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## **Engaging Alumni Entrepreneurs in the Student Entrepreneurship Development Process: A Social Network Perspective**

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# Entrepreneurial University: Drivers

- Universities, traditionally developed for the purpose of teaching and research, are increasingly playing active role in the commercialization of research results, **particularly via patenting, licensing, start-up creations and other forms of university–industry partnership**
- The so-called “third mission” of universities (Etzkowitz, 2003) relating to entrepreneurship and economic development, is inspired by the pressure of the decreasing university funding and the expectations from the policy makers who see the university as an engine to stimulate local economic growth (Ambos et al., 2008).
- This transformation is captured by the “Triplehelix” model that emphasises on the **interconnections between university–industry– government** (Etzkowitz & Leydesdorff, 2000) and Triple Helix provides solid theoretical basis and practical guidance for entrepreneurial universities.
- By the promotion of "democratization of knowledge", “Civil Society” is also introduced to Triple Helix innovation model to form **Quadruple Helix dynamic mechanism** (Leydesdoff et al., 2018). Quadruple Helix Theory puts forward knowledge production mode by taking public interests as the goal

# Student Entrepreneurship

- From the perspective of university management, student entrepreneurship, especially in the form of spin-off companies, provides direct tangible evidence that reflects students having acquired viable entrepreneurial skills via a university education.
- It offers concrete proof that the university is relevant, updated and competitive in university research commercialisation (Bailetti, 2011).
- Indeed, peer influence from the faculty and staff are crucial to form students' decisions to hold start-up businesses (Åstebro, Bazzazian, & Braguinsky, 2012).
- Despite some inconsistency, most existing research findings confirm that universities play a positive role in promoting the entrepreneurial intention/attitude of students or new business creation (e.g., Rey-Marti et al. 2016; Maresch et al. 2016; Stamboulis and Barlas 2014; Bergmann et al. 2016).

## TCase study

- The **case study of Chongqing Jiaotong University (China)** analyzes the engagement of alumni entrepreneurs in the university student entrepreneurship development process.
- It uses the **social network perspective**.
- **Background:**
  - Affected by the global financial crisis, China's economic growth has slowed down from previous levels of over 10% and increased youth unemployment.
  - To address this, the Ministry of Education (China) has called on universities to support student entrepreneurship.

# Social networks and Student entrepreneurship

- More researchers have begun studying on the relationship between social networks and entrepreneurship.
- The argument is: **successful entrepreneurship requires networks and networking** (Nijkamp 2003), **the evolution of a social network has an impact on the entrepreneurship trajectory** (Hite and Hesterly 2001; Lamine et al. 2015)
- **Entrepreneurs can benefit from social networks for entrepreneurship motivation, access to a wide range of valuable resources such as information, customers, suppliers, capital and labour** (Brüderl and Preisendürfer 1998; Jenssen 2001), and a better awareness of business opportunities (Dufays and Huybrechts 2014).
- **Social networks have an inevitable impact on entrepreneurship, particularly in a country like China, which is based traditionally on the relationship culture.**

# Social Network & Alumni Entrepreneurs

- Research on social network has grown over the years (Borgatti and Halgin 2011) and social network has been widely used to understand entrepreneurship, venture performance, peer-to-peer lending and IT-based communication.
- Social network provides the entrepreneur with access to financial resources, technology and innovation resources, commercial and business capabilities, human resources, resources related to quality management, and organizational capabilities (Hernandez-Carrion et al. 2017).
- Suppliers, buyers, incubators, governments, banks, venture capitals, alumni, professors and other actors can be elements of the entrepreneur's external social ties.
- **Among them, the alumni entrepreneurs are a very special type of external social tie, which remains underexplored.**
- How the alumni are important in student entrepreneurship development process?

