INTERNATIONAL CHINESE GRADUATE STUDENTS IN THE U.S. LABOR MARKET: JOB SEARCH BEHAVIORS INVESTIGATED THROUGH ONLINE FORUM DISCUSSIONS

A Thesis

by

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ABSTRACT

The current study investigates job search characteristics of recent Chinese graduates of U.S. colleges between 2017 and 2018. In comparison to traditional job search methods, the study focuses on understanding how recent Chinese graduates obtain and utilize online information and resources to find jobs in the U.S. job market. To accomplish the study's objectives, I collected online posts published by 30 recent Chinese graduates of U.S. colleges between 2017 and 2018 from a Chinese public online discussion forum that, along with the posts' comments, were analyzed through both qualitative and quantitative analysis. By employing open coding of content analysis, I coded 825 messages into 15 categories (e.g., academic background, work ability, job search methods, emotional expression, and interaction), and four major themes were generated: *jobseeker*, *job search behavior*, *online information*, and *online social ties*.

I performed quantitative analysis to show observed patterns of job search behaviors. The results showed that among four job search methods used—career fairs, employee referrals, send out resumes widely, and job search websites, only the career fair was used without the aid of the Internet. Employee referral was the most used job search method ($n = 27$) and the most effective one for obtaining job offers ($n = 14$). Discussions of quantitative and qualitative results added to the knowledge on one important migrant channel used by Chinese international graduates into the United States and on the effects of strong versus weak ties on information dissemination in the era of the Internet.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This work was supervised by a thesis committee consisting of Professor Arthur Sakamoto and Professor Harland Prechel of the Department of Sociology and Professor Cara Wallis of the Department of Communication.

All work for the thesis was completed independently by the student.

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INTRODUCTION

According to the *Open Doors Report on International Students in the United States* (Institute of International Education, 2017b), Chinese students account for the largest proportion of international students in the United States. From 2016 through 2017, China sent 350,755 students to the United States, accounting for 32.5 percent of total U.S. international students. The second largest foreign student population is Indian students, who account for 17.3 percent of the total U.S. international student population. According to the Institute of International Education (2017a), as of fiscal year (FY) 2016-2017, there were 59,835 Chinese students on Optional Practical Training (OPT), accounting for about 35.6 percent of all OPT-approved foreign students. Being an OPT student means that these 59,835 Chinese students were seeking temporary employment in the United States either while still in school or after graduation.

Besides lacking experience in the labor market, like most young adults, Chinese new graduates face other challenges when searching for jobs. First and foremost is dealing with restrictions on job areas, academic activities, and traveling activities regulated by the U.S. Citizenship and Immigration Services (USCIS 2017).

Facing the Challenge: Legality of OPT Employment

OPT provides temporary employment that allows F-1 visa foreign students at a specific academic stage to obtain empirical experiences related to their areas of study for a permitted period. There are three categories of OPT—pre-completion OPT, initial post-completion OPT, and OPT STEM Extension. Pre-completion OPT is used for the foreign student worker who has completed at least one year of academic study; initial post-completion OPT is used for the foreign student worker who has completed his entire academic program; the OPT STEM

Extension is used for foreign students who major in science, technology, engineering, and mathematics (STEM) and who have completed initial post-completion OPT.

Recent graduates who search for jobs after graduation participate in post-completion OPT. All foreign students approved for post-completion OPT can work up to 12 months in full-time or part-time paid or unpaid employment. They can start applying for OPT within 60 days of completion of their academic programs. This 60-day grace period starts immediately on the last day of their classes and can be officially used for any sort of legal activity (e.g., travel, sightseeing, or moving). Foreign students can request an OPT start date beginning at any time within the 60-day grace period. If the foreign students fail to acquire an OPT assignment within the grace period, they must leave the country, as required. Students who have applied to OPT successfully can request an OPT start date. If the OPT start date begins on or before the last day of the 60-day grace period, adding up to a total of a 90-day unemployment period, the student can maintain his legal status in the United States for up to 150 days without being employed upon course completion. Therefore, technically, international new graduates have at least 90 to 150 days to find a job in the United States or face expulsion.

In addition to time limit restrictions for finding employment under OPT status, foreign students are required to work in areas that are related to their areas of study. Furthermore, under OPT, foreign students shouldn’t leave unless they have obtained employment. Otherwise, if they return to their home country, they may lack eligible documents (e.g., employment authorization documents) to reenter the United States.

Facing the Challenge: Resources and Social Connections

In addition to OPT restrictions on employment, international graduates of U.S. colleges struggle with a lack of resources and social connections. Sangganjanavanich, Lenz, and Cavazos (2011) investigated international students' job search process in the U.S. labor market and pointed out challenges that international graduates face when seeking employment. These challenges, such as emotional stress, cultural differences, language barriers, and lack of resources, often impede their progress (Bikos and Furry 2011; Popadiuk and Arthur 2014; Sangganjanavanich et al. 2011).

While many previous studies highlighted important advantages to using information provided by family and friends in facilitating the job-finding process (Bian and Ang 1997; Corcoran, Datcher, and Duncan 1980; Granovetter 1973, 1995; Massey et al. 1994; Sanders, Nee, and Sernau 2002; Wong and Salaff 1998), many foreign students are separated from the support of their major social networks when living in a strange, foreign country. Searching for jobs in one's home country is not easy, and it is even tougher in a foreign country. The life experiences of family and friends in the home country often differ drastically from what foreign students in the United States experience. It is very unlikely that Chinese students in the United States can receive useful information from family and friends in their home country about where and what jobs are offered in a foreign country. After all, "social and family contacts … may have little in common [with job seekers] occupationally," therefore there are very few job-related suggestions that unemployed Chinese students can use from their friends and family members (Granovetter 1995:94).

Undoubtedly, people are social beings who can often adapt to a new environment and enter new social networks. However, Chinese students who are dispersed throughout the United States are geographically isolated; they may have a hard time establishing social networks where they live. Fortunately, the modern technology of the Internet removes borders and provides access to social networks and information that can be easily accessed despite where people live. Chinese in the United States, then, can make use of the Internet (e.g., job boards and corporate websites) to obtain job-related information, while using other possible job search methods online and offline at the same time (e.g., direct application, employment agencies, advertisements, newspapers, school placements, employee referrals).

Research Question

In this current study, I sought to understand the job search behaviors of recent Chinese graduates from U.S. colleges by investigating a public online job forum discussion. By using qualitative content analysis, the study attempted to answer several questions regarding the job-hunting process based on an analysis of the forum users' posted topics and comments. The research questions were as follows:

(1) What job search methods do students use for job hunting?

(2) What information is provided and what information do students seek on the forum?

(3) What can be implied from students' job search experiences?

(4) Why do users share and exchange information on the forum?

(5) What social connection have users constructed with other users through either the online job-search process or through any offline experiences between the users?

LITERATURE REVIEW AND THEORETICAL BACKGROUND

Job Searching: Methods, Information, and Social Ties

Job searching is an information-seeking behavior that people exhibit to search for and utilize information about potential jobs. Job search methods that people engage in have intrigued researchers since the late 1960s. The Current Population Survey (CPS) carried out by the Bureau of Labor Statistics (2017) started collecting unemployed jobseekers' active job search methods in 1967. At that time, the CPS mainly considered six categories of active job search methods: *public employment agency*, *private employment agency*, *contacted employer directly*, *friends or relatives*, *placed or answered ads*, and *other*. Ports (1993) reported that *contacted employer directly* was the most common job search method in 1992 and that 74.3 percent of unemployed jobseekers used this method to search for employment. In 1995, the CPS redesigned the survey and added one category to the active job search methods—*sent out resumes or filled out applications*. *Contacted employer directly* remained the most popular job search method until 2009. In 2010, the method *sent out resumes or filled out applications* exceeded that of *contacted employer directly* and has since become the most preferable active job search method (The CPS 1995-2017).

Granovetter (1973, 1995) systematically investigated professional, technical, and managerial (PTM) male workers' job-searching processes. According to Granovetter (1995), in general, there are three information channels people go through to find jobs—formal means (e.g., advertisements, public or private employment agencies), personal contacts (e.g., family, friends), and direct applications to employers and firms. Granovetter (1973, 1995) distinguished two types of social contacts involved in his study—family-social contacts were deemed strong ties and

work contacts were deemed weak ties. He categorized types of social contacts as either strong ties or weak ties based on measurements of the amount of time, levels of emotional intensity, levels of intimacy, and amount of reciprocal services between the contacts and the job seekers (Granovetter 1973).

The major proposition of Granovetter's study (1995) concerned the relationship between the degree of information dissemination and strength of social ties. Granovetter (1973, 1995) argued that weak ties are better at diffusing information to a broader extent than strong ties. People prefer to establish strong, intimate relationships with those who are like them, which results in getting from strong social contacts repetitive information that people may have already obtained. In contrast, because of diversity in social circles, people tend to hear of unexpected opportunity or additional information from weak social contacts whom they barely know or whom they rarely contact (Granovetter 1973). By integrating this idea, many researchers have investigated different types of social contacts that people use to facilitate the job-search process—for example, intimate ties (e.g., family and friends; Bian and Ang 1997; Sanders et al. 2002), ethnic ties (Sanders et al. 2002), alumni ties (A. F. Montgomery 2008), and native contacts (Kanas, van Tubergen, and Van der Lippe 2011; Seibel and van Tubergen 2013). Therefore, based on Granovetter's (1995) theory of strong and weak ties on information dissemination, I propose the following:

In his study of PTM workers, Granovetter (1995) argued that blue-collar workers, people with lower-level education, young people, natives, and those who are unemployed or in sore need of a job are more likely to use different types of personal contacts for finding jobs, while

white-collar workers, people with higher-level education, adults and seniors, new migrants, and those who do not need a job in the short term are more likely to find jobs through work contacts.

However, Granovetter's study sample included only white adult males; their job search methods may differ drastically from young, foreign Chinese college graduates. Subjects of the current study are recent Chinese graduates of U.S. colleges who are young people with a higher education and who, under OPT status, were in sore need of a job within 90 days after graduation. Based on Granovetter's (1995) finding ,these Chinese graduates would use social contacts with either strong or weak ties to find jobs. Mau and Kopischke (2001) studied college graduates' (*N* = 11,152) job search methods and found that formal means—the use of resumes and want ads—were the most common job search method for college graduates because of specific hiring procedures for professionals and because written applications and resume submissions are often required. Seibel and van Tubergen (2013) studied job search methods used among non-Western immigrants in the Netherlands. They found that highly-educated immigrants who are fluent in local language are more likely to use formal methods than less-skilled immigrants. Likewise, Harvey (2008) studied how highly-skilled immigrants find a job. In contrast to Seibel and Tubergen's conclusions, Harvey found that Indian and British scientists in the United States use various types of social contacts, whether strong or weak, which is similar to Granovetter's suggestion.

It needs to be emphasized that caution should be exercised when applying Granovetter's (1995) theory on information dissemination. The problem is that Granovetter set up a dualistic theory of social contacts defining one's relationship with others as either strong or weak when his proposed measurements allow putting the strength of social contacts on a continuum (also

argued in Harvey 2008; Sanders et al. 2002; Wegener 1991). Strong social ties need first to be constructed and second to be maintained; strong social ties that fail to maintain their intimate connectedness tend to fade into the category of weak social ties. In contrast, weak social ties can be bolstered by emotions, communications, and a high frequency of meetings and other social interactions. Therefore, the strength of social ties is not static but can be ever-changing depending on one's life experience and its influence on one's relation to the social network. It is essential to acknowledge the possibility that people use both strong and weak contacts (Harvey 2008; Wegener 1991). Based on previous studies that specifically targeted on job search methods used by foreign, highly-skilled workers and college graduates, I propose the following:

Proposition 1: Subjects tend to use resumes as their primary job search methods over all other job search methods (e.g., personal contacts, career fair, direct application).

Proposition 2: Subjects who use personal contacts to search for jobs use all types of personal ties regardless of strong or weak.

