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# Business Incubation Study Programs to Promote Innovation and Entrepreneurship Activities in Animation Major

Zeling Zheng. Fuzhou University of International Studies and Trade School of Art and Design (China) (zhengzeling@fzfu.edu.cn) (https://orcid.org/0009-0007-9829-9563)

Xiaohui Huang<sup>\*</sup>. Department of Education and Learning Technology National Tsing Hua University. Jin Shan College Fujian Agriculture And Forestry University (China) (zhoujie0726@fjnu.edu.cn) (https:// orcid.org/0009-0004-7066-0669)

Jie Zhou. Fujian Normal University Development Planning Division (China) (zhoujie0726@fjnu.edu.cn) (https://orcid.org/0009-0006-1783-8143)

#### ABSTRACT

The aim of this study was to provide guidelines to setting up business incubation study programs in higher education for the promotion of innovation and entrepreneurship activities in the field of animation. This study examined the relationship between business incubation program implementation, institutional policies, student engagement, faculty involvement, intellectual property (IP) management, and animation major relevant innovation and entrepreneurship activities to achieve its goals. Data collection was carried out from Chinese universities by using a survey questionnaire and results were obtained by using statistical tool in which Structural Equation Modeling (SEM) was carried out. This study believed that incubation centers in the field of animation at higher education institutions can perform better to promote innovation and entrepreneurship success by concentrating on student engagement, faculty involvement and IP management practices along with the supportive institutional policies and proper implementation of strategy. Consequently, this study has significant importance for the policymakers to promote animation major among students by considering the results of the current study. Policymakers can promote animation major through the promotion of incubation centers in Chinese higher educational institutions.

#### **KEYWORDS**

Animation Industry, Institutional Policy, Incubation Centers, Student Engagement, Faculty Involvement, IP Management.

#### RESUMEN

El objetivo de este estudio era proporcionar directrices para la creación de programas de estudios de incubación de empresas en la enseñanza superior para la promoción de actividades de innovación y espíritu empresarial en el ámbito de la animación. Esta investigación examinó la relación entre la implementación del programa de incubación de empresas, las políticas institucionales, el compromiso de los estudiantes, la participación del profesorado, la gestión de la propiedad intelectual (PI) y las actividades de innovación y emprendimiento pertinentes para un grado en animación para alcanzar sus objetivos. La recopilación de datos se llevó a cabo en universidades chinas mediante un cuestionario de encuesta y los resultados se obtuvieron utilizando una herramienta estadística en la que se realizó un Modelado de Ecuaciones Estructurales (MES). Este estudio cree que los centros de incubación y el éxito empresarial concentrándose en el compromiso de los estudiantes, la participación del a so políticas institucionales de apoyo y la aplicación adecuada de la estrategia. Por consiguiente, este estudio tiene una importancia significativa para que los responsables políticos promuevan la especialización en animación en tre los estudiantes teniendo en cuenta los resultados del estudio actual. Los responsables políticos pueden promover animación mediante el fomento de centros de incubación en las instituciones de enseñanza superior chinas.

#### PALABRAS CLAVES

Industria de la Animación, Política Institucional, Centros de Incubación, Participación de los Estudiantes, Participación del Profesorado, Gestión de la PI.

### 1. Introduction

The idea of company incubation programs was first established in the United States in the 1960s. These programs have since become well-known on a global scale, encouraging entrepreneurship and innovation in higher educations institutions. They first sought to offer support and necessary resources to startups. These initiatives have developed over time to accommodate various regional and national contexts, aiding in global economic growth (Herawati et al., 2022). The amount of published literature that gives empirical data from industrialized country contexts has increased with the rise in the number of incubators in the US and Europe. Over the past ten years, incubators have expanded quickly in transitional economies like China, rising to about 13,000 approved incubation facilities in 2022, according to data from the Chinese government (Xiao & North, 2018; Xiao et al., 2020). However, in contrast to the existing knowledge on incubators, in industrialized nations, the Chinese incubator ecosystem is mostly unexplored, with very little information available outside of Mandarin literature (Xiao & North, 2018).

In China, the inefficient use and distribution of resources has impeded incubator performance (Hu et al., 2023). It has been demonstrated that expanding the number of incubators reduces efficacy due to sponsors' (usually several government agencies') ineffective resource allocation (Du et al., 2020). Scholars have contended that Chinese incubators are ineffective in helping start-ups overcome survival challenges because they function primarily as landlord-style managed office spaces, randomly choose tenants who are supportive of private incubators, and neglect to modify their capacity to accommodate tenant requests (Hu et al., 2023). The management teams of Chinese incubators establishments require continuous reinforcement. The majority of these incubators exhibit inadequate internal resource coordination and external resource linking capabilities which is one of the major problems in innovation and entrepreneurial success. Similar with the other industries, animation industry is also influenced due to the low level of innovation and entrepreneurship outcomes.

