

CHAPTER 4

RESEARCH RESULT ANALYSIS-BASED ON DESCRIPTIVE STATISTICAL ANALYSIS

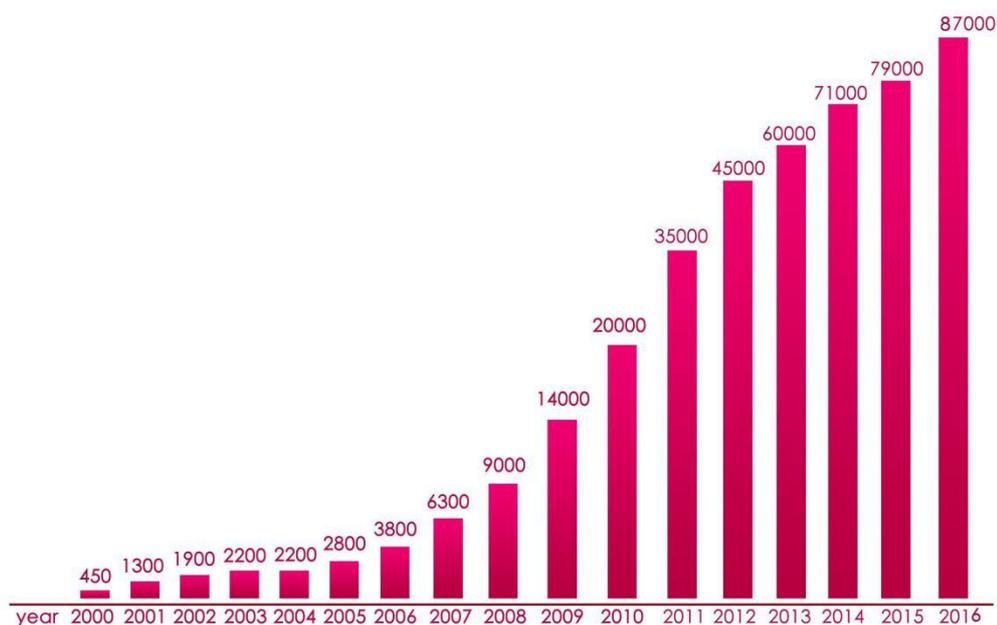
4.1 Analysis on development status of JIL Overseas Education

Founded in 1999, JIL Overseas Education is one of the earliest overseas study institutions with national accreditation. It outputs over 30,000 students each year to study abroad. In addition to its headquarters in Beijing, it has wholly established wholly-owned subsidiaries in 13 major cities around the country. In Mar., 2001, Beijing Consumers Association and JIL Overseas Education co-founded industry's first consumer education school, namely Beijing JIL Overseas Education Consumer Education School. The tenet of school is: to popularize the knowledge of overseas study and guide overseas study consumption. JIL Overseas Education has obtained recognition of many national organs including the Ministry of Education, Ministry of Public Security and the State Administration for Industry and Commerce. As the star enterprise in the industry, it has been given the title of national integrity business, the user satisfaction star enterprise, and it is the overseas study consulting enterprise that obtains the singing qualification for "Social Responsibility Guidelines" issued by the consumers association in the first.

JIL Overseas Education has a large number of industry professionals and especially invites the ambassador with rich management experience in the embassy as the contractual expert. Meanwhile, it also has more than thousands consultants to provide services for customers. Since its establishment, the company has provided services for dozens of thousands customers to help customers realize the dream of studying abroad. Besides, the company provides overseas study consulting services for dozens of thousands of families every year and design personalized overseas study scheme, thus enjoying good reputation among customers. The company provides convenient service for the customers with CRM client system that the company develops. It has more than 1700 superior cooperative universities in 23 countries around the world. The company has large consultant team, more than 1000 staffs, of which 90% are those with undergraduate degree and above and more than half are masters, doctors and over 80% with overseas study experience or engaged in education before. They are familiar with foreign education system. They get familiar with foreign education system and have comprehensive understandings about foreign institutions. In addition, the company also recruits many former counselors of the embassies in the United States, Britain, Canada and other countries as special consultants and holds lectures on foreign education and overseas study policy lectures