Job Searching in the Age of the Internet

Using newspapers to place or answer job ads was a common tool used in job searches during the 1970s (Ports 1993). However, since then, the development of information technology has granted people more and more options for accessing information sources. For example, Autor (2001:26) argued that "job boards hold several advantages over their textual counterpart, newspaper help-wanted ads." The Internet has changed the process of accessing information and has made an impact on the labor market. Currently, the six job search methods listed in the CPS are now considered traditional job searches in comparison to searching for jobs using the Internet (Autor 2001; Kuhn 2000). Autor (2001) indicated various channels for Internet job searches: (1) Internet job boards (e.g., job listings and resumes); (2) corporate websites (e.g., sending

applications); and (3) headhunting by searching potential candidates' online credentials. Moreover, Kuhn (2000) pointed out that sometimes jobseekers use combined methods of traditional and Internet job search.

Studies have indicated that using the Internet to find employment has become a preferable job search method in recent years because of its popularity, accessibility, affordability, and effectiveness (Autor 2001; Brenčič 2014; Campos, Arrazola, and de Hevia 2014; Dekker, Engbersen, and Faber 2016; Faberman and Kudlyak 2016; Fountain 2005; Kuhn and Mansour 2014; Kuhn and Skuterud 2004). First, the Internet is a popular platform used by all types of people to seek, share, and exchange job information. In 1998, only approximately 15 percent of unemployed job seekers regularly used the Internet to search for jobs (Autor 2001; Kuhn and Skuterud 2004). This percentage increased to 26 percent in 2000, and it reached 76 percent in 2011 (Faberman and Kudlyak 2016). Second, online information is easy to access. People who have access to Internet traffic (e.g., Wi-Fi, a wired network, wireless network) on smartphones, tablets, and computers can search for information about employment whenever and wherever they want. Third, the online information is inexpensive; in fact, it is often free. Although it is true that some online employment information is restrictive and collects fees, much information is publicly accessible and free of charge. Moreover, searching for information online is much cheaper than trying to find out information through other means. Some have argued that people calculate the cost and benefit of various job-searching methods and tend to choose the method that is lower in cost (Aguilera and Massey 2003; Granovetter 1995; Massey et al. 1994; McCall 1970; J. D. Montgomery 1992). For example, people prefer to ask friends and families for job-related information rather than seek information from employment agencies. Finally, finding a

job online is effective. The Internet offers abundant job information and data that far surpass the information found in Yellow Pages ads and newspapers. It hosts a wide range of websites (e.g., online newspapers, online blog spaces, web pages), social network services (SNSs), and bulletin board systems (BBSs) that allow recruiters, job seekers, editors, and agencies to post job-related information. Also, the Internet offers quick-search tools and quick-updating functions for easier and faster information transmission.

The Internet, as an information transfer channel, can be especially helpful providing crucial information to recent Chinese graduates of U.S. colleges that would be hard to obtain elsewhere. By integrating Granovetter's (1995) idea of the strength of weak ties, because online information is transmitted through mostly strangers (the weakest social tie online), information can reach a large population and provide a wide variety of employment information for many kinds of job seekers (Bakshy and Marlow 2012). Previous studies have investigated the influence of online media usage on foreigners' lives. Dekker and Engbersen (2014) and Dekker et al. (2016) studied online media that allows for many-to-many communication and explored its impact on foreigners' lives. They found, first, that online media facilitates foreigners' abilities to keep in touch with their existing social contacts. Second, they demonstrated that online media is a new way to explore contacts with previously unknown people and to develop weak ties. Third, they pointed out that the function of online media to provide employment information is especially significant for foreigners. Therefore, based on prevalence, convenience, cost-effectiveness features of Internet job searches, and the importance of the use of the Internet to foreigners' lives, I propose the following:

> ***Proposition 3****:* Subjects are more likely to search for jobs through the Internet (e.g., job boards and corporate websites) than through traditional job search

methods (e.g., public or private employment agency, contacted the employer directly, family and friends).

Proposition 4: Subjects tend to use the Internet to contact previously unknown people and to develop weak ties for job search.

Chinese Social Ties: Guanxi

Previous scholars that focused on studying personal networks of Chinese people in Chinese society have observed a pattern of using *guanxi,* which can be translated as relationships, relations, or connections (Bian and Ang 1997; Gold, Guthrie, and Wank 2002). Gold et al. (2002:3) stated that "*guanxi* is absolutely essential to successfully complete any task in virtually all spheres of social life" within the context of Chinese society. They indicated that the nature of *guanxi* is composed of several elements that distinguish it from being a mere social network. The first element is *guanxi* as social capital, which means converting the relationship into an economic, material resource or a human resource benefit. The second element is that *guanxi* often functions under the premise that two parties can come to an agreement of reciprocal favor exchange. The third element is that *guanxi* needs to be cultivated with gifts and affections to produce trust. In short, Gold et al. (2002:7) concluded that "the notion of reciprocal obligation and indebtedness is central to the system of *guanxi* in China."

Bian and Ang (1997) studied *guanxi* in relation to job mobility in China and Singapore and linked it to Granovetter's (1995) proposition of strong and weak ties. They identified two basic characteristics of *guanxi*—familiarity and intimacy, which imply that "*guanxi* develops between people who are strongly rather than weakly tied" (984). Bain and Ang (1997) explained the social context of where *guanxi* emerged in the labor market. Because China in the early 1990s had no job market and people had no rights to hunt for jobs but were instead allocated to

job positions by the state, Chinese people had to connect with authoritative people who could offer them jobs or permit job changes through *guanxi* networks in order to secure desired job positions. Bian and Ang (1997), using Tianjin, China, data of 1988 and Singapore data of 1994, discovered that 50 percent of people in Tianjin used *guanxi* for job reallocations, and 75 percent of people used *guanxi* to obtain job information and job changes. They concluded that "jobs are channeled through strong ties more frequently than through weak ties" (1000).

However, it should be noted that Bian and Ang's (1997) study was conducted at a point in time when the Chinese job market had not yet developed, and *guanxi* happened particularly in the context of Chinese society or societies with Chinese culture roots. Comparatively, Tian and Lin (2016) studied changes in job-hunting patterns and the use of strong and weak ties in urban China between 1978 and 2008. The study results showed "a steady increase in the use of weak ties and increasing and persistent use of strong ties in finding jobs" in the past 30 years under Chinese economic reform (Tian and Lin 2016:117). Further, the subjects of this current study were recent Chinese graduates of U.S. colleges who intended to find employment in the U.S. job market; there is no opportunity for them to obtain employment in the United States by relying on a gift economy and implicit requests embedded in *guanxi* because of differences in the social contexts. People in the United States must hunt and compete for jobs rather than waiting to be assigned one since competition for highly skilled job positions in the U.S. job market among jobseekers are intense, and a job opening often will get hundreds of applications.

Nevertheless, the subjects are Chinese who grew up in China and have been socialized and inculcated in Chinese ways of networking and interacting. Although these Chinese students may fail to utilize the totality of the *guanxi* network in U.S. society, they are very unlikely to

forget reciprocal obligation and indebtedness, both ideas of which are central to both *guanxi* and moral systems of Chinese society. Therefore, based on characteristics of Chinese social network in a personal relationship, I propose the following:

> ***Proposition 5:*** Subjects tend to exhibit behaviors or feelings of reciprocal obligation and indebtedness when searching for jobs.

METHODS

To understand recent international Chinese graduates' job search behaviors and how they use online information and resources to search for jobs in the United States, in this study, I collected and analyzed discussion topics and comments from a public Chinese discussion board focused on providing Chinese people with information resources, interpersonal resources, and job referral resources for them to successfully live and work in the United States.

The Chinese Online Discussion Forum for Job Search

To locate a discussion forum that met the research purpose, I searched Chinaz.com, which utilizes data based on Alexa Traffic Rank to rank Chinese discussion forums in general. Alexa Traffic Rank indicates the popularity of a site relative to other sites based on both global and individual nations' traffic. The website indicates that "the traffic estimates and ranks are based on the browsing behavior of people in [Alexa's] global data panel, which is a sample of all Internet users" (Alexa 2018). According to Chinaz.com, 1point3acres.com is the only discussion forum that focuses on providing studying-, living-, and working-aboard information among the top 50 Chinese general discussion forums, and it ranked 21st on the list. Thus, I collected and analyzed messages from the discussion forum 1point3acres.com, hereafter referred to as "1P3A."

About 1p3a: nature, purpose, operation, and contents

The forum 1P3A, founded by Xiaoning Warald on May 15, 2009, is a public discussion forum in a BBS format. The BBS is a discussion-based community that is mainly used to discuss topics, retrieve information, ask and answer questions, and exchange and share ideas. 1P3A BBS targets users who (intend to) study, work, and live in the United States and is used for discussing school applications, studies, jobs, and life in the United States. Compared to many social

network services (SNSs) that often provide multiple languages options (e.g., LinkedIn offers 24 language settings, and Facebook offer 140 language settings), 1P3A was created with an aim at providing information only to Chinese individuals because it sets the Chinese language as the major language used in its network communication. Therefore, no other ethnic group whose primary language is not Chinese can easily access the discussion forum (see Figure 1 for a screenshot of the 1P3A).

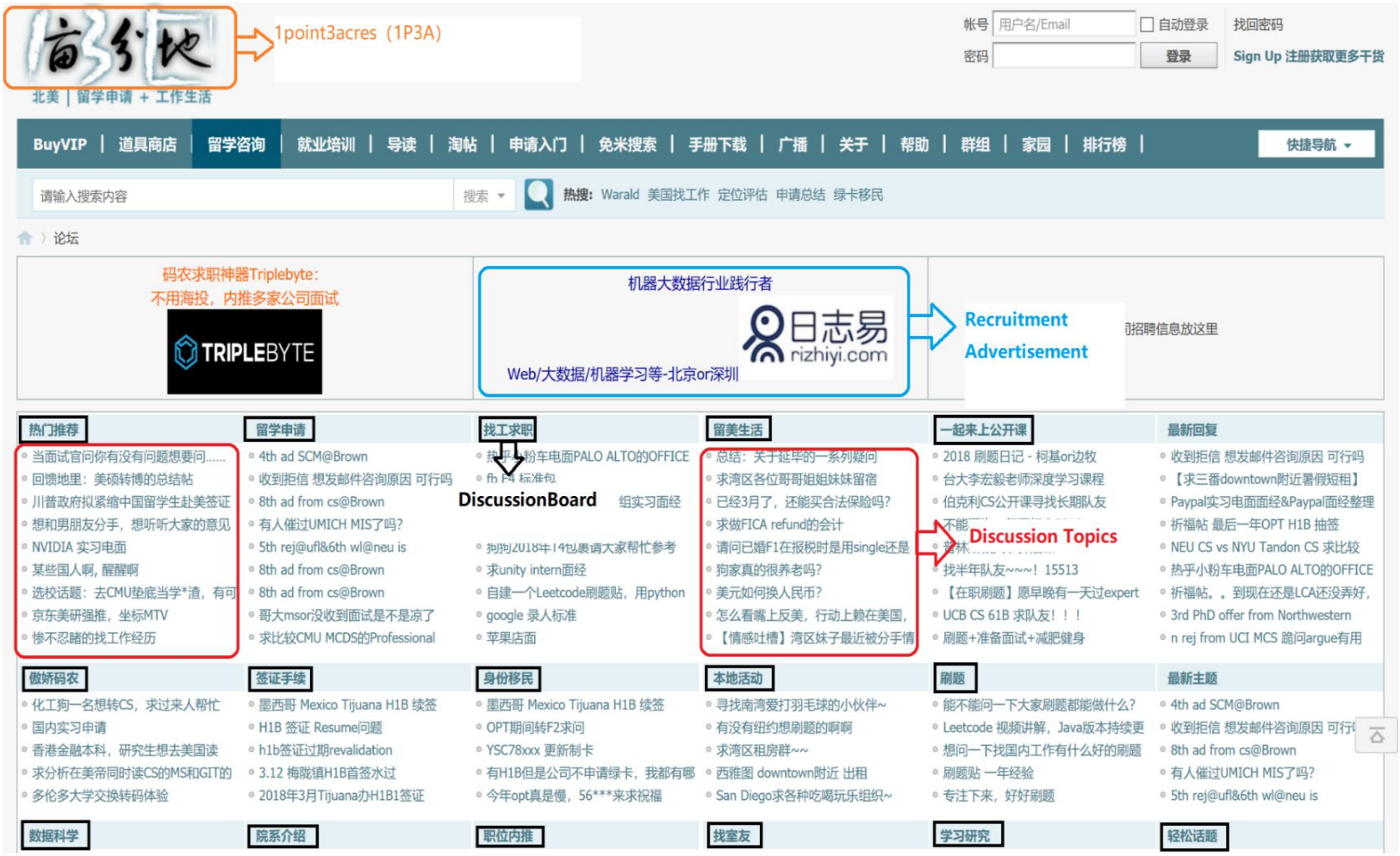

Figure 1. Screenshot of the 1point3acres.com/bbs (1P3A) Homepage and Information

The purpose of 1P3A is to provide a clean environment—free of advertisements or sponsored articles on the forum discussions—for Chinese students who are studying in the United States and for young Chinese professionals to exchange information and share experiences about such topics as applying to schools and seeking employment. 1P3A aims to make all the discussions and comments available for all the site users; therefore, there is not a private discussion group, and all the information is capable of being viewed. However, to ensure the site is free of advertisements or sponsored articles and encourage the site users to engage in the forum discussion actively, 1P3A employs a point reward program for the site users—the more points the users acquire through commenting, sharing, and discussing topics as directed, the more information the users are able to view and the more resources made available to download. Purchasing a VIP Pass membership is also an option in order to access all the contents instantly.

