com/methodology/purposive-sampling/#maximum-variation>

- Kasworm, C. E., Sandmann, L. R., & Sissel, P. A. (2000). Adult learners in higher education. *Handbook of adult and continuing education*, 449-463.
- Kvale, S. (2007). *Epistemological issues of interviewing*. SAGE Publications, Ltd, <https://doi.org/10.4135/9781849208963>
- Kawamura, K., & Rice, T. (2008). Body image among Asian Americans. In *Asian American Psychology* (pp. 587-608). Psychology Press.
- Kelch, T. G. Cultural Solipsism, Cultural Lenses, Universal Principles, and Animal Advocacy” (2014). *Pace Envtl L Rev*, 31, 403.
- Kelen, B. (1971). Confucius: in life and legend. (No Title).
- Kelly, P., & Moogan, Y. (2012). Culture shock and higher education performance: Implications for teaching. *Higher Education Quarterly*, 66(1), 24-46.
- Kember, D. (2016). Understanding and teaching the Chinese learner: Resolving the paradox of the Chinese learner. *The psychology of Asian learners: A festschrift in honor of David Watkins*, 173-187.
- Kemper, E. A., Stringfield, S. & Teddlie, C. (2003) *Mixed Methods Sampling Strategies in Social Science Research*. In: Tashakkori, A. and Teddlie, C., eds., *Handbook of Mixed Methods in Social and Behavioral Research*, Sage.
- Kim, J. Y., & Nam, S. H. (1998). The concept and dynamics of face: Implications for organizational behavior in Asia. *Organization Science*, 9(4), 522-534.
- Kim, U. (1997). Asian collectivism: An indigenous perspective.
- Kim, Y. Y. (1994). Adapting to a new culture. In L. Samovar, & W. Porter (Eds.), *Intercultural communication: A reader* (pp. 392-405). Belmont, Calif: Wadsworth.

- Kipperman, B. S. (2015). The role of the veterinary profession in promoting animal welfare. *Journal of the American Veterinary Medical Association*, 246(5), 502-504.
- Klein, H. K. & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67-93.
<https://doi.org/10.2307/249410>.
- Knight, G., Chidlow, A., & Minbaeva, D. (2021). Methodological fit for empirical research in international business: A contingency framework. *Journal of International Business Studies*, 53(1), 39-52. <https://doi.org/10.1057/s41267-021-00476-5>
- Kolb, D.A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. New Jersey: Prentice-Hall Inc
- Knowles, M. (1984). *The Adult Learner: A Neglected Species* (3rd Ed.). Houston, TX: Gulf Publishing.
- Kolb, D. A., & Plovnick, M. S. (1974). The experiential learning theory of career development.
- Kolb, D. A. (1984). The process of experiential learning. *Experiential learning: Experience as the source of learning and development*, 20-38.
- Kolb, A. Y. (2021). Kolb Experiential Learning Profile. Home.
- Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, 4(2), 193-212.
- Kolb, A. Y., & Kolb, D. A. (2017). Experiential learning theory as a guide for experiential educators in higher education. *Experiential Learning & Teaching in Higher Education*, 1(1), 7-44.

- Kolb, D. A., & Lewis, L. H. (1986). Facilitating Experiential Learning: Observations and Reflections. *New Directions for Continuing Education*, 30, 99-107.
- Kong, Q., & Qin, C. (2010). Laboratory animal science in China: Current status and potential for the adoption of three R alternatives. *Alternatives to Laboratory Animals*, 38(1), 53-69.
- Kroeber, A. L., & Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. *Papers. Peabody Museum of Archaeology & Ethnology, Harvard University*.
- Kurt, S. (2020). Kolb's experiential learning theory & learning styles. *Educational Technology*, December 28, 2020.
- Laidlaw, K., Wang, D., Coelho, C., & Power, M. (2010). Attitudes to ageing and expectations for filial piety across Chinese and British cultures: A pilot exploratory evaluation. *Aging & Mental Health*, 14(3), 283-292.
- Lam, L. (2017, November 24). Cultural Differences between East and West: A Linguistic Perspective. *Asia Scotland Institute*. <https://asiascot.com/op-eds/cultural-differences-between-east-and-west>
- Lam, L. Y. V. (2017). Life being an International Student in the United States: Acculturation, Culture Shock, and Identity Transformation.
- Lâm, N. N. T., & Trương, N. V. T. (2014). The application of Confucian positive ethics on education in Japan and valuable lessons for Vietnam.
- Lather, P. (2006). Paradigm proliferation as a good thing to think with: Teaching research in education as a wild profusion. *International Journal of Qualitative Studies in Education*. 19(1), 35-57.

- Laverty, S. M. (2003). Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. *International Journal of Qualitative Methods*, 2(3), 21-35. doi.org/10.1177/160940690300200303
- Law on Animal Husbandry. (2018). National Assemble, Socialist Republic of Vietnam. [pdf].
- Li, B., Burke, J., & Plunkett, M. (2022). Deep or surface learning? Perceptions of Chinese international and local students in Australian universities. *Issues in Educational Research*, 32(1), 149-181.
- Li, B., Sjöström, J., Ding, B., & Eilks, I. (2022). Education for Sustainability Meets Confucianism in Science Education. *Science & Education*, 1-30.
- Li, C. (2016). The Evolution and Identity of the Confucian Tradition.
- Li, J. (2016). The indispensable role of culture in shaping children's learning beliefs. *The psychology of Asian learners: A festschrift in honor of David Watkins*, 37-51.
- Li, L., & Wegerif, R. (2014). What does it mean to teach thinking in China? Challenging and developing notions of 'Confucian education'. *Thinking skills and creativity*, 11, 22-32.
- Li, X., & Cutting, J. (2011). Rote learning in Chinese culture: Reflecting active Confucian-based memory strategies. *Researching Chinese learners: Skills, perceptions, and intercultural adaptations*, 21-42.
- Lin, S. Y., & Scherz, S. D. (2014). Challenges facing Asian international graduate students in the US: Pedagogical considerations in higher education. *Journal of International Students*, 4(1), 16-33.
- Liu, H., & Wu, Q. (2006). Consequences of college entrance exams in China and the reform challenges. *KEDI Journal of Educational Policy*, 3(1).