## Social Network and Entrepreneurial intention (Formative stage)

- Jiang and Guo (2012) argue that the perception of strong relationship support, family, relatives and good entrepreneurship examples of friends can have a positive effect on the formation of entrepreneurship intention.
- Fernández-Pérez et al. (2015) confirm that a professor's support, business network and private network can improve the entrepreneurial intention of researchers.
- Although they target different groups of entrepreneurs, most studies draw a largely similar conclusion that social capital has a positive impact on entrepreneurial intention.

# Social Network and Entrepreneurial resources acquisition

- The social networks of the entrepreneurs are generally viewed as connections with friends, family members, suppliers, venture capitals, buyers, incubators and others.
- The social network concept has been widely used in the entrepreneurship research because of its important theoretical significance and practical value.
- Through social network, entrepreneurs have access to information and resources which provide conditions for entrepreneurial opportunity identification and also help to solve the resources dilemma of entrepreneurial enterprises (Jack 2010; Nerkar and Shane 2003).
- Specifically, the social network provides entrepreneurial firms' technology resources, human resources, financial resources and other entrepreneurial services so as to promote enterprise development (Mosey and Wright 2007; Baum and Silverman 2004).
- As the alumni is an important element of the local social context, it is important to study how the alumni, a very specific type of social network.
- Our paper will adopt the social network theory to identify what actors are found in a university entrepreneur's social network and analyse the impact of different actors, particularly the alumni on entrepreneurial intention and resource acquisition of university entrepreneurs.



# Social Network and Entrepreneurial resources acquisition

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- Social network provides entrepreneurial firms' technology resources, human resources, financial resources and other entrepreneurial services that helps to promote enterprise development (Mosey and Wright 2007; Baum and Silverman 2004).
- As the alumni is an important element of the local social context, it is important to study how the alumni play a role in resources acquisition stage in entrepreneurial development.
- We explore this through a case study Chongqing Jiaotong University in China.

# Definitions

- **'Student entrepreneurs'** in our study are students who have not graduated from Chongqing Jiaotong University, are creating or have created their own business on campus which is less than 3 years old.
- **'Alumni'** here means people who have graduated from Chongqing Jiaotong University and are currently entrepreneurs.
- **They are volunteers who inspire young students to become entrepreneurs and help them create and grow their own new business.**

# Methodology

- This paper uses a social network theory and a case study research method.
- Primary data was gathered from three sources: (1) College Student Center for Innovation and Entrepreneurship (university entrepreneurship management institution); (2) Alumni entrepreneurs; (3) University student entrepreneurs.
- **We selected Chongqing Jiaotong University as the case study for following reasons:**
  - 1. It is in one of the top ten innovative provinces – Chongqing, which is ranked 8th according to the Regional Innovation Capability of China Report 2015 and 1st nationwide in terms of GDP growth in 2015.
  - 2. The call for mass entrepreneurship and innovation is widely accepted and practiced by the Chongqing government, universities, industries and other institutions in the province.
  - 3. It is a well-known engineering university and its research capabilities in fields such as transportation, IT, road and bridge construction have gained nationwide reputation over the years.
  - 4. It pays higher attention to student entrepreneurship training and practice. It invites the alumni back to campus to guide and support students towards creating their own business.

# Data Collection

## First-round interview

- Mr. Jixin Liu, one of the senior managers of the Student Center for Innovation and Entrepreneurship was interviewed. Through an almost two-hour face-to-face interview, we gathered information on why and how the Center was founded and what role the Center performs. Mr. Liu is an alumnus of Chongqing Jiaotong University and he started his business when he was a student in the University. Now, he is the founder and present manager of an incubator based in the Center.

## Second-round interviews

- The Director of College Student Center for Innovation and Entrepreneurship, four alumni who are entrepreneurs and four student entrepreneurs who are creating or running their start-ups in the Center provided in-depth interviews.

## Survey

- We conducted a questionnaire survey in the Innovation and Entrepreneurship Center to collect more detailed information about each start-up firm which is created and operated by Chongqing Jiaotong University students.
- We administered 47 questionnaires, and 25 valid questionnaires were returned by , accounting for 53.2% of the total (see Table 1).

