Parental Expectations and Deciding Factors for Kindergartens in China

An Interactive Qualifying Project

submitted to the Faculty of

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

degree of Bachelor of Science

by

Albert Foun

Sudish Vengat

Sitsanok Young

11 January 2022

Report submitted to:

Kathy Wei

Yimi Children's House

Professor Hansong Pu and Joseph Sarkis

Worcester Polytechnic Institute

Abstract

Kindergartens play a large role in the development of children. Since parents are tasked with selecting the most suitable school for their children, it is important for kindergartens to properly represent themselves to help parents make informed choices. We conducted surveys and focus group interviews online with current and prospective parents in China being the sample population. Through the surveys and focus groups, our team sought to determine and understand common parental expectations and deciding factors. As a result, we were able to deliver a list of recommendations along with parental insight to our sponsor, Yimi Children's House, which is a Montessori school system located in Hangzhou, China. With the information provided, we hope to help Yimi understand the expectations of their target population, which in turn, would help Yimi reach parents who may be interested in enrolling their children in Yimi's school system.

Acknowledgements

We would like to thank several individuals and groups that helped to make this project possible. Firstly, our advisors, Professor Joseph Sarkis and Professor Hansong Pu, who guided us and offered us insightful suggestions throughout the IQP process. Additionally, we want to acknowledge Professor Grant Burrier and Librarian Philip Waterman who aided us in the early stages of our project with their feedback. We are also very grateful to have worked with Professor Yunhong Shen and our student cohorts, Kieron, Terry, Senor, Angus, Timi, and Adam, at Hangzhou Dianzi University (HDU) who were able to support the project from Hangzhou since we were not able to be there. Lastly, our sponsor Yimi Children's House and liaison, Ms. Wei, were especially helpful in defining our project goals and providing the connections necessary to achieve them.

Executive Summary

Project goal

Our team's project goal is to provide a study on the potential clients for our project sponsor, Yimi Children's House (Yimi), which is a Montessori school system in Hangzhou, China. In order to gather the necessary information to include in the presented materials, we sought to collect and analyze the different parental expectations and their preferences for early childhood education. This project includes comparative studies involving current parents and prospective parents. By using our data and recommendations as a reference, we hoped to assist Yimi to better understand their current and potential clients, and thus, allow them to make modifications to their schools' program and marketing strategies. These recommendations are meant to draw more awareness and interest involving the school and increase enrollment at the schools.

Background Research

Our team's background research consists of research on various education systems within China, self-directed learning, and the cognitive performance of Montessori vs. non-Montessori children. Additionally, our team investigated the concept of individualism vs. collectivism as it relates to education and the development of children's future. Our background research will strengthen our methodology by providing us with the context behind our study on the current and prospective parent expectations for kindergartens in China. By researching broad facets of early education, our group will be more informed and able to address our project goal more accurately.

Methodology

To accomplish our goal, our team gathered information and data from parents and prospective parents that have or would enroll their children in Chinese kindergartens. We employed surveys and focus groups to gather opinions on kindergartens and identify what considerations exist when choosing a kindergarten for a child. Through analyzing the results, we gained an understanding of the factors that influence kindergarten decision making and developed recommendations for our sponsor that accommodate them.

Using information from our background research and in collaboration with our sponsor, we developed a bilingual survey that utilized multiple choice, rank order, and Likert-type scale questions. The survey began with demographic questions in a multiple-choice format. To gauge parental kindergarten preferences, rank order and Likert-scale questions asked about expectations for children and considerations when choosing a kindergarten for children. Surveys were distributed to current and prospective parents in China through our liaison, Ms. Kathy Wei, and Hangzhou Dianzi University (HDU) cohorts.

Following up on the survey data, focus groups interviews were hosted online via Zoom. Using our background research and discussions with our sponsor, we developed focus group questions that related to our survey questions. Meanwhile, Ms. Wei reached out to friends and associates who were either current or prospective parents to participate in the focus groups. The participants were organized into current parents and prospective parents and a focus group was conducted with each group. The first focus group consisted of six current parents while the other group consisted of four prospective parents. When the data was gathered, a comparative analysis of various parental kindergarten deciding factors between current and prospective parents was done. Focus group responses were used to gain further insight on the survey responses.

With these methods came several limitations that hindered our data collection. These limitations included a lack of connections caused by our inability to be physically present in China. This issue along with the language barrier between the WPI team and Chinese participants caused many problems with reaching our target population. As a result, our sample population was restricted to volunteers contacted through Ms. Wei and the HDU team. This sample population may have had biases or not been representative of all Chinese kindergarten parents due to their similar surroundings. Additionally, the authenticity of some results, specifically from focus groups, may have been hindered through translations that could not properly convey the original ideas. With those limitations in mind, we completed our project while acknowledging the potential flaws in our results.

Findings

This section details the findings derived from our data collection methods outlined in the methodology section. With the culmination of the surveys and focus groups, our team analyzed the results to identify commonalities within the responses. Starting off with the surveys, our team focused on the areas in which the parents most agreed upon to gain some insight into their viewpoints. By evaluating the focus group results our team was able to obtain a better understanding of the context behind certain patterns that were found in the survey responses. Subsequently, we grouped the common themes that we discovered into four overarching concerns: Children's independence and freedom, parental hopes for their children, parental deciding factors for kindergartens, and tuition cost.

In our first overarching concern, our team looked at children's independence and freedom and how much parents valued it. From our survey results, we discovered that when current and

prospective parents were presented with the statement that children should discover interests on their own, most of the parents agreed. To deepen our understanding of parental views towards freedom and independence, we looked towards the focus groups. In those interviews, the current parent participants all agreed that the freedom of choice was most important for their children. One of the parents noted that she "lived in other people's worlds" and was not given the opportunity to discover her own interests and for that reason, she hopes to be able to give that opportunity to her children.

Next, our team focused on the general expectations that parents have for their children with regards to education and its future implications. From our focus group responses, we found that all the participants prioritized their child's wellbeing. Many of them noted that all they wanted for their children was for them to be happy. By granting their children the freedom to discover their own interests, the participants believe that their children will have the motivation to pursue their dreams and what makes them happy, ultimately living a fulfilled life.

Our team then examined the various deciding factors that shape parental decisions when choosing an ideal kindergarten for their children. From our survey responses, we found that tuition cost and food were both the most important factors for current parents whereas prospective parents valued the school's distance from their house more highly. Despite this difference, when looking at the top 3 considerations for both groups, both were quite similar in response with only one difference. Current parents placed food in their top 3 while prospective parents prioritized school safety. Much of what was found in the survey responses was echoed in our focus groups. The parents considered food as they expressed how important it is to provide a nutritional meal for children in the early stages of their lives. Additionally, the parents greatly

value school safety since they want to have the assurance that the school is properly equipped to handle unpredictable situations that could put their children in harm's way.

Lastly, our team solely addressed tuition cost as we found it to be a major contributing factor for parental decision making. With the survey responses, a majority of the current and prospective parents showed that they greatly valued the tuition cost of a school. Additionally, when we expanded on the topic of tuition cost in the focus group interviews, we found that parental decision making can be heavily impacted by the cost of a school. Some parents went as far as to say that despite thoroughly agreeing with Montessori's teaching methods, they were hesitant about enrolling their children in the school due to the high tuition cost. Those parents mentioned that their child's enrollment could be more affordable with a teacher discount.

Conclusions & Recommendations

To conclude this report, we introduce recommendations for our sponsor using the findings and discuss the challenges encountered throughout the project. Using the data analysis findings, we identified parental deciding factors that are most important for Yimi to prioritize:

- Parent decisions are largely influenced by finances and costs
- Parents want their opinions to be considered by schools
- Parents want their children to be independent and have freedom of choice
- Parents highly consider the distance a kindergarten is from their home

Focusing on these key points, recommendations are made to address each factor.

Dealing with costs and tuition, we recommend that Yimi establish scholarships and financial aid programs to help parents who prefer Yimi schools but are financially restricted from sending their children there. This recommendation might be possible by collaborating with

outside organizations and creating fundraisers. Additionally, teacher discounts could be established and expanded to help the workers who likely view Montessori schools in high regards but may not be able to afford them. Funds could also be used on materials since several people attributed high tuitions to costly materials.

In terms of marketing, we recommend that Yimi advertises their kindergarten qualities and benefits to justify the higher tuition costs. We also recommend that Yimi markets towards local parents in proximity to their facilities. This might be possible through contacting local businesses, news stations, or social media that can advertise Yimi to people who may be more willing to choose Yimi schools and live near the school.

Aside from those major points, we recommend that Yimi creates a strong sense of communication between parents and teachers through the implementation of a physical and digital suggestion box.

Throughout the project, we faced several challenges that slowed down and restricted project progress. The most prevalent of them involved authoritative restrictions, communication difficulties, and time constraints, all of which contributed to one another. To clarify, the challenge with authoritative restrictions refers to our inability to visit China and other limitations placed by government and school authorities. Communication with the HDU team, project sponsor, and study participants–which was already difficult due to the language barrier–became even more so due to the WPI team not being in China. Working on opposite schedules made scheduling meetings and data collection very strenuous and the time spent in meetings online was hindered by technical difficulties, and language problems. These challenges contributed to several issues faced throughout the project and greatly inhibited the progression of the project overall.

Table of Contents

1. Introduction

Early education plays an important role in shaping the future of a child. It is more than just an opportunity to learn basic skills, but also an opportunity to develop social and emotional skills. When properly implemented, early education offers children a foundation to build upon in their future academic endeavors (National University, 2011). Parents are tasked with the decision of enrolling their children in a school system that best suits their goals for their children. In this process, parents consider various factors that impact the quality and method of the education. These variances create diversity between kindergartens and ultimately lead parents of different values to choose different schools.

To provide diverse opportunities for children, some kindergarten facilities choose to apply contemporary, free-form methods that create alternative environments for kindergarteners to develop in. One example is the Montessori method, which emphasizes self-directed, hands-on learning that nurtures curiosity and independent thinking. Our sponsor, Yimi Children's House, is a kindergarten education provider that practices Montessori methods.

