

Opportunities and challenges of graduate entrepreneurship in China's Greater Bay Area: cases in Hong Kong and Shenzhen

Graduate entrepreneurs and start-up activities

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Abstract

Purpose – This study chooses to look at early-stage entrepreneurship and entrepreneurial activities from the perspective of university graduates. More specially, this study takes the stance of integrated role of structure and agency, examining how university graduate entrepreneurs recognize, review and activate their entrepreneurial opportunities, and what implications can be drawn in response to the integration of the in-building of the Greater Bay Area (GBA).

Design/methodology/approach – This article is drawn upon 12 case studies of small-scaled (within five permanent personnel) graduate enterprises based in Shenzhen and Hong Kong. The fieldwork was conducted in 2019, including enterprise visits, analyzing the enterprises documents and interviewing the graduate entrepreneurs. Participants were accessed through snowball sampling, and personal privacy and ethnicity were guaranteed during data collection. All founders of the graduate enterprises are university graduates within five years, regardless of their last achieved academic degree.

Findings – In this study, the objectivity–opportunity is interpreted as external enablers that are recognized by graduate entrepreneurs. Due to lack of experience, graduate entrepreneurs are more dependent on existing external opportunities in the market, instead of creating new inspirations. However, lack of experience does not mean the subjectivity–agency is missing. Instead, the subjectivity–element of entrepreneurial opportunity identification is the continuous evaluation in activating the external enablers, which is interpreted as self-evaluated challenges during entrepreneurial opportunity identification. These challenges function as sources of hesitation, modification and termination during their decision-making, as well as reflections of the current graduate entrepreneurial environment.

Originality/value – By date, no sophisticated study in literature is found analyzing the entrepreneurial opportunity identification of university graduates. Additionally, regardless of the rising attention, no agreement is achieved in the literature on measurement of entrepreneurial opportunity, influential factors of entrepreneurial opportunity and sub-elements of the identification process. This implies that more research to be conducted in diverse contexts, sub-entrepreneurial groups and in-depth analysis of selected variables regarding entrepreneurial opportunity, as elaborated in this article.

Keywords Entrepreneurial opportunity, Graduate entrepreneurship, China's Greater Bay Area

Paper type Research paper

Introduction

University entrepreneurship has been greatly encouraged by the Chinese government in recent years as a key strategy for enhancing innovation and creativity. Accordingly, university incubators, technical/ innovation parks and start-ups have been constructed across the country, including the Greater Bay Area (GBA). This is attracting a rising population of students and graduates and transforming knowledge and technology into an array of businesses, which involves networks from both industry sectors and the government, and meanwhile releasing the harsh graduate unemployment in the regional labor market (Mok and Jiang, 2018; Mok *et al.*, 2020; Xiao and North, 2017).

Despite the increasing amount of scholarly work on the general growth of business incubators and start-ups, little is known about the subset of enterprises that have university students or graduates as the major actors. In addition, most studies have investigated the resources, operating strategies and operating models of incubators (Hong *et al.*, 2019; Tang *et al.*, 2019) with incubators or enterprises as the unit of analysis. However, individual



entrepreneurs' agency, experiences, attitudes and views remain a myth, as well as the factors and processes that shape or refine their perspectives. Moreover, China's GBA, which integrates unique technological, educational and industrial resources from diverse areas, possesses significant comparative advantages, including regional innovation level, entrepreneurial spirit and close alignment between research and business. Therefore, there is a need to map and review the current practice of graduate entrepreneurship practices in the region at their current stage and reveal potential problems for policy recommendations.

