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**ARTICLES**

<b>Study of problem solving ability of adolescents in relation to parenting styles and resilience</b>	<b>8</b>
Jasjit Kaur and Manju Gera	
<b>Past and Future: The Development of Animation Education in China</b>	<b>13</b>
Henry Ma	

*Full Length Research Paper*

## Study of problem solving ability of adolescents in relation to parenting styles and resilience

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In this study, the investigator wants to make an important contribution to the literature by demonstrating that resilience and parenting styles made a significant effect on the problem solving ability of adolescents. Problem solving ability test was constructed by the investigator. Parenting scale developed and standardized by Bharadwaj, Sharma and Garg (1998), Resilience Scale (RS-14) for Adolescents by Wagnild (2011) was used by the investigator. Random and purposive sampling technique was employed for data collection from 500 adolescents grouped in  $\leq 17$  and  $> 17$  age group ( $< 17$  include 16-17 age group,  $> 17$  include 17+ to 19 age adolescents). Significant differences were found in Problem solving ability and Parenting styles of adolescents. No significant difference between the Resilience of adolescents with  $\leq 17$  and  $> 17$  age group were found. Interaction between parenting styles and resilience with regard to problem solving ability was found significant to some extent from the results of analysis of variance.

**Key words:** Problem solving ability, parenting styles, resilience.

### INTRODUCTION

India has approximately 225 million adolescents in the age group of 10 to 19 years, the largest group of young people to make a shift to adulthood (NACO, 2008). It is really a challenging task to provide parental care for children. Parents need to follow a steady approach to discipline, moral behaviour, support for education, love, positive regard and respect for members of the family. This early developmental experience sets a foundation for future positive experiences in child's life (Kaplan and Owens, 2004). It is also necessary for adolescents to be resilient enough to face this period of life.

Problem solving includes utilisation of concepts and abilities to get over the amazing complete situations.

Solving a problem requires to find answer to the problems (Mayer and Wittrock, 1996). Parenting is the style of upbringing of a child. It is the responsibility of both mother and father, to prepare their children for the society and also for culture (Veenes, 1973 a) which provides lots of opportunities to a child to find his roots, and a sense of belongingness (Sirohi and Chauhan, 1991) and it also serves as a source of socialization for the child. It is clear that child's impression of parental attitude towards himself should be of great importance in the act of behaviour and it may open new generation of research for deep analyses in the field of parent-child relationship (Bhardwaj, 1996). Resilience is viewed more

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as a continuous process, an interaction between person and environment that can protect him/her against psychological and physical trauma (Blum, 1998; Bogar and Hulse-Killacky, 2006). Students can be directed to become more resilient and cope efficiently in the case of stress, difficulties and trauma. Burnham (2009) found that resilience helped students to get less effected by stressful events and resilience to be identified in and taught to adolescents in order to help them to face difficult situations.

### Review of studies

Kanevsky and Colleagues (2012) studied the impact of museum-based intervention which was designed to develop the resilience of third and fourth grade students at a school. Researchers compared the academic resilience (academic resilience means ability to deal with stress and pressure in academic settings) and personal development of children participating in the study with those who did not participated in it after a gap of two years. Participation groups had reported higher levels of academic resilience, both participants' students and non participants' students reported same levels of character, self-efficacy and attitudes towards their school.

Tripathi et al. (2013) studied learning environment in relation to problem solving ability of senior secondary level. A sample was collected from 120 senior secondary schools. Random sampling technique was used to collect data from Jaipur city, Rajasthan. The study revealed that the effect of learning environment of both government and private schools place impact on the problem solving ability of students at senior level.

Girdhar (2014) conducted a study to see the influence of locus of control, gender, and locality on problem solving ability of adolescents. 50 males and 50 females with the age group of 13 to 15 years were chosen for the study. The study showed that there exists no significant difference in internally controlled (internal locus of control) males and internally controlled females. No significant difference was found in externally controlled males (males with external locus of control) and externally controlled females, similarly between urban males and rural males, urban females and rural females. There was a significant positive relation between problem solving ability and locus of control. Internally controlled students had higher problem solving ability than externally controlled students. No significant difference was found in males and females and urban and rural adolescents on problem solving ability scores.