The 1P3A has five discussion boards that are specifically related to the job-hunting process: *looking for a job*, *the interview experience*, *employee referral*, *technical question preparation*, and *OPT/H1B status issue*. Numbers of discussion topics in each discussion boards are listed in Table 1.

Table 1. Numbers of Discussion Topics of Each Job-Search-Related Board

Discussion Boards	Number of Discussion Topics	Rank among All the Boards
The interview experience	25,938	2
Looking for a job	15,453	4
OPT/H1B status issue	6,797	7
Employee referral	1,937	8
Technical question preparation	2,447	15
Total	52,572	

Note. Retrieved from 1point3acres.com/bbs on March 2, 2018.

There was a total of 52,572 job-related discussion topics posted by the site users. Among the five job-related discussion boards, site users were most interested in discussing the interview experience and the process of looking for a job. Users posted 25,938 topics on the interview experience and 15,453 topics on looking for a job as of March 2, 2018, which ranked in the top two and top four of all the boards in the discussion forum, respectively.

About 1p3a: traffic data

To obtain general information about 1P3A, I conducted a site overview on Alexa.com to gather an overall perspective of the site, including rankings, pageviews, audience geography, and audience demographics (see Table 2).

Table 2. 1point3acres.com Traffic Statistics Analyzed by Alexa.com

Category	Statistic
Ranking: How is this site ranked related to other sites?	
Global	8,926
China	1,046
Monthly Unique Visitor Metrics (the U.S.): The estimated number of unique people who visited this site over the past 30 days	115,456
Audience Geography: Percentages of the site's visitors' location	
China	75.2%
United States	16.4%
Japan	4.8%
Audience Demographics: How similar is this site's audience to the general Internet population (with Medium Confidence Level)? Greatly Under-represented = 1; Under-represented = 2; Over-represented = 3; Greatly over-represented = 4	
Gender	
Male	2
Female	3
Age	
18-24	3
25-34	3
35-44	1
45-54	1
55-64	2
Has Children	
Yes	1
No	4
Education	
No College	1
Some College	1
Graduate School	4
College	1
Income	
$0-$30K	1
$30k-$60K	2
$60k-$100K	3
$100K+	4
Browsing Location	
Home	3
School	2
Work	2
Ethnicity	
African American*	1
Asian*	4
Caucasian	1
Hispanic*	1

* With low confidence level.

Note: Data retrieved from Alexa.com on Feb 26, 2018.

A traffic data analysis from Alexa.com on Feb 26, 2018, indicated that relative to other sites, 1P3A ranked as the 8,926th most popular site globally and as the 1,046th most popular in China. In the most recent 30-day period from that date, there were approximately 115,456 unique people who visited 1P3A. Among all the unique site visitors, 75.2 percent were in China, 16.4 percent were in the United States, and 4.8 percent were in Japan. Relative to the general Internet population, males were under-represented, whereas females were over-represented. Site visitors ages 18 to 34 were over-represented, and site visitors ages 35 to 64 were greatly under-represented. Site visitors who did not have children and who attended graduate schools were greatly over-represented in 1P3A. Regarding income, the site visitors who earned $60K to $100K yearly were over-represented, and those visitors who earned $100K+ yearly were greatly over-represented. The site visitors who browsed the website from home were over-represented compared to those who browsed while at school and work. Also, unique site visitors who were Asian were greatly over-represented compared to other ethnic groups, although the confidence level for Asian ethnicity was low.

Although neither Alexa.com nor the 1P3A website could confirm how many registered, active site users there were, the approximately 115,456 unique site visitors in 30 days indicated that 1P3A was a website that many people visited. In addition, there were 52,572 job-related discussion topics posted in 1P3A, meaning that the site users exchanged, shared, and used information about the job search process intensively. Thus, investigating messages on 1P3A may impart valuable results related to job search behavior that can be generalized to a specific group of Chinese people—Chinese international students who graduate from a U.S. higher education institution.

Institutional Review Board Consideration

1P3A is a public discussion forum. Although some topics and comments may have privacy settings that deny public access, most of the discussion topics and comments from 1P3A are publicly available. During the data collection process, I, as the data collector, acted as a site visitor. I treated the topics and comments that I could not view as private information and therefore did not collect any private information as part of the data. In addition, because I translated the forum discussion topics and comments from Chinese to English, the translation process will make it difficult to retrace any information back to the original posts or users. Data collected from 1P3A, therefore, is anonymous, and all personally identifiable information connected to data was either coded or destroyed.

Thus, because this study only collected public online messages in a de-identified manner on the 1P3A discussion forum and did not involve any interactions with individual online users, this study obtained an exemption from the University's Institutional Review Board.

Data Collection

To answer research questions concerning job search behaviors of recent Chinese graduates from U.S. colleges and universities between 2017 and 2018 and observe how the forum users interact with one other online, I investigated topics that the forum users posted on 1P3A about their personal experiences with job hunting.

The job-hunting experience topics were collected using Google Advanced Search. The keyword "Job-hunting experience (in Chinese)" was input into the section "Find pages with…" and into the box "all these words." The website address "www.1point3acres.com/bbs" was input into the section "Then narrow your results by…" and into the box "site or domain." More

importantly, to focus on posts published by new graduates of 2017 and 2018, “past year” was selected for the box “last update.” By clicking the bottom “Advanced search,” Google Advanced Search yielded 2,370 results in under 0.43 seconds. To show the most relevant results, Google Advanced Search automatically omitted results that were very similar to the results that were already displayed. Thus, there were 460 results displayed as of April 28, 2018.

Sampling

I utilized judgment sampling to sample 460 results. Whether a topic was chosen as a sample was primarily based on my judgment in deciding if the forum user who posted the topic was my intended subject—a Chinese international student in the United States and a new graduate of 2017 or 2018. Judgment was made based on the information given by the forum users and from the contents of the topic. Every forum user who posted a job-hunting experience topic would fill out general information such as job-finding period, major of study, academic degree, duration of working experience, job search method used, job type (internship or full-time), and indication of student status. The general information was displayed at the very top of the topic content (see Figure 2).

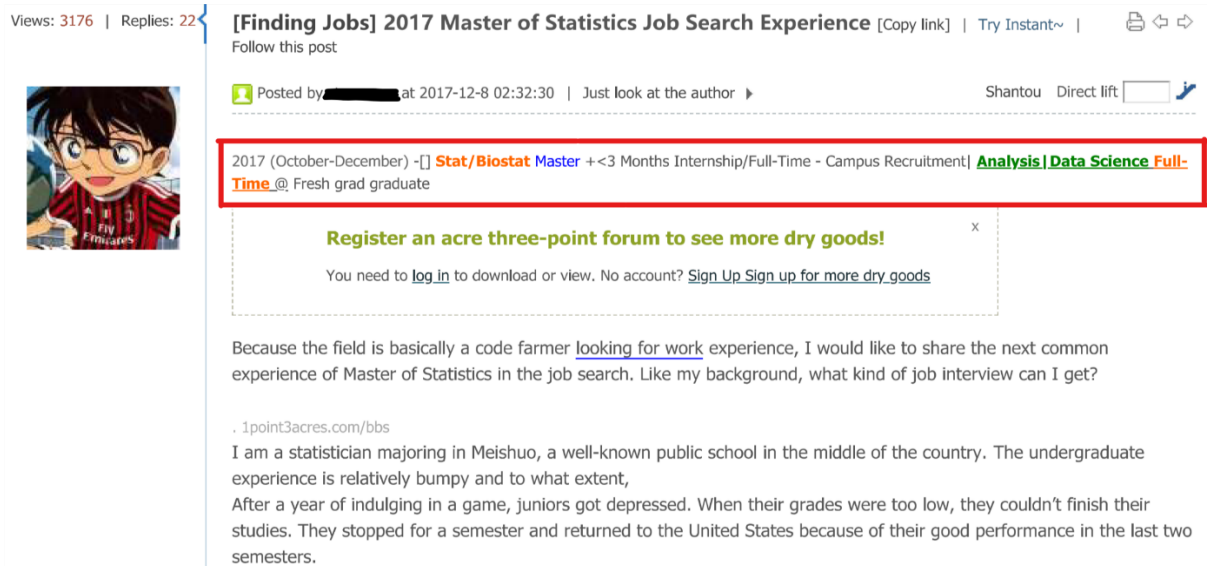

Figure 2. Screenshot of Google Translation Page of a Sample Topic Example

In Figure 2, the red highlighted box shows the general job-related information that the forum user filled out to post the topic. The Google Translation Page does not guarantee accuracy and fluency of translation.

After judgment sampling, 30 topics were posted by forum users who were Chinese international new graduates in the United States in 2017 or 2018. These 30 topics were all posted on the discussion board for "Looking for a job." All 30 topics, along with comments on each topic, were printed as PDFs (in the Chinese language). The PDFs of the 30 topics and 1,354 comments were stored on a USB and put in room ACAD 425A, located on Texas A&M University College Station Campus, where they will remain for three years to allow the data to be publicly available.

Content Analysis

Thirty sample topics and 1,354 comments were imported to Atlas.ti for qualitative data analysis. Open coding was first implemented in the form of line-by-line coding. By reading

through every word and sentence, a list of 51 codes were created that consisted of 825 messages (words and sentences). These codes were further grouped into 15 categories (e.g., academic background, work ability, job-hunting time frame, job search methods, a summary of job-hunting experiences, emotional expression, interaction). Finally, four themes were generated from 15 categories: *jobseeker*, *job search behavior*, *online information*, and *online social ties*. Themes and categories related to codes, operational definitions of each code, number of messages coded for each code, and examples of identified messages are depicted in Table 3).

Quantitative Analysis

Codes that indicate time (e.g., job-finding period and time started/ended job-hunting), number (e.g., number of programming questions prepared), and type (e.g., job type, highest degree obtained, and sex) were exported to an Excel spreadsheet and analyzed by SPSS. Results of the quantitative analysis are shown in the results section below. A discussion of the results together with content analysis follows.

This exploratory study investigating online job search behaviors of Chinese international new graduates from U.S. universities utilized content analysis to collect data from the public discussion forum 1P3A for both qualitative and quantitative analyses that were carried out by using Atlas.ti and SPSS.

