

# Development and Implications of Digital Animation Education Abroad

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## Abstract

The paper provides an in-depth analysis of the current state of digital animation education abroad and, by examining representative digital animation cases from China in recent years, reveals the significant differences in digital animation education between China and other countries. On this basis, the paper aims to explore a set of teaching reform strategies that align with the development needs of the national digital animation industry. The goal is to address the relative lag in China's digital animation education, promote teaching innovation, and cultivate both excellent and professional digital animation talents.

## Keywords

Digital Animation, Animation Education, Talent Training, Teaching System

## 1. Introduction

Digital animation refers to animation created on digital technology platforms. When the term “digital” is added to “animation,” it introduces a new way of interpretation. The essence of digital animation goes beyond merely distancing from reality or focusing on narrative; it represents a new form where various perspectives are interconnected and integrated through a digital platform (Tang, 2012). In 2009, the digital animated film *Avatar* was released worldwide, setting a global box office record of \$2.7 billion. As of July 26, 2024, *Inside Out 2* became the highest-grossing animated film in history, with a global box office revenue of \$1.462 billion just six weeks after its release. While we marvel at the immense economic impact of foreign digital animation, we must also confront the stark reality of domestic digital animation, where box office successes are rare. For instance, in 2023, a total of 62 films were released in China, 36 of which were domestic animated films, but only four surpassed the 100-million-yuan box office mark,

with true blockbusters being extremely rare. Despite some recovery in recent years, Chinese animated films still struggle to compete with their foreign counterparts. Overall, China's digital animation industry is still in its infancy, hampered by an imbalanced industrial structure, outdated talent cultivation methods, and insufficient brand influence.

According to market research, most digital animation professionals trained by domestic universities are not only unable to quickly integrate into the industry's market demands but also require additional post-employment training to meet those needs. Against the backdrop of this chaotic university-industry relationship, reforming digital animation education in Chinese universities has become an inevitable trend.

## **2. Current Status of Digital Animation Education in China**

In recent years, the government's strong support for animation programs has fueled the rapid development of digital animation education and facilitated the global dissemination of Chinese culture in digital form. Since 2001, when only around 30 institutions in China offered animation programs, the number has grown to over 600 universities by 2023. This rapid and widespread expansion has laid a solid foundation for the popularization of digital animation education, effectively promoting the rapid rise of China's digital animation industry and its technological advancement. However, despite this rapid growth, China's digital animation education also faces three major challenges (Zhang, 2012).

### **2.1. Unclear Training Direction, Inability to Meet Market Demand**

One of the most notable issues in digital animation education is the lack of a clear training direction, making it difficult to align with the actual needs of the market. On the one hand, many graduates from digital animation programs struggle to find desirable jobs; on the other hand, numerous companies in the digital animation industry are unable to find suitable talent (Xiao, 2013). This paradoxical situation highlights a serious problem in current higher education for digital animation: the inability to accurately balance the supply from educational institutions with market demand.

According to surveys of several well-known digital animation companies, employers commonly observe that new graduates struggle with the following issues: a fragmented and disorganized understanding of fundamental theories, insufficient and underdeveloped technical skills, a lack of creativity and innovation, and a tendency to work independently without strong teamwork abilities. The root cause of these issues lies in the unclear training direction within universities. Some institutions, without thoroughly investigating industry market needs, have hastily established digital animation programs, resulting in curricula that are simplistic and superficial, with outdated and irrelevant content, and a training focus that is narrow and misaligned with market demands. These factors have collectively led to the disconnect between graduates and industry needs, resulting in the challenging

employment situation for graduates.

## 2.2. Insufficient Resources, Inability to Meet Educational Needs

As a discipline that heavily relies on technological advancements, digital animation's development is closely intertwined with scientific and technological progress. From traditional handcrafted animation to the rapidly evolving world of computer-based digital animation software, and from the emergence of *Toy Story* to the blockbuster success of *Kung Fu Panda*, to the integration of motion capture in *Avatar* and the innovative combination of VR and animation, digital animation has consistently been at the forefront of technological breakthroughs. This requires educational institutions offering digital animation programs to carefully consider whether their resources and facilities, both on and off campus, can meet the fundamental standards of modern digital animation education.

However, some universities in China, driven by the "hot trend" of digital animation, have hastily established digital animation programs without adequately considering their financial resources, market connectivity, or availability of specialized equipment. This has resulted in students continuing to use outdated software and lacking exposure to cutting-edge international developments in digital animation. In some universities, the unemployment rate for digital animation graduates is as high as 20%, which is a significant factor contributing to the difficulty graduates face in finding employment (Xiao, 2021).

## 2.3. Limited Faculty, Lack of Industry Experience

Digital animation is a discipline that requires the perfect integration of technology and teacher expertise, while also demanding extensive practical experience from educators. A digital animation teacher's technical skills, educational philosophy, and global perspective not only directly impact their students' proficiency in digital animation but also have a profound influence on the development of China's digital animation industry.