regularly to answer questions about overseas study that the students are concerned about. The company also has established excellent cooperative relationship with the hot destination countries and outputs a large number of Chinese students to these countries and provides consultancy services to dozens of thousands of families each year and has maintained a high success rate of visa. In Dec., 2001, JIL Overseas Education was first to pass through the ISO9001 international quality system certification in the industry. It's first the unit with "315" user right issued by China Consumers Association among overseas study service institutions around China and has been praised by the consumer association and related governmental departments for many times. In Jul., 2002, the company set "JIL's scholarship plan of millions of Yuan for excellent overseas students" by uniting the universities of all countries. Up to now, it has been held for 10 times with the amount as high as 5 million Yuan issued. The number of students given award has exceeded 400. it is the only service institution really issuing the overseas study scholarship in the overseas study industry. In 2004, it's the only overseas study institution given "consumer satisfaction service star in Beijing" in the industry. In Dec., 2005, it was given the honorary title of "national consumer satisfaction service star" by CAQ. The service tenet of JIL Overseas Education: customer first, customer-respected and treating customers as family members. Its service philosophy is to output proper students to the proper universities designated to provide all-round overseas study service for all Chinese talented young people. In recent years, as the highly reputed overseas study institution, it has been more and more popular and the number of students that the company outputs to foreign universities every year has been on the rise.

Figure 6: The number of overseas students that JJL Overseas Education output to foreign universities form 2000 to 2016 (unit: person)



Data source: official website of JJL Overseas Education

The unique advantages of the company: the only “national integrity enterprise” in the overseas study industry across the country evaluated by China Chamber of Commerce and abundant Counselor resources. The company’s unique resources include former ambassadors, education counselors and relevant experts, who have exchanged and communicated with the overseas education community for a long term. Thus, they are not only familiar with higher institutions in the country where they are located but also have kept in touch with these schools, and they are also familiar with education policies, overseas study and immigration policies and information of such countries. With long working experience abroad and solid basis with each university, they also can provide guidance and suggestions to domestic students in time according to the information, visas and student recruitment of foreign universities designated to help students who want to study abroad more reasonable plan future study career, good embassy, college relations. With rich overseas resources, it cooperates with numerous universities. Some universities open “green channel” thanks to the good partnership with it and the expedite approving the materials submitted by the company. The first institution passing through ISO9000 certification in the industry, the only institution that has developed Customer Relationship Management (CRM) independently, the only company proposing the "three-stage" service, namely before going abroad, during going abroad and after going abroad, and providing valuable overseas study consumption guidance for all media and students

by virtue of its rich experience and good social relations.

4.1.1 The influences of big data era on overseas study intermediary JJL Overseas Education

(1) Positive influences

Big data is having deep influence on people's lives and subverting the traditional business community. In particularity, along with the gradual maturity of big data technologies, the era of data-driven and-led industrial development has arrived. The commercial war is evolving into a data war. The enterprise with largest and most valuable data will win the future of the whole internet. Under this background, there has been subversive changes in competitive the overseas study market. Along with the development of Internet and especially the popularization of big data technology, the major problem about information asymmetry of the overseas study industry has been solved and the further development of this service field has also been facilitated. The big data era is also very helpful to the JJL Overseas Education, which relies cloud platform and big data technology can provide important reference for personalized study scheme and service optimization. Without relying on former one-to-one consulting, the company can improve efficiency through big data.

With the evolution of the times, the traditional overseas study intermediary service has been far unable to meet the requirements of more users for diversified and transparent services. Especially, in order to attract customers, some overseas study intermediaries promise some services but often exaggerate it and trigger various disputes. Further, some can not introduce the status quo, education facilities and accommodation of overseas schools honestly but direct attentions with “high enrollment rate”, which are almost always not familiar to the students and their parents. Under the framework of big data technology, JJL Overseas Education can always track the process of handling overseas study by utilizing the transparent process that the students and their parents can see. Facing the service provided by JJL Overseas Education, parents and students can also track it themselves. Such completely transparent mode not only eliminates the parents’ concerns but also could facilitate the standardization of the management of intermediary services process. Meanwhile, with the architecture built through big data technology, rapid development of overseas study the service industry can be further pushed.