Table 3. Themes, Categories, Codes, Operational Definition of Code, Number of Messages Coded for Each Code, and Examples of Identified Message Generated from Opening Coding

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Jobseeker	Subjects	Sex-Female	An indication that the subject is a female.	8	• I don't know if it is because I am a girl; Thanks for my boyfriend's caring; • At least, I have never experienced any girl advantage.
		Sex-Male	An indication that the subject is a male.	4	• Bro • Meeting my girlfriend.
	Academic Background	New graduate	An indication that the subject is a new graduate.	30	• *Filled out information: fresh grad
		Academic Degree	Highest academic degree obtained	30	• *Filled out information: • Master; • Bachelor; • PhD
		ChinaBachelor	Bachelor's degree obtained in China	12	• before coming to America, I was...; • I was graduated from domestic university; • 16fall came to America for master's program
		USABachelor	Bachelor's degree obtained in the U.S.	9	• I am a U.S. undergraduate; • I was in XXXX (the U.S.) university for undergraduate education.
		Enrollment	Year of school enrollment	21	• *Filled out information: • 2017; • 2016
	Work Ability	Duration of work experience	An indication of how much work experience the subject had.	28	• *Filled out information: • less than 3 months short internship/full-time job; No internship/full-time job; • 1 to 3 years;

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Jobseeker	Job Property	Full-time Job	The subject intended to find a full-time job.	17	• *Filled out information: full-time job.
		Internship	The subject intended to find an internship.	12	• *Filled out information: internship.
		Job Area	Job area is what the subject majored in.	30	• *Filled out information: • Computer science; • Civil Engineering; • Chemistry.
		Work location	Where the subject intended to work.	14	• *Filled out information: • Bay Area; • Greater Boston Area; • Greater Seattle Area.
		Job-hunting started	An indication of when the subject started job hunting.	17	• Since September of last year, I began gradually sending out resumes and attending interviews; • I officially began to search for a job was around Sept.20th; • January of last year began to search for job systematically.
		Job-hunting ended	An indication of when employment was obtained or when the job offer was signed	11	• December, obtained offers from XXX and XXX, searching for a full-time job is officially over; • It has been almost two weeks since I signed the offer; Took me a year to finally got a job.
	Job Search Method	Career fair	Searching for jobs through attending the career fair.	13	• Career fair; • School career fair; • Like the Grace Hopper Celebration. a kind of large career fair.
		Employee Referral	Searching for jobs through asking for employee referral.	26	• Finding employee referral; • Employee referral for 20 companies.

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Jobseeker	Job Search Method	Job Search Website	Searching for jobs through going to job search websites.	15	• Sending a private message on LinkedIn; • Sending resume on LinkedIn; • Nearly all of my employee referral was found on LinkedIn.
		Send out resumes widely	Searching for jobs through sending out resumes widely.	29	• I have sent out resumes to … countless companies; • Altogether, I have applied to 200 companies; • I would send out about 10 resumes a day, so adding together it is probably about more than 1000 resumes.
	Interview Invitation	IIcareer fair	Interview Invitation obtained through career fair.	34	• Below are the interview invitations obtained from the mid-September career fair: • School career fair; • After fall career fair I received the email.
		IIemployee referral	Interview Invitation obtained through employee referral.	19	• These two were all employee referred; • Below are all the interview invitations obtained from employee referral.
		IIfamily friend	Interview Invitation obtained through family and friend contacts.	6	• It is bit embarrassing to talk about this one, my dad helped me on finding this job, but it was too late when they inform me for an interview; • Referred by friends; • Referred by high school classmates; • Referred by friends and family.
		IIresumes	Interview Invitation obtained through sending out resumes.	13	• Sending out resumes widely; • Sending out resumes to the database; • Below are interview invitations obtained through sending out resumes widely. •

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Jobseeker	Interview Invitation	IISocial Media	Interview Invitation obtained through social media.	9	• Applying on Handshake website; • Sending out resumes widely on LinkedIn.
		IISocial Media	Interview Invitation obtained through social media.	9	• Applying on Handshake website; • Sending out resumes widely on LinkedIn.
	Job Offer Obtained Channel	Job Offer Obtained	An indication of an obtained job offer.	19	• I got an offer; • I got offers from XX and XXX companies; • So far XXX and XXX gave me offers.
		JOcareer fair	Job offer obtained through career fair.	9	• My experience of obtaining the [job] offer sounds very nice and easy, career fair of this year…; • The Grace Hopper Celebration; *filled out information.
		JOEmployee referral	Job offer obtained through employee referral.	19	• All of these [interview invitations] were referred, only one of them offered job; • *filled out information.
		JOResume	Job offer obtained through sending out resumes.	6	• Sending out resume …got an offer on that afternoon; • Sending resume to the database … already signed the offer; • *filled out information.
Online Information	Suggestions for Job Hunting	As early as possible	Suggestion to start job hunting as early as possible.	12	• Preparation must be early. October maybe should be counted as a very early period. As early as possible; • Proof by facts that sending out resumes early is very important.

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Online Information	Suggestions for Job Hunting	Confidence	Suggesting importance of confidence.	4	• Confidence is very important; • Must be confident; • confident.
		Confidence	Suggesting importance of confidence.	4	• Confidence is very important; • Must be confident; • confident.
		Persistence	Suggesting importance of persistence.	6	• Always be persistent and do not give up; • Hang on; • Hang on to the last minute.
		social connection	Suggesting importance of remaining or establishing a social connection.	10	• Talk more with someone who has experience; • Prepare programming questions and communicate with friends; • Thank parents and friends willing to hear my daily complaints.
	Summary of Job-hunting Experiences	Comparisons between Job Sources Used	Summary of experiences of comparing the effectiveness of different job search methods.	17	• Don't send out resumes widely, try best to find employee referral; • Employee referral = career fair >> sending out resumes widely; • Career fair > employee referral > sending out resumes widely.
		Experience-Job Search Website	Summary of experience of hunting for jobs on job search websites	14	• LinkedIn, a good place, when you see a suitable position, looking at your rank among applicants, if you are at the top 25%...strongly recommend considering this one; • I have added many Chinese programmers and many human resources of various companies on LinkedIn, private message will often talk about my background.

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Online Information	Summary of Job-hunting Experiences	Experiences-Employee Referral	Summary of experience of asking for employee referral.	14	• Apple must have employee referral; • Hope you can share more about experiences of networking to find employee referral—this is easy: alumni, alumni's friends, alumni's alumni and so on in a similar fashion.
		Experiences-Interview	Summary of experience of doing interview.	16	• How to prepare for an interview; • How to interview; • The interview is, in fact, an interactive process of communication rather than a process of solving programming questions.
		Experiences-resumes: Sending	Summary of experience of sending out resumes.	3	• If the resume is not strong, there is no need to send it out widely, seriously not going to work; sending out resumes widely: have to send it out as many as possible, spend more time on it although changes are small.
		Experiences-resumes: Writing	Summary of experience of writing resumes	9	• I think my strong point is that my resume was well-written. I embellished my not-too-outstanding experience and made it sound very attractive; • Resume is a door opener that I strongly recommend you spend more more more more time on [writing] resume.
	Information Exchange	Information request	Asking for information (other than asking for a suggestion) from other forum users.	79	• Which school did you get your Master's degree? • Did you send out resume again after you were rejected? • Do you know about salary situation around Bay area? • Where did you find an unpaid internship?

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Online Social Ties	Emotional Expression	Emotional Stress	Expression of feeling emotional stress while hunting for jobs.	11	• I felt defeated when I started interviewing … every time I failed [the interview] I needed to encourage myself; • I saw it with my own eyes that some girls were so stressed that they suffered from severe depression; • seriously feeling depressed, worried, and not wanting to attend class but sleeping all day every day.
		Emotional Support	Expression of showing emotional support to other forum users.	21	• Hang on and don't give up…coming to America to study, practice, work is only part of your life, although very important, which shouldn't be all of life; • You are already very excellent, you tried, and soon the luck will come to you; • Lastly, I sincerely hope that you can cheer up, it is now January, and there are so many people out there find internships in March and April; • It is okay; life is long, it will become better.
	Interaction	Friend request	Request to be connected with or communicate with another forum user outside of the forum by providing an email address or social media contact information.	22	• If you are interested, we can chat privately; • Please add me on XXChat, my account is XXX. I got XX internship too, please send me a private message about your contact information; • I will be in L.A. this summer, welcome to meet me there.

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Online Social Ties	The good, the bad and the ugly of the forum	Forum: help	An indication of help obtained from forum while hunting for jobs.	8	• 1point3acres, our homeland, why not use it wisely? Every time I observe that one company starts to give more interview invitations, I would know that the company is recruiting now; • I find employee referral through the forum; You can post a topic on the forum asking upperclassmen to review your resume and provide suggestions.
		Forum-bad	Statements of what is bad about browsing the forum content.	5	• Sometimes I think the more I browse the forum, the more hopeless I feel; People only report good things that happened but never report bad things. It creates illusions. I never look at topics about obtaining offers from Facebook, LinkedIn, Apple, Google. There was no value for people like me who do not even have an interview, only making me suspect my life more.
		Studying overseas purpose	Statements of reasons for studying aboard related to job hunting.	6	• Weren't many people going to America and enrolled in master's program just to get a job; • If undergraduate stage's goal is going overseas for master's degree and enter Facebook, LinkedIn, Apple, Google; • The nature of American master's program is spending money on tuition which pays for OPT (Optional Practical Training).

Table 3 Continued

Themes	Categories	Codes	Operational Definition	Number of Messages	Examples of Identified Messages
Online Social Ties	The good, the bad and the ugly of the forum	Gender advantage	Arguments related to females having gender advantages in hunting for jobs.	11	• Activities like The Grace Hooper Celebration is giving girls a shortcut; • I just want to know are there any boys who get that many interview invitations?
		Reciprocal Sharing	Statements that clearly indicate that subjects share job-hunting experiences because they wanted to contribute to the forum because of what they have obtained from the forum.	7	• I have benefited tremendously from the forum over the past year, so I also want to share with the forum friends my own experience and lessons learned; • I got so much help when I was viewing topics about interview experiences in the forum, now I am going to share my personal job-hunting experience.

RESULTS AND DISCUSSION

Results

Jobseekers: subjects

Thirty forum users who posted their job-hunting experiences between 2017 and 2018 were all Chinese international new graduates from U.S. universities in either 2017 or 2018. Based on coded messages, each subject's sex, and academic background information—the year of school enrollment and highest obtained academic degree—are shown in Table 4.

Table 4. The Frequency of Sex and Academic Background Information

Variable		Frequency	Percent	Valid Percent
Sex				
Valid	Female	10	33.3	33.3
	Male	20	66.7	66.7
	Total	30	100.0	100.0
Enrollment Year				
Valid	2011	1	3.3	4.8
	2012	1	3.3	4.8
	2013	1	3.3	4.8
	2015	1	3.3	4.8
	2014	3	10.0	14.3
	2016	5	16.7	23.8
	2017	9	30.0	42.9
	Total	21	70.0	100.0
Missing	System	9	30.0	
Total		30	100.0	
Highest Degree Obtained				
Valid	PhD	2	6.7	6.7
	Bachelor's	4	13.3	13.3
	Master's	24	80.0	80.0
	Total	30	100.0	100.0
Bachelor's Degree Obtained in the U.S.A.				
Valid	Yes	12	40.0	50
	No	12	40.0	50
	Total	24	80.0	100.0
Missing	System	6	20.0	
Total		30	100.0	

Of all 30 subjects, 10 identified as females, and 20 identified as males based on the topic content they wrote and profile information they filled out. Based on coded messages, among the 21 subjects who reported their enrollment year, nine people enrolled in schools in 2017, five people enrolled in 2016, one person enrolled in 2015, three people enrolled in 2014, and one person each enrolled from 2013 to 2011, respectively. Of the 30 subjects, most of them (n = 24) obtained master's degrees, 4 people obtained bachelor's degrees, and 2 people obtained Ph.Ds. Among 24 subjects who mentioned their studying abroad experiences, half of them indicated that they received their undergraduate education in the United States, while another half said they finished undergraduate courses in China.

Jobseekers: job property

The 30 subjects searched for jobs in the U.S. job market upon their graduations. As U.S. international students, they had to obey the OPT employment requirements when they searched for jobs: (1) their job areas must be closely related to their majors; (2) they can apply for full-time or part-time, paid or unpaid jobs or internships; (3) they had to stay in the United States searching for jobs under OPT status; they could only go back to China once they obtained a job offer. Based on information the subjects filled out, the results of job areas they worked in, places they would work at, and types of job they were searching for are shown in Table 5.