### Objectives of the study

- To study problem solving ability, parenting styles and resilience among adolescent.
- To study interaction between parenting styles and

resilience with regard to problem solving ability.

### Hypotheses of the study

Hypothesis-1: There is no significant difference between the problem solving ability of adolescents with  $\leq 17$  and  $> 17$  age.

Hypothesis-2: There is no significant difference between the Parenting styles of adolescents with  $\leq 17$  and  $> 17$  age.

Hypothesis-3: There is no significant difference between the Resilience of adolescents with  $\leq 17$  and  $> 17$  age.

Hypothesis-4: There is no significant interaction between parenting styles and resilience with regard to problem solving ability.

### Tools used

1. Problem Solving Ability test was constructed by the investigator.

Six dimensions were finalised after being reviewed by experts and after carrying out item analysis. They were Lateral thinking, logical problems, Abstraction analysis, verbal reasoning, Analogy, Number series. Product moment coefficient of correlation was carried out to find reliability of the test. The correlation was found to be 0.658. The test was validated against the criterion of content validity; content validity is concerned with adequacy of sampling of specified universe of content. 98% experts agree with the content of the test. Percentile norms were calculated.

2. Parenting scale developed and standardized by Bharadwaj, Sharma and Garg (1998).

3. Resilience Scale (RS-14) for Adolescents by Wagnild (2011).

### SAMPLING AND METHODOLOGY

Random and purposive sampling technique was employed for data collection. The sample of the study includes adolescents from Mohali district. A total of 500 adolescents was selected randomly both from government and private school. The sample was taken from 11 different types of schools and colleges to obtain a uniform sample. The investigator has tried to collect data from adolescents of different streams, that are arts, science, commerce, engineering, nursing. The sample was collected from students of rural and urban area. The sample was split in two age groups of below and equal to 17 and more than 17 years to find the difference in results based on different age groups. The data was collected after seeking permission from the heads of institutions personally by the investigator. Students were allowed codes instead of their names on demographic sheet to maintain confidentiality of data. Descriptive statistics such as Mean, Median, Mode, SD were used to ascertain the nature of distribution of scores of problem solving ability, parenting style and resilience of male and female adolescents. t-ratios were calculated to know whether there are differences in the

**Table 1.** Difference between age of adolescents on the basis of parenting styles, problem solving ability and resilience.

	Age	N	Mean	Std. Deviation	t-test
Parenting styles	<= 17	283	749.0883	85.54607	3.725**
	>17	217	771.6221	48.26600	
Problem solving ability	<= 17	283	12.0247	3.40152	5.895 **
	>17	217	13.5668	2.44503	
Resilience	<= 17	283	72.0813	8.70174	.066ns
	>17	217	72.1382	10.19755	

\*\* Significant at 0.01 level; Ns- non significant.

mean scores of parenting style and resilience at different levels of problem solving ability. Analysis of variance was used to study the main effects and interaction effects of parenting style, resilience on problem solving ability.

### Statistical analyses and discussion of results

From Table 1, it was clear that, for problem solving ability, mean scores and standard deviation for adolescents with <=17 age group were 12.02 and 3.40 and mean scores and standard deviation for adolescents with >17 age group were 13.56 and 2.44 respectively. When mean scores were compared, it was found that problem solving ability of adolescents with >17 age group are better as compared to problem solving ability of adolescents with <=17 age group adolescents. Therefore, Hypothesis-1 which shows that "There is no significant difference between the problem solving ability of adolescents with <=17 and >17 age" is not accepted.