1.1 About the sponsor

"一米儿童之家," the Yimi Children's House (Yimi), is a network of Montessori schools in Hangzhou, China. Yimi was established in 2013 by teachers Ni Wang and Xiaomei Wu and has grown from a single campus with about 20 students to four campuses with about 300 students. Yimi's courses are specifically designed and prepared for children that are 0 - 6 years old. Their educational system is composed of three age levels: Nido (0 - 18 months), IC (19 months - 3 years), and CASA (3 - 6 years). Three of their campuses are referred to as Children's Houses, which teach all three levels. The fourth is a kindergarten, which opened in 2019, and

only teaches to the CASA level. Saiyin, one of the Children's Houses, is especially large with 10 classrooms, a 1,000-square-meter courtyard, an 800-square-meter soccer field, and a 2,000-square-meter farm (好学教育).

A typical Yimi classroom consists of a lead guide and two or three assistant teachers. Lead guides are the teachers with Association Montessori Internationale (AMI) certifications who—as their name suggests—lead and guide the students in activities. Assistant teachers do not have the formal training or certificates but are there to help the lead guides care for all of the students. In addition to the lead guides and assistant teachers, an English language teacher instructs an international class to help the students learn English.

Yimi is committed to the practice and promotion of Montessori education. Its aim is to promote self-motivated learning for children by allowing them to choose their own activities. They also encourage independent thinking and a desire to learn. To help achieve these goals, all of the schools provide interactive methods of learning in large open environments—as shown in Figure 1. This learning environment allows children to work on their activities independently. In addition to this learning environment, teachers also instruct one-on-one lessons, varying from child to child depending on their interests.

Figure 1: A Yimi Montessori education classroom. Notice the large open learning areas.

1.2 Interactive Qualifying Project objectives

In collaboration with Hangzhou Dianzi University (HDU) and Yimi Children's House (the sponsor), our Worcester Polytechnic Institute (WPI) interactive qualifying project (IQP) team studied factors that influence adult expectations of early childhood education in China—early childhood education is typically targeted to children under the age of 6. Understanding the various parental expectations in China can provide the sponsor with insight into why parents may choose to provide their children with conventional, Montessori, or other types of early childhood education.

Since the sponsor hopes to increase the attendance of their schools, considering parental views can benefit them. Parents will be more willing to enroll their children in Yimi if it provides certain qualities and parents are aware of these qualities. By attaining a general sense of the

expectations of current parents as well as prospective parents, we can identify trends and commonalities for our sponsor.

We aimed to address the following question leading to the objective of this IQP project: What are the current parent expectations for kindergartens in China, and what might they look like in the future? This information along with our own informed recommendations can help them improve their current strategies while also preparing for their future target audience.

1.3 Remainder of Interactive Qualifying Project report

In an effort to contextualize our objective, we provide additional background and literature in the following section. This will include information regarding the histories of Chinese traditional education and Montessori education, differing perspectives on early education systems, and studies in relation to our sponsor's foundation.

Following the Background section is the Methodology section. The section will cover the two methods of information gathering that we decided to employ—surveys and focus groups—as well as the anticipated limitations of the methods and the project itself. Furthermore, this part of the report will outline our plan to gather information on the views of current and prospective parents regarding the topics that were researched in the Background section.

Afterwards, we will present our findings obtained through analyzing the collected data. The findings will establish connections between the survey and focus group results and define certain trends and differences among them. The topics that are discussed include independence, parental hopes for their children, tuition cost, and parental considerations.

We then provide some major recommendations based on the findings from section 4. The major recommendations that we make are to provide scholarships and discounts. Since many

parents' decisions depend on their financial situations, we dedicated most of the section to make suggestions to reduce or justify the financial burden on parents. Also in the concluding section, we provide some challenges faced by the project, such as the language barrier between the WPI and HDU teams, time limitations, and lack of connections to be able to reach potential participants.

2. Background

Throughout China's history, its education has had a heavy focus on academic success through exam-based curricula. Despite significant movements to reform education in the 20th and 21st century, adult expectations for education are rooted so deeply in China's culture that China's curriculum remains primarily dominated by exams. As of 2019, China's educational structure consists of basic education, occupational education, higher education, and adult education. Basic education is the main curriculum for children and adolescents, consisting of preschool, six years of primary education, three years of secondary education, and three years of senior secondary education, culminating in college entry exams, which greatly influence the futures of students (The Open University, 2019).

In order to give their children a head start in their education; many parents choose to enroll their children in kindergartens. The first kindergarten in China was established in 1903 and with it came a shift from home education to early children's facilities as both parents were encouraged to go out and work. In 2002, approximately 45% of children ages 3-6 years old attended kindergarten facilities, typically attending full day programs (Zhu and Zhang, 2008). As China developed in the 20th century, officials sought to reform its education system to account for the modernization and globalization of the country (Law, 2014). Since the 1980s, China has experienced two waves of educational reform in efforts to convert the nation's basic education (K–9) curriculum into Western-style methods (Li, et. al., 2011). Despite these efforts, strong cultural views restrict progressive pedagogies—one of these progressive models being the Montessori method.

Montessori education started in 1906 when Dr. Maria Montessori, an Italian educator and physician, was given the opportunity to establish a childcare center in a poor district of Rome

called San Lorenzo. Given the environment that they were in, the children that attended this center had no prior form of education. Thereby, Dr. Montessori was determined to establish a strong education center to teach these children, and by 1907 she opened the "*Casa dei Bambini,"* otherwise known as "Children's House." At her center, she employed her own unique teaching method called the Montessori method.

The Montessori method is a physical or visual way of learning that emphasizes the importance of self-motivated learning to allow for the student to develop a desire to learn, fueled by their inherent curiosity. While students are guided by teachers, it is ultimately up to the student to decide which topics they specifically want to explore. By granting a sense of freedom, the Montessori education helps students develop as independent learners, building a foundation for them to grow into beneficial members of society. Through her work in San Lorenzo, she was able to shape and refine her unique teaching method in order to perfect it. She would later spread her teachings to other parts of the country and eventually to the rest of the world, building Montessori education centers wherever she went (Montessori Northwest, 2021).

For the remainder of this section, we discuss ideas that reinforced and deepened our understanding of Chinese education and Montessori principles relating to Yimi and the project goals we hoped to achieve. Section 2.1 gave us insight into Montessori education and different perspectives of the method. Section 2.2 covers self-directed learning in kindergarten settings and how it can be fortified in order to avoid several issues present in more formal teaching methods. Following section 2.2, we review a study where the authors compare the cognitive performance between Montessori students and non-Montessori students to see if there are any significant effects due to the influence of Montessori education. In the final section, we explore

Montessori's introduction to China and the factors that have led to how Chinese views have changed over time.

2.1 Education systems and curricula in China

There is general consensus that early education is important for childhood development (Ahlquist & Gynther, 2019; Elkind, 1983; and Li, Wang, & Wong, 2011). While many other forms of early education exist in China, Ahlquist & Gynther (2019) examined the Montessori method and its unique teaching style as it relates to variation theory, the theory that "the learner has to be aware of the difference between at least two features in order to discern them" (Ahlquist & Gynther, 2019). Their aim is to explore the use of this theory throughout Montessori's teaching methods in order to discern the validity of its use in the development of children. Meanwhile, Elkind (1983) discusses Montessori's abiding contributions and possible adjustments that could be made to further improve the Montessori method. As for Li, Wang, & Wong (2011), they examine China's education reforms and conduct a study to determine whether the Montessori method should be the top choice for all early education schools.

The Montessori method stresses the importance of training and strengthening children's senses in order to further their learning capabilities. Through specific sensorial tasks that seek to establish the distinctions between objects through variance and invariance, children are able to develop their field of perception, thus enabling a strong foundation for growth as they become more curious and interested in exploring these differences. For instance, in one activity, the objective is for the child to highlight the clear differences between various objects, so that the contrast is made evident to the child. In the activity, the child is instructed to identify the differences between nearly identical objects, with only one variance, ranging from the material

that each object is made out of, the thickness of the object, or the length of the object. Beyond testing the child's sense of touch and sight, the activity serves to develop the child's observational skills, reasoning and judgment, and their ability to recognize the nuances of the environment around them (Ahlquist & Gynther, 2019).

In their conclusions, Ahlquist & Gynther (2019) express their strong belief in the Montessori method and Elkind (1983) simplifies his discussions of Montessori's abiding contributions and his suggestions to consider Montessori's commitment to children and their education. Ahlquist & Gynther (2019) believe that all Montessori lessons involve invariance and variance, which is a crucial element when it comes to the early development of children. Additionally, they believe that the visual and physical learning styles that are present within these lessons enable a child to tangibly discover their findings. This contrasts to traditional education that heavily relies on aural learning where students are expected to primarily learn through listening to an instructor. Through a visual learning style, a child is able to see the information being taught to them through images or diagrams in order to process said information. With a physical learning style, a child, through the sense of touch, uses their body to understand the world around them. Not only do Montessori lessons enhance the child's awareness of the natural world around them, but they also improve the child's reasoning and judgment based on what they see.

With this understanding, Ahlquist & Gynther (2019) stress the importance of the Montessori method being taught in the unique way that it is, as it offers so much for the growth of a child. Although Elkind (1983) agrees with Ahlquist & Gynther (2019), he believes that Montessori practitioners should re-examine Montessori's values in accordance with contemporary knowledge. He included suggestions, such as incorporating fantasy play instead of

excluding it, allowing children to experiment with Montessori materials after understanding their intended uses, and exploring identity and equivalence decoding in reading.

Ahlquist & Gynther (2019) may have strong opinions of which educational system or curriculum is best to implement at an international scale; however, Li, Wang, & Wong (2011) do not. Instead, the three co-authors believe that the cultural and societal aspects of different nations and regions of the world should be considered. Each nation undeniably has had its own historical upbringing, which corresponds to their roots and traditions. China has generally been continuing their educational tradition; most of the population in China attends schools that are teacher-guided and exam-based. However, since the 1980s, China has experienced two waves of educational reform in efforts to convert the nation's basic education (K–9) curriculum into Western-style methods (Li, et. al., 2011).

The authors (Li, et. al., 2011) chose five kindergartens with a total of ten classrooms in Shenzhen, China serving students from different socioeconomic backgrounds to conduct their research study. In their conclusion, they noted that although they worked with a small-scale sample size, they were able to provide evidence showing that the reform has not reached its goals and progress is still being made. They state that there is "no single best curriculum model in the world; instead, there must be some best-fit models in the field." In order for an early childhood education curriculum to be successful, it needs to consider factors, such as cultures and contexts. In addition, they believe that curriculum reform leaders should take the influences of culture, language, parents, teachers, resources, and education system into consideration when seeking curricular innovations. Policymakers should critically determine whether implementations of imported ideas are necessary and review the curriculum reform to effectively support belief-

practice, which refers to teachers' reported classroom practice beliefs, and policy-practice, which refers to curriculum reform objectives (Li, et. al., 2011).