The Chinese animation industry's overall output value exceeded ¥ 221 billion in 2020. The market size of China's animation industry is expected to reach ¥ 450 billion by 2026, based on market predictions. However, the achievement of ¥450 billion by 2026 is challenging without focusing on the innovation and entrepreneurial success in animation industry through higher education institutions. The formation and promotion of incubation programs within higher educational institutions, such as universities, can effectively address the issues facing the animation industry. With more than 3,000 colleges and universities and more than 44.3 million students enrolled on the mainland of China by the end of 2021, China has one of the largest higher education sectors in the world (Tang et al., 2021). Furthermore, 240 million people who live in China have completed high school. As a result, the expansion of new incubation study programs and improvements to already existing ones inside China's vast higher education sector can promote creativity and entrepreneurship in the animation business.

Despite the wealth of information on incubation programs that is currently available (Santoso et al., 2023), earlier research has neglected the significant role of integrating incubation study programs into the animation major with the help of Chinese higher educational institutions. In particular, previous studies have not addressed the creation of incubation study programs within Chinese colleges as a strategy for fostering innovation and entrepreneurship in the animation domain. As a result, there is a significant literature gap that the current study fills by investigating the connection between the development of incubation study programs in higher education institutions and the animation sector. According to this study (Du & Wang, 2019), the adoption of incubation study programs in universities can foster innovation and entrepreneurship in the animation of business incubation study programs, administration of intellectual property (IP), student engagement, teacher participation, and institutional policies all play a role in the establishment of these study programs. In order to encourage innovation and entrepreneurial activity within the animation sector, this study's main goal is to offer guidelines for the creation of business incubation study programs in higher education institutions. The findings of this study are highly significant for policymakers, who can promote incubation study programs within Chinese higher educational institutions to promote the animation major among students.

#### 2. Literature Review

#### 2.1. Incubation Centre in Animation Industry

In China, the 13th five-year development plan for science and technology (Cai et al., 2021), related to

business incubators, was released by the Ministry of Science and Technology on June 29, 2017. A methodical prognosis for the upcoming phase was presented in the plan, which also evaluated the growth of these incubators over the 12<sup>th</sup> Five Year plan period. As a formal government policy, the plan was released. The plan was formulated with the aim of executing the national strategy of innovation-driven development; promoting the robust growth of science and technology business incubators (such as incubation entities for start-ups); enhancing the innovation and entrepreneurship ecosystem; stimulating new economic growth momentum; and providing unwavering support to transform China into an innovation-driven nation.

With a significantly higher number and the emergence of regional clusters, China's incubators have advanced into a new stage. A total of 2530 incubators had been added to the Torch Program by the end of 2015, with 736 incubators operating at the national level; 43,000 employees working in incubators, and over 86 million square meters of incubation space—2.8, 2.1, 2.9, and 2.9 times as many as at the end of the 11th Five Year Plan period. Beijing-Tianjin-Hebei, Yangtze River Delta, Pearl River Delta, and Sichuan-Chongqing were developed into significant clusters that completely encompass underdeveloped regions. An association of incubators was established in more than 80% of the province level regions. Over 75% of incubators are currently managed according to market principles, up from less than 30% in the past. Angel financing (Guan & Jin, 2023), startup coaching, skill development, consulting, and other comprehensive services have grown in importance as market-driven offerings. Incubators around the nation have partnered with 13,000 intermediaries to provide high-quality services to nascent businesses.

Young people and modern entrepreneurs can convert their creative ideas into successful business plans in the incubator. It is a hub where small businesses or start-ups can receive temporary and supportive assistance. It provides a mechanism for the transmission of technology and is oriented toward the expansion of small businesses, technological innovation and application (Hughes et al., 2021; Surana et al., 2020), and local economic development. Technology plays a huge role in fostering experiential learning and creating entrepreneurs capable of navigating the opportunities and overcoming the obstacles presented by the fourth industrial revolution. These initiatives aim to promote creativity, generate employment, expedite the connection between research and industry, and enhance financial gains through the establishment of new businesses in the animation sector.