**Table 1. Basic information of surveyed student start-ups**

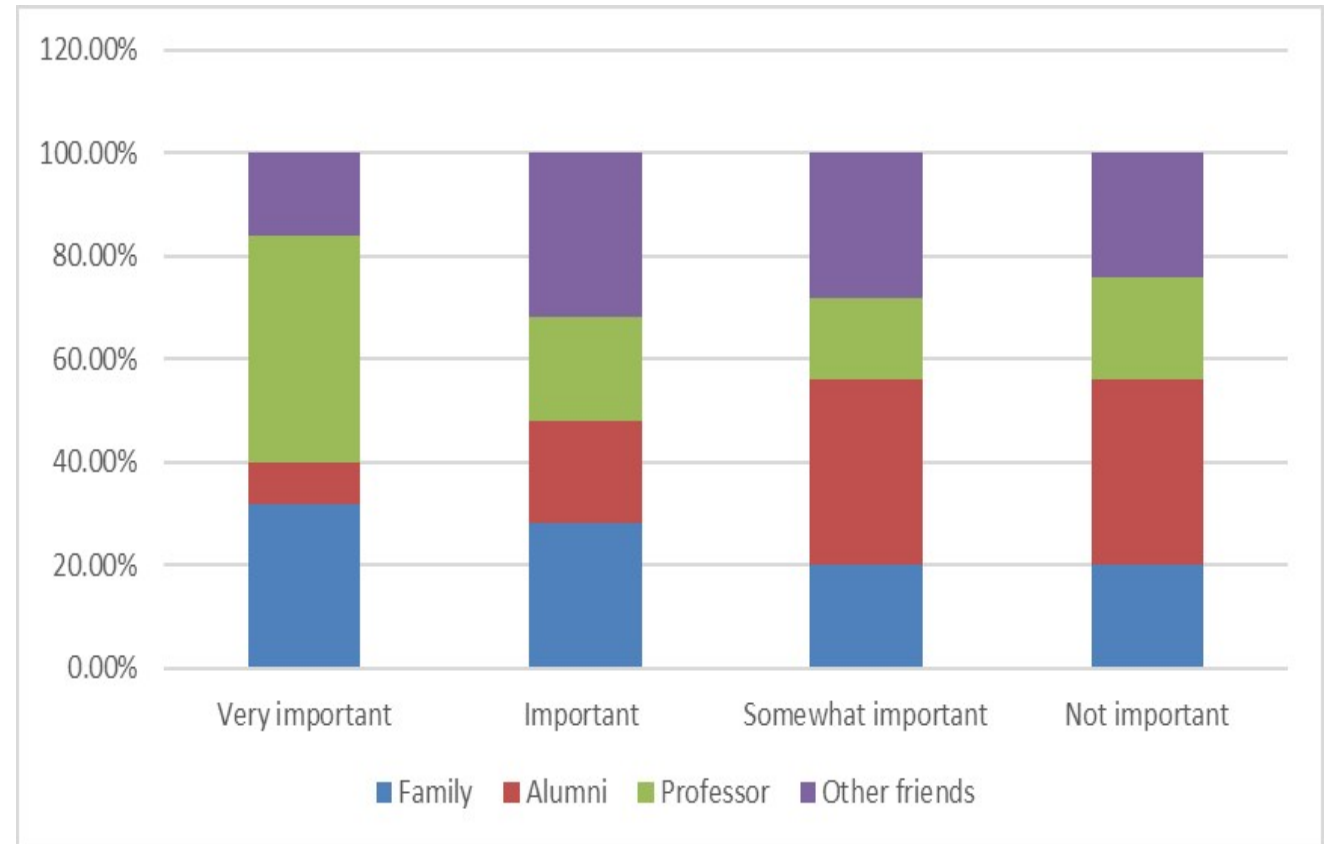
Founder gender	Male	17	Founder educational background	Bachelor	24
	Female	8		Master	1
Size of start-up	2-10 employees	20	Age of start-up	Less than 1 year	20
	11-50 employees	5		Between 1 and 2 years	2
Industry	Service	18		Between 2 and 3 years	1
	Manufacturing	17		Between 3 and 4 years	2