- Lopez, K. A. & Willis, d. G. (2004). Descriptive versus interpretive phenomenology: their contributions to nursing knowledge. *Qualitative Health Research*, 14(5), 726-35. doi: 10.1177/1049732304263638. PMID: 15107174.
- Lord, K. A., Larson, G., Coppinger, R. P., & Karlsson, E. K. (2020). The history of farm foxes undermines the animal domestication syndrome. *Trends in ecology & evolution*, 35(2), 125-136.
- Lowinger, R. J., Kuo, B. C., Song, H. A., Mahadevan, L., Kim, E., Liao, K. Y. H., ... & Han, S. (2016). Predictors of academic procrastination in Asian international college students. *Journal of Student Affairs Research and Practice*, 53(1), 90-104.
- Lucas, K. J. (2019). Chinese Graduate Student Understandings and Struggles with Critical Thinking: A Narrative-Case Study. *International Journal for the Scholarship of Teaching and Learning*, 13(1), 5.
- MacArthur Clark, J., Clifford, P., Jarrett, W., & Pekow, C. (2019). Communicating About Animal Research with the Public. *ILAR journal*.
- Mackenzie, D. (1981). Interests, Positivism and History. *Social Studies of Science*, 11(4), 498-504. <https://doi.org/10.1177/030631278101100405>
- Mackenzie, N. & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues In Educational Research*, 16. <http://www.iier.org.au/iier16/mackenzie.html>
- Mangen, S. (1999). Qualitative research methods in cross-national settings. *International Journal of Social Research Methodology*, 2(2), 109-124.
- Marginson, S. (2011). Higher education in East Asia and Singapore: Rise of the Confucian model. *Higher education*, 61, 587-611.

- Marriott, S. & Cassaday, H. J. (2022). Attitudes to animal use of named species for different purposes: effects of speciesism, individualizing morality, likeability, and demographic factors. *Palgrave Macmillan*, 9(1), 1-11. DOI: 10.1057/s41599-022-01159-8
- Marshall, C., & Rossman, G. (2006). *Designing qualitative research*, (4th ed.). Sage.
- Martirosyan, N. M., Hwang, E., & Wanjohi, R. (2015). Impact of English proficiency on academic performance of international students. *Journal of International Students*, 5(1), 60-71.
- Maxwell, J. A. (2004). Causal explanation, qualitative research, and scientific inquiry in education. *Educational Researcher*, 33(2), 3-11.
<https://doi.org/utk.idm.oclc.org/10.3102/0013189X033002003>
- Mayan, M. J. (2009). *Essentials of qualitative inquiry*. Routledge.
- Mayan, M. J. (2016). *Essentials of qualitative inquiry* (2nd ed.). Routledge.
- Merkes, M., & Buttrose, R. (2019). Increasing the Transparency of Animal Experimentation: An Australian Perspective. *Human-Animal Studies*, 224.
- Merriam-Webster. (n.d.). Definition. In Merriam-Webster.com dictionary. Retrieved April 24, 2023, <https://www.merriam-webster.com/dictionary/rule>
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative Research: A Guide to Design and Implementation* (4th ed.). Jossey Bass.
- Miettinen, R. (2000). The concept of experiential learning and John Dewey's theory of reflective thought and action. *International journal of lifelong education*, 19(1), 54-72.
- Mike, C. (2020, May 19). The Cult of “Face” in China. [ChinaMike]. <https://www.china-mike.com/chinese-culture/cult-of-face/>

- Miles, M. B, & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.) Sage.
- Miller, R. M., Chan, C. D., & Farmer, L. B. (2018). Interpretative phenomenological analysis: A contemporary qualitative approach. *Counselor Education and Supervision*, 57(4), 240-254.
- Milner, H. R. (2021). *Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms*. Harvard Education Press.
- Min, P. G. (2019). Major issues relating to Asian American experiences. In *Race and ethnic conflict* (pp. 195-204). Routledge.
- Min, W. (2012, December 20). Differing Attitudes to Confucianism Across East Asia. Nippon Retrieved from <https://www.nippon.com/en/column/g00072/>.
- Mizutani, Y. (2020). *Searching for a "Home": Examining the Experiences of Confucian Asian College Students with Third Culture Kid Backgrounds* (Doctoral dissertation, University of Missouri-Saint Louis).
- MOE- Ministry of Health. (2013). Standards relating to the Care and Keeping and Reducing Pain of Laboratory Animals. Provisional translation. PDF.
- Montgomery, P. & Bailey, P. H. (2007). Field notes and theoretical memos in grounded theory. *Western Journal of Nursing Research*, 29(1), 65-79.
- Moran, D. (2002). Edmund Husserl: General Introduction to Pure Phenomenology. Routledge.
- Moran, D. (2005). Edmund Husserl: Founder of Phenomenology. Polity Press, MA.
- Morse, J. M. & Niehaus L. (2009). *Mixed method design: Principles and procedures*. Left Coast Press; Walnut Creek, CA. [Google Scholar]
- Moustakas, C. E. (1994). *Phenomenological research methods*. Sage Publications, Inc.

Muench, R., Wieczorek, O., & Gerl, R. (2022). Education regime and creativity: the Eastern Confucian and the Western Enlightenment types of learning in the PISA test. *Cogent Education*, 9(1), 2144025.

Murnaghan, I. (2019, April 19). Animal Testing in Asia. About Animal Testing. Retrieved from <https://www.aboutanimaltesting.co.uk/animal-testing-asia.html>.

Murnaghan, I. (2021, April 19). Where Does Animal Testing Occur? About Animal Testing. Retrieved from <https://www.aboutanimaltesting.co.uk/where-does-animal-testing-occur.html>.

Nanyang Technological University NTU. (n.d.). *Resources: NACLAR Guidelines*. <https://www.ntu.edu.sg/research/research-integrity-office/institutional-animal-care-and-use-committee/resources>

National Center for Education Statistics. (2023). College Enrollment Rates. Condition of Education. U.S. Department of Education, Institute of Education Sciences. Retrieved November 3, 2023, from <https://nces.ed.gov/programs/coe/indicator/cpb>.

National Centre for the Replacement, Refinement and Reduction of Animals in Research NC3R. How are animals used in research? Retrieved from <https://nc3rs.org.uk/how-are-animals-used-research>

National Institutes of Health NIH. (n.d.). The IACUC. National Institutes of Health (NIH). Retrieved from <https://olaw.nih.gov/resources/tutorial/iacuc.htm#5e>.