Inspired by the concept entrepreneurial opportunity, this study provides empirical illustrations of how entrepreneurship ideas were shaped and developed in an intensified trend of entrepreneurship and innovation in the GBA, from university graduates' perspective. The analysis draws on the case studies of 12 graduate entrepreneurs starting their own business in Hong Kong and Shenzhen. This study examines the graduate entrepreneurs' recognition of entrepreneurship opportunities, as well as the challenges they faced in activating them in their start up practice. More specifically, this study focuses on, first, the experiences and perceptions of the start-ups' development and entrepreneurial practice. Second, it investigates the role of the different stakeholders – namely, policies at the national and regional levels and institutional enhancement – in facilitating the development of the start-ups and entrepreneurship practice. Third, it examines the reflections and perceptions of the positive and negative practices that occur during the development of the start-ups for further policy recommendations. The aim of this article is thus to contribute to an understanding of graduate entrepreneurship in the GBA from the perspective of students.

The Greater Bay Area: regional specialties and potentials for entrepreneurship

The Guangdong-Hong Kong-Macau Greater Bay Area in southern China, also known as the GBA, geographically refers to the city cluster by China's Pearl River Delta, consisting of nine cities and two special administrative areas (SARs) (Hong Kong and Macau). The concept of GBA was first mentioned in China's The Belt and Road Initiative (B&R) in 2015. Later, the development of the GBA was included in the local government's policy agenda. In 2017, the *Framework Agreement on Deepening Guangdong-Hong Kong-Macau Cooperation in the Development of the Bay Area* was jointly assigned by the local governments' leaders. In 2019, the State Council published the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* (hereafter referred to as outline), which functions as a guidance for current and future cooperation and development of the GBA from now until 2035.

The potential of the GBA as a significant mega region with a high level of technological innovation and economic prosperity is well recognized by both researchers and policy makers. The challenges for the GBA development agenda are also discussed, such as eliminating boundaries for the free flow of resources and integrating the SARs and mainland China (Chandra and Wong, 2016; Govada and Rodgers, 2019; Lau, 2019; Yu, 2019). Accordingly, the GBA contributed over ten trillion RMB (equal to over 1.6 trillion US dollars) to the gross domestic product (GDP) in 2018. Shenzhen alone accounts for over 22% of the GBA's GDP with 2.42 trillion RMB, followed by Hong Kong with 2.40 trillion RMB. The total population in the area is over 70 m (National Bureau of Statistics of China, 2019), forming a strong human capital foundation. In the educational sector, education spending in the total area was 217 bn RMB in 2017. Hong Kong and Shenzhen outpaced other cities in this regard. With respect to R&D expenditure, the Shenzhen government spent over 4% of the local GDP on research and development (R&D), which is also above the national level. In comparison, R&D expenditure in Hong Kong accounts for only 0.8% of the local GDP (HSBC, China Business Network and PHBS, 2018; National Bureau of Statistics of China, 2018). Compared with other bay areas (Tokyo, New York and San Francisco), China's GBA highlights itself with both an international financial center and international shipping center developed under a sophisticated marketization climate. It has also been an international manufacturing center

and world leader in science and technology since the transition from a planned economy to a market economy ([Deloitte, 2019](#)).

Hong Kong and Shenzhen are the two GBA cities used as field sites in this article. Hong Kong's economy today is supported by four pillars, namely tourism, professional and producer services, financial services and trade and logistics. This economic structure was constructed in the 1970s when Hong Kong transformed itself from a dependence on textile manufacturing and exporting into a service-based economy. Additionally, with its unique geographical advantage, Hong Kong has lacked long-term technological development policies; hence, local enterprises were limited in their reaction to a changing international market ([GEM, 2016](#)). However, to maintain long-term competitiveness in the age of the digital economy, Internet commerce and artificial intelligence, Hong Kong is today actively seeking to develop an economy of innovation and technology, as shown in the recent policy address by its chief executive. Both government and industry have allocated considerable resources and funding to support this economic transformation. To name a few examples: The Technology Start-up Support Scheme for Universities (TSSSU) by the Innovation and Technology Commission (ITC), which supports university staff, alumni and students' start-up practices at preseed stage, and the Alibaba Entrepreneurs Fund to support Hong Kong and Taiwan based entrepreneurs and youngsters with both investment capital, guidance and internship opportunities. Accordingly, a rising number of enterprises and start-ups are appearing with significant involvement in digital technology and new business models. Noticeably, Hong Kong's highly profiled and prestigious higher education institutions are now expected to be innovative both in research and entrepreneurship and in terms of research support for business models and knowledge transfer ([GEM, 2016; KPMG, 2018](#)).