Table 5. The Frequency of Job Areas, Work Location, and Job Types

Variables		Frequency	Percent	Valid Percent
Job Area				
Valid	Chemistry	1	3.3	3.3
	Civil Engineering	1	3.3	3.3
	Computer Engineering	1	3.3	3.3
	Electrical Engineering	1	3.3	3.3
	Mechanical Engineering	1	3.3	3.3
	Stat/Biostat	1	3.3	3.3
	Management Information Systems	2	6.7	6.7
	Computer Science	22	73.3	73.3
	Total	30	100.0	100.0
Work Location				
Valid	Southern California	2	6.7	12.5
	Texas	2	6.7	12.5
	Greater Seattle Area	3	10.0	18.8
	Other	4	13.3	25.0
	Bay Area	5	16.7	31.3
	Total	16	53.3	100.0
Missing	System	14	46.7	
Total		30	100.0	
Job Type				
Valid	N/A	1	3.3	3.3
	Internship	13	43.3	43.3
	Full-time job	16	53.3	53.3
	Total	30	100.0	100.0

According to the frequency table shown above, all the subjects were STEM majors. Among the 30 subjects, 73.3 percent of subjects (n = 22) majored in computer science, meaning their intended job areas were associated with computer science. Except for management information systems, which had two subjects, other majors such as chemistry, civil engineering, mechanical engineering only had one subject. Of the 16 subjects who reported their ideal work location, 31.3 percent of them (n = 5) chose the Bay Area, and 18.8 percent of them (n = 3) chose the Greater Seattle Area. There were 12.5 percent of subjects who chose Southern

California (n = 2) and Texas (n = 2). The other 25 percent of subjects (n = 4) selected other places. Regarding the types of job that the subjects planned to search for, save for one person who did not indicate his intended job type, 13 subjects searched for internships while 16 subjects searched for full-time jobs.

Jobseekers: work ability

Thirty subjects with different levels of academic degrees had accumulated different amounts of working experiences and prepared different amounts of programming questions before hunting for jobs upon their graduations. Crosstabulations of working experiences and programming question preparation by academic degree are shown in Table 6 and Table 7.

Table 6. Crosstabulations of Working Experience and Programming Question Preparation by Academic Degree: Highest Degree Obtained * Duration of Related Working Experience Crosstabulation

Highest Degree Obtained		Duration of Related Working Experience					Total
		1-3 yrs	3-5 yrs	3 months-1 yr	Less than 3 months	None	
Bachelor's	Count	0	0	0	4	0	4
	% within Highest Degree Obtained	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	% of Total	0.0%	0.0%	0.0%	14.3%	0.0%	14.3%
Master's	Count	1	1	2	7	11	22
	% within Highest Degree Obtained	4.5%	4.5%	9.1%	31.8%	50.0%	100.0%
	% of Total	3.6%	3.6%	7.1%	25.0%	39.3%	78.6%
PhD	Count	0	0	0	1	1	2
	% within Highest Degree Obtained	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%
	% of Total	0.0%	0.0%	0.0%	3.6%	3.6%	7.1%
Total	Count	1	1	2	12	12	28
	% within Highest Degree Obtained	3.6%	3.6%	7.1%	42.9%	42.9%	100.0%
	% of Total	3.6%	3.6%	7.1%	42.9%	42.9%	100.0%

Table 7. Crosstabulations of Working Experience and Programming Question Preparation by Academic Degree: Highest Degree Obtained * Number of Programming Questions Prepared Crosstabulation

Highest Degree Obtained		Number of Programming Questions Prepared							Total
		200	250	300	400	50	500	550	
Bachelor's	Count	0	0	1	0	1	0	0	2
	% within Highest Degree Obtained	0.0 %	0.0 %	50.0 %	0.0%	50.0 %	0.0 %	0.0 %	100.0 %
	% of Total	0.0 %	0.0 %	6.3 %	0.0%	6.3 %	0.0 %	0.0 %	12.5 %
Master's	Count	3	1	4	4	0	0	0	12
	% within Highest Degree Obtained	25.0 %	8.3 %	33.3 %	33.3 %	0.0 %	0.0 %	0.0 %	100.0 %
	% of Total	18.8 %	6.3 %	25.0 %	25.0 %	0.0 %	0.0 %	0.0 %	75.0 %
PhD	Count	0	0	0	0	0	1	1	2
	% within Highest Degree Obtained	0.0 %	0.0 %	0.0 %	0.0%	0.0 %	50.0 %	50. 0%	100.0 %
	% of Total	0.0 %	0.0 %	0.0 %	0.0%	0.0 %	6.3 %	6.3 %	12.5 %
Total	Count	3	1	5	4	1	1	1	16
	% within Highest Degree Obtained	18.8 %	6.3 %	31.3 %	25.0 %	6.3 %	6.3 %	6.3 %	100.0 %
	% of Total	18.8 %	6.3 %	31.3 %	25.0 %	6.3 %	6.3 %	6.3 %	100.0 %

Based on the crosstabulation table, of the 28 subjects who reported their durations of work experience, 42.9 percent of them (n = 12) had less than three months of internships or full-time jobs, and the same percentage of subjects (n = 12) had no internships or full-time jobs. Two subjects had work experience of 3 months to 1 year, one subject had 1 to 3 years of work experience, and another one had 3 to 5 years of work experience. Subjects with bachelor's degrees had all worked or practiced for less than three months. While half of the subjects with

master's degrees had no work experience, 31.8 percent of them (*n* = 7) had less than three months of work experience. Interestingly, subjects with work experience of 1 to 3 years and 3 to 5 years both had master's; the two PhD subjects had either less than three months or no work experience.

Out of 30 subjects, only 16 of them clearly reported preparing a number of programming questions for job hunting. However, it should be noted that not all job areas need to prepare for programming questions, such as mechanical engineering and biostatistics. Based on the results, subjects generally prepared for 200 (*n* = 3), 300 (*n* = 5), or 400 (*n* = 4) questions, and most of those subjects were Master graduates (*n* = 11). Some outliers are that one bachelor's degree subject only prepared 50 questions. In sharp contrast, two PhD subjects prepared 500 questions or more.

Job search behavior: job-finding time frame

The 30 subjects were new graduates in either 2017 or 2018. As OPT students, they had at least 90 days, or at most 150 days, upon graduation to legally find jobs in the United States. The job-finding period of the subjects is shown in the Table 8.

Table 8. The Frequency of Job-finding period

	Job-finding period	Frequency	Percent	Valid Percent
Valid	Jan-Mar/2017	1	3.3	3.3
	Apr-Jun/2018	2	6.7	6.7
	Jul-Sep/2017	5	16.7	16.7
	Jan-Mar/2018	6	20.0	20.0
	Oct-Dec/2017	16	53.3	53.3
	Total	30	100.0	100.0

According to the frequency table above, 53.3 percent of the subjects (*n* = 16) had obtained job offers by December 2017. Twenty percent of them (*n* = 6) expected to find jobs by March 2018, 16.7 percent of them (*n* = 5) planned to find jobs by September 2017, 6.7 percent of

subjects (n = 2) had deadlines of June 2018 on their job-finding period, and 3.3 percent of them (n = 1) expected to obtain job offers by March 2017.

The timing of job hunting is very important. Some people started hunting for jobs quite early, while others started job hunting relatively late. Based on the 90-day legitimate OPT job-finding period, those who started searching for jobs earlier had more time than those who started late. Below is the crosstabulation table (Table 9) that shows job-hunting starting time of subjects in the four job-finding periods.

Table 9. Crosstabulation of Time Started Job Hunting by Job-finding period: Job-finding period * Time Started Job Hunting Crosstabulation

Job-finding period		Time Started Job Hunting								Total
		Jan/17	Jul/17	May/17	Nov/16	Oct/16	Oct/17	Sep/16	Sep/17	
Apr-Jun/18	Count	0	0	0	0	0	1	0	0	1
	% within Job-finding period	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
Jan-Mar/18	Count	1	0	0	0	0	0	0	1	2
	% within Job-finding period	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	100.0%
Jul-Sep/17	Count	0	0	1	1	0	0	1	0	3
	% within Job-finding period	0.0%	0.0%	33.3%	33.3%	0.0%	0.0%	33.3%	0.0%	100.0%
Oct-Dec/17	Count	0	1	1	0	1	1	0	7	11
	% within Job-finding period	0.0%	9.1%	9.1%	0.0%	9.1%	9.1%	0.0%	63.6%	100.0%
Total	Count	1	1	2	1	1	2	1	8	17
	% within Job-finding period	5.9%	5.9%	11.8%	5.9%	5.9%	11.8%	5.9%	47.1%	100.0%

Table 9 indicates that out of 30 subjects, 17 subjects stated their starting time of job hunting. The subject whose job-finding period was on April and June 2018 started job hunting on

October 2017, which was 6 months early. Subjects of the same job-finding periods showed different patterns on the time they started searching for jobs. Two subjects whose job-finding period was between January and March 2018 showed a drastic difference in job-hunting starting times. One person started hunting for a job 1 year ahead of time, whereas another one started searching for a job only 4 months ahead. For subjects whose job-finding period was between July and September 2017, two people began searching 9 months and 1 year ahead, but another one only started 2 months early. Among 11 subjects whose job-finding period was between October and December 2017, one subject began job hunting 1 year early and two other subjects started a few months ahead, but 63.6 percent of subjects (n = 7) began searching only 1 month before their official 90-day job-finding period.

Job search behavior: job search method

Subjects used multiple job search methods while hunting for jobs. The job methods subjects used and the number of subjects who tried each job search method are presented in Table 10.

Table 10. Frequencies of Job Search Methods Used

Job Methods Used for Job Hunting	Responses		Percent of Cases
	N	Percent	
Career Fair	17	20.5%	56.7%
Send Out Resumes Widely	23	27.7%	76.7%
Job Search Website	16	19.3%	53.3%
Employee Referral	27	32.5%	90.0%
Total	83	100.0%	276.7%

Based on Table 10, 30 subjects used four job search methods hunting for jobs, which include career fairs, sending out resumes widely, job search websites, and employee referrals. Altogether, these four job search methods were used 83 times by the 30 subjects. Some job search methods were used more frequently by subjects than others. Employee referral was used

the most; 90 percent of the subjects (*n* = 27) tried this method while 10 percent (*n* = 3) of the subjects did not. Sending out resumes widely was the second most favorable job search methods, and 76.7 percent of the subjects (*n* = 23) used it while 23.3 percent (*n* = 7) of the subjects did not. When subjects said that they sent out resumes widely, they meant that they sent literally dozens or hundreds of resumes out. The number of resumes sent out by subjects is shown in Table 11. A little more than half the subjects used career fairs (*n* = 17) and job search websites (*n* = 16).

Table 11. Number of Resumes Subjects Sent Out

Number of Resumes		Frequency	Percent	Valid Percent
Valid	30	2	8.7	18.2
	50	3	13.0	27.3
	80	1	4.3	9.1
	100	1	4.3	9.1
	200	3	13.0	27.3
	1000	1	4.3	9.1
	Total	11	47.8	100.0
Missing	System	12	52.2	
Total		23	100.0	

Of the 23 subjects who sent out resumes widely to search for jobs, 11 of them clearly indicated how many resumes they sent out. Two subjects sent out 30 resumes, three subjects sent out 50 resumes, one person sent 80 resumes, and another sent 100 resumes over the job-finding periods. There were three subjects who sent out 200 resumes. Surprisingly, one subject sent out 1,000 resumes during her job-finding period.

Job search behavior: interview invitation

A job search is a lengthy, tedious, and time-consuming process. For every position applied for, an individual has a chance to receive an interview invitation from employers. Different job methods used will result in more or fewer chances of receiving interview invitations from applied-to companies. The number of interview invitations that subjects

obtained through four popular job search methods—career fairs, send out resume widely, job search websites, and employee referrals—were analyzed. The results are presented in Table 12. As seen in Table 12, of the 17 subjects who used career fair searches for jobs, 76.5 percent of subjects (n = 13) reported they received interview invitations. Three subjects received only one interview opportunity, and four subjects received two interview invitations. One person received four interview invitations. Two subjects received five, and two other subjects received seven interview invitations. One person reported obtaining nine interview invitations through attending career fairs.