A novel and inventive method of getting a firm up and running before taking it public while determining the best course of action, incubation centers provide support and direction to a start-up or a new enterprise, assisting them in promoting additional growth for the enterprise. Incubation centers (Obaji & Olaolu, 2020), which offer a range of business and technical services such as first investment, networking opportunities, lab facilities, and consulting services, can be a helpful resource for aspiring entrepreneurs. Growing a young company in the field of animation involves a lot of labor, such as finding manufacturing space at below-market prices, offering sufficient cash when needed, and utilizing staff skills and advice to steer firms in the proper path with pertinent marketing plans.

One of the fundamental concerns of incubation is to help an idea or start-up increase the chances of success by eliminating or reducing the amount of risk attached to it. An area where entrepreneurs may develop their ideas and launch successful businesses—that's precisely what an incubation center is—as a thriving ecosystem. It provides a secure environment where young business people can develop their innovative concepts into profitable ventures (Assenova, 2020). There are several benefits for entrepreneurs who seek advice from incubation centers, including lower expenses and access to crucial knowledge about animation businesses. Companies stay in business for an average of two years, and the way the organization operates, all start-ups help one another out, which lowers overhead and operational costs for everyone.

#### 2.2. Entrepreneurship and Innovation in Animation Major

The animation major program's incubation initiatives act as important catalysts for promoting innovation and entrepreneurship. Several key indicators, including metrics like the creation of student-founded businesses, the completion of financially successful projects, the generation of innovative ideas, the acquisition of patents or copyrights, and the recognition given to innovative contributions, can be used to determine the extent of their effectiveness. The success of incubation centers within the animation sector depends, as is the case in other industries, on a complex interplay of several crucial aspects, as noted by Rukmana et al. (2023). Entrepreneurship and innovation are the keystones of success for incubation centers, and these pillars are intertwined with a number of crucial criteria, as revealed by Rukmana et al. (2023) in an investigation conducted in the context of incubation study programs at higher educational institutions. These programs emphasized the crucial importance of many aspects in determining the overall performance and execution of incubation initiatives adapted to the animation domain. In addition, as Zreen et al. (2019) pointed out, the achievement of innovation and entrepreneurship in the field of animation is directly related to the effective characteristics crucial to the establishment of successful incubation study programs inside educational settings. The incubation program's successful conception and implementation serve as a lynchpin in encouraging entrepreneurial endeavors and new projects. A carefully designed program that provides mentorship, tools, and advice is essential.

## 2.3. Business Incubation Program Implementation

A few variable measures in previous studies show how well higher education institutions offer animation degrees, assisted by business incubation study programs, each of which consisted of specialized incubation facilities and mentorship initiatives. (Spence et al., 2018), financial support (Chang & Cheng, 2022), access to resources, and chances for students interested in entrepreneurship networking. A distinctive institutional setup known as "business incubation" is being devoted to fostering an entrepreneurial culture within a community (Eldering et al., 2023). The idea of incubation as a whole is attitudinal, as it cultivates a mindset within the community that supports and encourages new businesses to succeed, with the three main components being "an entrepreneurial and learning environment, ready access to monitors and investors, visibility in the marketplace." The foundation of the business incubation concept is the idea that enterprises can survive and expand longer by creating systems that would enable the early identification of those with high potential for success but limited resources. The idea makes sure businesses overcome what are known as the "liabilities of newness" and "smallness," which results in creative businesses that are profitable, competitive, and long-lasting. (Salvador & Rolfo, 2011).

However, business incubation program implementation is a major challenge for educational institutions. While business incubation study programs are intended to increase the survival rates of incubated companies, they are also intended to add value to them as a means of encouraging innovation and economic development (Al Mubaraki & Busler, 2011). Value-adding activities are commonly recognized as the company incubation process, and various models have been developed to account for this phenomena (Ayatse et al., 2017). The majority of incubation models are designed with a narrow emphasis, mainly concentrating on results and ignoring the relationships between value-added activities and other incubator activities. Therefore, the proper implementation of the business incubation program after fulfilling all the requirements is one of the crucial tasks. This is one of the first tasks which needed to ensure by the parent organizations for the promotion of innovation in animation field and entrepreneurial success. Implementation of incubation centers have a critical role in promoting innovative ideas (Secundo et al., 2023; Surana et al., 2020). Furthermore, previous studies also highlighted the important relationship between incubation business programs and entrepreneurship activities (Iqbal et al., 2020; Li et al., 2019). Therefore, following hypothesis are proposed to assess these arguments:

Hypothesis 1 (H1): Business incubation program implementation has positive influence on innovation in animation.

Hypothesis 2 (H2): Business incubation program implementation has positive influence on entrepreneurship success in animation.