Shenzhen, the home of a list of renowned high-tech firms such as BYD auto (electronic automobiles and batteries), Tencent (social networking platform) and Huawei (telecommunication conglomerate), has been referred to as China's most innovative city and a rising global innovation and technology hub ([Austrade, 2018; The Economist, 2017](#)). This high level of innovation can be expressed in the considerable number of patent filing capital and new start-ups. In 2017 alone, there were 20,000 PCT applications filed in Shenzhen, accounting for 50% of the annual patent application in China that year ([Austrade, 2018](#)). The total number of new high-tech companies exceeds 14,000 in Shenzhen, with over 3,000 new firms registered in 2018 ([Commerce Bureau of Shenzhen Municipality, 2019](#)). The city is traditionally strong in hardware manufacturing, which can source new start-ups with technical components such as electronic chips, sensors, motors and accessories. The local Shenzhen government has expressed a continuous eagerness in innovation, networking and collaboration. For example, the government hosts the annual *China (Shenzhen) Innovation and Entrepreneurship International Competition* worldwide with a total cash prize of RMB 10.91 mn (equal to US\$ 1.7 mn) as a way of identifying promising start-ups ([Austrade, 2018](#)). Governmental encouragements also include industry awards, financial support, tax waiving and incubation.

Both Hong Kong and Shenzhen have been listed as central GBA cities in the *outline*, and the great potential of the two cities with regard to entrepreneurship and innovation with a high level of integration and collaboration has been analyzed and recognized by many ([Govada and Rodgers, 2019; Lau, 2019](#)). The Global Innovation Index 2018 ([WIPO, 2018](#)) ranked Hong Kong–Shenzhen as the second innovation cluster in accordance with science and technology activities, international patent filings and scientific publications. The start-up percentages recorded a staggering increase in both Hong Kong and Shenzhen from 2009 to 2016, (although specific data on graduate entrepreneurship is unknown). In 2016, early-stage entrepreneurial activity among adults in Hong Kong was 9.44% (more than twice the 3.64% in 2009). The Shenzhen equivalent was 16.04% in 2016, as compared to 4.8% in 2009. Such rapid growth was driven by the increase in nascent businesses in both cities. It is worth

noting that while entrepreneurship rates (both at early-stage and established-stage levels) are on rise in Hong Kong and Shenzhen, they are declining in other areas of China (GEM, 2016). All the above suggest the structural and social preparedness of the region, the specialty of the start-up culture and entrepreneurial ecosystem for entrepreneurial activities, and the readiness of entrepreneurial opportunities.

Entrepreneurial opportunity recognition and formation

Entrepreneurial opportunity and its identification has been regarded a key subject in entrepreneurship research and has attracted scholarly attention in multiple disciplines, including business studies, political science and sociology. There are two controversial approaches that shape entrepreneurial opportunity research, and these will be addressed below.

The first approach regards entrepreneurial opportunity as objective existence and can thus be discovered at the beginning stage of the entrepreneurial process. For example, a new technology introduced by the supplies leads to a reduced cost in production and potentially creates new needs in the market. Experienced entrepreneurs can easily identify the entrepreneurial opportunity during this process. Another example is the launch of new regulations or policies that may cause changes in the allocation or use of resources in the market. Representative scholars of this perspective are Shane and Venkataraman, who argue that entrepreneurial opportunity is available in an unbalanced market and all individuals have the potential to discover such opportunities (Shane and Venkataraman, 2000). Accordingly, how individuals search for entrepreneurial opportunity constitutes the research focus of the first approach. Entrepreneurial opportunity can be obtained by either systematic search (Patel and Fiet, 2009), which refers to discovering entrepreneurial opportunity by systematic searching, or serendipitous discovery (Dew, 2009), meaning that one discovers entrepreneurial opportunities due to accumulated knowledge or entrepreneurial alertness. Serendipitous discovery, in other words, stresses the individual differences in finding entrepreneurial opportunities (Corbett, 2007).