National Institutes of Health NIH. (n.d.). PHS Policy on Humane Care and Use of Laboratory Animals. National Institutes of Health (NIH). Retrieved from <https://olaw.nih.gov/policies-laws/phs-policy.htm>.

National Research Council. (2010). Guide for the care and use of laboratory animals.

National University of Singapore NUS. (n.d.). *Animal Care & Use*.

<https://www.nus.edu.sg/research/iacuc/animal-care-use>

Nelson, J. (2014). Positivism. In: Teo, T. (eds) *Encyclopedia of Critical Psychology*. Springer,

New York, NY. https://doi.org/10.1007/978-1-4614-5583-7_468

Ng, R. M. C. (2009). College and character: What did Confucius teach us about the importance of integrating ethics, character, learning, and education? *Journal of College and Character*, 10(4), 1-7.

Nikolopoulou, K. (2022). What Is Purposive Sampling? Definition & Examples. *Scribbr*.

<https://www.scribbr.com/methodology/purposive-sampling/>

Oberg, K. (1954). *Culture shock* (p. 1). Indianapolis, IN: Bobbs-Merrill.

Oberg, K. (1960). Cultural shock: Adjustment to new cultural environments. *Practical*

O'Dwyer, S. (2019). *Confucianism's Prospects: A Reassessment*. State University of New York Press.

Ogden, B. E., Pang, W., Agui, T., & Lee, B. H. (2017). Laboratory animal laws, regulations, guidelines and standards in China Mainland, Japan, and Korea. *ILAR journal*, 57(3), 301-311.

Orzechowski, K. (2020, April 9). The Animal Rights Movement: History and Facts About Animal Rights. *Faunalytics*. Retrieved from <https://faunalytics.org/the-animal-rights-movement-history-and-facts-about-animal-rights/>.

O'Sullivan, M. W., & Guo, L. (2010). Critical thinking and Chinese international students: An East-West dialogue. *Journal of contemporary issues in education*, 5(2).

- O'Sullivan, N., & Amirabdollahian, F. (2016). Loyal tongue, liberal mind: International students' experiences on dietary acculturation in England. *Journal of International Students*, 6(1), 107-127.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42(5), pp. 533-544. doi: 10.1007/s10488-013-0528-y. PMID: 24193818; PMCID: PMC4012002.
- Park, C. C., & Chi, M. M. Y. (1999). *Asian-American Education: Prospects and Challenges*. Bergin & Garvey, Greenwood Publishing Group, 88 Post Road West, Box 5007, Westport, CT 06881.
- Park, Y. S., Konge, L., & Artino, A. R. (2020). The positivism paradigm of research. *Academic Medicine*, 95(5), 690-694.
- Passmore, J. A. (1943). Logical positivism (I). *The Australasian Journal of Psychology and Philosophy*, 21(2-3), 65-92.
- Patterson-Kane, E., & Golab, G. C. (2013). History, philosophies, and concepts of animal welfare. In *Laboratory Animal Welfare* (pp. 1-6). Academic Press.
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods* (3rd ed.). Sage.
- Pease, A. & Pease, B. (2006, September 24). The Definitive Book of Body Language. *The New York Times*. <https://www.nytimes.com/2006/09/24/books/chapters/0924-1st-peas.html>
- Perry, C. J. (2012). Comparing international and American students' challenges: A literature review. *Journal of International Students 2016*, 6(3), 712-721.

- Phuong-Mai, N., Terlouw, C., & Pilot, A. (2005). Cooperative learning vs Confucian heritage culture's collectivism: confrontation to reveal some cultural conflicts and mismatches. *Asia Europe Journal*, 3, 403-419.
- Pietilä, I. (2010). Intercultural adaptation as a shared learning process in the life-course. *Cross-cultural lifelong learning*.
- Pietkiewicz, I. & Smith, J.A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, 20, 7-14.
- Pilgeram, N. (2022, May 20). Transparency is the way forward to public understanding and acceptance of animal research. Emory Science Advocacy. Retrieved from <https://www.emoryscienceadvocacy.org/post/transparency-is-the-way-forward-to-public-understanding-and-acceptance-of-animal-research>.
- Pitts, M. J. (2016). Sojourner reentry: A grounded elaboration of the integrative theory of communication and cross-cultural adaptation. *Communication Monographs*, 83(4), 419-445.
- Pring, R. (2014). *John Dewey*. Bloomsbury Publishing.
- Pritchard, R. (2011). Re-entry trauma: Asian re-integration after study in the West. *Journal of Studies in International Education*, 15(1), 93-111.
- Public Health Service Policy PHS. (n.d.). National Institutes of Health (NIH). Retrieved from <https://olaw.nih.gov/policies-laws/phs-policy.htm>.
- Rabourn, K. E., BrckaLorenz, A., Shoup, R. (2018). Reimagining student engagement: How nontraditional adult learners engage in traditional postsecondary environments. *The Journal of Continuing and Higher Education*, 66(1), 22-33.
<https://doi.org/10.1080/07377363.2018.1415635>

- Reid, C., Greaves, L., & Kirby, S. (2017). *Experience research social change: Critical methods*. University of Toronto Press.
- Reid, K., Flowers, P., & Larkin, M. (2005). Exploring lived experiences. *The Psychologist*, 18(1), 20-23.
- Retnam, L., Chatikavanij, P., Kunjara, P., Paramastri, Y. A., Goh, Y. M., Hussein, F. N., ... & Poosala, S. (2017). Laws, regulations, guidelines and standards for animal care and use for scientific purposes in the countries of Singapore, Thailand, Indonesia, Malaysia, and India. *ILAR journal*, 57(3), 312-323.
- Riley, M. F. (2018, January). Humane care and use of laboratory animals: Federal regulation of use of laboratory animals for research [Video]. National Association for biomedical research. https://www.youtube.com/watch?v=fOca_CBKQUk
- Robinson, A. S. (2019, February 26). Animal Cruelty Legislation, Part I. NC State University Libraries. Retrieved from <https://www.lib.ncsu.edu/news/special-collections/animal-cruelty-legislation-part-i>.
- Rocco, T. S., Smith, M. C., Mizzi, R. C., Merriweather, L. R., & Hawley, J. D. (Eds.). (2020). *The Handbook of Adult and Continuing Education* (1st ed.). Routledge. <https://doi-org.utk.idm.oclc.org/10.4324/9781003447849>
- Rodríguez, C., Chavez, C. R., & Klauber, C. (2019). International Graduate Student Challenges and Support. *International research and review*, 8(2), 49-64.
- Rogers, A. (1996). *Teaching Adults* (2nd ed.). Buckingham: Open University Press.
- Rogers, J. (2020, October 30). The Interpretivist Lens – What Design Study as a Method of Inquiry Can Teach Us. The visualization design lab. <https://vdl.sci.utah.edu/blog/2020/10/30/interpret-lens/>