#### 2.4. Institutional Policies

An institution's plan of action or course of action that directs acts is known as its institutional policy (Jordan, 2001). Fostering an entrepreneurial culture can be greatly aided by the degree of support provided by higher education institutions, particularly policies that promote and assist innovation and entrepreneurship in the animation major. Together with the set of laws and regulations that control how educational systems are run, education policy is made up of the values and choices that have an impact on education. At different levels, municipal, state, and central government may ensure governance of education. Learning occurs in a variety of formats and through a wide range of establishments. Examples of such educational institutions may include business start-up activities through incubation study programs

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Institutional policies are crucial in establishing the goals and aims behind beginning any project in the field of incubation study programs. Different centers can be used to accelerate innovative activities inside incubation study programs thanks to these encouraging institutional regulations (Bist, 2023). Universities' sponsorship and support of incubator study programs play a crucial role in promoting innovation within the animation sector on the academic scene. It is important to understand, however, that the regulations governing the creation of incubation study programs within the animation domain are of utmost significance. Institutions' policies clearly demonstrate their dedication to supporting and expanding these incubation facilities. Incubation study programs become a catalyst for innovation in the animation sector when institutions prioritize and actively support them (Li et al., 2020). On the other hand, organizations that give incubation centers little attention and funding may find it difficult to promote entrepreneurship and produce novel ideas. Therefore, it is crucial to have strong supportive policies in place for educational institutions looking to encourage incubation study programs centered on the animation sector. The incubation study programs' goals and roles in fostering innovation and entrepreneurship within the animation domain are defined by these policies, which act as the framework around which they are constructed. Hence, it is proposed that: **Hypothesis 3 (H3)**: Institutional policies have positive influence on innovation in animation.

Hypothesis 4 (H4): Institutional policies have positive influence on entrepreneurship success in animation.

#### 2.5. Student Engagement

When students are learning or receiving instruction, they are demonstrating their level of focus, curiosity, interest, optimism, and passion. This extends to their level of drive to study and advance in their education. This is known as student engagement which is most important for students career (Bond et al., 2020). A second meaning of student involvement is the manner in which adults such as teachers, administrators, and other school personnel can "engage" students more thoroughly in the processes of governance and decision-making. In addition, the National Association of Independent Schools (NAIS) states that "a relationship between the student and the following elements of the learning environment: the school community, the adults at school, the student's peers, the instruction, and the curriculum" is the best way to understand "student engagement." When education is down to its most basic mission fostering learning and growth in students to prepare them for meaningful and productive lives, engagement becomes critical. This is a straightforward statement, but it is also quite demanding and hard to carry through. Research indicates that in order to achieve educational goals, student participation is a critical component.

Student engagement while performing the activities (Portales & de la Torre, 2017) and relation to the incubation center is also most important. Innovation in animation cannot be achieved until the students are engaged in various activities. As reported in previous studies, the engagement of student is most important to perform better in different academic activities (Peng et al., 2022). Similarly, the business-related activity is in the incubation centers are also majorly dependent on the engagement level of the student. The higher engagement level of the student shows the higher motivational level and confidence level which causes to promote significant level of achievement in any activity. The active participation and contributions of students are crucial to incubator initiatives within educational institutions. These courses provide students with invaluable opportunities to hone their abilities, participate in a variety of business-related activities, and apply their theoretical learning to actual business situations. As a result, a key factor in determining the effectiveness of these incubation study programs is the level of student engagement (Bist, 2023). The achievement of intended results in incubation activities can be hampered by low student engagement. Therefore, as shown in research by Guerrero et al. (2020) it is essential to actively encourage and boost student engagement within these study programs. In addition to having a good impact on innovation within the animation sector, increased student participation also makes a substantial contribution to the success of entrepreneurial endeavors. Consequently, the following hypotheses are proposed:

Hypothesis 5 (H5): Student engagement has positive influence on innovation in animation.

Hypothesis 6 (H6): Student engagement has positive influence on entrepreneurship success in animation.

#### 2.6. Faculty Involvement

The most important factor in achieving the goal in incubation study programs is the incubator center of the faculty's participation in its operations. Positive environments and inspiration for pupils are created by

relationships between teachers and students (Aderibigbe, 2013; Meltzer et al., 2004). Students are inspired and encouraged to participate and develop in this kind of setting. The foundation of a teacher-student relationship is based on the teacher remembering the students' names and acknowledging that they are more than just a physical presence in the classroom. Various surveys make the value of meaningful interaction and the relationships between teachers and students even more apparent. According to the survey, 98% of participants said that an excellent teacher can potentially alter a student's destiny.