The second approach emphasizes the subjectivity of entrepreneurs in the formation of entrepreneurial opportunity. Therefore, in this view, entrepreneurial opportunity is the cognitive product of individuals and can be created. Scholars following this approach argue that entrepreneurial opportunity is creatively constituted by entrepreneurs building on their cognitive understandings and reactions toward the external environment (Baron and Ward, 2004; Krueger, 2007). The dynamic process of individual cognition hence forms the research focus of this approach. Baron and Ward (2004) analyze the connection between entrepreneurs' thinking styles and formation of entrepreneurial opportunity. They think that under the entrepreneurial circumstances with high level of uncertainty and complexity, entrepreneurs are inclined to apply heuristic thinking in decision-making. However, the likelihood of entrepreneurial success rises if entrepreneurs can apply both systematic thinking and heuristic thinking more flexibly in the entrepreneurial opportunity identification process. Researchers also look at the influence of diverse types of entrepreneurial opportunity in its formation. For example, scholars divide entrepreneurial opportunity into explicit opportunity and implicit opportunity (Smith *et al.*, 2009). Explicit opportunity refers to opportunities that obviously exist in the market and require no further exploration. For example, female consumers' needs for daily facial care in big cities are an explicit opportunity for cosmetic producers. Implicit opportunity, on the other hand, refers to opportunities created by entrepreneurs through their inspirations, imaginations or other cognitive efforts. Researchers (Smith *et al.*, 2009) further elaborate that experienced entrepreneurs with considerable previous entrepreneurship knowledge are more likely to discover implicit opportunity, while new entrepreneurs, who ignore implicit opportunity due

to a lack of experience, are more likely to apply the systematic searching strategy to find explicit opportunity in the market.

Neither the objective-recognition approach nor the subject-formation approach can solely explain the complexity and diversity of entrepreneurial opportunity identification. An increasingly popular idea is the integration of the two approaches to combine the objectivity and subjectivity in entrepreneurial opportunity identification (Mole and Mole, 2010; Sarason *et al.*, 2006), as inspired by structuration theory (Giddens, 1991). Structuration theory thinks that entrepreneurs and the entrepreneurial environment are not irrelevant but rather interdependent. Entrepreneurs will actively understand the regulations and resources in their entrepreneurial environment and reach the business scripts. Furthermore, they will both intently or unconsciously select, imitate and modify these business scripts during the process. By doing so, structuration theory dissolves the dichotomy between structure (the economic and social structure of entrepreneurial activities) and agency (pertaining to the entrepreneurs) and are of more relevance to the entrepreneurial activities.

All three approaches (the objective-recognition approach, the subject-formation approach and structuration theory) are employed limitedly in entrepreneurial opportunity research in the Chinese context (He *et al.*, 2019) and even less so in the analysis of graduate entrepreneurship. To date, no sophisticated study in the literature has been found that analyzes the entrepreneurial opportunity identification of university graduates. In addition, regardless of the increasing attention on the matter, no agreement is achieved in the literature on the measurement of entrepreneurial opportunity, influential factors of entrepreneurial opportunity and sub-elements of the identification process (Davidsson, 2015; Hansen *et al.*, 2011; Mainela *et al.*, 2014). This implies that more research needs to be conducted in diverse contexts and sub-entrepreneurial groups, with an in-depth analysis of selected variables regarding entrepreneurial opportunity.