- Rogers, O. (2019). Animal Research in China. Faunalytics. Retrieved from <https://faunalytics.org/animal-research-in-china/>.
- Ross-Gordon, J. M. (2003). Adult learners in the classroom. *New directions for student services*, 2003(102), 43-52.
- Ross-Gordon, J. M., Rose, A. D., & Kasworm, C. E. (2016). *Foundations of adult and continuing education*. John Wiley & Sons.
- Rothwell, W. J. (2020). *Adult learning basics*. American Society for Training and Development.
- Roulston, K. J. (2011). Working through challenges in doing interview research. *The International Journal of Qualitative Methods*, 10(4), 348–366.
<https://doi.org/10.1177/160940691101000404>
- Rubel, D., & Okech, J. E. A. (2017). Qualitative research in group work: Status, synergies, and implementation. *Journal for Specialists in Group Work*, 42(1), 54–86.
<https://doi.org/10.1080/01933922.2016.1264522>
- Russell, W. M. S., & Burch, R. L. (1959). *The principles of humane experimental technique*. Methuen.
- Samovar, L. A., Porter, R. E., McDaniel, E. R., & Roy, C. S. (2016). *Communication between cultures*. Cengage Learning.
- Sato, T., & Hodge, S. R. (2009). Asian international doctoral students' experiences at two American universities: Assimilation, accommodation, and resistance. *Journal of Diversity in Higher Education*, 2(3), 136.
- Schenck, A. D. (2015). Improving Education in Confucian Countries through Analysis of Organizational Challenges, Leadership, and Responsibilities. *Journal of International education and leadership*, 5(1), n1.

Schipani, S. (2019). The history of the lab rat is full of scientific triumphs and ethical quandaries. *Smithsonian Magazine*.

Schrenk, N., Alves, K., Van Dam, D., & Schrenk, B. (2021). Reflecting on best practices for online learning in a post-COVID-19 world. *Online Learning*, 25(4), 486-504.

Schumann, J. H. (1986). Research on the acculturation model for second language acquisition. *Journal of multilingual & multicultural development*, 7(5), 379-392.

Schwandt, T. (2007). *The sage dictionary of qualitative inquiry* (3rd ed.). Thousand Oaks, CA: Publication, Inc.

Schwartz-Shea, P., & Yanow, D. (2011). *Interpretive Research Design: Concepts and Processes* (1st ed.). Routledge.

Scruton, J., & Ferguson, B. (2014). Teaching and supporting adult learners. Critical Publishing.

Science Council of Japan SCJ. (2006). Guidelines for Proper Conduct of Animal Experiments. Science Council of Japan. PDF Retrieved from <https://www.scj.go.jp/en/animal/>.

Seidel, B. N. (1996). *Giambattista Vico and the Emergence of Historical Consciousness* (Publication No. 9634104) [Doctoral dissertation, University of Wisconsin]. ProQuest Dissertations and Thesis database.

Seok, B. (2021). The Emotions in Early Chinese Philosophy.

Shahbazian, M. (2015). An Introduction to Hermeneutic Phenomenology. ResearchGate. <https://www.researchgate.net/publication/312324059>

Shuai, P., Shuyue, M., & Hailiang, Z. (2015, August). Individualism and Collectivism Transition in Chinese college students Evidence from After 70's, 80's, and 90's. In *2015 3d International Conference on Advanced Information and Communication Technology for Education (ICAICTE-2015)* (pp. 23-30). Atlantis Press.

- Sim, S. P. L., Sim, H. P. K., & Quah, C. S. (2021). Online learning: A post COVID-19 alternative pedagogy for university students. *Asian Journal of University Education*, 16(4), 137-151.
- Sinclair, M., Lee, N. Y., Hötzel, M. J., de Luna, M. C. T., Sharma, A., Idris, M., ... & Marchant, J. N. (2022). International perceptions of animals and the importance of their welfare. *Frontiers in Animal Science*, 97.
- Skjott Linneberg, M. & Korsgaard, S. (2019). Coding qualitative data: a synthesis guiding the novice, *Qualitative Research Journal*, 19(3), 259-270. <https://doi.org/10.1108/QRJ-12-2018-0012>
- Slote, W. H., & De Vos, G. A. (Eds.). (1998). *Confucianism and the family*. Suny Press.
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method and research*. Sage.
- Smith, J. A., & Larkin, M. (2022). *Interpretative phenomenological analysis: Theory, method and research* (2nd ed.). Sage.
- Sözcü, İ. (2020). Constructivism. In Ş. Orakcı (Ed.), *Paradigm Shifts in 21st Century Teaching and Learning* (pp. 20-35). IGI Global. <https://doi-org.utk.idm.oclc.org/10.4018/978-1-7998-3146-4.ch002>
- Speaking of Research. (n.d.). US Animal Research Statistics. Retrieved from <https://speakingofresearch.com/facts/statistics/>.
- Spence, J. (2020, February 18). Nonverbal Communication: How Body Language & Nonverbal Cues Are Key. *Lifesize*. <https://www.lifesize.com/blog/speaking-without-words/>
- Stanford Medicine. (n.d.). Regulatory Oversight. Retrieved from <https://med.stanford.edu/animalresearch/regulatory-oversight.html>.
- Strauss, A. L. & Corbin, J. M. (1998). *Basics of Qualitative Research: Techniques and*

Procedures for Developing Grounded Theory. Basics of qualitative research (2nd ed.).
Sage publications.

Su, B., & Martens, P. (2017). Public attitudes toward animals and the influential factors in contemporary China. *Animal Welfare*, 26(2), 239-247.