2.2 Self-directed learning

Across China, differing kindergarten atmospheres are provided in individual childcare facilities. Self-directed and formal learning both play important roles in kindergarten curricula. Some childcare facilities might value relaxing and free atmospheres while others may prioritize strict and directed systems. Although a majority of Chinese parents expect formal teaching from kindergartens, authors, He (2018) and Zhang & Whitebread (2019), agree that young children typically benefit more in a free atmosphere where they can satisfy their curiosities. Where most Chinese adults support the claim that practice makes perfect and that children need to endure hard work to prepare for hardships in life, He (2018) expresses a highly critical view of the conventional drilling and directed teaching technique encouraged by the stress-inducing, competitive education systems.

In addition to inhibiting children's ability to play and explore with their natural curiosity, this emphasis on formal education tends to overlap and impede on leisure time. Parents and teachers encourage children to rush during transitions and free time is often used to reinforce formal learning or prepare for future sessions. This desire for adults to constantly prepare children for competitive schooling creates a high-tension atmosphere for children (He, 2018). Zhang & Whitebread (2019) further expose a more contemporary view of kindergarten atmosphere through their analysis of a study regarding the relationship between parent scaffolding and children's self-regulated learning behaviors.

Parent scaffolding refers to parent-child interactions where parents provide structure and support to assist the child while self-regulated learning refers to the ability to use independent cognitive, motivational, and contextual factors to gain knowledge on new concepts. The study included 135 kindergarten children and their parents and investigated the relationship between these two variables. The study did not prove any relationships between parent scaffolding with children's self-regulated learning, despite a correlation being found, however, it did prove that there are many adults who expect a more freeform kindergarten curriculum. Children show signs of self-regulated learning as early as at ages 3-6, which makes these kindergarten ages an important time to develop those skills. Many parents are willing to support their children through this development with parent scaffolding, reinforcing a view on kindergarten education that vastly differs from the popular, conventional views. (Zhang & Whitebread, 2019).

One of the most distinguishing traits of Montessori education is an emphasis on self-directed activity. These articles highlight the benefits that self-directed education provides children and further recommend how the method can be reinforced through support from parent scaffolding. Montessori schools likely supply similar support to children through their teachers and improving upon that support may further benefit children's self-directed learning as theorized by the study. If children are provided many environments in which they are able to self-develop and learn with support from adults, they might have more success which is especially important during kindergarten ages where children experience large cognitive development.

2.3 Cognitive performance comparisons among children

Lillard and Else-Quest (2006) analyzed five-year-old and 12-year-old students who did and did not attend a Montessori school. They conducted their study in hopes to better understand the social and academic influence that Montessori education has. The Montessori school that Lillard and Else-Quest studied was located in Milwaukee, Wisconsin. A majority of the students that attended the school were of minority groups coming from urban areas. In order to create experimental and controlled groups for the study, they decided to utilize the school's lottery system; the accepted students were assigned to the experimental (Montessori) group, and the remaining joined the controlled (other education systems) group. All of the children were evaluated based on cognitive/academic and social/behavioral skills that were agreed to be most important and valuable in life.

The findings revealed that the Montessori groups, for both age levels, exceeded those in other education systems. More specifically, the five-year-old children in the experimental group surpassed the controlled group in three of seven scales that were administered for cognitive/academic measures, as shown in Figure 2. In terms of social/behavioral measures, the students were tasked with how they would resolve each of five given situations. The results revealed that 43% of the Montessori children and only 18% of the other children referred to justice and/or fairness. Additionally, they found that Montessori children were significantly more likely to engage in positive shared play as well as less likely to engage in ambiguous rough play (Lillard & Else-Quest, 2006).

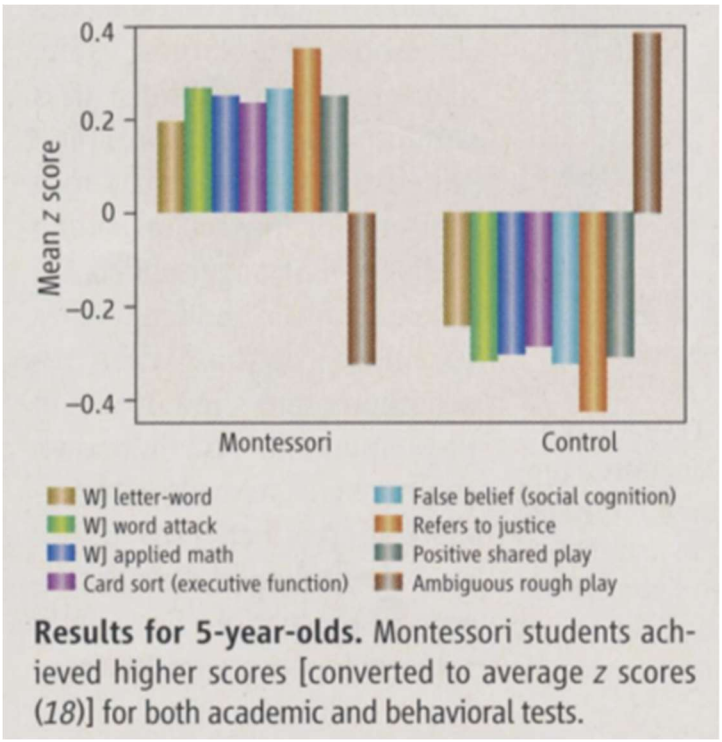

Figure 2: Results for five-year-olds from the study (Source: Lillard & Else-Quest, 2006)

Many parents who come from traditional education backgrounds tend to fear that Montessori education will cause their children to have a difficult time transitioning to an exam-based and memorization-based education system. As concluded in the findings of Lillard & Else-Quest (2006), even though the Montessori children were given standardized tests, they proved to have stronger academic and social skills and wrote more sophisticated solutions than non-Montessori children. Moreover, highly desirable skills in the workforce are the ones that support innovation, such as problem solving, critical thinking, and creativity; however, employers report considerable scarcity in these areas and other applied skills (Kay, 2010). These skill sets are encouraged in Montessori education and are often found in Montessori children, which will make them much more preferable to employers when searching for a career in their adult lives.

2.4 Expectations for children's future

The societal expectations in China play a large role in shaping the future of a child. From an early age, children are placed in a linear path with the ultimate destination being a high-paying—yet stable and secure—job, through which they can provide for the rest of their family. As previously mentioned, these traditional views have been held for generations, meaning that implementing new ideas is extremely difficult, especially on a large scale. Originally introduced to China in the early 1900s, Montessori education found little to no success, and it was not until the 1990s that it became a desirable form of education.

Chen and Guo (2021) believe that the main reason for this large gap in time between Montessori introduction and acceptance in China is due to the concern of Montessori education alignment with teaching traditional Chinese values. Zhu (2015) looks at the matter more broadly as he points out that as a result of the one child policy—a policy implemented in China in 1970 that limited the amount of the children that families could have to one—parents grew more concerned about their child often feeling lonely. Given this concern, Zhu (2015) points out that it might have been difficult for parents to accept a Montessori education for their child due to its emphasis on isolated learning experiences where the child would be left to their own devices to uncover their own personal interests. Not only would it limit the child's opportunities for social interactions but the education might also influence the child towards a more isolated lifestyle. However, Chen and Guo (2021) argue that an emphasis on the individual development of a child would be more beneficial in the long run.

Montessori education and traditional Chinese expectations both stress the importance of children forming their own identity and forming societal relationships; however, where Montessori differs is in its emphasis on individualism over collectivism. As opposed to

cultivating one's identity to serve that of society, Montessori believes that the individual development of a child can lead to a more prepared and beneficial member of society. Instead of focusing on improving the child's social skills through group related teaching methods that would lead to social relationships, Montessori stresses the importance of the child being able to discover their own identity which would enable them to form more personal relationships in the future. With a better grasp of who they are as a person and what their individual goals might be, they attain a stronger perspective of where they fit in society and what social groups would best fit them in order to foster stronger social relationships (Chen and Guo, 2021).

Melieste (2018) takes Chen and Guo's (2021) idea of individualism vs collectivism in China and recontextualizes it through the scope of group work vs individual work to examine the effectiveness of both. He states that while China might be a collective society in nature which would lead one to "assume that Chinese students work effectively in groups,"—that perspective is far from the case. Given that much of China's education revolves around exam-based learning, since tests are the preferred method of assessing student progression, there's little to "no incentive or need [for Chinese students] to work in groups" (Melieste, 2018). While Zhu (2015) brings up a valid concern that some parents believe that the individual learning experiences that Montessori provides can be a detriment to their children. Through Melieste's (2018) personal experiences of being a teacher in China and attempting to utilize group-based learning, to no avail, along with Chen and Guo's (2021) arguments for the individual development of children it is clear that that concern might be misplaced. Not only does the individual based learning of Montessori allow for the student to discover their own identity which would enable them to form stronger relationships in life, but it also better prepares them for exam-based learning.

In time, as China began to modernize, the demand for western education, in this case Montessori education, grew. As parents became more aware of the potentially difficult global competition that their children would face in the future, they started to place an emphasis on their child learning English because it is the language that the majority of the world speaks. Job recruiters much rather prefer Chinese employees that already speak English because it means that they don't have to go through the efforts of teaching English to the employee (Marketing to China, 2019). If parents wanted to maintain the high expectations that they have for their children, who now face a tougher global job market, they needed to make their children learn English from a young age. That is where Montessori education comes in. Montessori provides an education in English for children through its international classes led by foreign English teachers that are experts in the language. As a result, when the demand for western education grew in China, Montessori began to find success in China with parents becoming more interested in enrolling their children in the newer education system.

3. Methodology

The goal of our project was to develop a comparative study between the expectations of current and prospective parents for kindergarten and Montessori education. With this study, we identified trends and commonalities for our sponsor, Yimi, to help them better understand their target clientele. We used a triangulation methodology, which refers to the use of multiple procedures, to reduce biases in our results (Lune & Berg, 2017). To accomplish this goal, we decided to use surveys and focus groups—in addition to archival published research as presented in section 2. Since we had two target populations—current and prospective parents—we employed each method separately for each population. Surveys would allow us to perform statistical analysis between large sample groups; meanwhile, focus group interviews would allow us to gain more in-depth and thorough responses by asking open-ended questions. Upon completion of the data collection methods, we analyzed and compared our results to develop our Findings section. Furthermore, to ensure the safety and privacy of our participants, participant names will remain confidential.