This study chooses to examine early-stage entrepreneurship and entrepreneurial activities from the perspective of university graduates. More specifically, this study advocates the integrated role of structure and agency, exploring how university graduate entrepreneurs recognize, review and activate their entrepreneurial opportunities, and what implications can be drawn in response to the integration of the in-building of the GBA. In this study, the objectivity–opportunity is interpreted as external enablers that are recognized by graduate entrepreneurs (Davidsson *et al.*, 2020). Since they lack previous experience of entrepreneurial activities, graduate entrepreneurs are more dependent on existing external opportunities in the market and struggle to create new inspirations. However, their lack of experience does not mean that the subjectivity–agency is missing. Instead, the subjectivity–element of entrepreneurial opportunity identification is the continuous evaluation in activating the external enablers, which are interpreted as self-evaluated challenges during entrepreneurial opportunity identification. These challenges function as sources of hesitation, modification and termination during their decision-making, as well as reflections of the current graduate entrepreneurial environment in the needy circumstances of an integrated GBA, to be further elaborated in the following text.

Methods: participants and data collection

This article draws on 12 case studies of small-scaled (no more than five permanent personnel) graduate enterprises based in Shenzhen (SZ) and Hong Kong (Hong Kong). As shown in Table 1, the business fields of the graduate enterprises align with the academic disciplines of the entrepreneurs. Regarding the source of finance, self-finance (including finances from family, friends and networks) remains the major source for graduate entrepreneurship. However, for the five graduate enterprises with technology involvement, all have received government funds at varied levels (including funds from public-funded universities).

AEDS

No	Location	Business field	Source of finance	Level of education	Academic discipline	Demographic information of the founder	
						Hometown (area in China)	Gender
1	SZ	Technology	Self-finance + government fund	Bachelor	STEM	Mainland China	Male
2	SZ	Technology	Government fund + societal invest	PhD	STEM	Mainland China	Male
3	SZ	Education	Self-finance	PhD	NonSTEM	Mainland China	Male
4	SZ	Education	Self-finance	Master	NonSTEM	Mainland China	Male
5	SZ	Technology	Self-finance + government fund	Master	STEM	Mainland China	Male
6	SZ	Technology	Self-finance + government fund	Master	STEM	Mainland China	Male
7	Hong Kong	Education	Self-finance	Bachelor	NonSTEM	Hong Kong	Male
8	Hong Kong	Travel	Self-finance + government fund	Bachelor	NonSTEM	Hong Kong	Male
9	Hong Kong	Education	Self-finance	Bachelor	NonSTEM	Mainland China	Male
10	Hong Kong	Technology	Government fund	Master	STEM	Mainland China	Male
11	Hong Kong	Architecture	Government fund	Master	STEM	Mainland China	Male
12	Hong Kong	Travel	Self-finance	Bachelor	NonSTEM	Hong Kong	Male

Table 1.
Background information of the graduate enterprises

Note(s): To protect the privacy and under the request of participants, no further detailed information such as field of study, business field or source of finance will be revealed

The fieldwork was conducted in 2019 and included enterprise visits, analysis of the enterprise documents and interviews with the graduate entrepreneurs. Participants were accessed through snowball sampling, and personal privacy and ethnicity were guaranteed during data collection. All founders of the graduate enterprises had graduated university within five years of the interviews, regardless of their last achieved academic degree. Due to the limitation of data, even though the graduate enterprises are equally distributed in Shenzhen and Hong Kong, a majority of the founders are from mainland China (only three entrepreneurs are originally from Hong Kong). Another limitation is that this process failed to find or seek permission from female graduate entrepreneurs and is thus unable to further illustrate the gender differences in graduate entrepreneurship. To date, the founder of enterprises No. 2 and 3 started their PhD studies in Hong Kong, but will continue their business in Shenzhen. The founders of enterprises No. 6, 9 and 11 have decided to terminate their entrepreneurial activities, while seeking either further education or employment.

External enablers of graduate entrepreneurial opportunity

Graduate entrepreneurs' entrepreneurial activities at the beginning stages are all encouraged by external enablers, namely, defined technology and market needs, policy inclinations and

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resource allocations, as well as institutional promotion. Moreover, all three external enablers are interwoven, suggesting the enhanced alignment between industry–policy–academy in graduate entrepreneurship in GBA and the Chinese context.