Based on t- ratio ( $t=3.725$ ), Table 1 revealed that there is significant difference in the Parenting styles of adolescents with age of <=17 and >17 at 0.01 level. For Parenting styles, mean scores and standard deviation for adolescents with <=17 age group were 749.08 and 85.54 and mean scores and standard deviation for adolescents with >17 age group were 771.62 and 48.26 respectively. When mean scores were compared, it was found that Parenting styles of adolescents with >17 age group is better as compared to Parenting Styles of adolescents with <=17 age group adolescents. Therefore, Hypothesis-2 which shows that "There is no significant difference between the Parenting Styles of adolescents with <=17 and >17 age." is not accepted.

For Resilience (Table 1), mean scores and standard deviation for adolescents with <=17 age group were 72.08 and 8.70 and mean scores and standard deviation for adolescents with >17 age group were 72.13 and 10.19 respectively. When mean scores were compared, it was found that there is no significance difference between Resilience of adolescents with >17 age group and adolescents with <=17 age group.

Therefore, Hypothesis-3 which shows that "There is no

significant difference between the Resilience of adolescents with <=17 and >17 age" is accepted. It can be concluded from the results that age is not the determining factor for resilience.

Analysis of variance (F test) was carried out to find the interaction effects. From Table 2a and b, it was clear that there was insignificant mean difference, parenting styles and problem solving ability ( $F=.058$ ), and resilience and problem solving ability (1.868). Interaction between parenting styles and resilience with regard to problem solving ability was found insignificant ( $F=.205$ ). Interaction between gender, parenting styles and resilience with regard to problem solving ability was found significant at 0.05 level of significance ( $F=3.83$ ).

Therefore, the hypothesis 4 which shows "There was no significant interaction between parenting styles and resilience with regard to problem solving ability" was partially accepted and partially rejected.

### FINDINGS OF THE STUDY

1. Problem solving ability of <=17 and >17 age group adolescents differ significantly.
2. Parenting styles of adolescents differ with age group (<=17 and >17)
3. There is no effect of age on resilience of adolescents.
4. Problem solving ability is affected by parenting styles and resilience of adolescents to some extent.

### Conclusion

Problem solving ability is a very important part of education. It is an important part of everyone's life. A good problem solver can achieve success in life. Students should try to increase their problem solving ability by using lateral thinking skills, abstraction analysis, logical thinking, and numerical reasoning more than using rote memory. The study shows that a good problem solver should have all of these qualities. These problem solving abilities can be very useful for adolescents during entrance examination in various courses. Exams of IAS,



**Table 2a.** Interaction between gender, parenting styles and resilience with regard to problem solving ability.

Between-subjects factors		Value label	N
Gender	1	Male	284
	2	Female	216
Parenting styles	1	Low	144
	2	High	356
Resilience	1	Low	291
	2	Moderate	118
	3	High	91

**Table 2b.** Tests of between-subjects effects, Dependent Variable: problem solving ability

Source	Type III sum of squares	df	Mean square	F-value	P-value
Gender	8.076	1	8.076	.845	.358ns
Parenting_Styles	.553	1	.553	.058	.810ns
Resilience	35.707	2	17.854	1.868	.156ns
Parenting_Styles * Resilience	3.911	2	1.955	.205	.815ns
Gender * Parenting_Styles *					
Resilience	73.278	2	36.639	3.834	.022*

PCS, engineering and architect have some part of problem solving ability in them. CBSE have also started problem solving ability test from class ninth onwards.

Therefore parents and Teachers' should try to inculcate problem solving abilities in their students. Career counselling can be given to students in accordance with their problem solving ability. There is interaction between parenting styles, resilience with regard to problem solving ability. Home is first school of the child. A good parenting style can lead to development of a successful individual. So it is duty of parents, teachers, administrators and society to deal with adolescents in a proper way. Schools should organise activities that is extracurricular activities for their students. Mock tests to enhance problem solving ability can be taken. Reasoning, abstract and logical thinking should be encouraged in the classroom. Seminars on development of resilience should be organized by the schools. Parent teacher meetings should be organised regularly where feedback should be given to the parents.