Big data is helpful for JJL Overseas Education to adjust and plan its business strategies. Through application big data, the company can know about the distribution of international students and how many students studying abroad for master degree in

America, how many students attend undergraduate program, how many students attend high school. Besides, the company also could know about the relevant data of the specialty they choose. For example, in the past few years, a lot of students choose to study for business and engineering abroad. Then how about their success rate of application?, for which the answer could be got through analysis on big data. According to the big data analysis, the company can even know about the proportion of students transferring or crossing the specialty and information about their specialty after graduation. By combining big data analysis, enlightenment and information could be brought to the intermediaries such as JIL Overseas Education to guide them in knowing about the market and customer group, so that it is helpful for the company to develop business smoothly and guide parents and students in application with high success rate. For example, the survey shows that the number of middle-aged and young students studying abroad accounts for a large proportion. JIL Overseas Education can realize business planning and layout to adjust business strategies by utilizing powerful functions of big data.

It could be known from the above data that America is currently the destination country with the largest number of Chinese students. Standardized exams for undergraduates studying in America includes two parts, namely TOEFL and SAT. No matter what kind of exam to apply for, the applicants is required to provide academic results at high school, including high school transcripts and certification of the school, which should be made in both English and Chinese and sealed by the school's seal. As for the letter of recommendation, the applicant generally should provide three letters of recommendation in English. As for personal statement, the applicant is usually required to provide several different personal statements. Then, if a student has document that could prove his or her own talents, especially the international awards. In this way, the success in application can be increased. Besides, if the student is exceptionally excellent, he or she will be given scholarship. When applying for studying in a foreign school, the applicant should fill in the application form according to the format required. By providing such detailed information, the customers will know about and compare their actual situation more comprehensive so that they can make preparation in advance.

(2) Challenges

As the representative of the traditional overseas study intermediary, JIL Overseas Education still uses the service mode: school selection → document creation → application submission, process-oriented service mode. As for the service mode used by most domestic traditional overseas study intermediaries is that the consultant will collect student's information and prepare application materials and documents for the

student according to school selection and document template after the student signs the contract. Service content includes school selection, material translation, application submission and visa handling. Service team: marketing-based overseas study consultant and copywriting. Service advantages are large institutions with chain nature, high brand awareness and student's low participation degree. Disadvantage: large institutions and chains, low student participation and more peace of mind. Disadvantages: process-based service mode easily could lead to error in student information, error and omission in application could be easily caused if one consultant serves many students at the same time.

Under the impact of the application of big data technology, the service mode of traditional overseas study intermediary cannot reflect the customer demand correctly. Through investigation into the overseas study data in recent two years, it is found that internet users are concerned about the information of the school and conditions necessary for studying abroad. The retrieval of overseas study intermediaries is less, only accounting for 7% of the total retrieval. Further, the percentage is still declining. Along with the development of internet technology, it is more convenient to obtain information. The method for obtaining customer source by relying on traditional intermediaries is outdated, and the trend of removing intermediaries is quite obvious. Compared to the traditional offline consulting, wireless retrieval is being developed rapidly. Students are more inclined to retrieve timely requirements on the mobile terminal, like reputation, public praise and contact way of intermediary. In addition, students focus on retrieval of information, questions and reputation about overseas study on the mobile terminal, So, the overseas study intermediaries will be eliminated by the era if not meeting the customer demand by strengthening their information infrastructure.

According to the survey of the relevant institutions, more than 80% of those going abroad choose to cooperate with intermediaries, of which nearly 30% of users are dissatisfied with intermediary services. In recent years, along with the increase in the number of students studying abroad, the market demand for overseas study intermediary has been actually increased. Although it is more and more convenient to obtain information, it is still very difficult for students studying abroad to apply for foreign school due to the diversified demands of various institutions and language barriers. Along with the increase in people's income level, the students studying abroad who have ability to apply for foreign school on their own choose the overseas study intermediary. In this way, their energy and time can be saved. According to the survey of relevant institutions, nearly 85% of overseas students choose to study abroad for the time can be saved and they believe the intermediary can increase the

success in their application by virtue of their professionalism. However, those not choosing the intermediary mostly don't believe the intermediaries. Among choosing the services provided by the intermediary, 35% of users are not satisfied with the services provided by overseas study intermediary. Such proportion is relatively high in the service industry. Further, the data from the China Consumer Association shows that there were 117 complaints against overseas study intermediaries. However, there are 73 complaints in the first half of 2017, an increase of more than 100%. This proportion also reflects the fact that overseas students are not satisfied with overseas study intermediaries. Under the background of big data, information is more diverse and accessible. By Taking advantage of this opportunity, many emerging overseas study consulting platforms have come into being. Compared with the traditional overseas study intermediaries, they are more adapted to the development and requirements of the era. Besides, more and more students tend to get information on the internet, DIY overseas study is also a way popular for overseas students. It is the problem about how to defeat other ways to study abroad that overseas study intermediary should take into account to win consumers' trust.