Defined technology and market needs

I joined this student entrepreneurship workshop organized by my faculty, where we met the guest speakers who are also first-generation enterprises... During the workshop I was very excited to understand the exciting process of transferring what we learnt in the university to the market, and how we can contribute to the improvement of the production. I mean, I know our major is strong in academic quality, and we are leading the technology development in this field. This is our chance, is not it? So, in the last semester, I was thinking, why not following the pace of these brave entrepreneurs, grasping this opportunity and start up my own business (No. 2)

The encouragement of defined technology and market needs is not only expressed by STEM-discipline-equipped graduate entrepreneurs but also by those from non-STEM disciplines.

Our team began to talk about it (starting up) ever since all of us were preparing the language test which was required to apply for overseas study. We were also surprised by the busy schedule and full house of the language training center in the city. It looks like there will always be students who need to train English so as to study overseas, and likewise, to learn Chinese language and culture so as to be familiar with the mainland (No. 7)

Policy inclination and resource allocation

All participants emphasize the potential prosperity of the GBA and the richness of entrepreneurial activities in its diverse levels. They follow closely relevant policies which may have an impact on their entrepreneurial activities. Many of them refer to the top-down grand entrepreneurship and innovation campaign in China during the past decade ([Ahlstrom and Ding, 2014](#)) and view the follow-up series of policies as a unique opportunity in contemporary times. The policy inclination and resource allocation in GBA are regarded as opportunities that “cannot be missed” (No. 9) by the graduate entrepreneurs.

I am very optimistic of this in-building GBA... This is beneficial to all residents in the region... We who conduct entrepreneurial activities will be benefited even more because of the policies... (No. 5)

This is unique opportunity, right here, right now. Look at the many events organized by the government, at community level, regional level, provincial level, national level... and look at the resources allocated in the events, funds, rewards, meetings with investors and angels, networking... I do not think this will happen in other places so easily (No. 6)

University encouragement

University encouragement, compared with the other two external enablers, works more directly on graduate entrepreneurs. The university is the executor of graduate entrepreneurship policies and practices ([Cheng et al., 2019](#)), both regionally and nationally. This includes organizing entrepreneurial activities (such as competitions, pitching, entrepreneurship promotion and networking), funding sources, network sources (such as alumni networking), professional assistance (such as encouraging collocation between academic staff and students in entrepreneurial activities) and entrepreneurial education. Today, almost all public-funded universities have established departments (such as CEDARS at the University of Hong Kong) that offer services to encourage and meet the entrepreneurship needs of students and graduates (within three or five years). Under these

circumstances, university encouragement is the direct driver for graduate entrepreneurs in recognizing entrepreneurial opportunities.

The challenges of graduate entrepreneurial opportunity: sources of hesitation, modification and termination

Although helpful and convenient, the above external enablers cannot guarantee the smooth activation of the entrepreneurial opportunities during graduate entrepreneurs' decision-making. The following four perspectives are challenges evaluated by the graduate entrepreneurs, which function as sources of hesitation, modification and termination in their entrepreneurial opportunity identification.

Difficulty of integrating between Hong Kong and Shenzhen

The difficulty of integration and mutual understanding between Hong Kong and Shenzhen is mentioned by all graduate entrepreneurs. Many have experience living both in mainland China and Hong Kong. For example, all permanent staff for enterprise cases No. 4 and 5 have received their higher education in Hong Kong. The founders of enterprise cases No. 7 and 8 have lived on the Chinese mainland for a few years and can speak fluent Mandarin. As shown in [Table 1](#), the founders of enterprise cases No. 9, 10 and 11 are mainland Chinese who conduct entrepreneurial activities in Hong Kong, and the founders of enterprise cases No. 2 and 3 play two roles across the cities: they are students in Hong Kong and graduate entrepreneurs in Shenzhen. However, familiarity with both cities and the social and business codes does not necessarily help to diminish the cross-city confusion of the graduate entrepreneurs.