### Conflict of Interests

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# Past and Future: The Development of Animation Education in China

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The rapid development of cultural and creative industries in China induces a growth in the development of intellectual property. Some of the original equipment manufacturers (OEMs) are gradually transforming themselves into original design manufacturers (ODMs) and original brand manufacturers (OBMs). The animation industry also benefits from the Government's policy support and starts to develop and produce original titles animation. The change of production direction creates a great demand for creative workers, and naturally, the educational institutes become the obvious source for this creative talent. In 2014, the Ministry of Education of the People's Republic of China released a new General Higher Education Undergraduate Major Study Catalogue. This new catalogue put animation under the Theatre, Film and Television category. The changes made by all those institutions that do not focus on film and television study stop offering animation program as a major study. As animation industry is considered as a major developing area in China, a cut back of animation education programs will certainly affect the number of graduates in the coming years. By studying substantial literature on animation education development in China and interviewing a total of 48 teachers and students from 10 animation programs in Beijing, this paper traced the historical development of animation education in China, commented on the recent issues identified in the animation education and further argued about the changes that will actually benefit the future growth of animation education in China.

**Key words:** Animation education, animation industry, creative industries.

## INTRODUCTION

The recent changes of the General Higher Education Undergraduate Major Study Catalogue announced by the Ministry of Education of the People's Republic of China in 2014 have promoted Art studies from secondary category of field of study to primary category. The changes not only provided a more systematic categorization in art studies, but also included certain impacts on animation

education. As support from the Government in promoting animation industry in the last decade, many education institutes offered animation major in their curriculum. In 2000, there were only two higher education institutes providing animation education programs. By 2010, there were more than 1,000 higher education institutes providing about 2,000 animation education programs in

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China. The rapid expansion of animation education was due to the intensive support of the development of cultural and creative industries by the Government. The animation industry, as one of the key cultural and creative industries, received direct support from the Government. The change of the Major Study Catalogue has put animation study under the Theatre, Film and Television category. This shall stop all those institutions that do not focus on film and television study offering animation as a major study. Under this situation, many animation programs have to stop running. There is a major concern on the drastic drop of quantity in animation graduates and creating an adverse effect on the development of the animation industry.

### **EARLY DEVELOPMENT OF ANIMATION EDUCATION**

The development of animation education in China can be traced back to the 1950s. The Suzhou Art and Design School was the first education institute in China which offered a program to major in animation education, in 1952. However, the program was suspended in 1953. In 1959, the Shanghai Film School was established to nurture professional film makers for the Shanghai film business. A two-year animation program was also offered, and all of the instructors were from the Shanghai Animation Film Studio. The School was closed down after it generated two cohorts of graduates in 1963. In the 70s, the Shanghai Animation Film Studio kept nurturing animation professionals through various means, and it also supported the Beijing Film Academy in offering animation programs. Before the 80s, animation training was mainly focused at the Shanghai Animation Film Studio. The Studio nurtured and produced animators to support their own productions. The modes of training included small scale training courses as well as apprenticeship at the studio. Owing to the small demand and production scale in original animation and limited access to animation training, the animation industry remained small until 90s. In the 90s, the rapid growth of demand in OEM work from foreign enterprises in Japan and the USA attracted most of the practitioners, and people making original productions moved to OEM production organizations. Owing to the relatively low cost of labor, China attracted a large volume of foreign labor-intensive animation production and gradually became focused on OEM in animation production for foreign enterprises (Wu, 2002).

### **RECENT DEVELOPMENT OF ANIMATION EDUCATION IN CHINA**

The vigorous support of the Government in developing cultural and creative industries in China made many OEM animation production companies turn part of their

production scale into producing original titles. Moreover, many new animation production houses were formed to develop their own titles. Many Government and private-funded animation bases also developed to provide support and facilities for animation productions (Wang, 2012). All these developments, as well as the support of Government in expanding animation education, created a sudden boom in animation education development in China.