Table 12. Number of Interview Invitations Obtained through Each Job Search Method

Variables		Frequency	Percent	Valid Percent	Cumulative Percent
Number of Interview Invitations Obtained Through Career Fair					
Valid	1	3	17.6	23.1	23.1
	2	4	23.5	30.8	53.8
	4	1	5.9	7.7	61.5
	5	2	11.8	15.4	76.9
	7	2	11.8	15.4	92.3
	9	1	5.9	7.7	100.0
	Total	13	76.5	100.0	
Missing	System	4	23.5		
Total		17	100.0		
Number of Interview Invitations Obtained Through Employee Referral					
Valid	1	1	3.7	7.7	7.7
	2	5	18.5	38.5	46.2
	3	2	7.4	15.4	61.5
	5	3	11.1	23.1	84.6
	6	1	3.7	7.7	92.3
	8	1	3.7	7.7	100.0
	Total	13	48.1	100.0	
Missing	System	14	51.9		
Total		27	100.0		
Number of Interview Invitations Obtained Through Sending Out Resumes Widely					
Valid	1	3	13.0	42.9	42.9
	2	1	4.3	14.3	57.1
	3	1	4.3	14.3	71.4
	6	1	4.3	14.3	85.7
	40*	1	4.3	14.3	100.0
	Total	7	30.4	100.0	
Missing	System	16	69.6		
Total		23	100.0		
Number of Interview Invitations Obtained Through Job Search Website					
Valid	1	1	6.3	25.0	25.0
	2	1	6.3	25.0	50.0
	3	1	6.3	25.0	75.0
	5	1	6.3	25.0	100.0
	Total	4	25.0	100.0	
Missing	System	12	75.0		
Total		16	100.0		

*That subject sent out 1,000 resumes.

Of the 27 subjects who used employee referrals during the job search process, 48.1 percent of them (n = 13) reported receiving interview invitations. Only one subject received just one interview invitation, 19.2 percent of subjects (n = 5) received two interview invitations, and 11.5 percent of subjects (n = 3) received five interview opportunities. One person received eight interview invitations through using employee referral.

Compared to the job search methods of attending career fairs and using employee referrals, sending out resumes widely and using job search websites were not effective in terms of obtaining interview invitations from recruiters. Of the 23 subjects who sent out resumes widely to search for jobs, only 30.4 percent of them (n = 7) reported that they obtained interview invitations. Among those seven subjects, three people received only one interview opportunity. Other subjects had chances to interview at two, three, and six companies. There was one person who received 40 interview invitations, but it required sending out 1000 resumes.

Of the 16 subjects who used job search websites to search for jobs, only 25 percent of them (n = 4) reported that they received job interviews from job search websites. These four subjects received one, two, three, and five interview invitations, respectively.

Job search behavior: job offer

After searching for jobs and interviewing at companies to which they applied, 25 subjects received and signed job offers, which indicated that they had obtained temporary employment successfully in the U.S. job market as an OPT student. Whether the subjects obtained job offers and the job search methods that each subject used to obtain a job offer are presented in Table 13.

Table 13. Job Sources Used for Job Offers

Variables		Frequency	Percent	Valid Percent
Obtained an Offer				
Valid	NO	5	16.7	16.7
	YES	25	83.3	83.3
	Total	30	100.0	100.0
Source Used for Obtaining the Job Offer				
Valid	Other	1	4.0	4.0
	Send out resume widely	3	12.0	12
	Career fair	7	28	28
	Employee Referral	14	56	56
	Total	25	100.0	100.0

Of the 25 subjects who obtained employment, 56 percent of the subjects (n = 14) obtained employment by using employee referrals, and 28 percent of them (n = 7) who attended a career fair eventually received job offers. Twelve percent of subjects (n = 3) obtained job offers by sending out resumes widely. There was one subject who did not specify the job search method used to obtain employment.

Discussion

Based on results of data analyzed by SPSS and qualitative words and sentences coded through Atlas.ti. from 30 subjects' job-hunting experience posts on the 1P3A, discussion of the results and interpretations of words and sentences is generated to understand, in depth, who the jobseekers were, how intense the job-searching processes were, how effective each job search method used was, what information was sought, why information was shared with online strangers, and how the subjects interacted and communicated with other jobseekers online. The 30 subjects are given pseudonyms throughout the discussion. In addition, the five propositions

listed below are examined to determine whether they are supported by the evidence found in the qualitative and quantitative data:

Proposition 1: Subjects tend to use resumes as their primary job search methods among all other job search methods.

Proposition 2: Subjects who use personal contacts to search for jobs use all types of personal ties regardless of strong or weak.

Proposition 3: Subjects are more likely to search for jobs through the Internet job search than through the traditional job search methods.

Proposition 4: Subjects tend to use the Internet to contact with previously unknown people and to develop weak ties for job search.

Proposition 5: Subjects tend to exhibit behaviors or feelings of reciprocal obligation and indebtedness when searching for jobs.

Jobseekers

All subjects of the current study were highly-educated and high-skilled laborers whose fields of work were in STEM (see Table 4). In addition, most of them worked in states where big-name companies are located. For example, Amazon is in Seattle; LinkedIn, Facebook, Google, and Apple are located in the Bay Area. The STEM fields have always been the second most favorable field of study among Chinese international students in U.S. colleges. According to Open Doors Data, since the fiscal year of 2009-2010, the proportion of Chinese international students majoring in STEM fields has never been below 18 percent (Institute of International Education 2017c). However, between 2009 and 2017, the largest proportion of Chinese international students have chosen to major in business/management. For example, in the fiscal year of 2016-2017, the percentage of Chinese international students majoring in Business/management reached 23.1 percent, whereas, comparatively, 18.7 percent of them majored in a STEM field (Institute of International Education 2017c).

Why did no business/management students or students of other majors share job-hunting experiences? Why, even among STEM majors, did most of the subjects major in computer

science? The forum organizer placed this simple answer at the very top of the job-hunting board: "No people of other majors post in the forum; and so far, computer science is the best and the only major to easily get a job." In addition, according to the U.S. Department of Commerce 2017 STEM jobs summary report (Noonan 2017:3), "Across all levels of educational attainment, the largest group of STEM jobs is within the computer and math fields."

Moreover, because of high earnings and the low unemployment rate for STEM workers, STEM Chinese students were the most active jobseekers in the forum. The 2017 STEM jobs summary report indicated that on average, STEM workers with graduate degrees earned over $45 per hour compared to non-STEM workers who earned no more than $35 per hour. Comparatively, STEM workers with bachelor's degrees only make, on average, $39.28 per hour (Noonan 2017). The high payment for STEM workers with advanced degrees may explain why a large proportion of the sample subjects (n = 26) were graduate students. In addition, the unemployment rate was 2.5 percent for STEM workers in 2015 compared to 5.5 percent for non-STEM workers (Noonan 2017). Without question, since there are more job opportunities and a better payoff for STEM workers, more students are attracted to major in a STEM field because "a STEM degree is the typical path to a STEM job" (Noonan 2017:7). Especially if a student's purposes in obtaining college degree is to find employment, majoring in STEM is the wisest decision. One replier responded to Diana who failed to obtain employment after a half-year of job searching and pointed out the nature of getting an American master's degree: "Weren't many people going to America and are enrolled in master programs just for getting a job? You don't have to mind too much about all that school stuff." It is very reasonable for Chinese international students to feel that a master's degree is a stepping stone to employment promising considerable

income in the United States. Becker (2017) pointed out that in full-time employment, computer science graduates, for example, on average earn $63,281 a year, or $5,273 per month, with 1 to 4 years of working experience in the U.S. job market, which is four times higher than what they can earn in China.

For subjects who study abroad at the master's level, 2 years in a master's program may not provide them with much needed knowledge but rather provides time for job-hunting preparation. To apply for jobs, subjects had to write resumes no matter of types of job research methods they used. Also, some subjects who intended to find either full-time or internship employment did realize that the lack of work experience was a shortcoming. Most of the sample subjects had zero or less than three months of working experience (see Table 6). Others also stressed the importance of completing one or two "projects." Most of them suggested other online jobseekers to utilize school days to accumulate work experience and exercise professional skills. Most importantly, subjects who majored in computer science intending to find general computer programming jobs must prepare programming questions that will be asked during the job interviews. As Table 7 indicates, subjects worked hard on preparing programming questions that they would repeatedly practice sets of programming questions to make sure they had mastered the questions. Most computer science students started preparing for programming questions long before or right after their first semester of master's course began. These job-applying preparations consumed a large amount of time from a subject during the school days.

Overall, this section discussed job areas of the subjects and explained why all the subjects were in the STEM field. Information that subjects and other online users posted on the 1P3A adds understanding to why these students obtain advanced degrees in the United States. Overall,

the subjects of the current study—recent Chinese graduates—have been jobseekers since long before they were college students. Especially for master's level students, their objectives were not to obtain an education in America but to obtain employment. They utilized time enrolled in graduate schools to prepare for job hunting.

Job search behaviors

The official legal time for Chinese international students to place into jobs is very limited. Thus, recent Chinese graduates usually begin to search for jobs ahead of the 90-day job-finding period. According to Table 9, some subjects started job hunting quite early compared to the rest of other subjects, such as 9 months or even 1 year before the 90-day official job-finding period. All these "early birds" stressed the importance of starting the job hunt as early as possible. For example, Zack is a male who graduated with a master's degree in computer science and who started looking for a job a year ahead of graduation. He suggested that the most important thing to pay attention to when searching for jobs is "[start] as early as possible. You do not have to be the first one to send out a resume, but you should strive to start preparing early."

The early birds thought they benefited from starting job hunting early and stressed the importance of timing in sending out resumes. In addition, because they spent such a long period of time job searching, they generally shared more interview experiences and suggestions than others who spent less time. Conversely, none of those subjects who started finding jobs 1 or 2 months ahead of the 90-day hunting period mentioned anything about beginning "as early as possible." Some of them realized that they were running out of time. Unlike the early birds, who were confident in sharing about their job-hunting experiences, some of the late starters felt anxiety, disappointment about the search process, and displeasure with the job search results.

Finding employment can be a frustrating process. Because subjects were recent Chinese graduates who were generally young people with little practical social experiences, it was very challenge for them to find jobs within only 90 days. If they did not start the job-hunting process earlier, it was very likely that they would experience much more difficulties and frustrations than those who started finding jobs much earlier. For instance, Ge, a male with a master's degree in computer science, intended to find a full-time job but failed to obtain employment because he started job hunting quite late—only about a month a head of the 90-day unemployment period. He reasoned: "Because I paused and pondered when I thought about finding jobs and I was procrastinating, I started to prepare for job hunting and programming questions in May of this year, and did not send out resumes until September." Not only did he worry about the lack of available time for finding a job, he also blamed his job-hunting failure on other factors: "I feel the [job-hunting] situation this year is bad and indeed my level is not good enough." As the result, he gave up on his goal of finding a job in the U.S.

Although Ge's job-hunting experiences make starting late in the job-hunting process appear harmful to jobseekers, it would be hasty to imply any associations between the job-hunting starting time and job search results. After all, other late starters had a successful job-hunting process and results and did not complain about being late. Thus, the timing of beginning job hunting may not be the causal factor; instead, it is one's capability. Those early birds may be honor students who may be better at planning out life and managing time, which results in having desirable job search results. Even though the early birds may not be top students at schools, they show persistent and hard-working attitudes and make adequate preparation and constantly improve their shortcomings. With 9 months to 1 year of preparation, there was no

doubt that the job search results would turn out great. By sharp contrast, some of the late starters spent less time preparing for programming questions, tried one or two job search methods, sent out only a few resumes, procrastinated, and gave up easily. Therefore, the failure of a job search may be attributed more to individual ability; also, being aware of the time frame permitted for legal job hunting is also very important to foreign students in the United States.

Subjects not only differed in length of time they spent job hunting but also differed in types of job search methods they used. In general, four job search methods were used: *career fairs*, *send out resumes widely*, *job search websites*, and *employee referral*. Among the four job search methods, career fairs and send out resumes widely are traditional, formal methods, whereas employee referral is an informal method, and job search websites is an Internet job search. Most of the subjects tried at least two job search methods.