Summary: by the end of Jun., 2015, there had been 668 million internet users in China. Internet popularization rate has reached 48.8% and there had been 594 million mobile internet users, accounting for 88.9%. Along with the development of the internet, there had been change in the way to obtain information and sources of information had been diversified. Along with the popularity of the internet and big data technologies, opportunities and challenges have been brought to the overseas study intermediaries. Meanwhile, it is easier to obtain overseas study information. However, due to the language barriers and large difference in the application standards of various colleges and universities between America and Britain, many applicants are confused. In addition, along with the increase in family income, many students choose to overseas study intermediary to handle their application to save energy and time.

According to the statistics of relevant institutions, nearly 85% of students choose overseas study intermediary to handle their application. It thus could be found that overseas study intermediaries still occupy market shares. The users mainly think highly of the praise and qualifications of the overseas study intermediary. According to the survey, 43.94% of overseas students pay more attention to the reputation of the intermediary. However, 41.5% of overseas students don't care about the price but qualification of the intermediary. Among international students, less than 15% care about the cost of an intermediary. Therefore, it is important for JJJ Overseas Education to grasp the trend and seize this fabulous opportunity.

4.1.2 Development predicament of overseas study intermediary JJJ Overseas Education

Through 10 years' rapid growth, the number of students studying abroad has tended to be stabilized. Although the number of students studying abroad has been increased by 5% in recent two years, the market for intermediary service market for overseas study is reduced by 3-5% every year. By taking JJJ Overseas Education for example, the number of people handling the application for going abroad has tended to be slow in recent years. Along with the 100% rise in free overseas study through internet, the intermediary service market has been reduced. Thanks to the further transparent information of overseas study service, cooperation market for universities is increased and DIY application is also strengthened. Both have impact on intermediary service market. For JJJ Overseas Education, it faces heavier pressure over market competition.

In 2013, the State Council adjusted administrative examination and approval items. For the overseas study intermediaries, its qualification was approved by the provincial people's government education sector rather than the Ministry of Education. Subsequently, the Ministry of Education issued a special notice of adjusting the approval of overseas study intermediary at their own expense. Later, provinces including Guangdong and Shandong promulgated proposed measures for management of approving and monitoring qualification of overseas study intermediary at personal expense.

After issuance of overseas study intermediary approval right, more enterprises will participate in the field of overseas study intermediary and the market competition will be even more fierce. From the perspective of value chain, a new round of industry reshuffle will be accelerated. School resource levels, brand marketing, service operation and IT will still play a significant role in profit contribution of business mode as the strategic control points. In the meantime, key successful factors of the overseas study industry have been changed dramatically since 2014. Brand, expertise, distribution channel and integration become more and more important as the key success factors. For organizations with strategic transformation and business upgrading, it is important to focus on one or more of these core success factors. Overall, the market increase slows down. intensified competition is aggravated, product homogenization is serious and consumers are less dependent on intermediaries.

4.2 Suggestions over transformation and development of JJJ Overseas Education under the era of big data

After the arrival of big data era, the new competition morphology is rebuilt. It is even so for the overseas study industry. Compared with previous years, in 2015, many overseas study institutions implemented "frequent reform" in 2015. By increasing service items and improving the quality, they created better industrial chain and could cope with the new changes in the market. With the rapid development of mobile internet technology, it is more convenient for users to obtain information. Thus, the overseas stud information becomes more transparent and overseas study market becomes more mature. For overseas study intermediaries, the transformation of the industry is facilitated. At this crucial period, only by grasping the market opportunity and making the layout in advance, can JJJ Overseas Education can stand out during the fierce market competition.

4.2.1 Subdivision of overseas study service

The services provided by the domestic traditional overseas study institutions in the past are limited to application for overseas study. For example, as for the service mode of JJJ Overseas Education, it is school selection, document creation, application submission and process-based service mode.

The service mode adopted by most domestic traditional overseas study intermediary institutions is that the consultant collects student's information and prepares application material and application document according to the school selection and document template after the student signs the contract. Along with the development of internet era, big data technologies have been popularized. For example, as for the service provided to the customers by JJJ Overseas Education, students can check it online. The traditional mode of overseas study intermediary has not been able to satisfy the service demands of the overseas students. To break through the slowly desalinated nature of intermediary, JJJ Overseas Education should further participate in each link of application for overseas study.