The involvement of faculty members in the incubation activities is similar to that of the students' supervisors. The faculty members continuously guide students related to various activities and make corrections in case of any mistake. Therefore, the involvement of teachers in incubation study programs activities (Ritchie, 2012) leads to a continuous improvement to generate innovative ideas. As highlighted in previous studies, student innovative activities are majorly based on teachers (Kwangmuang et al., 2021). The guidelines given by the teachers to the creative students lead to promoting innovation in the field of animation. Furthermore, it also helped the students to enhance entrepreneurial skills which are very beneficial to achieve success in entrepreneurial activities. Past literature have identified a positive effect of teachers' involvement on entrepreneurship activities of the students among the educational institutions. This discussion led to the following hypotheses: **Hypothesis 7 (H7):** Faculty involvement has positive influence on innovation in animation.

Hypothesis 8 (H8): Faculty involvement has positive influence on entrepreneurship success in animation.

#### 2.7. Intellectual Property (IP) Management

A system for managing intangible goods, such as works of human intellect and creativity, is known as IP management (Jolly, 2012). Trade secrets, patents, copyrights, trademarks, and geographic identifications are the primary categories of intellectual property (Ropski & Kline, 1985). For firms, IP management is crucial because it educates the public about intellectual property records, maintains, and tracks IP rights and ownership, manages patent portfolios, unlawful use, infringement, and piracy. Though IP management may appear to be a task best left to big businesses, everyone may do it, starting with tiny steps, from entrepreneurs to small, medium, and large corporations. For young entrepreneurs in the incubation centers, IP management is essential because it will enable them to make the most of their IP assets by defining and knowing what they own, as well as how to use them to create value on the market.

Entrepreneurs need to establish strategies for safeguarding, maintaining, and enforcing IP rights. Protecting and conserving IP means identifying its primary assets, outlining the costs and benefits of doing so, and maintaining internal controls over its preservation (de Souza Andrade et al., 2017; Liu et al., 2021). These controls enable them to keep an eye on the assets' validity and use them to create backup plans which help to promote entrepreneurial activities in the field of animation. An entrepreneur who has developed a novel product, for instance, may consider registering a patent and trademark for it as part of their strategy. This allows them to use asset protection as a negotiating chip during investment rounds and to safeguard their rights in the event that third parties misuse their creation. Similarly, if there is not enough capacity to produce that product, licenses can be negotiated with companies (Ziegler et al., 2013) that can, and that way the innovation can start making money without having to spend a lot of money on manufacturing.

To effectively enforce IP laws, both offensive and defensive strategies must be created. These strategies should enable the incubator to keep an eye on the IP of its rivals, recognize market trends and designations that can be registered as IP and act as a barrier to entry, identify competitors who are infringing on its rights, and develop plans that not only stop the infringement but also enable the creation of strategic alliances like reciprocal licenses or other business agreements. All these activities can help to promote entrepreneurship and innovation. As it is reported in literature that IP management has a relationship with entrepreneurship and innovation (Hou et al., 2023; Tang et al., 2023). Thus, properly managing IP rights is very important to protect innovation which has positive influence on entrepreneurship success. Incubation study programs are essential to the management of intellectual property (IP) because they offer a controlled environment for fostering original concepts and works of art. Students and business owners who participate in these study programs are given advice on protecting their intellectual property rights, such as patents, copyrights, and trademarks. Hence, it is hypothesized that:

Hypothesis 9 (H9): IP management has positive influence on innovation in animation.

Hypothesis 10 (H10): IP management has positive influence on entrepreneurship success in animation.

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# 3. Methodology

Previous studies on animation major in educational institutions and supporting incubation centers have considered different methodologies to achieve the study objective (Jansen et al., 2015; Lu, 2023; Mukred & Yusof, 2020; Vistisen et al., 2016). However, quantitative approach by using questionnaire survey for data collection is rarely employed by the previous studies. Although few of the studies considered data collection with the help of questionnaire, however 5-point Likert scale is rarely considered by the literature. Consequently, by considering the methodological gap, the current study considered quantitative approach in which a questionnaire survey was used for data collection from the respondents of the study. While using a survey questionnaire, the current study employed the 5-point Likert scale which is one of the most suitable and recommended scales to get information from the respondents (Taherdoost, 2019). Literature addressed that; the Likert scale has the ability to collect original information based on the opinion of the respondents. In this study, the opinion of respondents is considered in relation to the innovation in animation and entrepreneurship in animation with the help of different other factors, therefore Likert scale is one of the suitable scales to collect data in the current study.