Table 10 showed that employee referral was the most used job search method by recent Chinese graduates. Employee referral is an internal, cost-effective recruitment method employed by companies or organizations that encourages employees to refer their friends and relatives to apply for open positions (Shinnar, Young, and Meana 2004). Studies indicated that using employee referrals are beneficial to both employers and jobseekers (Burks et al. 2015; Kugler 2003; Reingen and Kernan 1986; Shinnar et al. 2004). Compared to the uses of formal recruiting methods, employee referral as an informal source provides better matches, lowers monitoring costs, and serves as a useful screening device for corporations. For recent Chinese graduates, contacting family, friends, and relatives is the least expensive job search method. In addition, if employee referral is known as a preferred recruitment method used by a company, it would be best for jobseekers to ask the employee they know for a recommendation referral letter. Hellen, a

male with a master's degree in computer science who intended to find a full-time job, pointed out that companies like Apple might employ the employee referral as a recruiting method. He explained his personal experience as follows:

> "I sent out resumes to Apple by myself multiple times but had no responses, and I eventually contacted a senior classmate for employee referral. And I found out that for Apple, you have to use employee referral… Feel like they have their own pool in which they pool out candidates from employee recommended people."

However, other subjects pointed out that using an employee referral is not a panacea; whether it works depends on jobseekers' job areas and companies they apply to. For example, Spencer, a male with a master's degree, intended to find a full-time job in the field of data analysis. He discussed his failed experiences using employee referrals. Spencer had asked for employee referrals and applied for Uber, Microsoft, Discover, Amazon, Groupon, Wayfair, IBM, JP Morgan. He was rejected by all companies except Amazon which offered him an interview. In the end, however, Spencer still highly encouraged other online jobseekers to ask for employee referrals although the chances were limited.

In sharp contrast, Simpson is a male with a master's degree in mechanical engineering. He pointed out that employee referrals did not work in his field as well as it might in the field of computer science field. Thus, instead of spending time on finding employee recommenders, he suggested people to strengthen their resume contents and professional skills. Therefore, the usefulness of the employee referral method in increasing one's chance of receiving interview invitations largely depends on recruiters. If applied-to companies encourage employee referral, the method will work like magic; otherwise, using it will be a waste of time.

Subjects who used the employee referral method generally reported that they had contacted with upperclassmen, undergraduate schoolmates, graduate schoolmates, ethnic Chinese people (including Chinese who obtained foreign nationality), employee recommenders on the 1P3A, and alumni and Chinese people on online social media. Therefore, subjects not only used personal contacts of who they knew but also used contacts who were simply tied to them because of ethnicity or alumni relations. However, because subjects did not describe how closely they were socially connected to the upperclassmen, undergraduate schoolmates, and graduate schoolmates, it would be difficult to classify the strength of ties that subjects had in relation to the known people. Also, the strength of ties between two known persons is largely subjectively defined. However, it could be argued that subjects and those schoolmates have known one another—although they may not necessarily stay in touch—for a longer time than the subjects have known their online contacts. Thus, Proposition 2 cannot be either supported or rejected because of the lack of evidence in defining the strength of ties between the subjects and the contacts. In addition, because employee referral was the most used job search method by the subjects, Proposition 1, which suggests that subjects tend to use resumes as their primary job search method among all other job search methods, is not supported.

Although Proposition 1 is not supported in the current study, the use of resumes still seems to be an important job search method for the subjects. Over 70 percent of the subjects sent out resumes widely during their job-searching process, which made it the second favorite job search method used. As observed from Table 11, subjects who used this method sent out plenty of resumes, making the use of the resume method more like the act of leaving the job search to chance. Although some subjects realized the small possibility for success in using resumes

during the job-searching process, they insisted on doing it because the chance was there. Zack, as the early bird who accumulated much job-hunting experience, emphasized the need to send out resumes widely: "Send out resumes widely, and it must be widely. Spend more time on it. Yes, the chances are small, but if every resume has 0.001% of chance, do you want it or not? You'd want to have it."

Because subjects had to send out a huge number of resumes, almost all of subjects who used this method sent out resumes through the Internet using either LinkedIn or company websites. In addition, subjects who intended to contact with alumni and ethnic Chinese to ask for employee referral utilized the Internet channel. These are typical examples of people using mixed methods of the traditional and the Internet job search to search for jobs, and they illustrate how the technology of the Internet transforms the traditional job search process for jobseekers. Regarding sending out resumes, using the Internet is much more efficient and cheaper than sending them through the mail; moreover, many companies today only allow online applications. Regarding contacting alumni, using social media and searching websites to find the most updated contact information may be more reliable, quicker, and easier than finding it through a college's alumni network. Further, using the Internet might be the only way to contact ethnic Chinese strangers, which were what some subjects did or suggested that one do. Amy and Guo had master's and Ph.D. degrees in management information systems and chemistry, respectively. They had done and suggested other online users to go to LinkedIn and add Chinese people. Joana and John who were both in computer science did the same. They were looking for people on LinkedIn based on the only criterion that the people should be ethnic Chinese. Thus, these subjects were contacting previously unknown people and trying to develop weak ties by asking

for employee referrals. Therefore, Proposition 4 is supported, which hypothesized that subjects tend to use the Internet to contact previously unknown people and to develop weak ties for job search.

A little more than half of the subjects (see Table 10) used *job search websites* for job hunting. They used various job search websites for finding employee recommenders, sending out resumes directly to recruiters, or job matching. LinkedIn, an online job board, was the most commonly used job search website among the subjects; other job search websites they used were Handshake, Jobvite, Greenhouse.io, Lever.co, and Indeed Prime. These job search websites function as online recruitment intermediaries helping jobseekers to search desired job positions, contact directly with recruiters, and match with companies. Strategies for using job search websites include posting resumes on the websites or contacting people for employee recommendation or reviewing resumes. Subjects' opinions toward the effectiveness of job search websites varied greatly. Some people greatly appreciated using it. For example, Monica, a female with a bachelor's degree in computer science found almost all of her employee recommenders on LinkedIn. Unlike Monica's smooth experience with LinkedIn, other people doubted whether the job search websites worked. Although people might question the effectiveness of job search websites, they used it anyway because they felt it necessary. The use of job search websites, including using online job boards and company websites, was intertwined with feasibility and the effectiveness of other job search methods (e.g., sending out resumes and asking for employee referrals). The use of job search websites served not only as an official application channel to submit resumes online but also as an online social network that connects jobseekers to employee recommenders or company managers. Therefore, since three job search

methods—*employee referral*, *send out resumes widely*, and *job search website* were all involved with the use of the Internet, Proposition 3 is supported. As previously proposed, subjects of the current study were more likely to search for jobs through an Internet job search than through the traditional job search methods.

Comparatively, among four job search methods that the subjects used, *career fair* was the only method used without the Internet. Based on Table 10, 17 subjects attended career fairs searching for jobs. The career fair is a traditional, formal job search method because of the involvement of intermediaries who exist primarily for recruitment. Subjects used a career fair as a job search channel to have face-to-face communications with recruiters and give out resumes directly to them. Most subjects went to career fairs at the college campuses. Career fairs as a recruiting event held by colleges and universities function as welfare for students' career development; some schools hold better and larger career fairs than other schools and are able to invite more big-name companies.

Although many subjects expressed the opinion that they would try all four job search methods, regardless of the probability of receiving interviews or job offers, they did evaluate and compare the effectiveness of the job search methods. Interestingly, because they were STEM students, they used formulas to compare the job search methods. Ana, John, and Guo, who were seeking employment in 2017, all pointed out that "Employee referral > career fair > sending out resumes widely." However, Zhong and Meng who were seeking employment in 2018 argued that attending career fairs was more effective than asking for employee referrals. They reasoned that job-hunting situation would not remain unchanged every year. Zhong specified that: "When everyone is finding employee referral, [attending] career fair may be easier to get interviews."

Thus, based on personal experiences, Zhong and Meng stressed that recent graduates should monitor the situation each year. There is no single job search method that works best for everyone every time.

But was the effectiveness of career fair a time-dependent factor? Table 14 shows job search methods used by subjects in the different job-finding periods.

Table 14. Crosstabulation of Job Search Methods Used by Job-finding period: Job-finding period * Job Search Method Crosstabulation

Job-finding period		Job Search Method				Total Number Of Subjects
		Career Fair	Send Out Resumes Widely	Job Search Website	Employee Referral	
Apr-Jun/2018	Count	2	1	2	2	2
Jan-Mar/2017	Count	1	1	0	0	1
Jan-Mar/2018	Count	3	6	4	5	6
Jul-Sep/2017	Count	3	4	3	5	5
Oct-Dec/2017	Count	8	11	7	15	16
Total	Count	17	23	16	27	30

Note: Percentages and totals are based on respondents.

Based on the above table, 17 of the total of 30 subjects attended career fairs. Of these 17 subjects, five of them sought jobs in 2018, whereas 12 of them sought jobs in 2017. Thus, the career fair is the most effective method to obtain interview invitations in 2017 and 2018.

In addition, it seemed that few subjects believed that sending out resumes is an effective job search method. Although subjects disagreed about which is the best job search method, they concluded that sending out resumes widely was the least useful one and highly suggested making use of other methods. Was asking for an employee referral indeed the best, most effective method to obtain interview invitations, as argued by most subjects? Was sending out resumes widely indeed useless? Based on the data, which analyzed the number of interview invitations the subjects obtained using each job search method (see Table 12), career fair turns out to be the most effective

method to obtain interviews from applied companies. Although employee referral was the most used job search method, only 48.1 percent of subjects received interview invitations using this method. Thus, subjects who argued that career fairs work better than employee referral were right.

In addition, among three job search methods—career fair, employee referral, and send out resumes widely—that subjects compared, sending out resumes widely was the most useless job search method to obtain interview invitations. According to Table 12, out of 23 subjects who used this method, only seven of them obtained interview invitations. Not counting the one who sent out 1,000 resumes and received 40 interview invitations, other subjects received no more than three interview invitations. In addition, as seen in Table 11, subjects who used the method of sending out resumes widely generally were sending dozens and hundreds of resumes. Thus, the use of sending out resumes widely, as subjects argued, was the least effective method in obtaining interview invitations.

According to the results of job hunting (see Table 13), over 80 percent of subjects (n = 25) obtained or signed job offers. Only five subjects indicated that they failed to find employment. Interestingly, although career fair was found to be the most effective job search method to acquire interview invitations, over 50 percent of subjects obtained job offers using employee referral. Thus, although at the initial stage of the job-searching process attending career fairs may increase the chances of being interviewed, asking for employee referrals are more likely to obtain employment. The reason may be, as the subjects suggested, that some companies prefer to use the recruitment method of employee referral and may only pick candidates from those who were referred. This result is consistent with previous findings that

showed that when jobseekers who have employee referrals are interviewed, they are more likely to be hired than non-referred jobseekers (Fernandez and Weinberg 1997).

The previous section discussed different experiences the subjects had due to starting job hunting early or late, examined the four job search methods used, compared the effectiveness of job search methods, explored the influence of time dependence on the effectiveness of job search methods, and noted the results of the job-hunting process. Based on the findings, starting the search for jobs earlier could be beneficial to the jobseekers because it offers the advantages of more preparation time, getting resumes out earlier, being interviewed earlier, and having more adjustable time to improve personal skills. Among the four job search methods used, employee referral turned out to be the most used method and was also the most effective one in obtaining job offers. Send out resumes widely, the second most used method, had the lowest rates of interview invitations. Although some subjects believed in the usefulness of the employee referral method, others argued that attending career fairs were more effective. Indeed, in terms of probability of receiving interview invitations, the career fair method was more effective than using employee referrals. However, interview invitations received through attending career fairs resulted in less chances of obtaining job offers than that received through asking for employee referrals.

Four propositions (#1, #2, #3, and #4) were analyzed in this section. Among the four tested propositions, Proposition 3 and Proposition 4 were supported, whereas Proposition 1 and Proposition 2 were not supported. The results also suggested that because three out of four job search methods involved the use of the Internet, the subjects of the current study were more likely to use the Internet to search for jobs than merely search for jobs through traditional

channels. In addition, because the subjects were intentionally contacting unknown, ethnic Chinese people on the Internet to ask for employee referrals, it supported the hypothesis that subjects tend to use the Internet to contact with previously unknown people and to develop weak ties for purposes of a job search. Based on the observations depicted in Table 10, Proposition 1 was apparently rejected because the primary job search method used by the subjects was employee referral instead of the use of resumes. Regarding Proposition 3, the qualitative evidence lacked subjects' descriptions on social interactions and perceptions of strength of relationships they had with their schoolmates, so that proposition could not be supported.