In the view of Huang Xian, CEO of EIC, it is the next transformation road for the traditional overseas study institution to be a complete education chain supplier and improve user experience. Compared to the the intermediary institutions, educational institutions not only have to bring overseas study information and examination skills to the overseas students but also have to pass a value on to students to help them with the overall quality. To realize service upgrading, JJJ Overseas Education should not

just rely on traditional simple work mode but make adjust and provide diversified and personalized services according to market changes. The overseas study industry will be more inclined to the refined, extended and market-based products and services. For example, it is necessary to fill in simple application forms and collect personal data with brain. However, the high-quality overseas study consultants formulate personalized plan for service in a non-mechanized way.

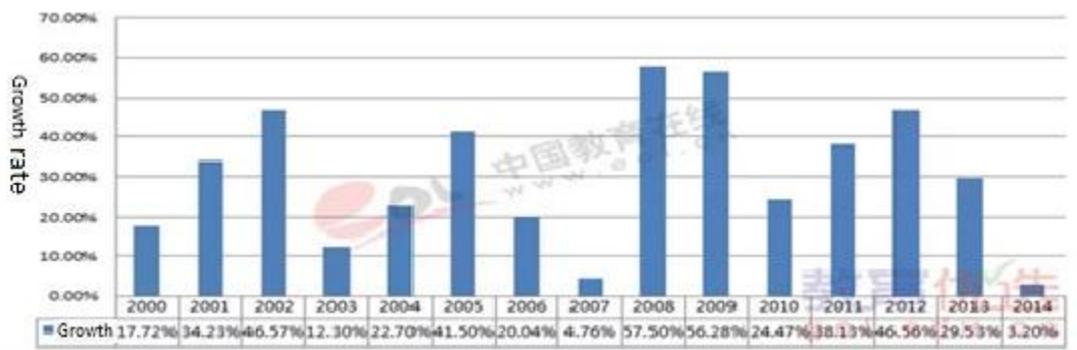
At present, the single overseas intermediary mode and consulting service process can no longer meet the diversified, rational and civilized requirements of overseas study. Thus, the overseas study service intermediary institutions, regardless of their scale, are required to adjust their service mode, keep up with international higher education mode and extend and subdivide their professional services from the perspective width and depth. Before studying abroad, internet users will know about the basic information of the university and country where the university locates online, like surroundings about the university and university's accommodation and difference in exchange rates among overseas study countries and China. At present, most Internet users know basic information about the school and the country they live in before the study, such as the living environment around the school, the accommodation of the school, the exchange rate difference between the country of study and China.

In consideration of complicated decision-making process of overseas study, it is necessary for overseas study intermediaries to make a comprehensive layout in all aspects. At present, the trend of overseas study in China is mainly characterized by the following features: the declining age of international students, deepened demand for overseas study destinations and traditional destinations including America, Britain and Australia. However, along with the increase in number of students studying abroad in Japan and South Korea is gradually increased. When facing these changes, JLL Overseas Education should conduct analysis seriously and market segmentation and integrate service chains effectively to satisfy diversified demands of overseas students.

To improve the tracking of user flow, it is necessary to constantly improve their service level by strengthening CRM management. According to the user's demand scene, it is necessary to conduct service segmentation of the whole six major decision-making stages for overseas study, including production intention (the value of going abroad, initially evaluating whether the condition is qualified for going abroad, etc.), determining the goal (choose destination country / school/specialty, knowing about expenses), language training and examination tutoring, application

process and document preparation, handling procedure for going abroad (passport, visa, living preparation), service after studying abroad (return and be employed, entrepreneurship, settle down in China, etc.). The maximum requirement is generated before service. The user's experience in whole overseas study consulting process will decide the brand selection and evaluation. JLL Overseas Education should better user experience and extend post-service market, tap students' merits and accurately positioning according to the student's specific case so as to build a series of schemes for applying for foreign university. Besides, the problems about students' employment in the future also could be solved.

Figure 7: Increase rate of number of students studying abroad in China from 2003 to 2014



Data source: statistical data of Ministry of Education

The chart shows that high increase rate of the number of people returning from overseas study during these years has been maintained. In 2008 and 2009, its growth rate exceeded 50%. Though it was reduced in 2014, the number of people returning from overseas study was increased by 11.3 thousand. Returning home for development has become a normalcy and a common choice for international students. There is huge prospect of solving the problems about returning home for development.