The population of the study was majorly based on the higher educational institutions in China such as universities. Since incubation study programs and the animation business are closely related, the data collection for this study concentrated on faculty members who had a direct connection to the relevant incubation study programs. The main data sources were specifically selected to be professors who had close relationships with students enrolled in these incubation study programs. Although information might have been gathered from students taking part in incubator study programs, faculty members were preferred because of their greater level of education, expertise, and experience. Faculty members have the knowledge and perspective required to offer thorough answers to questions about innovation and entrepreneurship in the animation business. They make excellent replies because of their wealth of knowledge and expertise, especially when discussing the elements that affect the success of incubation study programs. Thus, the response gathered from faculty members in relation to the implementation of business incubation program, institutional policies, student engagement, faculty involvement and IP management have valuable importance to get accurate results.

The sample size of this study was considered based on the recommendations of previous studies. For instance, inferential statistics by Comrey and Lee (1992) state that a sample size of less than 50 respondents is weaker, a sample size of 100 respondents is weak, a sample size of 200 respondents is suitable, a sample size of 300 is good, a sample size of 500 is very good, and a sample size of 1000 is great. Therefore, by considering these recommendations, the current study considered 500 sample size which is very good. Thus, 500 questionnaires were distributed among the faculty members in different Chinese universities. Data collection results highlighted that out of 500 respondents, 241 respondents respondents responded to the survey.

Therefore, 241 questionnaires were used in final data analysis which was carried out with the help of Smart PLS 3. Furthermore, to collect data from the respondents, this study developed its own questionnaires for all the variables. The development of a new scale is based on the reason that a similar scale according to this study was not available as this is one of the unique studies which was not carried out by the previous studies. The scale items are given in Table 2.

# 4. Findings

The degree to which an independent variable's behavior (variance) is inflated or impacted by its interaction or connection with other independent variables is measured by the Variance inflation factors (VIF). VIF enables a rapid assessment of the degree to which a variable contributes to the regression's standard error. By following Kock (2015), this study used VIFs produced by a comprehensive collinearity test to identify prevalent common method bias. This model is free of Common Method Bias (CMB), which is a systematic error that occurs when the same method is used to measure multiple variables, and when the VIF values are less than 3.30. The VIF is commonly used to assess the multi-collinearity among the variables and accounts for high correlation among the regressors, which is why table 1 depicts the VIF values for the intervening and independent variables. The results of the analysis showed that there was no CMB contamination because all of the VIF values for each construct was less than 3.30. Results are shown in Table 1 and Figure 2.

Table 1: Variation Inflation Factor (VIF).					
Variables	VIF				
Business Incubation Program Implementation	2.172				
Faculty Involvement	2.935				
IP Management	2.862				
Institutional Policies	2.571				
Student Engagement	2.944				



The scale items of each variable are given in Table 2 along with the factor loadings. Factor loadings highlighted the reliability of each scale item (Hair Jr et al., 2020), and the minimum threshold level of factor loading was 0.7 in the current study. It was observed that all the scale items had factor loading higher than 0.7 which confirmed that all the items were reliable, therefore all the scale items were retained and none of the scale items was deleted. Furthermore, Cronbach alpha is also highlighted in Table 2. The minimum level of alpha is 0.7 in this study to check the reliability of the constructs. All the constructs have alpha higher than 0.7 which shows that all the constructs are reliable.

Table 2: Reliability and Convergent Validity.							
Constructs		Scale Items	Loadings	Alpha	CR	AVE	
Business Incubation	IDIFILI				0.845	0.732	
Program Implementation	BIPI2	Proper implementation of business incubation center is required for outcomes.	0.868				
Entrepreneurship Success in Animation	ESA1	The level of tasks achievement in animation has increased.	0.786	0.729	0.845	0.645	
	ESA2	The level of accuracy in animation tasks achievement has increased.	0.83				
	ESA3	The level of effectiveness and efficiency in animation tasks achievement has increased.	0.793				
Faculty Involvement	FI1	Teachers' intention in animation is quite beneficial.	0.857	0.754	0.859	0.67	
	FI2	Teachers' intention in animation removes the errors.	0.786				
	FI3	Teachers' intention in animation enhances the performance of activities.	0.81				
Innovation in Animation	IA1	Creative ideas are helpful in business.	0.816	0.747	0.856	0.664	
	IA2	Use of creative technology can bring innovative ideas.	0.806				
	IA3	Creativity can reduce the cost and increase effectiveness.	0.822				
Institutional Policies	IP1	University helps to establish incubation centers.	0.757	0.703	0.832	0.623	
	IP2	University help to promote incubation centers	0.803				
	IP3	University helps to collaborate with industry.	0.807				
IP Management	IPM1	Use of patents is important to protect IP.	0.9	0.841	0.905	0.761	
	IPM2	Use of patents is important to protect innovation.	0.804				
	IPM3	Use of patents is important to earn profit from licensing.	0.909				
	SE1	Students are willing to learn business activities.	0.739	0.84	0.886	0.609	
Student	SE2	Students are willing to participate in research related activities.	0.746				
Engagement	SE3	Students are willing to participate in innovative activities	0.819				
	SE4	Students are willing to participate in entrepreneurship activities.	0.794				