I have joined a few activities organized...both in Shenzhen and in Hong Kong. After the GBA initiatives, quite a few events happen almost every day here in GBA, many events target specifically networking between Hong Kong and the mainland entrepreneurs for potential cooperation...All events are open to all who are interested regardless of origins, business areas...I now have the contact information of quite a few from all over the world, even a few from Israel who came to China to do business. We hang out from time to time and sometimes have business meetings to share ideas and seek advice. No one from Hong Kong joined us...invited, but never came (No. 6)

The source of the integration difficulty, according to the graduate entrepreneurs, 'seems to be somehow an intended misunderstanding which is actually quite easy to be diminished by just a simple visit or joining an activity. However, many refuse to do so. We believe in... mutual benefits, collaboration is better than exclusion, 1 plus 1 is over 2, right?' (No. 12)

The absence of Hong Kong entrepreneurs in joint activities might be partly explained by the wide-spread social protests in the Hong Kong society during the data collection period, leading to their reluctance of cross-border travels and limited motivation of attending such activities. In other cases, Hong Kong entrepreneurs also expressed their willingness of closer collaboration with the mainland, yet hesitated due to unacquaintance with the "rules of the games" in the mainland (No. 7). "We heard stories about doing business in the mainland... many do not express concretely but give just a vague and blurry idea, and I am not used to that. In addition, we are also not sure about the administrative procedures in terms of registration, fund application, etc..." (No. 7) The smooth integration between the two cities requires a high level of mutual understanding of regional differences and respect toward values, behavior codes and social and cultural varieties. However, such mutual understanding is not yet observed in this study. Graduate entrepreneurs seemed to attribute the limited integration to the reluctance or hesitation of their counterparts in the other city, yet demonstrated no interest in breaking the barriers. Nevertheless, youngsters in both mainland and Hong Kong seemed to have constructed rather negative and stereotyped

images of each other. The social movements and protests in Hong Kong society since 2019 have absolutely worsened such stereotype. It implies that to build a fully integrated GBA with shared resources remains challenging. The economic linkages and collaborations promoted by local governments in recent years do not necessarily solve the societal misunderstandings and group conflicts, suggesting a more diverse approach with joint efforts to address the issues.

Lack of humanities and social science elements in entrepreneurship activities

Graduate entrepreneurs, especially those with limited involvement in technology, who conduct business in service or educational fields, doubt the role of the humanities and social sciences in entrepreneurship. They also wonder whether entrepreneurial opportunities are equally distributed in high and low technology involvement start-ups.

We joined a few pitching competitions and felt a bit inferior because our entrepreneurial ideas did not appear 'fancy' at all... not citing or applying so much recent technology... very soft science... So in order to win we need to brainstorm even harder and try absorbing the fancy-technology-element in our presentations (No. 4)

...not so easy to outpace the others or receive awards or funding opportunities without technology elements in the ideas, yet we do think our ideas are meaningful also. It looks like entrepreneurship is a hierarchical system also, where high technology involvement enterprises are regarded as more important... Just hope the entrepreneurial environment will be more diverse and... be more tolerant to humanities-oriented entrepreneurial activities (No. 3)

Overemphasizing Fin-tech in Hong Kong

Another challenge is the singularity of industry in Hong Kong, which focuses on Fin-tech and service, as this has greatly limited the scope of entrepreneurial activities.