- Source: Primary survey data

## FINDINGS

Figure 1: Importance of various types of social network at Formative stage of the student's entrepreneurial intention

- Even though our interviews give an impression that the alumni engagement in the university student entrepreneurship process is very important, the statistical analysis shows that at the early stage of the university students' entrepreneurial intention, the importance of the alumni connection is comparatively weak.
- Only 8% of entrepreneurs view the alumni very important at this stage, 20% view it important, 36% as somewhat important and the other 36% view it as not important.
- This is probably because the alumni are not very involved in the early stage of the student entrepreneurial intention.



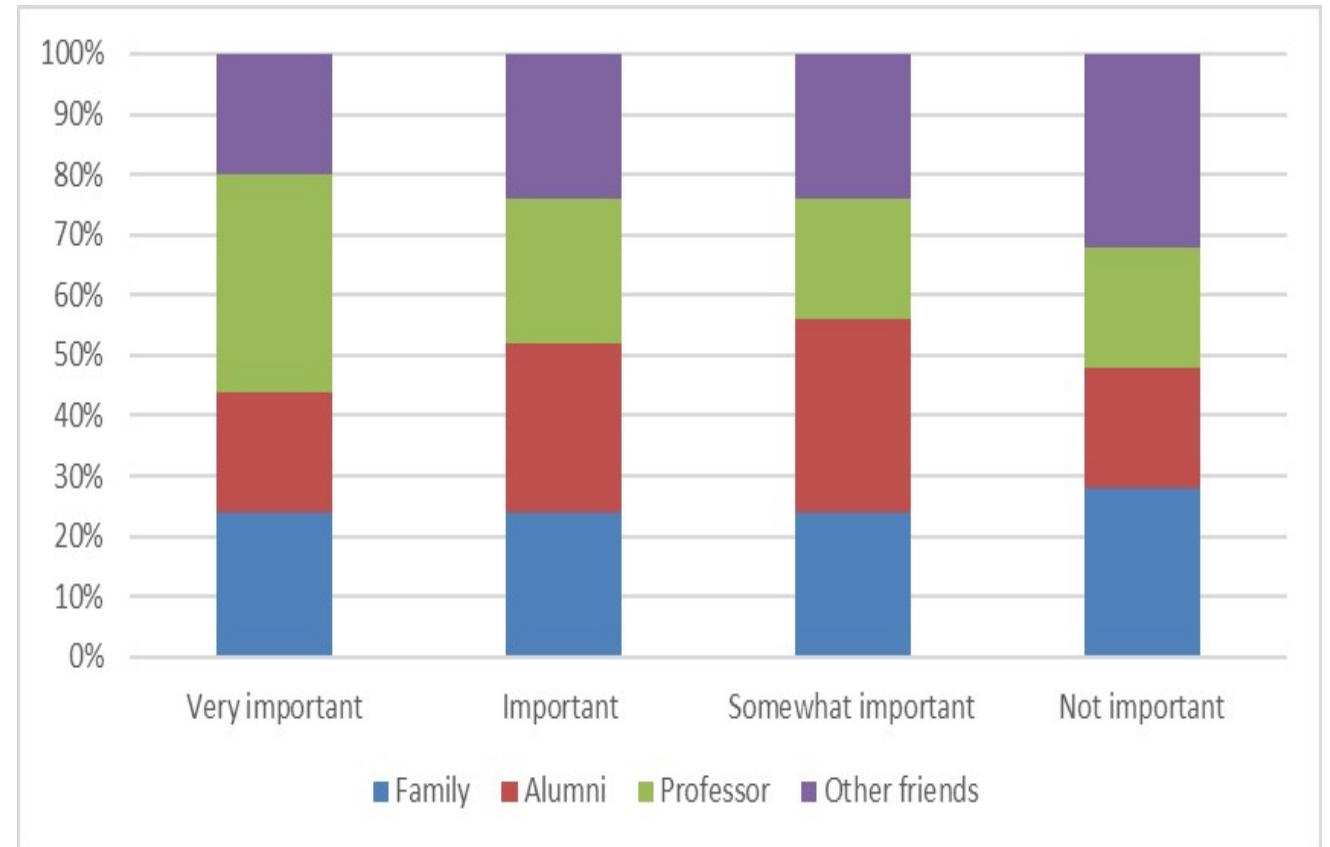
# Findings: Role of Alumni in Formative stage