However, many of the faculty members currently teaching digital animation in Chinese universities come from backgrounds in journalism, computer science, or related fields, with only a small portion having specialized training in animation. Although these educators generally have high academic qualifications, a solid theoretical foundation, and strong artistic skills, they often lack the industry insight and market foresight necessary for effective teaching. This deficiency in faculty resources not only limits the diversity of course content but also tends to lead to an overly theoretical approach to teaching, neglecting the importance of practical experience. For example, in some universities, digital animation courses focus primarily on traditional drawing and software operation, with little emphasis on introducing the latest industry technologies and market demands. This leaves graduates struggling to meet industry expectations, highlighting the need for universities to strengthen their faculty with more industry-experienced educators to improve the quality of digital animation education.

### 3. Development of Digital Animation Education Abroad

With the global surge in popularity of digital animated films such as *WALL-E*, *Despicable Me*, and *Coco*, the market share of imported digital animated films in China has been steadily increasing. In recent years, countries like the United States, the United Kingdom, and South Korea have produced a significant number of talented digital animators through their universities. These professionals not only meet the multifaceted psychological demands of modern audiences for digital animated films but also achieve a high degree of alignment between cultural export and economic benefits, as well as between ideological concepts, artistic quality, nationalism, and internationalism.

There is a close relationship between digital animation education and the animation industry. Since the 1970s, foreign countries have made significant breakthroughs in the digitalization of animation. The release of *Toy Story* in 1995 was a turning point that revolutionized digital animation education. The rapid development of the internet and the widespread use of computer technology have greatly advanced digital animation education. Continuous technological innovation has propelled digital animation education to new heights, and the animation industry has experienced explosive growth due to its close connection with education (Su & Wang, 2013).

#### 3.1. Curriculum Moving toward Interdisciplinary and In-Depth Development

Take the California Institute of the Arts, which has produced renowned digital animation masters such as John Lasseter, Andrew Stanton, and Brad Bird, as an example. Whether in the diverse horizontal course offerings or the detailed and in-depth vertical course content, CalArts is at the forefront of digital animation education. According to research, the digital animation program at CalArts includes courses in character animation, life drawing, character design, color design, storyboarding, visual storytelling, independent projects, sculpture, film design, animation layout, digital sound, form and structure, Unity and HTC Vive, character modeling, CG integration with live-action, special effects, and more. The institute provides professional instructors or industry experts for nearly every course, ensuring clear and in-depth course objectives.

CalArts encourages students to integrate their knowledge across disciplines and courses, focusing not only on technical skills but also on developing students' artistic, aesthetic, creative, and cultural literacy. The institute believes that aligning teaching content more closely with scientific frontiers is essential. Therefore, the entire digital animation process is supported by a clear and comprehensive curriculum design. CalArts places a strong emphasis on students' creativity and artistic literacy, with significant weight given to character design and storyboarding in the curriculum. The institute believes that strong creative ideas are more important than pure software skills, and that professionals who are brimming with creativity and possess boundless imagination will lead the industry in the future.

As a result, top animation schools like CalArts not only adapt to the trends of the digital age but also significantly promote the rapid development of the domestic digital animation industry. The innovative animators they produce continually improve the quality of digital animation and drive the direction of the animation industry (Manan, Wang, & Tang, 2022).

### **3.2. Teaching Methods Shifting toward Self-Directed Learning and Collaborative Interaction**

Digital animation is characterized by both a long production cycle and innovative digital features. The long production cycle necessitates the efficient use of teaching time, while the digital nature of animation allows it to break free from temporal and spatial constraints and challenge conventional thinking. Therefore, guiding students to maximize their learning in a limited time and to spark creative ideas through teamwork has become a crucial direction for global digital animation education today.

In South Korea, for example, despite having only about 4,400 animation professionals, the country has produced popular works such as *Backkom* and *Larva*. South Korean universities have developed unique digital animation teaching methods that are worth learning from. Chinese university students often mention that they lack sufficient professional knowledge, have limited study time, and are unable to keep pace with international standards due to the insufficient content covered by their instructors. To address these issues, South Korean universities have implemented an efficient teaching approach.

Before the course begins, instructors provide students with a list of required readings and content, assigning related research tasks. This proactive approach allows students to gain a conceptual understanding of the course material, which benefits subsequent teaching. In the classroom, South Korean universities use a group discussion method, dividing students into small groups for in-depth academic discussions and exchanges with the instructor. This approach fosters interaction between teachers and students and enhances teamwork among students. In the process of striving toward a common goal, students' different perspectives and thinking styles are fully utilized, transforming the teaching method from point-to-surface knowledge transfer to a point-to-line, line-to-surface divergent teaching process (Zheng, 2017).