3.1 Method 1: Survey of current and prospective parents

We began by creating survey questions in English that consisted of multiple-choice questions, ranking questions, and Likert-type scale questions. After receiving feedback and advice from our advisors and the sponsor liaison to improve the questions, we sent them to the HDU student group to translate the questions into Mandarin Chinese. We then developed two bilingual surveys: one for current parents and one for prospective parents. Additionally, we made the questions short and concise. That way, participants would be more willing to complete it with

their true opinions as opposed to selecting some arbitrary option and moving on. The survey questions and appearances can be found in Appendix A.

We planned to survey parents of children at public, private, and Montessori kindergarten facilities in Hangzhou as well as young adults—presumably prospective parents—through a digital survey application called Qualtrics. In order to get in contact with current parents, we utilized our connection with our sponsor to reach parents at Yimi Children's House as well as several associates with children in other kindergartens; meanwhile, the HDU team acquired data from the HDU professors, who have or have had kindergarten children. As for prospective parents, our sponsor liaison, Ms. Kathy Wei, was able to reach out to peers and associates with newborn children or hopes of becoming parents in the near future; meanwhile, the HDU students also communicated and gathered data from the executive Master of Business Administration (MBA) students at their university. It was felt that this group would be more representative of a broader population with kindergarten age children.

3.2 Method 2: Focus group interviews with current and prospective parents

While we waited for survey results, we began to create questions that would be used in the focus group interviews. We discussed the questions with our advisors and the sponsor liaison in order to receive suggestions on how the questions could be improved. Initially, we planned on conducting a total of four interviews: two completed by the WPI team and two completed by the HDU team, so the WPI team sent the document of discussion questions to the HDU team. Due to challenges faced, only two interviews conducted by the WPI team were able to be completed. This will be further elaborated on in the Challenges portion of our Conclusions & Recommendations section. The focus group questions can be referenced in Appendix B.

Similar to our survey distribution process, we needed assistance in finding participants for the focus groups. Ms. Wei was able to connect with some of her colleagues and acquaintances who were either current or prospective parents. Through reading Lune & Berg's (2017) text on qualitative research methods, we realized that it is crucial to involve participants of different backgrounds since it allows for the conversation to have diverse perspectives on the topics, which can lead to a more meaningful discussion and—of course—more meaningful results. Unfortunately, we were unable to gather as many people from different backgrounds as we would have liked, but we believe we still were able to collect valuable knowledge from the participants. Part of the issue we faced was the COVID crisis made travel and face-to-face communication for interviews more difficult.

Since we were not able to go to China and the Hangzhou project center—due to COVID travel limitations—the focus groups were held via Zoom; a virtual video conferencing system. Prior to the interviews, Ms. Wei invited all participants to each of their respective WeChat group chats to remind them of the meeting and meeting times—WeChat is an on-line social media messenger system that is popular in China. Ms. Wei also provided a translator for each of the focus groups to help facilitate the interview. Meanwhile, we assigned an interviewer among our team while the other team members took detailed notes.

After collecting all of the information from the two methods discussed, we sought to identify patterns, such as similarities and differences, in the results of both surveys and focus groups among the participants. We compared each of the participants' responses to the questions asked, and we used the focus group responses to determine how they relate to the survey results. By doing so, we were able to understand the thought process behind certain survey responses.In order to incorporate the statistics into a visually appealing form in our report, we decided to

utilize tables and charts that best represent the data. Using the data generated by Qualtrics—an online survey software tool—we formulated our own graphics through Canva—an online graphic design platform.

3.3 Expected methodology limitations of the Interactive Qualifying Project

This subsection outlines the methodological limitations and constraints for this IQP study. Since we had a limited time frame, the amount of data we gathered was smaller than what would be preferred. This meant that the methods that we carried out must be thorough and accommodate different perspectives within the small sample sizes. By studying adults of various backgrounds, we believed our data would be representative. While we took measures to maintain the validity and authenticity of our methods, we also acknowledged that there were many expected and unexpected limitations to our project design, which may result in biases.

One of these limitations is that we were unable to go to China. This meant that we had to rely on the sponsor liaison and HDU team cohorts and frequently communicate with them to ensure that the design would be successfully carried out in a professional and timely manner. All of the data gathered would be communicated to us through the HDU students, which would also tie into a barrier between languages. Since the HDU students would translate the results from Mandarin to English, the responses in English that we received may be influenced by the translator's understanding of the response and fluency in English. Without a way to supervise the collection of data, we would have to trust the results presented to us and minimize miscommunication through frequent check-ins.

Another issue that we foresaw included the idea of surveying parents from other schools than our sponsor’s. Initially, we planned to survey participants from a variety of kindergarten

systems to broaden our sample population. This posed a few possible complications. For example, schools that we had no prior connection with may have been unwilling to permit the HDU students to communicate with the parents and announce the survey. This would have made it more difficult for us to collect the responses of parents with children attending different schools.

As for the prospective parent survey, we were expecting that the majority of the participants would be HDU students. This most likely would have caused the results to lack representation of the sample population since students of the same university might have similar backgrounds. In order to mitigate these problems, we needed to think of alternative participants to diversify the sample survey population. Ms. Wei offered to help us gather some responses through her connections. We hoped that this would help to reduce some biases and introduce different perspectives; however, we realized that her connections may share similar opinions and cause another issue within the survey results.

Although surveys are especially helpful for determining patterns among a large number of participants, they are not as beneficial for detailing the outliers. Since surveys are unable to gather complex qualitative data, we used focus group interviews to overcome this limitation. Focus group interviews offer defined perspectives on kindergarten education; however, they might be restricted by the participants. According to Lune & Berg (2017), the data that one would receive from interviews are largely based on the perspectives of their respondents. If the respondent does not know enough about the subject matter being asked, then the amount of information that one would be able to collect is limited.

Since we planned to ask for volunteers to join our focus group discussions, we anticipated that some participants may express their views more clearly than others and dominate

the discussion. To avoid this, our group developed probing questions to incorporate all participants into the discussion and facilitate the meeting in a balanced manner. Moreover, the people who participated might have had strong opinions that are not representative of the population. As a result, this could skew the data in a direction that is not beneficial for the sponsor.

We acknowledged that our project had many issues that could arise at any point during our study, but we understand that this is inevitable for all projects. With that being said, we hoped that our collaboration with our project advisors and the HDU cohorts helped in completion of the project. We should also note that all the findings and recommendations should take these limitations and potential biases into consideration.

4. Findings

As discussed in previous sections, the goal of this project is to understand current parent expectations for kindergartens in China and how they might change in the future. While we were researching, we also hoped to gain a better understanding of the key differences between Montessori and traditional young childhood education. We hoped that this would provide some insight into the reasons why a parent might prefer one method over the other. As we conducted our surveys and focus groups, we wanted to confirm if parent views aligned with the information that we studied. In this section, we highlight findings and results from the data collection methods detailed in the methodology section. Through surveying and interviewing current and prospective parents, we were able to collect insightful information on kindergarten education.

We collected a total of 81 survey responses: 30 current parents and 51 prospective parents; meanwhile, we had a total of 10 focus group participants: six current parents and four prospective parents in China. All but one of the focus group participants are affiliated with Montessori schools, and so this may cause biases in the findings. The demographic information regarding survey participants—see Table 1—contains the number of participant responses for each category pertaining to annual household income, the kindergarten school systems they attended, and which kindergarten system they prefer. Another question that was asked regarding demographics was about the distance between parent homes and the kindergarten location, which can be visualized in Figure 3. Since prospective parents don't currently have children, we only asked this to current parents.

	Current Parents	Prospective Parents
Annual household income		
< $50,000 USD	14	25
$50,000 - $100,000 USD	11	16
$100,000 - $150,000 USD	2	5
> $150,000 USD	3	5
School system attended		
Government	19	37
Montessori	2	3
Other	9	11
Preferred school system		
Government	9	29
Montessori	13	20
Other	8	2

Table 1: Background demographics and preferences of Chinese survey respondents

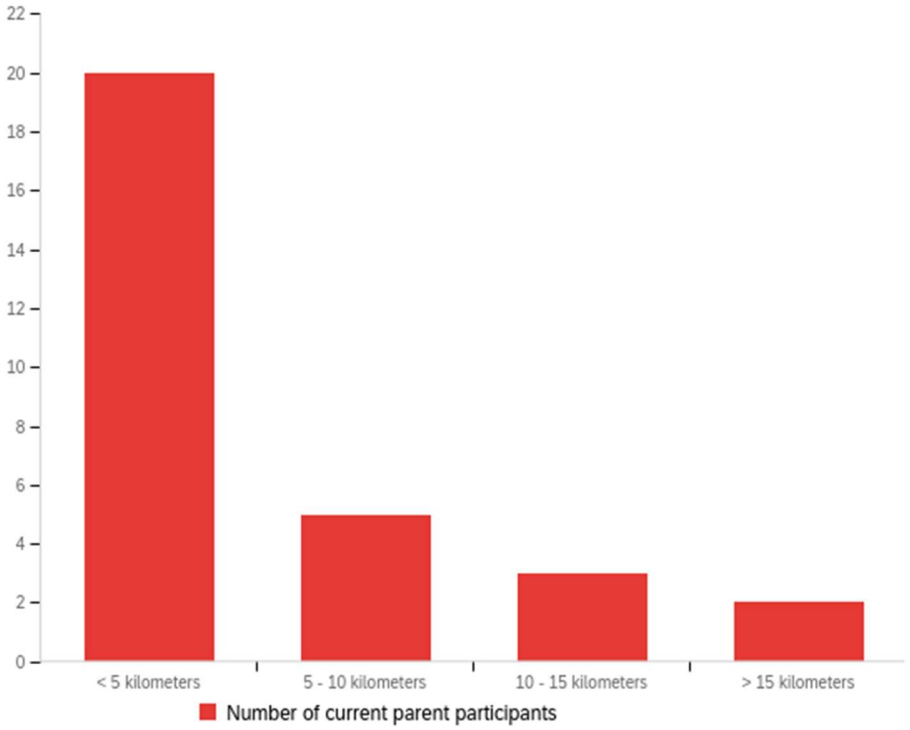

Figure 3: Distance of parent residences from their children's kindergartens

To develop our findings, we analyzed the survey responses, comparing different variables and opinions between prospective and current parents. We assessed the logic behind specific patterns in our surveys by using the background research from section 2 and the results of our interviews, which offered some understanding to the survey responses. The discussion in this section includes evaluation and consideration of children's independence and freedom, parental hopes for their children, and parental kindergarten decision factors.