In 2000, there were only two education institutes providing animation education programs in China. By 2009, 1,279 higher education institutions were running 1,877 bachelor degree animation programs in China (Li, 2010). Owing to different backgrounds and focuses of these institutes, they were providing animation education that carried distinct characteristics of their institutes. Institutes providing animation education mainly belonged to four types of background, namely arts, art and design, film and television communication, and computing. Most of them developed animation programs based on their existing resources. Some education institutes emphasized art and design aspects while some focused on the technology and computer skills (Ye, 2010). However, most of these programs saw discipline-specific and practical skills as the most important element of training in their curriculum.

### **ISSUES IDENTIFIED FROM THE RAPID GROWTH OF ANIMATION EDUCATION IN CHINA**

In recent years, the rapid development in animation education showed a success in producing thousands of graduates. However, many studies indicated that the rapid increase in the number of animation education programs created many problems (Pan 2012; Wang, 2007). In 2013, a search with the keyword “动漫教育” (‘animation education’) in the China Journal Full-text Database popped up a list of 423 articles. Of these, 201 studied the issues of animation education development in China. Most of them pointed out the various problems in the rapid expansion of animation education over the last ten years. They covered the human resources issues as well as the curriculum development issues in the animation education system. The major concerns were in the following three aspects:

#### **Inadequate qualified teachers:**

One of the key concerns was the inadequate resources to satisfy the rapid increase in the expansion of animation education programs. Owing to the historical development of the animation education system, there were only a few education institutes providing animation education in China. The booming demand for animation educators over the last ten years created a major shortage of

qualified animation teachers (Sun, 2005; Tao, 2010).

Qualified teachers should possess both academic understanding and practical knowhow in animation work, as well as good teaching skills. However, the rushed development of new animation programs as well as over expansion of the student intake in the last few years created an insufficient supply of qualified teachers. Fresh bachelor graduates from animation disciplines might have been employed to take up teaching in the newly operating animation programs (Xu and Cui, 2010).

### **Curriculum does not match the market demand**

Owing to the intensive support of the Government in developing new animation programs, many higher education institutes implemented animation programs irrespective of whether they had corresponding resources or not (Sun, 2005). Moreover, there was no agreed standard in the animation curriculum, some of the program managers might not have adequate knowledge and experience in animation education, and the developed program structures and program objectives were not well defined (Wang, 2012). Some of the higher institutes developed their own curriculum based on their existing resources instead of market demand.

### **Focus or diversify in discipline knowledge**

Some scholars indicated that some of the animation programs were not focused specifically enough on animation study (Xu & Cui, 2010). They claimed that these programs were too broad in their area of studies and produced graduates who could not take up animation work independently (Sun, 2005). This phenomenon might be due to the inadequate qualified teachers in the programs, who substituted animation subjects with some other related subjects. On the other hand, the programs might purposely work in this way to allow a wider choice of job opportunities for their graduates.

## **RESEARCH APPROACH AND DESIGN**

The majority of scholarly works shows the rapid development of animation education creates a lot of issues in the development of animation education. Most of them claimed the major problems lie on the above three issues. In order to explore deeper into this topic and identify descriptive research findings for the animation education in China, a qualitative research was conducted in Beijing.

Qualitative research approach can promote a deep understanding of a social setting or activity in the perspective of research participants. Qualitative methodology implies an emphasis on discovery and description, and the objectives are generally focused on extracting and interpreting the meaning of experience. The study used a qualitative research approach to collect, analyze and interpret data. The aim of the study is to explore and identify the impact of the changes of the Government policy in the higher education system that will be made

to the future development of animation education in China. The research samples based on purposive sampling approach, 10 most influential animation schools were chosen in Beijing. Beijing is the capital of China and it is the most influential city in China. It is also the earliest area to develop creative industries thought and policies. The most influential animation schools, including the School of Animation in the Beijing Film Academy, the School of Arts and Design in Tsinghua University, the School of Animation in the Communication University of China, and the Central Academy of Film Arts, are all located in Beijing. There are about 138 higher education institutes in Beijing. Among these 138 institutes, 34 of them provide animation education programs. Owing to the fact that the study focuses on creative talent development, all those institutes providing vocational training were excluded. Ten education institutes providing bachelor degrees or above were included in the research sample.