After class, South Korean universities organize numerous team projects, where students with different strengths and professional backgrounds are fully integrated into a cohesive unit, thereby cultivating their teamwork skills. In the information age, digital animation education must rely more on students' active participation and self-directed learning. This encourages students, especially those majoring in digital animation, to engage in knowledge exchange and sharing. Teachers must also respond in real-time and make appropriate adjustments to address issues that arise during information exchanges. Digital animation education has already deeply integrated self-directed learning and collaborative interaction into its teaching model, which is an important direction for the future of education.

## 4. Insights for Digital Animation Education in China

### 4.1. Building a Practical Teaching Curriculum System

By comparing foreign teaching curricula, we find that most courses offered by domestic universities are overly simplistic, primarily focusing on software instruction, with teaching methods predominantly lecture-based. In contrast, universities in countries like the United States offer diversified, scientifically structured, and progressive curricula, providing students with a comprehensive and scientific knowledge system that deeply integrates digital animation education with student learning. Therefore, before teaching digital animation courses, Chinese animation instructors should conduct in-depth and cutting-edge research on industry-related content (Mou, 2015). Based on the findings, they should thoroughly understand the latest digital animation production processes and divide practical courses into three main directions:

1) Theoretical Practice: Emphasize the integration of theory and practice in areas such as planning, scriptwriting, directing, and original design, ensuring that students grasp fundamental theories while gaining hands-on experience.

2) Creative Practice: Focus on the latest technologies in digital animation production, particularly the use of Artificial Intelligence Generated Content (AIGC), which is a critical aspect of current animation creation. Instructors should pay special attention to incorporating these new technologies into their teaching.

3) Aesthetic Practice: Incorporate courses related to aesthetics, such as audiovisual language, art appreciation, and film design, into the professional curriculum to enhance students' aesthetic abilities and artistic literacy through interdisciplinary integration.

### 4.2. Project-Based Modular Teaching and Assessment System

Through a comparison of teaching models in China and South Korea, we find that a group discussion method based on teamwork and open communication better stimulates students' desire for knowledge and enthusiasm for creation, allowing them to fully engage in learning. Under this model, students connect through group participation and form new understandings through interactive discussions. Therefore, we recommend deepening the implementation of the "studio" and "workgroup" teaching models in digital animation education, organizing students into professional groups based on their interests, such as planning, original design, modeling, lighting, scene design, and compositing groups. These groups should adopt a partial rotation system, allowing members to rotate systematically after a period of practical learning. In the teaching process, real project-based practice should be the foundation, with each professional group working collaboratively within the team and communicating with other groups. The rotation system serves as a bridge, enabling experienced members to mentor newcomers, fully utilizing team resources, with teachers playing a crucial role in guiding and troubleshooting (Zhang & Teng, 2020). This teaching model can greatly expand students'

knowledge frameworks and boost their enthusiasm for learning. Ultimately, student assessment should combine workload and work quality, evaluating professional performance based on the quantity and quality of their work.

### **4.3. Leveraging Talent Concentration Advantages, Promoting “Bring in” and “Go out” Strategies**

Universities, with their unique advantage of talent concentration, are primary bases for knowledge creation and scientific research, playing a crucial role in talent cultivation and discipline construction. Meanwhile, enterprises serve as vital links between the market and universities. In recent years, due to a lack of market orientation and professional practice, digital animation graduates have faced the embarrassing situation of “graduating only to be unemployed.” Therefore, digital animation education must actively foster connections between teachers, students, and the market (Zhu, 2020).

1) “Bring in”: Universities should continuously adjust their teaching content according to enterprise needs, keeping pace with the times. While maintaining a focus on theoretical teaching, universities should lower the educational requirements for outstanding professional talents to enter the campus, prioritize the recruitment of experienced technical experts, update teaching content, deepen the “studio” model, and implement a “dual-teacher” training system.

2) “Go out”: Encourage students to actively engage in social practice during their spare time, gaining early exposure to cutting-edge technologies and theories, understanding market demands, and enhancing their professional vision and capabilities. The dual strategy of “bringing in” and “going out” will strengthen the connection between universities and the market, improving the quality of digital animation talent cultivation (Yoon, 2015).

## **5. Conclusion**

Digital animation, as the intersection of technology and art in the new era, is rapidly advancing. However, the traditional model of digital animation education in China is no longer fully aligned with these changes and, in some cases, is even hindering the industry’s growth. By establishing a practical teaching curriculum, introducing a modular teaching model, and emphasizing the alignment between students and industry needs, the reform of digital animation education not only provides a clearer learning path for university students but also injects significant momentum into the progress of China’s digital animation industry. As these reforms deepen, it is expected that China will develop a more comprehensive digital animation education system, nurturing a cohort of highly skilled professionals with creativity, technical expertise, and artistic sensibility, thereby propelling domestic digital animation to new heights on the global stage.

## **Conflicts of Interest**

The authors declare no conflicts of interest regarding the publication of this paper.

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