Furthermore, CR was also considered in this study to check the construct reliability which should be higher than 0.7 (Batool et al., 2021; Niaz et al., 2020). It can be observed from Figure 3 and Table 2 that all the constructs have CR higher than 0.7. Additionally, average variance extracted (AVE) is highlighted in Figure 4 and Table 2. All the values of AVE are higher than 0.5, which is a minimum threshold level. The confirmation of factor loadings, CR and AVE highlighted that this study achieved convergent validity. Finally, discriminant validity is reported in Table 3 with the help of AVE square root.







Table 3: Discriminant Validity.							
	BIPI	ESA	FI	IPM	IA	IP	SE
Business Incubation Program Implementation (BIPI)	0.855						
Entrepreneurship Success in Animation (ESA)	0.74	0.803					
Faculty Involvement (FI)	0.599	0.662	0.818				
IP Management (IPM)	0.709	0.625	0.709	0.872			
Innovation in Animation (IA)	0.639	0.788	0.608	0.589	0.815		
Institutional Policies (IP)	0.574	0.638	0.71	0.609	0.657	0.789	
Student Engagement (SE)	0.593	0.614	0.734	0.684	0.557	0.732	0.781

Structural model assessment is an important part of statistical tool used in this study to examine the relationship between variables. The results of the hypotheses are reported in Table 4 and the process is highlighted in Figure 5. The results of the study indicate that out of 10 hypotheses, nine (09) hypotheses were accepted, however one hypothesis was not accepted. For instance, findings of hypothesis 1 and hypothesis 2 highlight that business incubation program implementation has positive effect on innovation in animation and entrepreneurship success in animation with  $\beta = 0.325$ ; t = 2.241 and  $\beta = 0.494$ ; t = 3.884, respectively. Findings of hypothesis 3 and hypothesis 4 highlight that institutional policies have positive effect on innovation in animation and entrepreneurship success in animation with  $\beta = 0.368$ ; t = 4.064 and  $\beta = 0.18$ ; t = 2.302, respectively. Furthermore, findings of hypothesis 5 and hypothesis 6 highlight that student engagement has positive effect on innovation in animation and entrepreneurship success in animation with  $\beta = 0.064$ ; t = 3.551 and  $\beta = 0.037$ ; t = 3.69, respectively. Additionally, findings of hypothesis 7 and hypothesis 8 highlight that faculty involvement has positive effect on innovation in animation and entrepreneurship success in animation with  $\beta = 0.145$ ; t = 1.652 and  $\beta = 0.226$ ; t = 2.48, respectively. Finally, findings of hypothesis 9 highlight that IP management has positive effect on innovation in animation with  $\beta = 0.075$ ; t = 3.569. However, findings of hypothesis 10 highlighted that the effect of IP management on entrepreneurship success in animation is not significant with  $\beta = -0.021$ ; t = 0.203.

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Table 4: Results of PLS Structural Model.								
		Mean	Deviation	T Statistics ( O/ STDEV )	P Values			
Business Incubation Program Implementation -> Entrepreneurship Success in Animation	0.494	0.483	0.127	3.884	0			
Business Incubation Program Implementation -> Innovation in Animation	0.325	0.313	0.145	2.241	0.013			
Faculty Involvement -> Entrepreneurship Success in Animation	0.226	0.225	0.091	2.48	0.007			
Faculty Involvement -> Innovation in Animation	0.145	0.147	0.088	1.652	0.05			
IP Management -> Entrepreneurship Success in Animation	-0.021	-0.018	0.102	0.203	0.419			
IP Management -> Innovation in Animation	0.075	0.077	0.021	3.569	0			
Institutional Policies -> Entrepreneurship Success in Animation	0.18	0.168	0.078	2.302	0.011			
Institutional Policies -> Innovation in Animation	0.368	0.359	0.091	4.064	0			
Student Engagement -> Entrepreneurship Success in Animation	0.037	0.06	0.01	3.69	0			
Student Engagement -> Innovation in Animation	0.064	0.043	0.018	3.551	0			

# 5. Discussion and Conclusion

The aim of this study was to provide guidelines to setting up business incubation study programs in higher education institutions for the promotion of innovation and entrepreneurship activities in the field of animation. The relationship between business incubation program implementation, institutional policies, student engagement, faculty involvement, IP management, innovation in animation and entrepreneurship in animation was considered. Data collection was carried out from universities by using a survey questionnaire and results were obtained by using statistical tools.