Data was collected using face-to-face semi-structured interviews for teachers and their corresponding final year supervisees. Each institute identified two teachers and their final year project supervisors in the academic year. Each teacher also proposed two supervisees to attend separate interviews. Two pilot interviews were conducted prior to the actual interviews and the questionnaire was improved based on the deficiencies of the pilot interviews identified. For various reasons, the study successfully interviewed 18 teachers and 30 students. All the interviews were then transcribed into text and input to the qualitative data analysis software MaxQDA for further analysis.

The first phase of the coding process attempted to identify and note the common patterns in the data, and create codes that could be used to develop a conceptual framework. The second phase recoded the interviews by using key codes that are identified with the conceptual framework, and completed several data summary tables to address the research questions. Throughout the data collection and analysis process, issues of trustworthiness were carefully addressed. A research protocol was formulated before the start of the data collection process and data analysis process. The protocol governed the procedures to contact potential research samples, how to address the research issues to prevent undue influence to the research participants, and how to handle the collected data.

## **FINDINGS AND DISCUSSIONS**

The study identified several major findings and they were further discussed in the following:

### **Sub-standard animation programs**

Owing to the substantial support of the Government for the animation industry and animation education, many higher education institutes see this as a good opportunity to develop animation related programs. The number of animation education related programs increased drastically from 2 programs in 2000 to 447 programs in 2006, and 592 programs in 2010 (Xiao, 2011). The rapid increase of animation programs in these years has created several immediate issues on the development of animation education in China. These problems are mainly concerned with the lack of qualified teachers, as well as inadequate facilities and inappropriate curriculum structure in many animation education institutes (Li, 2010).

In order to tackle the insufficient number of qualified teachers to support the rapid growth of the animation education, the education institutes have devised some ways to resolve this problem. Firstly, the education institutes sent their teachers to reputable animation education institutes for intensive training. Secondly, they recruited practitioners from the animation industry to be their part-time teachers. However, these two measures have not been sufficient to offer a satisfactory solution to the program development. In addition, some education institutes wanted to catch up with the trend to offer animation education to students as soon as possible, and started their programs without sufficient consideration on the program details, related facilities as well as the employment prospects of the students (Wang, 2007). The problems of animation education in China is much more complex than inadequate qualified teachers.

Although China had a very glorious period in producing some excellent original animation titles in the 50s, the overall number of productions was still very small and the production capacity remained insufficient to develop as a sustainable industry. Owing to the opening up of the China economy in the 80s, the low labor cost attracted a lot of labor intensive OEM animation productions to move to China. The promising situation of OEM animation productions at the time initiated many companies set up for purely OEM production. This move created a big impact on the development of the animation industry, the whole industry development in that particular period was redirected to OEM production. Qualified teachers with experience in original title production is very limited. The issue on inadequate qualified teachers will be more complicated as the growth in demand of nurturing creative talents.

### **Employment rate as a key performance indicator for program**

The Ministry of Education of the People's Republic of China uses the graduate employment rate as one of the key measures for evaluating performance of higher education institutes. Thus, whether graduates are readily employable or not will be among the ultimate concerns of the education institutes. Moreover, the employment rate of the graduates of the education institute is also widely used in promoting the success of the respective programs.

Based on research results from Xiao in 2011, there are 592 higher education institutes providing animation studies, including 275 bachelor degrees and 333 are in sub-degrees. This means that 28% of the higher education institutes in China provide animation related studies. The research further estimated that the total new enrolment of animation related students is around 45,000 each year. Students have to study for four years to complete a bachelor degree program or three years for a

sub-degree program, thus the total number of students concurrently enrolled in animation education institutes would be around 150,000 (Xiao, 2011). Comparing the relatively slow growth of the animation industry to the rapid expansion of animation disciplines, massive unemployment of graduates in animation program is expected.