4.2.2 Extension to the upper and lower reaches of the industry

To continue to occupy market share, overseas study intermediaries should extend the upper and lower reaches of the industry and provide more wider services, like language training, services of students to study abroad in foreign country. And with the declining age of the overseas study population, local service is a promising business. JLL Overseas Education should put user demand first and provide services required by the users designated to have the customers enjoy perfect service experience. It is an imperative for JLL Overseas Education to build its own ecological

chain designated to provide various services for customers and build service-oriented overseas study platform. One-stop service will be the development direction of all overseas study intermediary institutions. However, JJL Overseas Education proposed the concept several years ago and has always been developing and improving it. One-stop service is fundamentally the deepening of professional overseas study service: changing the originally single application procedures for overseas study and providing a series of services related to overseas study including language examination, foreign language training, insurance, physical examination, visiting relatives and ticket. During this process, higher requirement for the professionalism of overseas study intermediary is proposed. Thus, the overseas study intermediary is required to formulate learning plan for the student and help him choose proper specialty and school and provide professional integration service in the field related to the application for overseas study to simplify the procedure and process of student's overseas study and improve efficiency. Relevant business of JJL Overseas Education has basically covered all aspects of overseas study, including language examination, financial service, physical examination, visiting relatives and tickets and so on. The company has established partnership with famous professional institutions both at home and abroad, including Pearson Group, Global IELTS, major banks and other authorities to serve students together .

In the meantime, in order to comply with the development and characteristics of the study abroad market, JJL Overseas Education has summarized and planned a series of unique professional service modes, and implemented them by taking "one-stop service system" as a benchmark in Beijing and branches across the country. In this way, personalized and in-depth overseas study planning requirements of consumers can be satisfied. Besides, the company's team's experience in overseas study and specialty analysis level can be fully developed. By gradually enhancing the sense of occupational mission of the consultant, the overseas study consultant is promoted to "life planner". Though JJL Overseas Education has made certain achievements in one-stop service, the customer's demand is gradually extended. one-stop overseas service includes overseas study finance, real estate, practice, high-end customized study tour and returning home for employment, etc. The development space of JJL Overseas Education is pretty huge. For example, it can provide career development guidance and employment training for "overseas returnees", provide financial support for overseas students with entrepreneurial dream and plan, development overseas market, set overseas branch, provide overseas enrollment, school transfer and overseas steward, etc.

4.2.3 Take high-end personalized route

The nature of the overseas study industry is to provide service-oriented products rather than manufacturing products. Relatively speaking, it is very personalized. The highest value of a overseas study institution or consultant is to find the most suitable for overseas study plan for students rather than apply for an offer or visa. He should be adapted to changes in customer demand, provide more diversified and personalized services, and even launch personalized and customized products. For example, Amber Education launches the “Amber Premier (high-end service)”, assigning overseas bachelors, masters and project management team with 10 years’ experience in overseas study industry to be in charge of overseas study consulting and planning. Based on mass data analysis, according to the students’ academic background and personal willingness, according to different charging standards and customized VIP service, it subdivides the consulting level and helps students attend proper courses and schools within short time. JLL Overseas Education can refer to the company’s experience and customize personalized scheme for going abroad for students according to the high-end demand for overseas study.

4.2.4 Service mode transformation

The service mode of JLL Overseas Education: school selection→ document creation → application submission. However, along with the change in market demands, the function of internet overseas study platform has been improved gradually. Almost all overseas service platforms simplify the process of overseas study evaluation. Anyone who visits the website can choose the school for evaluation after submitting related materials. Besides, along with the popularization of the concept of one-stop overseas study, most information about overseas study can be obtained easily online. The service provided by the traditional overseas study intermediary has been unable to meet the requirements and it remains to be transformed urgently. By taking Shunshun for example, it was transformed into C2C mode from its predecessor App liter for the sake of the establishment of a new entrepreneurial platform and striving to help 15,000 Chinese students realize their entrepreneurial dream. As a result, overseas study intermediary becomes a comprehensive overseas study service platform integrating exchange, learning and application. Entrepreneurial team of HITURE Education Consulting has 10 years’ high-end experience in overseas study consulting industry. It also has built high-end overseas study application database. Meanwhile, it has accumulated rich high-end overseas study application experience during consulting. JLL Overseas Education can try to improve online service and regard overseas study consulting as a core service to help students better finish overseas study application and realize semi-DIY overseas

study application, which is completely different from the contracted service process of overseas study intermediary. As a result, the overseas study applicant can experience the sense of achievement that is different from the past.