- Compared to professors, Alumni have much less direct contact with university students. Professors are the most important factor in influencing the entrepreneurial intention of university students at Formative stage.
- Reasons are: 1. Professors teach students entrepreneurial courses and students are inspired by their entrepreneurship training; 2. They are mainly engineering professors and they conduct various research projects and can provide students technological consulting and access to research laboratories.
- The alumni are often invited to give seminars in class and they become a jury for business plan competitions.
- Family is the second most important social network. Majority of student entrepreneurs come from ordinary or poor family background. They have little social relationship and need greater effort to find a good job. They are concerned more about how to improve their family's economic situation and how to develop their career on their own. Thus, family background appears to influence the formation of their entrepreneurial intention.
- Friends are ranked as the third most important type of social networks. Student entrepreneurs have good university friends. As they currently study at the same university, they often share ideas and help one another. Thus, the entrepreneurial spirit of a friend can influence his/her friend's entrepreneurial intention.

## FINDINGS

Figure 2. Importance of various types of social network at the university student entrepreneurial resource acquisition stage

- At the entrepreneurial resource acquisition stage, we can see that the importance of the alumni entrepreneurs is stronger than that at the Formative stage.
- Of the total surveyed, 20% view the alumni entrepreneurs very important and 28% as important.
- This puts the importance of the alumni equivalent to that of the family, which is considered by 24% as very important and 24% as important.
- This finding to some extent confirms that alumni engagement does play an important role at the university student entrepreneurial resource acquisition stage.





# Findings

- According to the survey, student entrepreneurs benefit from various resources provided by the alumni entrepreneurs. The highest ranked resource among them is information, followed by materials, client resource, human resource, technological and financial resources.
- They help student entrepreneurs identify business opportunities and lead them to overcome barriers to enter the particular business sector.
- Having a common ground of identification and tie with the same university (bonding social capital) bridges the psychological gap between the student and alumni entrepreneurs.
- The alumni are willing to help the younger students (both males and females). They view the assistance given to student entrepreneurs as a kind of payback to the university from where they have graduated (see Table 2).
- **To our surprise, professors again are viewed as the most important social network for student entrepreneurs; 36% view them as very important and 24% as important. This indicates that professors play a key role in the process of student entrepreneurship in both stages.**

# Findings

- The statements (Table 2) from the university entrepreneurship managers, alumni and student entrepreneurs show that the tie between the alumni and the University is very strong.
- Alumni have a high regard of the university and are willing to help younger students to start their business. The tie between the alumni and the student entrepreneurs is significantly and positively related to the tie between the alumni and the University.
- Alumni do have an important influence on the formation of the entrepreneurial intention of university students as well as new business creations. Student entrepreneurs strongly confirm that their entrepreneurial intentions are influenced by the alumni.
- The main assistance of the alumni lies in helping students to evaluate their own characters and business projects and identify clearly the entrepreneurship process and risks.
- The university acts as a very valuable tie/link between the alumni and student entrepreneurs.