4.1 Children's independence and freedom

From our research, we found that the Montessori method and traditional Chinese expectations both articulate the importance of one's identity; however, Montessori differs in the way that it emphasizes individualism over collectivism (Chen & Guo, 2021).

Regardless of which school system they currently enroll or intend on enrolling their children, the current and prospective parents value independence the most and believe that it is a key factor in contributing to their children's success. Based on our background research, we believed that the majority of participants who prefer traditional education would choose high test scores as their top choice in deciding what contributes to a child's success—but the results of our study slightly contradict that prediction. According to the survey results, ten out of 25 current parents and 21 out of 43 prospective parents ranked independence first. Moreover, 84% of current parents and 93% of prospective parents placed it in the top two. Since independence is a fairly broad term, we believe that participants likely had different interpretations, which may have led to such a great majority to select that option. Regardless of whether that is true or not, current and prospective parents definitely value independence as a key skill for their children.

When creating the survey, we understood the limitations of having rank questions, and so, we decided to incorporate certain Likert-type scale statements to gauge their receptiveness towards the rank question responses. One of these statements was that children should discover interests on their own. Out of those who ranked independence as their top choice, all of them either chose somewhat agree, agree, or strongly agree, as shown in Figure 4. Furthermore, six out of ten of the current parents and 13 out of the 21 prospective parents strongly agreed with the statement. These results show that the participants not only prioritize independence but highly value some benefits that independence might provide their children. Moreover, these results also provide cross-validation and reliability that independence is important.

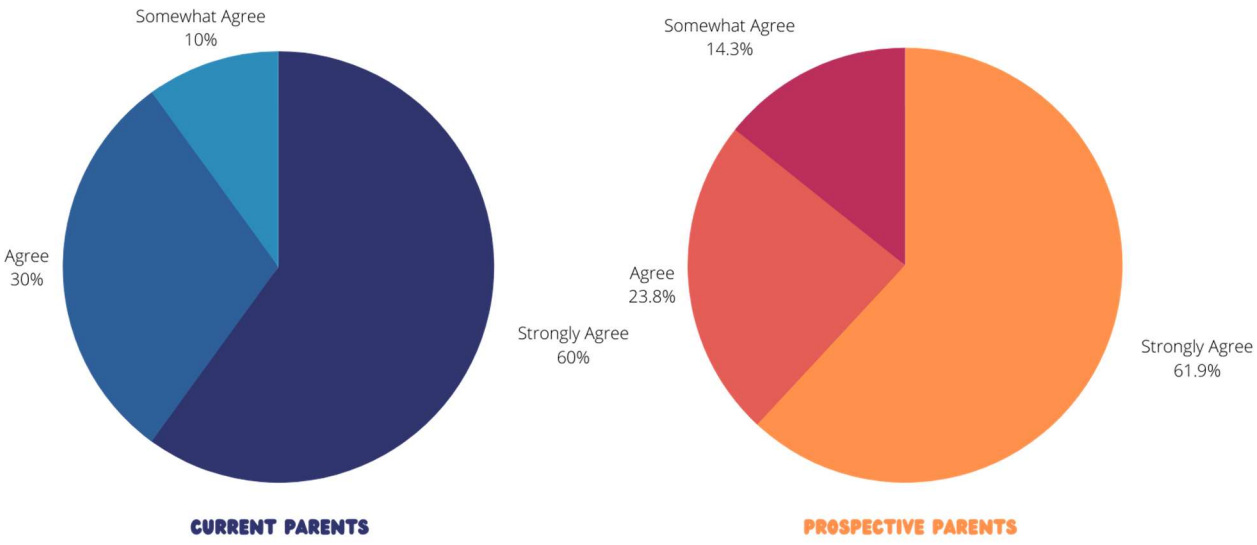

Figure 4: Pie chart consisting of participants who ranked independence as their top choice and their responses to whether children should discover interests on their own

To deepen our understanding of the role independence has in kindergarten preference, we analyzed our focus group responses. When the participants were asked what type of school their children attend and what prompted them to send their children to that school, five out of six of the current parents and all of the prospective parents either currently or plan to enroll their children in Montessori schools. Despite a majority of the participants preferring Montessori kindergartens, all of the participants attended traditional Chinese schools when they were children. While attending those schools, the individuals who are pro-Montessori felt that they were often restricted and did not have the chance to be themselves.

When asked why freedom was the most important to them for their children, Participants one and two of the current parents had a lot to say. Participant 1 felt that she "lived in other people's worlds" and was not presented with the opportunities and freedom to choose her own

interests while growing up; she wants to provide that freedom of choice that she never received to her children. Participant 2 empathized with Participant 1 and shared that when her generation were children, they were taught about the expectations placed upon them according to Chinese society. The two added that having freedom can help individuals discover their personal desires and passions that bring them happiness. Although a majority of the participants have Montessori affiliations, the responses agree that those who support the Montessori method tend to value independence and freedom. In short, the participants believe that the freedom provided by Montessori education emphasizes the children's self-discovered interests and promotes their happiness and fulfillment.

4.2 Parental hopes for their children

When asked about expectations for their children, participants of both focus groups generally agreed that their children's wellbeing and happiness took precedence above all else. Among the current parent focus group participants, one participant voiced that the most important thing to her was that her child would be passionate and kind so that they would have the motivation to pursue their dreams and be happy. The other participants agreed that most parents fundamentally want their children to be happy, adding that giving children freedom to discover their personalities and interests provides them tools to live more fulfilling lives.

As previously described in section 4.1, all survey participants aside from one current parent agreed that children should discover interests on their own. Considering the insight provided by the focus group participants, it is a possibility that most parents want their children to self-realize their interests because it may make them happier.

From our responses, it is evident that the values of the parents align with that of a Montessori education. As discussed in section 2, Montessori education is a unique form of education that allows the student to develop through their inherent curiosity and self-motivation. With the freedoms offered by Montessori, children are able to discover what their own interests are and are allowed the opportunity to explore what they enjoy about these topics. Through this method, Montessori is able to develop highly motivated independent learners who have a strong sense of their own personal passions (Chen & Guo, 2021).

4.3 Parental deciding factors for kindergartens

Parents must consider various factors when determining the right kindergarten for their child. Through discussion with the sponsor liaison about creating survey questions, we came to an agreement on which factors might be important to consider. These factors include tuition cost, distance from home, school safety, and more can be found in Table 2.

When analyzing our surveys and focus groups, we found some differences between the responses of current and prospective parents regarding non-academic considerations. In this section, we will be discussing the most prevalent responses aside from tuition, which will be discussed in the following section. The decision factors appear in Table 2. We have included the statistics of the tuition cost in the table for ease of comparison.

Considerations	Current Parents	Prospective Parents
Tuition cost	68%	65%
Food	68%	53%
Distance from home	60%	83%
School safety	56%	72%
School appearance	36%	19%
Educational quality	28%	11%

Table 2: Percentages of how many survey respondents ranked decision factors in their top three

The survey questionnaire included a rank question that asked the participants what factors they would consider when determining a kindergarten for their children. Given that parents may consider more factors, a fill-in-the-blank option was provided. Most respondents left it empty, while seven out of eight of the current parents and all of the prospective parents who wrote in an answer seemed to mostly care about the quality of teaching. Table 2 shows the percentage of participants who ranked educational quality in their top 3 out of the total participants. Since we originally wanted to avoid combining non-academic and academic reasonings, we created the answers to focus on non-academic considerations. If we had included an option regarding the quality of education, we believe that the percentage of participants who would rank educational quality in their top 3 would greatly increase.

Although some participants, such as Participant 2 of the prospective parents focus group, believe that the education and teachers of a school are most important, Participant 1 of the same group believes that the safety of the school is most important. As shown in Table 2, 56% of current parents and 72% of prospective parents listed school safety as one of their top 3 considerations. When enrolling their children to a school, they expressed that they need to be able to trust that the school is properly prepared to handle unexpected situations that may endanger their children. Additionally, Participant 1 of the prospective parents considers food to be an important contributor to the safety of the children since the children may become ill through the meals provided by the schools.

Children must rely on food to provide them with energy. Since they are in the early stages of their lives where their minds and bodies are in the process of developing, they have greater energy levels and nutritional needs than adults (The Live Better Team, 2016). This is why Participant 1 of the prospective parents believes that kindergartens are responsible for creating a meal menu for the week and providing their students with meals filled with high nutritional value. According to The Live Better Team (2016), not only can good nutrition fuel young bodies, but also stabilize energy, sharpen minds and smooth out moods. As shown in Table 2, 68% of the current parents and 53% of the prospective parents ranked food in their top 3 considerations when deciding a kindergarten, meaning parents seem to value kindergartens that provide healthy meals for their children. In comparison to the other deciding factors, food appears to be the second most common deciding factor for current parents; meanwhile, food is the fourth most common deciding factor for prospective parents.

4.4 Tuition cost

When developing survey questions with the sponsor, the teams agreed that tuition cost would play a significant role in the perception of a kindergarten. The results show a surprising difference between how tuition cost is valued between current and prospective parents. While tuition cost was most commonly selected as the major factor among current parents, many more prospective parents chose safe neighborhoods and distance from home as their highest ranking factors, as shown in Figures 5 and 6. Despite the differences in rankings, we also found that 68% of current parents and 65% of prospective parents placed it in their top 3, meaning finances often contribute to both groups' decisions.