Online information

Subjects shared their job-hunting experiences on the 1P3A public forum. There were patterns found on how and on what they posted on the forum. Subjects who obtained job offers wrote more detailed and structured experiences and were more likely to provide suggestions and share positive messages, whereas subjects who failed to obtain job offers wrote much less, expressed more negative feelings, and were more likely to ask for suggestions.

For subjects who obtained job offers, many of those subjects began writing of their experiences by providing a detail introduction of their academic background so that online users who read the post could decide whether their experiences would be worth using as a reference. They also laid out timelines of their job-hunting process; most of them started with describing how they prepared for job applications, which included how many programming questions they practiced and how much time they spent on it. The most valuable part of the posts was where the subjects shared their interview experiences with each company. Information included names of companies, job search methods they used to obtain interview invitations, interview procedures,

interview questions asked, and interview results. Finally, many of the job-offer subjects concluded their job-hunting experiences with suggestions provided to future jobseekers. In the end, some of the subjects shared feelings they had and gratitude for people who helped them during the entire job-finding period, as well as encouraged other online users to persist in hunting for jobs.

Besides all kinds of job-related information shared in the posts, subjects and online users exchanged information in the comment sections as well. A few subjects asked for online users' suggestions about choosing between companies from which they obtained job offers. Most of the time, however, online users were asking the subjects who obtained job offers for suggestions and recommendations. Suggestions and recommendations requested by online users included resume revision, choosing schools, ways to improve skills for doing programming questions, time management for job preparation, advice on learning, resume writing techniques, programming question preparation techniques, and choosing between job search methods. In addition to requesting various suggestions and recommendations, online users retrieved information from subjects who had successfully signed job offers. Types of information online users sought and asked for were the following: personal questions (e.g., graduation date, school attended) about the subjects, pay and salary, programming questions preparation time, methods to find employee referrals, situations about finding internships in a specific area or company, reasons for making a certain choice, ways of interviewing for a specific company, and answers to a specific programming question.

By asking questions in the comment areas, online forum users could retrieve more information that the posts did not include and obtain more relatable information that one could

apply to his or her own job-searching process. However, the reasons why subjects would share their successful job-hunting experiences on the forum and provide more information and suggestions to other forum users must be considered. Some of the subjects revealed that they shared their experiences because they themselves read and thus benefited from others' experiences; thus, they shared their own experiences to pay it forward. For example, John expressed his gratitude toward the forum and other forum users: "Because I have benefited tremendously from the forum over the past year, I also want to share with the forum friends my own experience and lesson learned."

As previously discussed in the literature on *guanxi*, there are moral expectations embedded in the norms of social interactions between Chinese people, two of which are reciprocal obligation and indebtedness. During the process of information exchange, subjects who were reading, learning, and collecting information shared by other users felt indebted to the sharers' help. As suggested by Granovetter (1973), exchanging information is low-cost and risk-free, which is the best little favor one can do for others. Therefore, posting their own experiences was the right thing to do because not only could subjects fulfill a reciprocal obligation, but other users could also obtain valuable information from their posts. Thus, Proposition 5, which suggests that subjects tend to exhibit behaviors or feelings of reciprocal obligation and indebtedness when searching for jobs, is supported.

In addition, all kinds of job-related information were exchanged between online forum users, all of whom were complete strangers to one another. Not only did they learn from one another about matters of job-hunting preparations, they also acquired information about interview procedures employed, interview questions asked, and programming questions tested of

a specific company from people familiar with those specific practices. Those types of information extracted from personal job-hunting experiences can hardly be obtained from family and relatives who are not in the United States and who are not experiencing job-hunting procedures.

The section discussed information exchanges between the subjects and other forum users. Specifically, it discussed patterns of job-hunting experiences shared by both the subjects who obtained or failed to obtain job offers, types of information shared by the subjects, types of information sought by the forum users, and intentions to share and exchange information on the forum. In this section, Proposition 5 were supported because the nature of exchanging information with strangers on an online public forum indicated a retrieval of information from weak ties rather than strong ties. In addition, during online information exchanges, subjects expressed their appreciation to other information sharers and paid back by sharing their own personal job-hunting experiences, which demonstrated that behaviors and feelings of reciprocal obligation and indebtedness occurred during the online interaction among the subjects.

Online social ties

However, unlike the examples of online forum users who retrieved information from subjects who obtained job offers, the interactions between online forum users and subjects who failed to obtain job offers were different stories. Often, it was the subject who asked for suggestions and gained comfort from other forum users. In the comment sections, online forum users showed great support, expressed empathy, shared successful or failed job-hunting examples, and provided suggestions to the failed subjects, thereby hoping to encourage the subjects to keep trying.

In fact, four of five subjects who did not find employment when they posted topics had not used up their 90-day job-finding periods. Their intentions in sharing their up-to-date job-hunting experiences were mostly because they wanted to ask for suggestions and opinions on what they did wrong and what should be the next step. Interestingly, compared to comment sections under the successful job-hunting posts, where some online users requested the subjects' contact information, no one sent a friend request to the failed jobseekers. Of 25 subjects who successfully obtained employment, they would receive friend requests under the comment section where other online users replied to the posted topics with contact information such as email address and online social media accounts. Adding contacts outside of the forum may largely increase the frequency of communicating as well as increase the probability of meeting each other offline because chatting apps and emails are more of a communication-based software than the online discussion forum. Therefore, there were tendencies and possibilities for subjects to develop online relationships with other forum users who started as complete strangers but became acquaintances depending on how often and how much they talked to one another. Although the evidence is lacking about whether the subjects accepted friend requests from other online users, whether they continued interacting and communicating outside of the forum, the forum did provide its users with a platform to connect with previously unknown people and to develop weak ties. Thus, this result reaffirmed the support of Proposition 4: People tend to use the Internet to contact with previously unknown people and to develop weak ties for job searches.

CONCLUSIONS

This current exploratory study investigated job search behaviors of 30 recent Chinese graduates of U.S. colleges between 2017 and 2018. Qualitative data of 30 subjects' shared job-hunting experiences were collected from the Chinese online public discussion forum—1point3acres.com/bbs. 825 messages (words and sentences) were coded through line-by-line coding of 30 posts along with comment sections to perform both quantitative analysis and content analysis.

Results of this study indicate that recent Chinese STEM graduates of U.S. colleges in 2017 and 2018 tried four job search methods: *career fairs*, *employee referrals*, *Internet job websites*, and *send out resumes widely*. Among the four job search methods used, only the method of *career fairs* did not involve the use of the Internet, yet it had the largest effect in getting interview invitations from applied companies. This effectiveness of the use of career fairs in receiving interview invitations indicates that in the age of the Internet, the use of a traditional job search method is still favored by both recruiters and student jobseekers. However, this does not mean that the Internet job search is useless. Instead, the method of *employee referral* was used the most by the subjects, which heavily involved using the Internet. With the aid of the Internet, subjects can freely explore and add potential employee recommenders online, such as alumni and ethnic Chinese, connections that can hardly be found through traditional channels (e.g., the Yellow pages or newspapers). Most importantly, it was employee referral, subjects' primary job search method, that was the most effective in obtaining job offers.

A thorough investigation of the subjects' shared posts on the discussion forum 1P3A indicates that the findings of my study seem to be largely consistent with Granovetter's theory

about the significance of weak ties in information dissemination. Subjects and online forum users, the weakest ties, who exchanged job-related information on the forum all benefited from acquiring nonredundant, up-to-date information about effective job search methods, job preparation matters, interview procedures, and programming questions from each other. During the online information exchange, Chinese moral expectations of reciprocal obligation and indebtedness showed a great effect in influencing how subjects behave and interact on the forum. Essentially, the subjects shared job-hunting experiences on the forum in reciprocal behavior. However, the study found that online forum users had no intention of developing a friendship with the subjects; the friend requests were only sent to the subjects who successfully obtained job offers and who were thought to be helpful in one's own job-searching process.

Based on discussions of the analysis results, out of a total of five propositions, the current study supported three (#3, #4, #5) propositions while rejecting Proposition #1 and Proposition #2. Based on the tested propositions, subjects of the current study were more likely to retrieve job-related information from weak ties than strong ties but it remains uncertain whether they used strong or weak personal contacts to search for jobs because of a lack of evidence in how they defined their relationships with schoolmates. In addition, subjects are more likely to utilize the Internet to search for jobs than traditional job search channels; especially, subjects use the Internet to contact with previously unknown people and to develop weak ties for job searches. However, subjects did not use resumes as their primary job search method. Significantly, during online information exchanges between forum users, subjects exhibited behaviors and feelings of reciprocal obligation and indebtedness.

Limitations

The findings of the current study are consistent with many previous studies (Brenčič 2014; Brown and Konrad 2001; Burks et al. 2015; Dustmann et al. 2016; Fernandez and Weinberg 1997; Granovetter 1973, 1995; Kim and Fernandez 2017; Kugler 2003; Marin 2012; Marsden and Gorman 2001; Yakubovich 2005). However, there are several limitations to the study that need to be addressed. First, there was only one coder involved in collecting and coding the online sample topics and comments, which negatively affects the reliability of information in the study. Although it would be an obvious advantage to have the sample messages coded by two or more people, budget limitations did not allow the recruitment of any additional coders for this study. Second, because of limited time for data collection (1 month), only 30 subjects' posts were collected and analyzed; thus, generalizing results and discussions to the general population of Chinese international students in the United States would be arbitrary. Specifically, all the subjects turned out to be working in the STEM field. Finally, since the 1P3A discussion forum sets its system language in Chinese and the site users post topics and comments in the Chinese language, the collected messages from 1P3A required translation to English. However, because there was only one translator, the accuracy of the translation was not checked by other bilingual facilitators because of budget limitations.

Significance

The current proposed exploratory study investigated job search behaviors of recent Chinese students of U.S. colleges between 2017 and 2018. To my knowledge, it is the first study that focuses on qualitatively analyzing the U.S. international Chinese graduates' job search behaviors by assessing their online forum discussions. With rigorous quantitative analysis and

in-depth qualitative analysis, the study obtained an understanding of how recent Chinese graduates of the U.S. colleges sought, acquired, and utilized online information and resources to find employment in the United States. Understanding the Chinese population's job search process in the United States is important because finding a job is a vital step in migration. Therefore, empirical results and discussions of the current study have (1) improved understanding of job search behaviors of recent Chinese graduates of 2017 and 2018 in the United States; (2) increased knowledge of one important migrant channel that some foreigners use to migrate to the United States legally; (3) provided insight on how online information, online personal contacts, and online resources facilitate the job-finding process; and (4) reaffirmed that Granovetter's theory of strong ties and weak ties on information dissemination still apply in the era of the Internet.

Future Research

Today, society exists not only in the real world but also in the virtual world. The study of society, social groups, and patterns of behaviors can be extended from offline to online. With more and more people expressing their opinions online about topics ranging from personal matters, to family affairs, to entertainment, to political affairs, a mass of data can be extracted from the Internet. With proper use of sampling methods and analysis techniques, it is expected that Internet research can discover broader implications of social phenomena by exploring the online social community.

Moreover, the current study found that recent Chinese graduates of the U.S. colleges between 2017 and 2018 still used the career fair job search method, which was found to be the most effective in getting interview invitations. However, scholarly researches on social functions

or social issues of career fairs can be seldom found. Thus, more studies are encouraged to investigate, for example, the effects of attending career fairs on career development.

Last but not the least, the current study only focused on job search behaviors of international Chinese graduate students in the STEM field. It would be interesting to compare those behaviors with job search behaviors of domestic American STEM students. Unlike international Chinese students who are separated from a major network of strong ties and restricted by the OPT policy, domestic American students have an advantage in easily accessing information from family and relatives. It would be interesting to discover if Granovetter would still be right about whom the American STEM students retrieve job-related information from in the age of the Internet.

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