### **Future demand on creative talents of original animation productions**

The flourishing of the OEM animation productions in the 80s brought with it a great benefit to the Chinese economy. However, OEM productions also created some drawbacks to the development of the animation industry in China. Owing to the higher salary offered by the OEM companies, many experienced animators left the original animation production, which affected the growth of original animation development. In addition, OEM productions are subject to purely factory-style requirements, which does not encourage originality in the productions, so the animators developed in this environment do not possess any desire for originality and creativity.

Since the animation industry is in a transformation stage, most studios are still producing primarily OEM work and a relatively small amount of original work, so the industry maintains a heavy demand for skillful animation workers in a purely practical sense. On the other hand, some newly transformed OBM companies still retain the original OEM concept in their production. The people in the industry do not understand the value of creativity in the development of their business, so most of the time they undermine the importance of recruiting creative talents.

Owing to the industry demand for skillful animators instead of creative talents, many scholars perceive that knowledge acquiring is more important than creativity nurturing for students.

The development of creative industries is a global trend for both developed and developing nations. The success of the development of creative industries largely depends on a continuous influx of creative talents to the market. As the current animation industry that focuses on OEM productions does not reliably provide these creative resources, nurturing creative talents to fit the demand of the animation industry should be among the primary objectives of higher education institutes.

### **CONCLUSION**

The recent released 2014 General Higher Education Undergraduate Major Study Catalogue put animation under the Theatre, Film and Television category. This shall create an effect that many higher education institutes

have to stop offering animation as their major study. The number of animation programs currently operating shall be largely reduced. However, the cut back of the number of animation programs might not necessarily create an adverse effect to the development of the animation industry, on the other hand, it might bring positive impact to the overall development of both the animation education and animation industry in China.

As indicated in numerous scholarly works, many higher education institutes that are providing animation education program actually do not possess the appropriate resources for offering these programs. If the total number of animation programs could be reduced to an appropriate level, the current resources like experienced teachers could be more effectively and efficiently used in animation education. The quality of animation education can be assured. Simultaneously, it can resolve part of the unemployment issue by reducing the number of graduate for each year to meet with the gradual growth of the animation industry.

Modern animation production is multidisciplinary work. It demands talents with multidisciplinary understandings. It is understandable that there is no way to ensure that we can nurture a lot of multidisciplinary talents for the future growth of the industry, however we can ensure that different types and various levels of animation practitioners who can be trained in our animation education system in order to meet the demand of the growth. So the higher education institutes should take a closer look at their strengths and weaknesses and reposition themselves in a particular area that they are good at. Moreover, rapid changes in a globalized world create enormous uncertainties for the future, so schools should produce students who are flexible and adaptable to the future changes. Creativity is one of the key elements that can help students to be more flexible and adaptable.


Cultural and creative industries have been heavily promoted in the past few years in China and some of the animation companies are moving from OEM production to ODM/OBM production. However this transition period might take a while, and the animation industry should maintain its capacities in various types of works including OEM, ODM and OBM, to enable balanced growth. Since different types of animation production demand different competences from students, higher education institutes can build on their individual strengths to develop diverse appropriate programs to fit the industry demand. Some of the institutes might focus on production skills while some of them might emphasize more on creative talent development. Moreover, traditional animation programs normally focus on animation film study, but the recent diverse development in digital media and content creation, alternative programs should be provided to students with a wider choice in both digital media and content creation that suit the demand of the new trend.

## Conflict of Interests

The author has not declared any conflict of interests.

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The background of the entire page is a photograph of several lit candles in glass holders. One candle in the foreground is lit, with a bright yellow flame. Other candles are visible in the background, some lit and some unlit. The scene is dimly lit, with the primary light source being the candle flames.

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