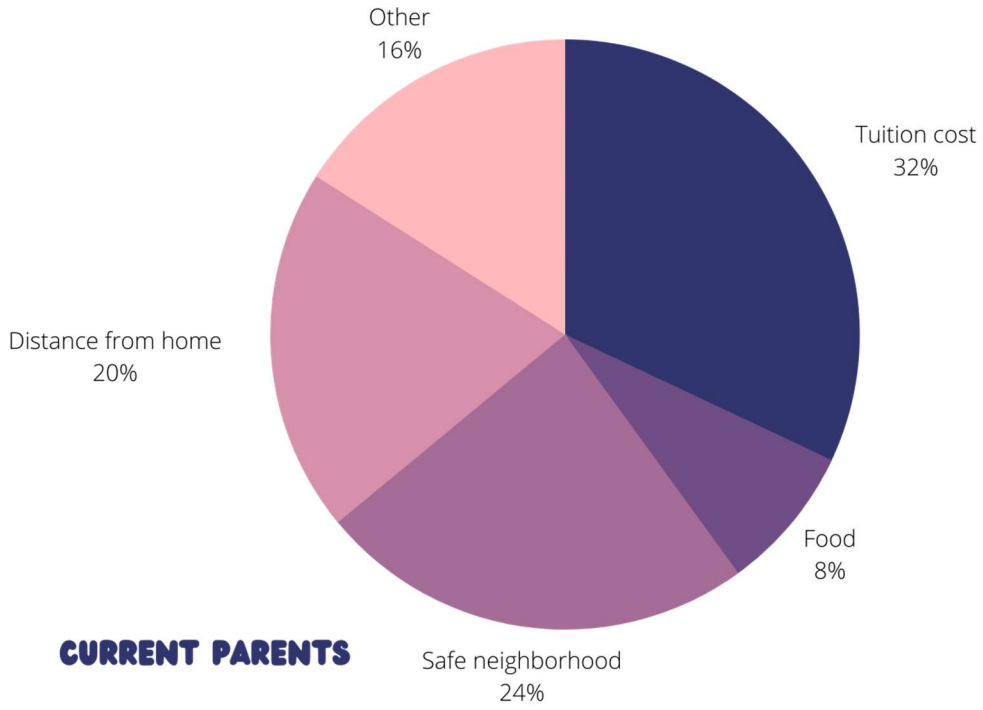

Figure 5: Pie chart of the highest ranking factor for current parents

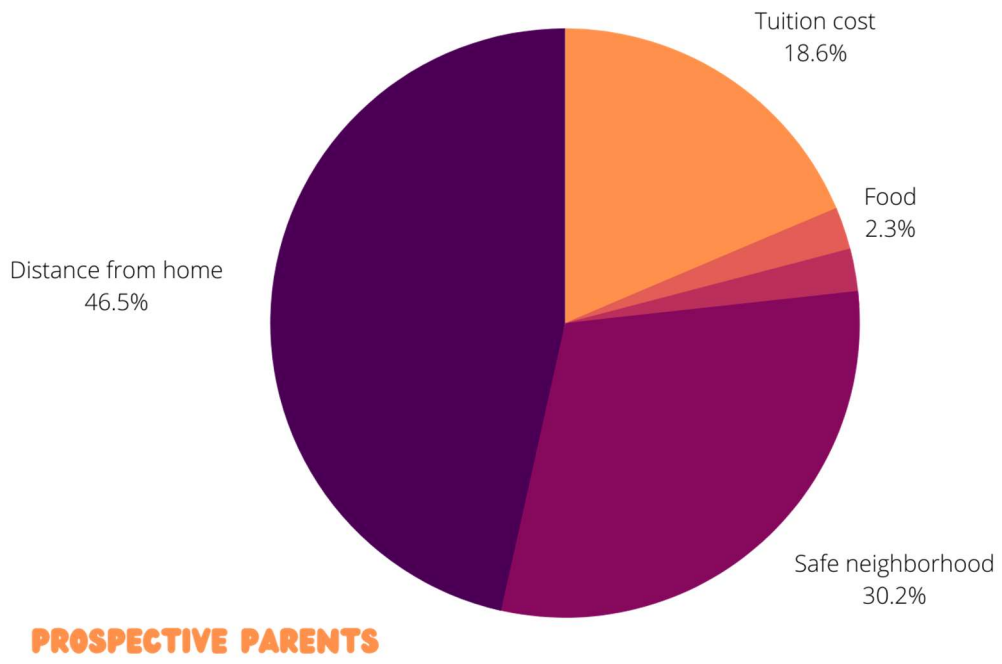

Figure 6: Pie chart of the highest ranking factor for prospective parents

In both of the focus group interviews, the participants discussed the cost of attendance and how that can have a large effect on parental decisions despite their educational beliefs. Parents may want their child to attend a certain school system but cannot afford it due to their financial status. All of the participants acknowledged that the cost of a Montessori school is very expensive due to the cost of teacher training, classroom materials, and overall environment. Furthermore, Participants 1 and 3 of the prospective group are both teachers at a Montessori kindergarten and hope to send their child to the school, but due to the high tuition cost, they said that they will have to rely on the teacher discount to be able to afford it. Otherwise, they may have to send their children to different, more affordable school systems. Meanwhile, Participant 2—another Montessori teacher—argued that the benefits of a better quality of education

provided by Montessori outweighs the high cost, and so, he plans to send his children to a Montessori school regardless of the financial aspects.

In addition to the previous discussion, the participants considered potential financial aid opportunities being offered to the parents and school staff members. One of the opportunities discussed included scholarships. Although all of the participants liked the idea of providing scholarships and grants, some noted that these solutions are not viable since many parents could apply and the selection process may be difficult to implement. Alternatively, Participant 1 of the prospective parents suggested that the discounts that are offered to Montessori teachers should also be offered to teacher assistants. Beyond just the teacher assistants, the benefits should be extended to all other staff members. Lastly, Participant 3 of the current parents mentioned that the government has made a lot of investments in early education. By providing facilities and support to public kindergartens, the government is able to reduce their financial responsibilities and, thus, lower tuition costs. Participant 3 pointed out that if Montessori schools were able to acquire similar support, they could greatly reduce the cost of attendance and become much more affordable.

5. Recommendations

The goal of our project was to understand what the current parent expectations for kindergartens in China are and what they might look like in the future. The WPI IQP team sought to answer this question in collaboration with Yimi's liaison and the HDU team in order to gain insight on what Yimi's current and potential clients might consider. Through collecting and analyzing the different parental expectations, we developed this report as a resource for Yimi to assist them in reaching potential clients. By utilizing the information and recommendations included in this report, we hope that Yimi can improve their current strategies while also preparing for their future target audience.

5.1 Provide scholarships and financial aid

Through an analysis of the survey responses, it was made clear that tuition cost was a major contributing factor for both current and prospective parents' decision making. 68% of the current and 65% of the prospective parents ranked tuition cost in their top 3 of factors that they consider when choosing a kindergarten. In the focus group interviews, some participants brought up that despite wanting to enroll their children in Yimi, they felt that the tuition cost was too expensive and ultimately it deters them from sending their children to Yimi.

To address this concern, the IQP team recommends that Yimi should offer some form of financial aid or scholarships for the parents that might not be able to afford a Montessori education for their children. Not only would this assist the parents with paying for the tuition cost but it would also broaden the school's appeal. The parents who originally held off on enrolling their children at the school due to the cost have more of an incentive to send their children to Yimi. In terms of structuring a scholarship or financial aid program, the school can

look to work with an outside organization to help fund the scholarships and reference other Montessori schools around the world that have sponsors providing them with money to distribute towards the parents.

With these new programs being implemented, the problem of finding a way to fund them would arise. The IQP team suggests that Yimi look outwards towards the government to address this matter. During one of the focus group interviews, one of the participants brought up that the government has heavily invested in early education by providing facilities and support to kindergartens. If Yimi can obtain this help from the government, it would significantly reduce their own financial responsibilities. Then the money that would go towards maintaining Yimi's facility can now be repurposed towards funding scholarships and financial aid programs.

5.2 Provide faculty and staff discounts

During one of the focus group interviews, one of the participants mentioned that discounts are available for Montessori teachers and that they should also be offered to teacher assistants. Given that the concern is there with regards to tuition cost, when referencing the survey results, The IQP team suggests that Yimi offer discounts to staff members so that they would feel more inclined to send their children to Yimi. If teacher discounts are already established, the IQP team believes that it may be beneficial if those discounts are extended to all other faculty and staff members so that there are more potential clients for Yimi. Seeing that there was interest for the discounts during the focus groups, another avenue for Yimi to increase its enrollment would only serve to benefit the school.

Of course, there would have to be a structure set in place to dictate how much the discount should be and what the qualifications might involve. The IQP team recommends a

tiered system where discounts are based on the job title of the staff member and the number of years that they have been employed at Yimi. For instance, a teacher working at the school for two years should earn a better discount than a teacher assistant working at the school for just one year. For those that still might not be able to afford the tuition cost, the aforementioned financial aid and scholarship programs should still be offered to them. The amount of money that they would receive from these programs would depend on how much they're already receiving from the discounts and household income.

5.3 Provide insight into benefits and quality to match high tuition

Providing scholarship opportunities or financial aid may be difficult to implement right away. As discussed in section 4.4, finances often play a large role in the decision of parents. The project team suggests that Yimi develop a marketing campaign that showcases why their schools are worth their tuition costs. Yimi can address the quality of education provided by their schools and create more interest for potential clients. Some ideas for this campaign include showcasing the various advantages of the school, providing statistics of achievements made by Yimi alumni, displaying Yimi's rank compared to other schools, and elaborating on what makes Yimi stand out from other schools, including Montessori schools.

5.4 Raise funds for classroom materials

In the focus group interviews, the participants discussed the reasons as to why Montessori schools tend to charge high tuition fees. One of the reasons is that the Montessori classroom materials are expensive. In an effort to reduce the financial burden on both Yimi and their clients, the IQP team recommends that Yimi create classroom wish lists and hold occasional

fundraising events. For the wish lists, Yimi teachers can develop a list of items that they need for their classrooms, and parents can donate the items or the cost of the items. As for the fundraising events, Yimi could reference other schools around the world for ideas that would best suit their schools.

5.5 Create a suggestion box

While conducting the focus groups, we were curious as to how much parents value their personal input in a kindergarten's education. When we asked participants whether or not they believed their opinions and thoughts should be prioritized by kindergartens, some common responses were that parents and schools shared similar beliefs in terms of big ideas. However, when looking at minor topics such as day to day caretaking and operations, disagreements might frequently occur. In those cases, parents believe that it is important for schools to listen to the parents and act accordingly. To resolve conflicts of interest between schools and parents, some participants said that ensuring strong communication between parents and teachers would allow them to come to an agreement in a quick and effective manner. To support strong communication systems between parents and kindergartens, the IQP project team recommends that Yimi sets up or further develops a suggestion box that is accessible both on campuses and online. Through this, parents would have an easy way of contacting the school and voicing their concerns. Additionally, the suggestions could be made to be anonymous if parents felt uncomfortable directly approaching the school.