<https://doi.org/10.7120/09627286.26.2.239>

Sun, Q. (2008) Confucian educational philosophy and its implication for lifelong learning and lifelong education, *International Journal of Lifelong Education*, 27:5, 559-578, DOI: 10.1080/01411920802343269

Sun, Q. (2005). To Be Ren and Jun Zi: A Confucian Perspective on the Practice of Contemporary Education. *Journal of Thought*, 39(2), 77–90.

<http://www.jstor.org/stable/42589789>

Suri, H. (2011). Purposeful sampling in qualitative research synthesis. *Qualitative Research Journal*, 11(2), 63-75. DOI 10.3316/QRJ1102063.

Szűcs, E., Geers, R., Jezierski, T., Sossidou, E. N., & Broom, D. M. (2012). Animal welfare in different human cultures, traditions and religious faiths. *Asian-Australasian journal of animal sciences*, 25(11), 1499.

Taguchi, N. (2018). Essence of Confucius and Confucianism: "Li" and "Ren". Research Institute for Creating New Paradigms based on Eastern and Western Wisdom. Retrieved March 17, 2023, from <https://inst-east-and-west.org/en/learning/2018/002496.html>.

Tan, C. (2015). Beyond rote-memorization: Confucius' concept of thinking. *Educational Philosophy and Theory*, 47(5), 428-439.

Tan, C. (2017). Confucianism and education. In *Oxford research encyclopedia of education*.

- Tan, C. (2018). To be more fully human: Freire and Confucius. *Oxford Review of Education*, 44(3), 370-382.
- Tan, G. (2019). Asian Americans in Today's US Higher Education: An Overview of Their Challenges and Recommendations for Practitioners. *Journal of Student Affairs, New York University*, 15, 7-17.
- Tan, J. B., & Yates, S. (2011). Academic expectations as sources of stress in Asian students. *Social Psychology of Education*, 14, 389-407.
- Tan, T., & Weidman, J. C. (2013). Chinese graduate students' adjustment to academic demands in American universities. *Transnational higher education in the Asian context*, 118-131.
- Tang, W., & He, G. (2010). Separate but loyal: Ethnicity and nationalism in China.
- Tang, S. (1999). Cooperation or competition: A comparison of US and Chinese college students. *The Journal of psychology*, 133(4), 413-423.
- Taylor, K., & Alvarez, L. R. (2019). An estimate of the number of animals used for scientific purposes worldwide in 2015. *Alternatives to Laboratory Animals*, 47(5-6), 196-213.
- Taylor, P. C. & Medina, M. N. D. (2013). Educational research paradigms: From positivism to multiparadigmatic. *Meaning Centered Education*, 1.
- Teon, A. (2016, June 2). Confucianism And the Law in Singapore and Taiwan. The Greater China Journals. Retrieved from <https://china-journal.org/2016/06/02/confucianism-and-the-law-in-singapore-and-taiwan/>.
- Ting-Toomey, S., & Kurogi, A. (1998). Facework competence in intercultural conflict: An updated face-negotiation theory. *International journal of intercultural relations*, 22(2), 187-225.
- Ting-Toomey S. & Tenzin D. (2019). *Communicating across cultures* (Second). Guilford Press.

- Tomkins, L. & Eatough, V. (2018). Hermeneutics: interpretation, understanding and sense-making. *ResearchGate*. <https://www.researchgate.net/publication/322169328>
- Tran, T. T. (2013). Is the learning approach of students from the Confucian heritage culture problematic? *Educational Research for Policy and Practice*, 12, 57-65.
- Tu, W. M. (1998). Confucius and Confucianism. *Confucianism and the Family: A Study of Indo-Tibetan Scholasticism*, 3-36.
- Tuohy, D., Cooney, A., Dowling, M., Murphy, K., & Sixsmith, J. (2013). An overview of interpretive phenomenology as a research methodology. *Nurse Research*, 20(6), 17-20. doi: 10.7748/nr2013.07.20.6.17.e315. PMID: 23909107.
- Turner, D. (2017, September 24). An introduction to Interpretative Phenomenological Analysis. *Quirkos*. <https://www.quirkos.com/blog/post/intro-interpretative-phenomenological-analysissummary/#:~:text=IPA%20should%20be%20very%20focused,coding%20approach%20is%20often%20taken>
- Turner, P. V., & Barbee, R. W. (2019). Responsible science and research animal use. *ILAR journal*, 60(1), 1-4.
- United Nations Convention on Animal Health and Protection UNCAHP. (2018). Why support UNCAHP? Retrieved from <https://www.uncahp.org/>.
- University of Knoxville UTK. (n.d.). Quick Facts. The University of Tennessee Knoxville. Retrieved from <https://www.utk.edu/about>
- University of Knoxville UTK. (2019). News. The University of Tennessee Knoxville. Retrieved from <https://news.utk.edu/2019/01/15/all-sec-universities-achieve-highest-research-designation-for-first-time/>.

University of Tennessee-Knoxville (UTK). (2023). Institutional research and strategic analysis Fact book. Retrieved from <https://irsa.utk.edu/reporting/fact-book/>.

U.S. Department of Agriculture USDA. (n.d.). Animal Welfare Act. National Agricultural Library U.S. Department of Agriculture. Retrieved from <https://www.nal.usda.gov/animal-health-and-welfare/animal-welfare-act>.

U.S. Department of Agriculture USDA. (n.d.). Animal Welfare Act. Animal and Plant Health Inspection Service. Retrieved from <https://www.aphis.usda.gov/aphis/home/>.

US News. (2022). Most International Students Regional Universities South. Retrieved from <https://www.usnews.com/best-colleges/rankings/regional-universities-south/most-international>.

Uzun, K. (2016). Critical investigation of a qualitative research article from ontological and epistemological perspectives. *International Journal of Social Sciences and Education Research*, 2 (3), pp. 836-842. DOI: 10.24289/ijsser.279027

van Niejenhuis, C., Otten, S., & Flache, A. (2018). Sojourners' second language learning and integration. The moderating effect of multicultural personality traits. *International Journal of Intercultural Relations*, 63, 68-79.

Varga, O., Hansen, A. K., Sandøe, P., & Olsson, I. A. S. (2010). Improving transparency and ethical accountability in animal studies: three ways to link ethical approvals to publications. *EMBO reports*, 11(7), 500-503.

Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, 15, 320–330. <https://doi.org/10.1057/palgrave.ejis.3000589>

- Walton, L. (2023). Confucianism and Education. Jennifer Oldstone-Moore (ed.), *The Oxford Handbook of Confucianism* (2023; online edn, Oxford Academic, 26 Jan. 2023), <https://doi.org/10.1093/oxfordhb/9780190906184.002.0003>, accessed 2 June 2023.
- Wang, C. C. D., & Song, Y. S. (2010). Adult attachment reconceptualized: A Chinese perspective.
- Wang, D., Laidlaw, K., Power, M. J., & Shen, J. (2009). Older people's belief of filial piety in China: Expectation and non-expectation. *Clinical Gerontologist*, 33(1), 21-38.
- Wang, F. (2020). Chinese international students' cognitive processes and experiences with online non-academic reading and writing in the United States. *An International Online Journal*, (20)1, 127-142.
- Wang, J. (2013). Understanding the Chinese learners from a perspective of Confucianism. *Researching cultures of learning: International perspectives on language learning and education*, 61-79.
- Wang, L. (2019). *John Dewey's Democratic Education and its Influence on Pedagogy in China 1917-1937*. Springer Nature.
- Wang, Y., Martin, M. A., & Martin, S. H. (2002). Understanding Asian graduate students' English literacy problems. *College Teaching*, 50(3), 97-101.
- WentworthInstTech. (2019, Oct. 29). Kolb Learning Styles [Video]. YouTube. <https://www.youtube.com/watch?v=XYtnZdURch4>
- Wette, R. (2021). *Writing Using Sources for Academic Purposes: Theory, Research and Practice*. (2nd ed), Routledge.
- Wilson, E. (1900). *The Wisdom of Confucius: With Critical and Biographical Sketches*. Books, Incorporated.

- Winkelman, M. (1994). Cultural shock and adaptation. *Journal of Counseling & Development*, 73(2), 121-126.
- Wong, J. K. K. (2004). Are the Learning Styles of Asian International Students Culturally or Contextually Based? *International Education Journal*, 4(4), 154-166.
- Wu, X. (2018). *Examining Chinese International Secondary School Students in Transnational Spaces: Becoming Flexible Citizens?* (Doctoral dissertation, The University of Western Ontario (Canada)).
- Wu, X. (2023). Reflexivity in multilingual and intercultural education: Chinese international secondary school students' critical thinking. *Journal of Multilingual and Multicultural Development*, 44(1), 35-49.
- Wu, X. (2023). Reflexivity in multilingual and intercultural education: Chinese international secondary school students' critical thinking. *Journal of multilingual and multicultural development*, 44(1), 35-49. <https://doi.org/10.1080/01434632.2020.1789650>
- Wu, W., & Hammond, M. (2011). Challenges of university adjustment in the UK: a study of East Asian masters degree students. *Journal of Further and Higher Education*, 35(3), 423-438.
- Wu, W., & Xiong, J. (2021). Interpretation of Collectivism Thoughts Contained in Mathematical Theory. *Creative Education*, 12(12), 2806-2810.
- Xiaoqiong, H. (2008). The culture shock that Asian students experience in immersion education. *Changing English*, 15(1), 101-105.
- Xie, K. (2021). Experiencing Southeast Asian Studies in China: a reverse culture shock. *Journal of Southeast Asian Studies*, 52(2), 170-187.

- Xiong, Q. (2017). Elaboration of the philosophical values of paradigmatic excerpts of "The Analects of Confucius". *Theory and Practice in Language Studies*, 7(4), 305.
- Yan, L. W. (2022). Critical-Thinking Experiences of Chinese and US College Students: A Comparative Analysis Using Phenomenology. *Qualitative Report*, 27(3).
- Yao, X. (2000). *An introduction to Confucianism*. Cambridge University Press.
- Yeh, C. J., & Huang, K. (1996). The collectivistic nature of ethnic identity development among Asian-American college students. *Adolescence*, 31(123), 645.
- Yin, R. K. (2016). *Qualitative Research from Start to Finish* (2nd ed.). Guilford Publications.
- Yook, Eunkyong Lee. *Culture Shock for Asians in U.S. Academia: Breaking the Model Minority Myth*, Lexington Books, 2013. *ProQuest Ebook Central*,
- Yook, E. L. (2013). *Culture shock for Asians in US academia: Breaking the model minority myth*. Lexington Books.
- Yuan, M. (2022). Five Academic Challenges of Chinese International Students in US Higher Education: Educational System Adjustment and Classroom Transition. *Highlights in Business, Economics and Management*, 4, 311-319.
- WOAH- World Organization for Animal Health. (n.d.). The veterinary workforce plays a key role in the global One Health agenda. Retrieved from <https://www.woah.org/en/home/>.
- Zhang, S. N. (2016). *Confucianism in contemporary Chinese politics: An actionable account of authoritarian political culture*. Lexington Books.
- Zinsstag, J. (n.d.). The influence of culture and religion. Future Learn. Retrieved <https://www.futurelearn.com/info/courses/one-health/0/steps/25457>.