**Table 2. Alumni, university student entrepreneurial intention and behaviour**

Category	Code	Example of entrepreneurial intention	Example of entrepreneurial behaviour
University entrepreneurship manager	M1	<p>“Based on my knowledge, the communication between the alumni and students does promote the formation of our student entrepreneurial intention...”</p>	<p>“We invited some alumni, who have had successful entrepreneurship experiences, to give our students some lectures and gave them the title of off-campus mentors for entrepreneurial students... We hope they can inspire students to become entrepreneurial... We do have some students who have started to create their own business after the entrepreneurship training...”</p>
Alumni	M2	<p>“What I mainly do is to let younger students recognize the reality (challenges of entrepreneurship). If they really want to develop entrepreneurship as a career, we will help them determine entrepreneurial intention, provide them entrepreneurship education and entrepreneurial practice and let them have less detours”; “Based on the differences of business ideas of students, we have different ways to help them.”</p>	<p>“I go back to the university to help students (we view them as younger brothers and sisters) to create and grow their own businesses, mainly because I have an emotional attachment to the university”; “The university is like an emotional traction link, one end links to the alumni, and provides the alumni investment channels, the other is linked to college students who can obtain needed resources from the alumni to start a business”; “The concept of mentoring exists in entrepreneurial intangibility. Compared to training and teaching, I think the most effective mode of mentoring is that of master-apprentice”; “When helping others to start a new business, we would take into consideration the alumni connection as an important factor.”</p>

Category	Code	Example of entrepreneurial intention	Example of entrepreneurial behaviour
	M3	<p>“We will help younger students identify their strengths and weaknesses, especially in helping them to be aware of possible entrepreneurial risks in advance, and evaluating themselves correctly”; “Under the mass entrepreneurship and innovation environment, governments and universities encourage students to create their own business. However, entrepreneurship itself is a systematic project. Students must remain calm and identify clear entrepreneurship purpose so as to avoid giving up halfway”.</p>	<p>“We will invest in projects launched by young students in the campus. We do not view this kind of investment as a purely venture investment, because much of our investment is not for the purpose of profit”; “Being the alumni of the university, we try our best to help and support young students from the same university to create/grow their own business.”</p>
University student entrepreneurs	M4	<p>“When I was a sophomore, I wanted to operate a university association like a company. With the help of the alumni, I led my team to give it a try. This experience inspires me to become an entrepreneur.”</p>	<p>“Till now, I think the help and support of our university is very important for my entrepreneurial behaviour”; “The support of friends around me, the alumni of university associations and professors are very important for my business creation.”</p>
	M5	<p>“My company does advertisement business. Many senior university brothers and sisters have given me a lot of help, especially in helping me make a decision whether I should start a business. I consulted many alumni who have plenty of entrepreneurial experience.”</p>	<p>“I have benefited a lot from the “Transfer, Help and Lead” activities of the alumni. Many alumni have given me great help in the entrepreneurial process.”</p>
	M6	<p>“In the formation of the entrepreneurial intention stage, one of my classmates has the greatest impact on my decision to become an entrepreneur.”</p>	<p>“Alumni resources play a catalyst role in the development of our company. We pursue co-development with the alumni.”</p>
	M7	<p>“After the formation of the initial business plan, I got a lot of support and inspiration from the alumni which helped me to determine the implementation of the project plan.”</p>	<p>“We got great help from the alumni in entrepreneurial project planning. The alumni with so much working experience provide us a lot of valuable comments.”</p>