5.6 Market towards local residents

The kindergarten deciding factors from the survey results show that prospective parents generally ranked distance from home as the most important factor when deciding their children's kindergartens. While current parents did not rank distance from home as highly as prospective parents, we noticed that a vast majority of them lived very close to their children's kindergartens with 67% of parents living within five kilometers and only 7% of parents living more than 15 kilometers away. This indicated that current parents likely consider distance highly despite their ranking.

These findings show that distance from home is an integral deciding factor when choosing a kindergarten. As a result, the IQP project team recommends that Yimi should focus more on marketing and advertising locally. Beyond a certain distance from the kindergartens, parents will not consider enrolling their children regardless of how attractive the kindergarten quality and tuition may be. This observation means that the highest density and likelihood of parents willing to enroll their children at Yimi kindergartens will be within a short radius of the school. Since Yimi facilities cannot easily be moved to the clients, the best way to reach potential clients would be advertising directly around the schools. This might be done by putting fliers at nearby businesses or contacting local news stations or community groups for advertisements. Local events might be a good place to meet community members that might have interest in Yimi schools and be able to to support its growth. This factor might also be an important consideration when choosing new locations for new facilities. Montessori schools, including Yimi, still have a lot of room to expand in China and when provided an opportunity to open a new school, choosing the right location may be integral to the success of that school. Otherwise, there may not be enough parents nearby to help them grow.

6. Challenges Faced by the Interactive Qualifying Project Team

Although a team can do their best to prepare for a project, some obstacles will inevitably arise. Throughout the project, several challenges affected our ability to effectively accomplish our weekly objectives, which are outlined in the project plan in Appendix C. Many of these issues stemmed from the troubles surrounding communication with others. This resulted in problems involving language barriers, time limitations, and a lack of potential participant connections. Furthermore, authoritative restrictions caused us to redirect our project and prevented us from carrying out preferred project plans.

6.1 Language barrier

The WPI IQP team primarily speaks English while the HDU team primarily speaks Mandarin Chinese. The WPI team anticipated that there would be some issues due to the language barrier between the teams, as briefly discussed in section 3.3. The teams worked to overcome this challenge by trying a variety of solutions, such as enabling transcription during the virtual meetings, typing out conversations, and having a translator at the meetings. Nonetheless, we encountered some obstacles along the way, causing some disturbances in our project plans. For one, we planned on having each team conduct two focus group interviews, and our team sent a document of the focus group questions to the HDU team to use as a reference for their interviews. Instead, the HDU team utilized the questions to create a survey, turning a qualitative method of data collection into a quantitative method. The HDU team also held a one-on-one interview with a professor instead of holding two focus group interviews. After receiving the data from the HDU team, we realized that these responses were not ones that we would be able to apply to the comparative studies. This resulted in a lack of responses in the Qualtrics

surveys and an overall lack of information gathered for the findings section. The other issues relating to language barriers are also related to other overarching issues, so they will be discussed in the following sections.

6.2 Time limitations

The one constant with our project was that we felt like we were always waiting on survey and interview responses to continue to the next stage of our project. We were stuck in a limbo for the first six weeks, not knowing what we would be able to accomplish each week or whether we would get results. Much of this issue can be attributed to the language, distance, and time barrier that existed between our team and the HDU team, which led to some misunderstandings and lapses in communication on the part of the HDU students. We had made the consistent effort of updating them on our timeline and what objectives we wanted them to complete. However, we often had to wait a couple days or a week before we would receive a reply and, in some cases, we did not receive a response. On those rare occasions, we had to wait until our weekly meetings with them to address the matter, which greatly hindered our ability to progress with the rest of our project. As a result, the process of formulating our surveys and focus group questions, translating them from English to Mandarin Chinese, and back translating them was made longer than it needed to be, taking up a large portion of our time.

Since we received survey responses later than we had expected, it meant that our focus groups had to coincide with our survey distribution. Initially, we were hoping to use the survey responses as a guideline to develop the focus group questions, but we did not receive the survey responses in time to prepare for the focus groups. This forced us to draw on our shared knowledge from doing the background research and our conversations with Ms. Wei in order to

develop the focus group questions. On top of those issues, the leader of the HDU team unfortunately became ill halfway through the IQP, which put a strain on what we were able to achieve. Since he was our main source of communication with the HDU team, with him gone, it meant that the tasks that we gave them were not fully completed. We intended on surveying four different demographic groups: Montessori parents, Ms. Wei's associates, MBA students, and HDU professors. The HDU students were in charge of sending out the survey links to the MBA students and their HDU professors. While the links were sent out to some of the MBA students, the HDU professors were not sent the link, hence why we received more results from our prospective parent surveys than our current parent surveys.

6.3 Authoritative restrictions

Throughout the course of the project, we were inhibited by several authoritative restrictions that forced us to alter our methods and approach. The most prevalent of these restrictions was the minimization of international travel due to the COVID-19 pandemic. To reduce the spread of the virus, many types of visits from the U.S. to China were prohibited, which included our trip for the project. Without the capacity to be physically present in China, we encountered many problems, especially in communication. In addition to the difficult language barrier, the inability to see our cohorts at HDU prevented us from closing the language gap through body language and other forms of communication. Gathering online also detracted from our communication by reducing participation during meetings. Since participants in both focus groups as well as the HDU cohorts were not proficient nor comfortable with using English, online meetings provided a means for them to simply avoid the problem by muting themselves and turning off their cameras. This disconnect made it difficult to encourage participation among

all of our associates. Lastly, the time zone difference between WPI and HDU greatly reduced the effectiveness of our communication. Being on opposite sides of the world caused us to work on opposite schedules and limited the available times that we could meet with the HDU students. Furthermore, the few times that were available for meetings were either very early in the morning or very late in the evening when our teams were likely not able to perform at 100% efficiency. This time zone difference may have also contributed to extended wait times on responses between our two teams.

While our inability to be in China was the greatest hindrance to our project, it was not the only challenge we faced when it came to authoritative restrictions. During the transition from project preparation to execution when we had finally developed a complete methodology, we were informed that HDU was in lockdown due to the COVID-19 pandemic and the students were unable to leave campus. As a result, we were required to reevaluate and adjust our method under short notice. Our initial plan was to have HDU students host some focus groups in person as well as visit various kindergartens in Hangzhou to establish connections. Since they would no longer be able to carry out those plans, we proposed that all focus groups were done online and that HDU students try to contact kindergartens remotely using email or other messaging applications. Despite this work around, not all methods went according to plan as explained in section 5.2.1.

6.4 Lack of connections

During the data collection phase of our project, we experienced challenges in establishing connections that would allow us to target a variety of sample populations. Going into the project, we knew that creating connections would be difficult since we were not in China to meet people

we were interested in contacting. The WPI IQP team decided to rely on the HDU team to visit various kindergartens as representatives of this project, however, unexpected issues further interfered with this plan. As mentioned in the previous section, due to the HDU lockdown, the HDU team members were unable to contact kindergartens in person. Moreover, the HDU students had difficulty reaching out online. This resulted in our group lacking connections that would broaden our survey and focus group populations. Without connections, we had a very small and limited set of data that likely did not represent most parents in China.

7. Conclusion

The goal of our project was to understand the parental expectations and deciding factors for kindergartens in China. Through literature, surveys, and focus groups, we were able to gather data that provided insight on what influenced parental decisions when choosing a kindergarten for their children. As a result, we were able to provide recommendations to our sponsor Yimi and offer them a better understanding of their target client population.

Parents are tasked with the difficult decision of selecting kindergartens that best suit their ideals. Though there is much to consider when making this decision, the project participants tend to value certain factors more than others. Both current and prospective parent participants seemed to often discuss topics surrounding tuition costs. Considering that a parent's decision may rely heavily on their financial situations, we decided to dedicate the majority of the recommendations section to suggestions in reducing or justifying the financial burden on parents.

Over the past four months, we have studied kindergartens and parental expectations and decision factors in China. During that time, we compiled all of our work into this report in hopes that it will be beneficial for Yimi Children's House. Considering the challenges that the WPI IQP team faced and the time constraints of the project, we were fortunate to complete enough of this project to be useful to the sponsor. In the report, we encountered topics that we were not able to fully cover, such as financial aid programs for Montessori schools. These topics may be worthwhile to explore since kindergartens play a large role in the development of children. We believe that the future iterations of the IQP that have Yimi as their sponsor can use this report as a reference to further investigate the subjects. Hopefully, these future teams will not have to encounter the challenges faced in this study, especially given the COVID-19 restrictions associated with factors outside the control of the IQP team.

Bibliography

Ahlquist, E.-M. T., & Gynther, P. (2019). Variation theory and Montessori education. *Journal of Montessori Research & Education*, *2*(1), 23–33. https://doi.org/10.16993/jmre.12

Chen, A., & Guo, S. L. (2021). The spread of Montessori education in Mainland China. *Journal of Montessori Research & Education*, *3*(1), 1–8. https://doi.org/10.16993/jmre.17

Elkind, D. (1983). Montessori Education: Abiding Contributions and Contemporary Challenges. *Young Children*, *38*(2), 3–10. http://www.jstor.org/stable/42721000

He, M. (2018) Creating Play Atmosphere and Time for Children in Chinese Kindergarten: Difficulties and Reflection. Integr. psych. behav. 52, 351–365. https://doi.org/10.1007/s12124-018-9445-7

Kay, K. (2010). 21st century skills: Why they matter, what they are, and how we get there. Foreword in: 21st Century skills: Rethinking how students learn, J. Bellanca and R. Brandt (eds.) US: Learning Tree.

Law, W. (2014). Understanding China's curriculum reform for the 21st century. Taylor & Francis. https://www.tandfonline.com/doi/full/10.1080/00220272.2014.883431

Li, H., Wang C. X., & Wong, J. M. S. (2011). Early Childhood Curriculum Reform in China, Chinese Education & Society, 44:6, 5-23, DOI: 10.2753/CED1061-1932440601

Lillard, A., & Else-Quest, N. (2006). Evaluating Montessori Education. Science, 313(5795), 1893–1894. http://www.jstor.org/stable/20031400

Lune, H., & Berg, B. L. (2017). Qualitative Research Methods for the Social Sciences (9th ed.). Pearson.

Marketing to China. (2019). Chinese parents crazy over English learning for their 3 years old kids. Marketing to China. https://marketingtochina.com/chinese-parents-crazy-over-english-learning-for-their-3year-kids/.