Many friends also agreed that quite a lot of entrepreneurial ideas or activities get restrained because our fields are not prioritized in Hong Kong, or in most cases the industry is not ready yet in society... I understand very much this singularity (on Fin-tech) is determined by the current industrial structure in Hong Kong... It is easier to build on something than to create something new, and Finance is the traditional strength in Hong Kong... Therefore it is easier to find Allies and investors if you are starting up in Fin-tech... But Hong Kong needs to update its industrial structure, innovation can happen not only in Finance... I see that the government is investing more in a smart city, in AI technology now, which is good... Allocate the resources to more fields... (No. 11)

We envy very much the innovation culture and diversity in Shenzhen, and expect very much that GBA can bring changes into Hong Kong very soon... Our team is now seriously considering moving to Shenzhen (laugh)... Hong Kong actually has many possibilities, just think about the academic strength and top-ranked universities... all these are knowledge and technology back-ups for entrepreneurial activities. We already have Prof. Li Zexiang and the good story of Da Jiang and the HKUST model, right? (No. 10)

Limited academic resources in Shenzhen

Notably, while Hong Kong graduate entrepreneurs are expecting improved diversity in the industrial structure of Hong Kong due to enhanced integration of GBA, their Shenzhen counterparts are looking forward to the sharing of academic resources that can be paired-up more closely with entrepreneurial activities in Shenzhen. Education, especially higher education, is considered one of the biggest shortages of the city during its transformation into a high-tech and innovation hub. "...It is therefore needed to improve the higher education

offerings in the city and meanwhile bring in more academic resources to support the entrepreneurial activities" (No. 1).

The past decade has witnessed a series of joint efforts from this perspective in Shenzhen. An increasing number of universities are building or have built Shenzhen campuses or moved selected faculties there, such as the Shenzhen Graduate School of Peking University, Shenzhen Graduate School of Tsinghua University, Peking University HSBC Business School and Harbin Institute of Technology (Shenzhen). Hong Kong's academic strength in basic research and international partnerships is an absolute advantage and highly valued by the central government. As an international academic hub, and with its world-class scientific research, Hong Kong plays a vital role, contributing to China's development as a global technology power ([Tang, 2020](#)). In 2014, The Chinese University of Hong Kong-Shenzhen was approved by the Ministry of Education with the purpose of strengthening cooperation between Hong Kong and the mainland. However, the pattern of academic resource sharing in the GBA and the GBA model of academy–industry–policy alignment in graduate entrepreneurship are yet under development at the current stage.

Conclusion

Entrepreneurship is complex in nature, and entrepreneurship models differ by sub-group, context, entrepreneurial stage, etc. ([Kirzner, 2015](#)). This article examines a selected subject—the identification of entrepreneurial opportunity concerning a chosen entrepreneur group, graduate entrepreneurs—in a chosen context, the in-built GBA. Inspired by the structure–agency nexus framework, this article interprets the existing policies, market needs and university encouragement as three external enablers in their recognition of the graduates' entrepreneurial opportunity. The three enablers work interactively with each other to facilitate decision-making during the entrepreneurial process.

The agency in entrepreneurial opportunity identification is interpreted as the self-evaluation of the entrepreneurial environment, which is in continuous negotiation with the individual preparedness and capabilities of the graduates. These self-evaluated challenges would lead to slight or major corrections in entrepreneurial opportunity identification. Accordingly, four challenges are expressed by graduate entrepreneurs, namely, limited integration between Hong Kong and Shenzhen with respect to entrepreneurial collaboration; unequaled distribution of entrepreneurial resources in high and low-tech involvement enterprises; the overemphasizing of Fin-tech in Hong Kong and the shortage of academic resources in Shenzhen. Addressing the four challenges would contribute to the diversity and innovation of graduate entrepreneurship in GBA.

This article highlights the significant potential of GBA providing that comparative advantages in each area such as technology and innovation in Shenzhen, world-class academic profession, scientific research strength and international partnerships in Hong Kong can be shared freely. However, a smooth integration between the areas remains challenging, and mutual understanding and respect are not yet achieved in GBA, especially between special administrative regions and mainland cities. This suggests that further entrepreneurial policies could take into consideration not only economic cooperation but also improved mutual understandings and cultural perspectives. The article also raises the concern regarding the role of graduate entrepreneurs with a background in the humanities and social sciences. While high-tech involvement in entrepreneurial activities is encouraged and prioritized in current policies, whether and how low-tech-enterprises or social enterprises contribute to the innovation and diversity of the society could be further defined in both policy and research.

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