## Findings

**Table 3. Alumni and Entrepreneurial Resources Acquisition**

<i>Category</i>	<i>Code</i>	<i>Example</i>
University entrepreneurship manager	M1	“Our university has invested more than RMB5 million in building the Innovation and Entrepreneurship Center, which occupies 3400m <sup>2</sup> . In the Center, in collaboration with one of our alumni, we have created an incubation facility to foster student start-ups...”; “... the Alumni have successful entrepreneurship experiences and provide resources to our students for growing their start-ups...”
Alumni	M2	“What I do is equivalent to a role of resource integration. Last month, I helped the junior sisters and brothers of the University to obtain an initial investment for a cultural and creative project so as to solve the problem of initial funding accumulation”; “We assist start-ups of younger sisters and brothers in the university mainly in two aspects, market resource matching and individual resource matching. We also help them screen/improve their project and design appropriate organization structures.”
	M3	“Unlike outside venture capital investments in China, we help students to hatch their projects by directly investing money at the very early stage of entrepreneurship. At the production stage, we also invest money in the start-ups but at a small sum of money level”; “our aid to the entrepreneurship of university students not only focuses on the funding aspect, but more importantly helps them link up with our social networks. We lead them to connect with other successful entrepreneurs and provide them access to much needed off-campus resources through our social networks.”
University student entrepreneur	M4	“In the process of “Transfer, Help and Lead”, university student entrepreneurs and the alumni get to know one another and establish some kind of relationship. This relationship is always helpful to get some entrepreneurial resources. These resources have an important role for entrepreneurial activity.”
	M5	“Many alumni offer my start-up some business opportunities. I learn entrepreneurial experience from the alumni and discuss the future of my company with them”; “Alumni play a role in resource drainage.”
	M6	“The alumni provide us a lot of resources, such as financial resource”; “We in return help the alumni construct their company website”; “Sometimes, the alumni share some projects with us. We work together and gain profit together.”
	M7	“With the introduction by our university, I have established connections with the alumni and successfully received financial support from the alumni”; “I have received a lot of help and advice from the alumni regarding technology and patent application aspects.”

# Findings

## Alumni and Entrepreneurial resources acquisition

- Statements highlighted in Table 3 show that alumni engagement has a positive impact on the acquisition of entrepreneurial resources, mainly through the provision of financial resources, human resources, social communication resources and knowledge resources.
- According to the survey, student entrepreneurs mainly grow up in ordinary or poor homes. Their parents and friends lack the opportunity to provide them the necessary entrepreneurial resources.
- When the internal social ties of student entrepreneurs fail to meet the needs for new business creations, they use their external social ties such as the alumni to get access to the needed entrepreneurial resources.
- The alumni entrepreneurs fully understand what resources are required by the student entrepreneurs. They have the capabilities to provide the student entrepreneurs the needed resources either by themselves or through their internal/external social ties.

# Conclusions

- The importance of the alumni entrepreneurs is comparatively weaker at the formation stage of student entrepreneurship intention but relatively stronger at the entrepreneurial resource acquisition stage.
- The topmost resource provided by the alumni entrepreneurs is information, followed by materials, client, human, technological and financial resources.
- Professors play the most important role at the formation stage of student entrepreneurial intention. They also play a relatively strong but less important role at the entrepreneurial resource acquisition stage.
- **It is evident that integrating student entrepreneurs in the relationship networks that inspires their entrepreneurial intention and provides them access to the needed entrepreneurial resources play instrumental role in the student entrepreneurship development process.**

# Recommendations

- Universities should proactively foster strong links between the alumni and student entrepreneurs through formal or informal communication activities to help foster student entrepreneurship.
- Universities should design entrepreneurship programs with the active participation of alumni entrepreneurs so that they benefit from the real-world experience of the alumni.
- With the help of alumni entrepreneurs, universities should promote the importance of a localized approach (i.e., regional cultures) to student entrepreneurship such as local consumer and business culture.
- Universities should recognize the importance of professors in the process of student entrepreneurship development and provide incentives to them to play an active role in promoting student entrepreneurship.
- The regional and national governments should create student entrepreneurship venture capital.



THANK  
YOU

The text "THANK YOU" is rendered in a bold, rounded, green font with a dark brown outline. The word "THANK" is on the top line and "YOU" is on the bottom line. The text is flanked by decorative floral elements. On both the left and right sides, there is a stylized red rose with a white spiral center, positioned above a brown stem with two green leaves. The entire graphic is centered on a plain white background.