Melieste, K. (2018). Top Marks: Western and Chinese Education Compared. *China Expat*. https://www.echinacities.com/expat-life/Top-Marks-Western-and-Chinese-Education-Compared.

Montessori Northwest. (2021). What is Montessori Education? Montessori Northwest. https://montessori-nw.org/about-montessori-education.

The Live Better Team. (2016, March 14). How Nutrition for Children Differs From Adults and What to Do About It. Revere Health. https://reverehealth.com/live-better/nutrition-for-children-differs-from-adults/.

The Open University. (2019). Chinese education: How do things work? OpenLearn. https://www.open.edu/openlearn/society/international-development/international-studies/chinese-education-how-do-things-work.

National University. (2019, April 11). Why is early childhood education important? National University. https://www.nu.edu/resources/why-is-early-childhood-education-important/.

Zaagman, E. (2021). The Future of China's work culture. TechCrunch. https://techcrunch.com/2021/10/09/the-future-of-chinas-work-culture/.

Zhang, H., Whitebread, D. (2019). Examining Chinese kindergarten children's psychological needs satisfaction in problem solving: A self-determination theory perspective. Instr Sci 47, 373–398. https://doi.org/10.1007/s11251-019-09490-5

Zhu, J., & Zhang, J. (2008). Contemporary trends and developments in early childhood education in China. Early years, 28(2), 173-182.https://www.tandfonline.com/doi/full/10.1080/09575140802163584?scroll=top&needAccess=true

Zhu, J. (2015). *Early childhood education and Relative policies in China*. International Journal of Child Care and Education Policy. https://ijccep.springeropen.com/articles/10.1007/2288-6729-3-1-51.

好学教育. (n.d.). 杭州一米儿童之家学校简介. https://www.haoxue360.com/jianjie/4013.

Appendices

Appendix A: Survey Questions

Survey 1: Current Parents

Introduction

Hello, we are students at Worcester Polytechnic Institute and Hangzhou Dianzi University conducting research on kindergartens in China. The following survey will ask questions regarding your opinions on kindergarten education in China and factors that might influence them.

您好，我们是伍斯特理工学院和杭州电子大学的学生，正在对中国的幼儿园进行研究。以下调查将询问您对中国幼儿园教育的看法以及可能影响这些看法的因素。

Background Questions

How old are you?
您的年龄?

- ○ < 25
- ○ 25 - 30
- ○ 30 - 35
- ○ 35 - 40
- ○ > 40

What is your annual household income?
您每年的家庭收入是多少?

- ○ < 320,000 Yuan [元]
- ○ 320,000 - 640,000 Yuan [元]
- ○ 640,000 - 960,000 Yuan [元]
- ○ > 960,000 Yuan [元]

How far do you live away from your child's kindergarten?
您的住所距离幼儿园有多远的距离

- ○ < 5 kilometer [千米]
- ○ 5 - 10 kilometers [千米]
- ○ 10 - 15 kilometers [千米]
- ○ > 15 kilometers [千米]

What kind of kindergarten did you attend when you were a child?
您小时候参加的是哪种类型的幼儿园?

- ○ Government Schools [公办幼儿园]
- ○ Montessori [蒙氏教育幼儿园]
- ○ Other [其他]

What kind of kindergarten is your child currently enrolled in?
您的孩子目前就读于哪种幼儿园?

- ○ Government School [公办幼儿园]
- ○ Montessori [蒙氏教育幼儿园]
- ○ Other [其他]

Rank Questions

Please rank the following statements, with 1 being your top choice.
请对以下陈述进行排名，1是您的首选。

What do you consider when deciding a kindergarten for your child?
在您为您的孩子挑选幼儿园的时候最关心的是什么?

Tuition cost
学费

Food
餐饮

School appearance
学校外观

Safe neighborhood

社区安全性

Distance from home
距离家的远近

Other:
其他:

What do you think will make a child most successful?
您认为哪方面将会使孩子成功?

High test scores
高的考试成绩

Independence
独立性

Social Skills
社会技能

Other:
其他:

What do you think are the most effective learning styles?
您认为最有效的学习方式是什么?

Visual: Learns by observing and watching
视觉：通过观察和学习

Aural: Learns by listening and hearing lectures
听觉：通过听和听课来学习

Physical: Learns by using sense of touch
触觉：通过触觉学习

Other:
其他:

Likert Scale Questions

Please answer how much you agree or disagree with the statements below:
请回答您在多大程度上同意或不同意以下陈述：

	Strongly agree 非常同意	Agree 同意	Somewhat agree 有点同意	Neither agree nor disagree 中立	Somewhat disagree 有点不同意	Disagree 不同意	Strongly disagree 非常不同意
It is important to get high test scores. 考试获得高分很重要。	○	○	○	○	○	○	○
Children who score better on exams are more successful. 考试成绩好的孩子更成功。	○	○	○	○	○	○	○
It is important to develop problem-solving skills. 培养解决问题的能力很重要。	○	○	○	○	○	○	○
Children should learn English. 孩子们应该学英语。	○	○	○	○	○	○	○
Children should discover interests on their own. 孩子们应该自己发现他们的兴趣。	○	○	○	○	○	○	○
Memorization is more useful than being able to interpret abstract ideas. 记忆比解释抽象概念更有用。	○	○	○	○	○	○	○
Working in a group is more beneficial than working individually. 合作比单干更有益。	○	○	○	○	○	○	○

Survey 2: Prospective Parents

Introduction

Hello, we are students at Worcester Polytechnic Institute and Hangzhou Dianzi University conducting research on kindergartens in China. The following survey will ask questions regarding your opinions on kindergarten education in China and factors that might influence them.

您好，我们是伍斯特理工学院和杭州电子大学的学生，正在对中国的幼儿园进行研究。以下调查将询问您对中国幼儿园教育的看法以及可能影响这些看法的因素。

Background Questions

How old are you?
您的年龄?

- ○ < 25
- ○ 25 - 30
- ○ 30 - 35
- ○ 35 - 40
- ○ > 40

What is your annual household income?
您每年的家庭收入是多少?

- ○ < 320,000 Yuan [元]
- ○ 320,000 - 640,000 Yuan [元]
- ○ 640,000 - 960,000 Yuan [元]
- ○ > 960,000 Yuan [元]

What kind of kindergarten did you attend when you were a child?
您小时候参加的是哪种类型的幼儿园?

- ○ Government Schools [公办幼儿园]
- ○ Montessori [蒙氏教育幼儿园]
- ○ Other [其他] _____

What kind of kindergarten do you plan to enroll your child in?
您打算让您的孩子入读什么样的幼儿园?

- ○ Government School [公办幼儿园]
- ○ Montessori [蒙氏教育幼儿园]
- ○ Other [其他] _____

Rank Questions

Please rank the following statements, with 1 being your top choice.
请对以下陈述进行排名，1是您的首选。

What would you consider when deciding a kindergarten for your child? 在为您的孩子选择幼儿园时，您会考虑什么?

Tuition cost
学费

Food
餐饮

School appearance
学校外观

Safe neighborhood
社区安全性

Distance from home
距离家的远近

Other:
其他: _____

What do you think will make a child most successful?
您认为哪方面将会使孩子成功?

High test scores
高的考试成绩

Independence
独立性

Social Skills
社会技能

Other:
其他:

What do you think are the most effective learning styles?
您认为最有效的学习方式是什么?

Visual: Learns by observing and watching
视觉：通过观察和学习

Aural: Learns by listening and hearing lectures
听觉：通过听和听课来学习

Physical: Learns by using sense of touch
触觉：通过触觉学习

Other:
其他:

Likert Scale Questions

Please answer how much you agree or disagree with the statements below:
请回答您在多大程度上同意或不同意以下陈述：

	Strongly agree 非常同意	Agree 同意	Somewhat agree 有点同意	Neither agree nor disagree 中立	Somewhat disagree 有点不同意	Disagree 不同意	Strongly disagree 非常不同意

	Strongly agree 非常同意	Agree 同意	Somewhat agree 有点同意	Neither agree nor disagree 中立	Somewhat disagree 有点不同意	Disagree 不同意	Strongly disagree 非常不同意
It is important to get high test scores. 考试获得高分很重要。	○	○	○	○	○	○	○
Children who score better on exams are more successful. 考试成绩好的孩子更成功。	○	○	○	○	○	○	○
It is important to develop problem-solving skills. 培养解决问题的能力很重要。	○	○	○	○	○	○	○
Children should learn English. 孩子们应该学英语。	○	○	○	○	○	○	○
Children should discover interests on their own. 孩子们应该自己发现他们的兴趣。	○	○	○	○	○	○	○
Memorization is more useful than being able to interpret abstract ideas. 记忆比解释抽象概念更有用。	○	○	○	○	○	○	○
Working in a group is more beneficial than working individually. 合作比单干更有益。	○	○	○	○	○	○	○

Appendix B: Focus Group Questions

Focus Group 1: Current Parents

1. What school system does your child attend and what prompted you to send your child to that school?
2. Why do you think freedom is the most important for your children?
3. If you have multiple children, do/did they attend the same school systems? Why or why not?
4. Do you think your opinions are being considered and prioritized in your child's kindergarten?
5. If you could change one thing about Montessori, what would it be?
6. What are your general expectations for your children in terms of academics and their future?
7. Do you think the cost of Montessori schools are reasonably priced? Do you think that there should be some opportunities for scholarships to help those who would like their children to attend the school, but do not have the financial capabilities to?

Focus Group 2: Prospective Parents

1. What school system did you attend and what school system will you enroll your child in?
2. Would you want your opinions to be considered and prioritized in your child's kindergarten?
3. What are a few things that you believe schools should prioritize?

4. What would be your general expectations for your children in terms of academics and their future?
5. Do you think the cost of your intended school of choice is reasonably priced?
6. Do you think that there should be some opportunities for scholarships to help those who would like their children to attend the school, but do not have the financial capabilities to?

Appendix C: Interactive Qualifying Project Plan

(October - December 2021)

Task	PQP	10/25 - 10/29	11/1 - 11/5	11/8 - 11/12	11/15 - 11/19	11/22 - 11/26	11/29 - 12/3	12/6 - 12/10	12/13 - 12/16
Survey and interview preparations						B			
Conduct surveys						R			
Conduct focus groups						E			
Compare results						A			
Finalize project						K			
Present project									