Appendices

Appendix A: Kolb's Learning Cycle & Styles

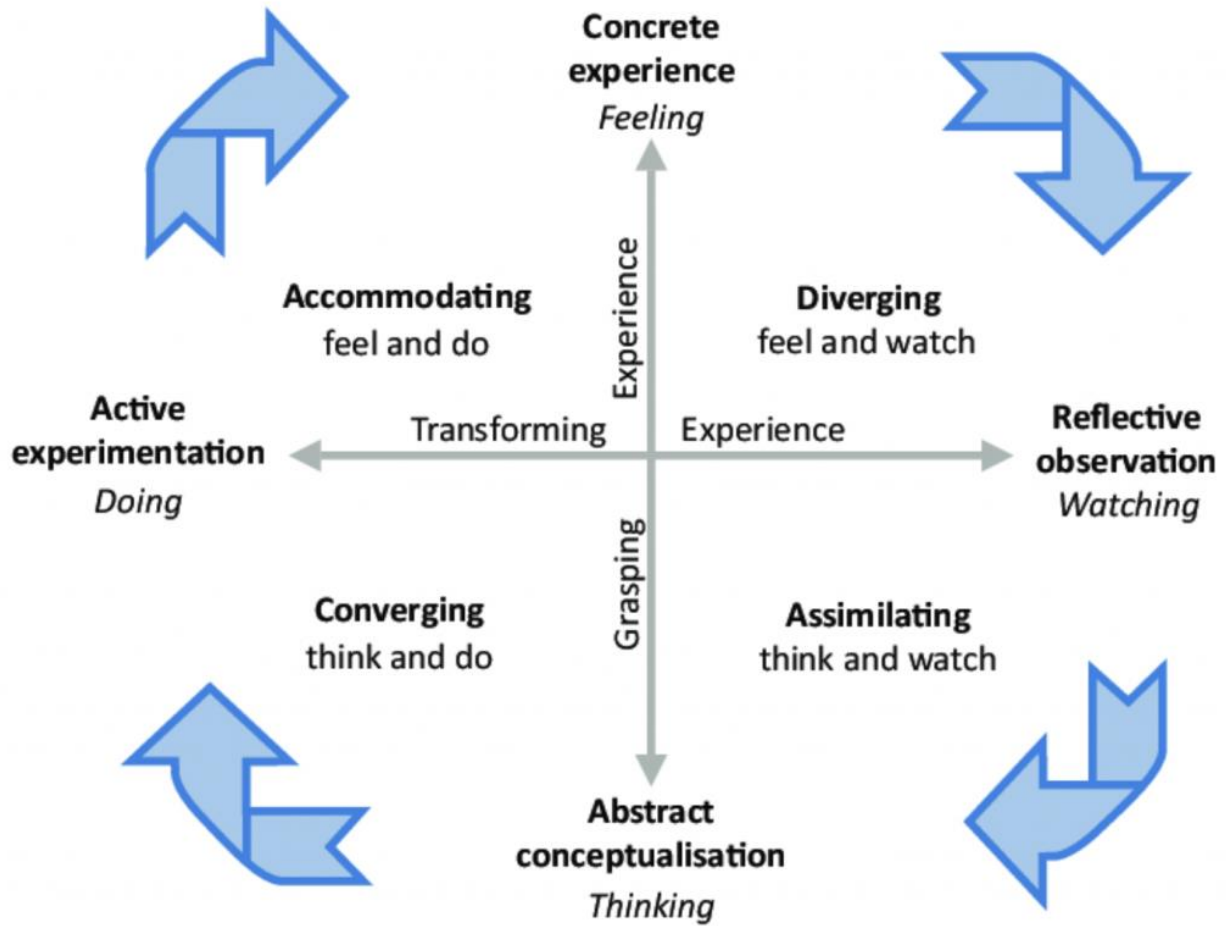


Figure 1.1. Kurt, 2020

Appendix B: Interview Guide

Cultural Perspectives on Research Compliance: Exploring How International Students from Confucian-Heritage Cultures Navigate the Rules and Regulations for Conducting Animal-Related Research in the United States

What are Asian CHC graduate sojourner's experiences while engaging in animal research?

How do their perceptions of their new culture influence their academic success while performing animal-related research in graduate school in the U.S.?

- Patton (2002) describes an interview with open-ended and probing questions yielding in-depth responses about the participant's experiences, perceptions, opinions, feelings, and knowledge. There is a significant gap in the research regarding how these sojourners perceive their experiences of navigating a new set of guidelines used in animal research while in the U.S. (Imafuku et al., 2015).
- The purpose of this study is to understand the essence of the lived experiences of Asian graduate students from Confucian-heritage cultures that perform animal-related research at a research-intensive institution in the U.S.
- How has CHC affected your learning?
- CHC- Filial Piety, Rote Learning, Hierarchical Relationships, Collectivism vs Individualism
- Challenges- Language Barriers, Critical Thinking Skills, New Academic Expectations,
- What is Animal Welfare to the students? How did they learn/understand AW?

QUESTIONS

1. I need to gather some basic demographics for my study. What is your country of origin? What gender do you identify as and what is your age range? For example, are you 21-25, 26-30, 31-35, 36-40, etc.). Major/department and how long have you been here?
2. What brought you to the U.S. and how long have you been here in the U.S. performing graduate research with this species?
3. Prior to attending this university, did you attend another university, if so, what was your major, did you perform any research, if so, did you perform animal research (with what animals)?
4. Please describe what training you have had to work with this species and who trained you.
5. Please share what format were the rules and regulations for animal research presented in? (PPT, oral, hands-on, etc.), and what are your feelings and opinions on the number of rules/regulations you need to follow? Also, what kind of resources were available to you to learn about performing research at this institution? (books, videos, etc.)
6. Will you share any experiences in which you felt you were not properly trained, or research tasks were done improperly? Has it been hard to know what to do in some situations with animal research? How?

7. What are your feelings about your current field/area or research and what kinds of concerns have you shared with your colleagues? Do you feel you were able to express what you thought about the research openly?
8. What were you not taught about research at your institution that you now think you needed to know, and have you had difficulty or trouble understanding the rules? What roadblocks have you experienced around your research from regulatory oversight bodies or in general and what has helped you be successful and best learn and navigate the research environment?
9. Describe something that has made your learning of how to properly perform research easier. And something that has made it harder.

Appendix C: Consent for Research Participation

Consent for Research Participation

Research Study Title: Cultural Perspectives on Research Compliance: Exploring How International Students from Confucian-Heritage Cultures Navigate the Rules and Regulations for Performing Animal-Related Research in the United States

Researcher(s): Jerri O'Rourke, University of Tennessee, Knoxville Dr. Qi Sun, University of Tennessee, Knoxville

Why am I being asked to be in this research study?

We are asking you to be in this research study because you are a graduate student from the Confucian heritage culture (CHC), such as China (and Taiwan), Japan, South Korea, Vietnam, and Singapore, who perform research using animals in the United States.

What is this research study about?

The purpose of this study is to understand the essence of the lived experiences of Asian graduate students from Confucian-heritage cultures (CHC) who perform animal-related research at a research-intensive institution in the U.S. It aims to examine the perceptions and impacts that cultural distinctions in the form of differing rules and regulations have on sojourners from CHC. This study will be used to gain a deeper insight into CHC graduate students' intercultural experiences while transitioning into animal research in the U.S. By joining this study your participation can aid in identifying ways to improve the learning practices and in turn the teaching practices for CHC students in the U.S. Your input may help researchers find solutions to particular learning and teaching issues that arise for CHC students in the classroom and during research activities.