Findings of the study revealed that the implementation of business incubation study programs is most critical to getting success in various entrepreneurship activities related to animation, because there are always number of limitations while starting incubation center related to the institution itself and animation. Therefore, this is one of the very first and most critical steps to promote innovation and entrepreneurship in animation. The institutional policies that control incubation study programs are one of the most important elements affecting their effectiveness.

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Innovative and entrepreneurial successes within these study programs have the potential to be considerably increased by supportive institutional policies. However, institutional policies might take a variety of positions; certain universities may aggressively support the creation of different incubation centers, while others might not give them the attention they need (Dhouib et al., 2021).

Previous studies have noticed this variation in policy alignment, underscoring the crucial role institutional policies have in influencing a range of activities (Wu et al., 2022). In a similar vein, the study's findings highlight the important role faculty participation in incubation study programs plays. Faculty members, especially those in the concerned field, provide vital advice and assistance to students as they negotiate the complexities of entrepreneurship and innovation. Their work as incubation program supervisors is crucial to the success of these entrepreneurial and artistic endeavors. The conclusion is in line with many earlier research and emphasizes the importance of these teachers' expertise and experience in successfully managing incubation study programs (Elias et al., 2021). Additionally, a significant issue that has not been widely covered in earlier study is to the management of Intellectual Property (IP) inside incubator study programs designed specifically for animation. The purpose of incubator study programs is to develop new company ideas; hence it is crucial that these concepts are protected. Effective IP management becomes crucial in this situation. Protecting these ground-breaking ideas assures their long-term viability and commercial viability within the animation domain. As a result, participation from faculty and effective IP management stand out as crucial elements in the success and sustainability of incubation study programs designed specifically for the animation domain (Alene et al., 2021). Therefore, the protection of ideas with the help of patents is most important for the success of innovative ideas and entrepreneurship success. Finally, this study believed that incubation centers in the field of animation at higher education institutions can perform better in innovative activities and entrepreneurship success by focusing student engagement, faculty involvement and IP management practices along with the supportive institutional policies and proper implementation of strategy.

Although entrepreneurship and innovation are already studied by several previous studies in different fields along with animation, however previous studies have not considered the implementation of business incubation center programs in relation to the animation major in China. Furthermore, the important contribution of institutional policies and student engagement was rarely considered in previous studies, therefore this study has valuable implications for the literature while considering animation major in relation to the incubation centers programs. Similarly, this study highlighted the important role of faculty involvement along with IP management in the field of animation entrepreneurship and innovation. The introduction of IP management along with the faculty involvement is one of the new factors which were not addressed by the previous studies while considering incubation study programs among higher educational institutions related to the animation major. Practically, too, this study would make rich contribution by considering the promotion of incubation study programs among higher educational institutions. Policymakers and administrators would find useful insights in this study to promote entrepreneurship in the animation major by establishing incubation study programs in universities. These business incubation centers can be established by the adoption of robust Intellectual Property (IP) management practices. These initiatives are essential for nurturing innovation and entrepreneurship within the context of incubation study programs tailored to the animation field. Additionally, the study underscores the importance of promoting student engagement, faculty involvement, and the formulation of supportive institutional policies as key drivers for the development and success of incubation study programs. These elements are fundamental in creating an environment that fosters innovation and entrepreneurial endeavors.

The study was carried out within a few constraints and limitations. First, although five factors namely business incubation program implementation, institutional policies, student engagement, faculty involvement and IP management were selected to assess the influence on innovation and entrepreneurship activities in the animation major, there are still several other factors which can make a significant influence. Future studies should address various other factors such as accreditation of these programs, financial aids, new project formulations and other uncontrollable factors. Second, most of the factors do not have a direct effect on innovation and entrepreneurship, therefore, mediating factors should be included in the framework which may include technological adoption and marketing activities. Third, the size of the institution also has an influence on the establishment of incubation study programs in incubation centers, therefore, institution size should be considered as a controlling variable.

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