4.2.5 Strengthen resource integration

At present, there are numerous large-scale overseas study service institutions that have mastered a lot of resources. They not only should strengthen resource integration but also should analyze the details such as customer demand and tap potential customers. JJL Overseas Education can analyze the overseas study material by making use of big data and then extract the information they want according to customers with different demands and types. Meanwhile, it can build a perfect evaluation system to collect customer's basic information and customize overseas study scheme for the customers. In addition, it also can also build resource platform for customers studying abroad, talent accumulation platform as well as resource platform for returnees and immediately upgrade and input their information so as to realize matching and retrieval anytime.

4.2.6 Guarantee service quality and public praise

Under the background of big data, JJL Overseas Education is not only threatened by overseas study intermediary companies but also threatened by major information platforms and emerging ways such as overseas students' DIY. Along with the more dramatic competition, it is not only necessary to enhance their hard strength but also necessary to enhance their soft power, like providing perfect service experience for overseas students and improving the company's reputation in the industry and strengthening company's publicity by guaranteeing the service quality, so that more students intending to study abroad will have in-depth understanding and more positive comment on JJL Overseas Education. Nowadays, in the overseas study service with high complaint rate, JJL Overseas Education should further lay emphasis on improving the service quality, building good corporate image to improve its market competitiveness.

Cloze reading comprehension. Post intervention reading comprehension was also assessed with three fill-in-the-blank cloze passages, none of which had been previously read or discussed, with ten content words deleted at random from each passage. Students provided the most appropriate word to fill in the blank given the meaning of the sentence or passage. Responses were counted as correct if they made sense in context, whether or not they were exact replacements for deleted words.

Storytelling. Post-intervention English speaking ability was assessed with a storytelling task using a wordless picture book, *Frog, where are you?* The frog story was selected because it has been successfully used with school-age children in a wide range of countries and has been shown to be valid for assessing multifaceted language abilities of ELLs at the extended discourse level. The book consists of 24 pictures representing a hierarchically organized story with a main episode and 13 sub-episodes. The interview procedures followed Berman and Slobin. Students were individually pulled out from the classroom into a quiet room. During the task, students were asked by their teacher to look through all pictures in the book and then tell a story based on the pictures. Students were prompted by their teacher saying: “Can you tell me what is happening in this story?” If students stop telling the story in the middle, the teacher may ask: “Can you tell me more?” or “What happened next?” Narratives were collected in English. Children were allowed to switch between English and Spanish, although this seldom happened. Children’s narratives were audio taped using a digital voice recorder.

Self-efficacy is defined as a person’s belief in their ability to bring about desired specific outcomes. According to Bandura: “A self-efficacy assessment. includes both an affirmation of a capability level and the strength of that belief”. According to Pajares it can be measured on a broad or on an item-specific level; however, self-efficacy judgments that are more item-specific have more predictive power. Thus self-efficacy measures tend to be domain-specific and participants are not asked to compare themselves with others. For example, in PISA 2003 students were presented a series of hypothetical mathematics-related items and asked “how confident are you that you could solve this (type of problem)”. According to Bandura, self-efficacy predicts choice of activity, effort expenditure, thought patterns and emotional reactions such as stress and depression.

Self-concept is positively correlated with self-efficacy, and reflects a more general sense of how well a person thinks she/he performs at a school subject or set of tasks. Measures of self-concept reflect a student’s self-comparison to his or her immediate peers and involve cognitive and affective evaluations of the self. The normative qualities of self-concept measures were highlighted in PISA 2003 and subsequent large-scale international studies, in which some of the highest-performing students in the world expressed the lowest self-concept for mathematics, and some lower-performing countries had overall very high self-concept – the so-called “Big Fish Little Pond Effect”.

While mathematics self-concept directly targets feelings of competence regarding the subject discipline of mathematics, self-concept can also be measured in relation to critical skills underlying mathematics competence – namely memory and reasoning. The MARCI measures self-concept about memory and reasoning abilities. To the extent that these abilities are relevant for performance on tests of mathematics, MARCI and self-concept in mathematics should be related.