This research will offer insights into the issues associated with these varying requirements while performing animal research in the U.S. This research topic is an important area of study as the findings may inform future practice, policy, and research regarding the experiences and needs of Asian graduate students performing any type of research.

How long will I be in the research study?

If you agree to be in the study, your participation will last for up to 1 hour during the initial interview and may involve 1 follow-up interview lasting up to 30 minutes.

What will happen if I say “Yes, I want to be in this research study”?

If you agree to be in this study, we will ask you to:

- Determine if a translator is needed for the consent form and/or interview- your choice.
- Sign a consent form.
- Set up a meeting time that is convenient for you.
 - Either in a private and comfortable location on campus that is convenient for you when performing a face-to-face interview- which will be recorded.
 - Or plan for a Zoom interview-which will be recorded.
- You may be contacted again if there is a follow-up interview if needed.
- You will be asked to provide information regarding your research and training using animals. There will be questions that pertain to your comprehension and preferences for the rules and regulations governing animal research at your college or university.

What happens if I say “No, I do not want to be in this research study”?

Being in this study is up to you. You can say no now or leave the study later. Either way, your decision won’t affect your relationship with the researchers or your college/university.

What happens if I say “Yes” but change my mind later?

Even if you decide to be in the study now, you can change your mind and stop at any time. If you decide to stop before the study is completed, contact the PI. Your information will not be used if you choose.

Are there any possible risks to me?

This study proposal has undergone rigorous review. The researchers take your privacy very seriously and can assure you that your information will not be shared with anyone outside of the immediate research team.

Interviews will be conducted either via a private Zoom session or in private rooms and on an individual basis unless a translator is needed. Only the individual, possible translator and research team will know the individuals in the study or have access to your interview material.

Are there any benefits to being in this research study?

There is a possibility that you may benefit from being in the study, but there is no guarantee that will happen. Possible benefits would be that you could take part in the development of a training program that is applicable to your ethic group. This research presents significant value in policy

making and developing training for international scholars in areas of research procedures and rules especially with real-time change on multiple levels, governing research in the U.S.

Who can see or use the information collected for this research study?

- Research procedures will be performed in a private setting or via a private Zoom session. Only authorized research study personnel will be present during all research-related activities.
- The collection of participant information is limited to the amount necessary to achieve the aims of the research.
- Data will be captured and reviewed in a private setting.
- Participants will not be approached in a setting or location that may constitute an invasion of privacy or create unwanted attention.
- Recordings, paper documents and field notes will all be maintained on secure networks and remain in a secure location with very limited access.

We will protect the confidentiality of your information by not using real names for any published documents. Your identifiable information will be kept on a secure network to be used if we need to contact you for a second interview.

If information from this study is published or presented at scientific meetings, your name and other personal information will not be used.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information or what information came from you. Although it is unlikely, there are times when others may need to see the information we collect about you. These include:

- Government agencies (such as the Office for Human Research Protections in the U.S. Department of Health and Human Services), and others responsible for watching over the safety, effectiveness, and perform of the research.
- If a law or court requires us to share the information, we would have to follow that law or final court ruling.

What will happen to my information after this study is over?

Future use by the research team:

We will keep your information to use for future research or other purposes. Your name and other information that can directly identify you will be kept secure and stored separately from research data that is published.

Future use by the others:

We may share your research data with other researchers without asking for your consent again, but it will not contain information that could directly identify you.

Who can answer my questions about this research study?

If you have questions or concerns about this study, or have experienced a research related problem or injury, contact the researchers, Jerri O'Rourke jerriorourke@gmail.com and Qi Sun qsun8@utk.edu

For questions or concerns about your rights or to speak with someone other than the research team about the study, please contact: Institutional Review Board, The University of Tennessee, Knoxville, Phone: 865-974-7697, Email: utkirb@utk.edu

I have read this form, been given the chance to ask questions and have my questions answered. If I have more questions, I have been told whom to contact. I can print or save a copy of this consent information for future reference. If I do not want to be in this study, I can close my internet browser.

Appendix D: Message to Participants

Good afternoon,

I am writing to you as a doctoral student. I am in the University of Tennessee-Knoxville's Adult and Continuing Education Ph.D. Program within the Educational Leadership and Policy Studies Department. I am in the process of starting my dissertation research. My dissertation focuses on cross-cultural education. Specifically, through my research, I am trying to learn about international Asian students from countries such as China (and Taiwan), Japan, South Korea, Vietnam, and Singapore, who perform research using animals. Through my initial research on how international students from these cultures navigate and interpret rules and regulations for performing animal-related research in the U.S., I have found that this student population may face challenges based on their cultural differences. Although there is a growing amount of research performed to investigate their experiences as Asian international adult learners pursuing graduate or undergraduate studies in the U.S. and their significant contributions to American society and multinational corporations, there has been limited research (Le & Gardner, 2010; Zhang, 2016), focused specifically on international Asian students performing animal research while studying in the U.S.. The purpose of this study is to understand the essence of the lived experiences of Asian graduate and undergraduate students who perform animal-related research at a research-intensive institution in the U.S.

I have been made aware that you may be eligible for my study. Your contribution to this study would be greatly appreciated. Your input could help develop future training programs and a better understanding of international Asian students' needs while performing research in the U.S.

If you are interested in participating in this study, please use the link provided to answer a few initial questions.

[Inclusion Criteria Link](#)

Your participation is needed for one online interview (up to 60 minutes) and possibly a follow-up interview (up to 30mins).

Thank you. I look forward to hearing from you.

Jerri O'Rourke

Jorourk3@utk.edu

Vita

Jerri O'Rourke grew up in Georgia but has lived in several states while in and after the Army. After the Military she earned an Associate of Applied Science in Veterinary Technology from Argosy University in Minnesota. She then worked in the veterinary medicine field while she earned her Bachelor of Science degree in Biology and Animal Science from the University of Wisconsin. She then earned her Master's degree in Science Management from Globe University in Minnesota. After a few years, she then chose to attend the University of Tennessee, Knoxville to pursue a Doctor of Philosophy degree in Educational Psychology and Research. Her research interest includes research and cross-cultural education in the STEM fields, particularly in Animal related fields. After graduation, she will continue to educate and advocate animal welfare. She is incredibly grateful for all the support from her husband, sister, and committee through this journey.