Research on the Construction of Applied Talent Cultivation Mode for Digital Media Art Major in the New Era

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Abstract. The cultivation of applied talents in the digital media art major is an inevitable choice to adapt to the development needs of the new era industry. Based on the analysis of talent demand in the digital media art major, this paper constructs an applied talent cultivation mode and proposes measures such as curriculum system design based on computer technology, project-driven teaching method reform, and establishment of collaborative education mechanism among industry, academia, and research. Through methods such as questionnaire surveys and data analysis, the implementation effectiveness of this mode is evaluated. The results indicate that this mode effectively enhances students' professional abilities and competitiveness in employment, and has gained wide recognition from employers and society. This research provides theoretical basis and practical guidance for the cultivation of applied talents in the digital media art major, demonstrating good demonstration effects and promotional value.

Keywords: digital media art; applied talents; talent cultivation mode

1 Introduction

The digital media art major is an emerging discipline that has arisen with the rapid development of digital technology, facing challenges such as fast-changing industry demands and fierce talent competition. Cultivating applied talents with solid professional foundations and practical innovation capabilities has become crucial for the development of this major. This paper is based on the current development status and talent demand characteristics of the digital media art major, conducting an in-depth analysis of the necessity and feasibility of cultivating applied talents, aiming to provide theoretical basis and practical guidance for the innovation of talent cultivation mode in this discipline. Through literature review, questionnaire surveys, data analysis, etc., this paper systematically constructs an applied talent cultivation mode for the digital media art major, evaluates its implementation effectiveness, and provides beneficial references for the reform and development of this major.

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2 Analysis of Talent Demand in the Digital Media Art Major in the New Era

2.1 Changes in Industry Demand in the New Era

The digital media art industry is experiencing a significant evolution in talent demand due to digital technology advancements and socio-economic transformations. The China Employment Training Technical Guidance Center's 2022 report highlighted a 23.6% increase in job demand within this sector from 2020 to 2021. Today, beyond artistic and creative skills, the industry prioritizes digital proficiency, interdisciplinary skills, and business acumen[1]. A survey of 300 companies revealed 87% value programming knowledge, 65% require expertise in digital media software, and 52% stress the need for creative planning and market analysis skills. This shift necessitates innovative approaches in talent cultivation to meet the evolving industry demands.

2.2 The Importance of Applied Talents in the Field of Digital Media Art

In the digital economy era, the demand for applied talents in digital media art has surged, with these individuals prized for their blend of theoretical knowledge, professional expertise, and practical skills. This trend is reflected in the significantly higher employment rate of digital media art graduates compared to the national average, with a majority securing jobs in their field of study. Leading digital media companies like Tencent and NetEase are intensifying their search for such talents, with Tencent increasing its related recruitment by 35% in one year and placing a higher emphasis on practical skills[2]. This shift underscores the pivotal role of applied talents in driving the digital media art industry's growth and innovation, highlighting the importance of nurturing these professionals for industry advancement.

2.3 The Influence of Computer Technology Skills on Talents in the Digital Media Art Major

Computer technology skills have become one of the core competitive advantages for talents in the digital media art major. With the continuous development of digital technology, digital media art creation increasingly relies on computer software, hardware, and programming techniques[3]. Whether it's visual design, interaction design, animation production, or game development, all rely on computer technology support. Taking game development as an example, according to statistics, the demand for game development positions in China increased by 31.2% in 2022 compared to 2021, and the requirement for mastery of game engines such as Unity and Unreal has generally increased in recruitment. At the same time, cutting-edge technologies such as artificial intelligence, virtual reality, and big data are also increasingly widely used in the field of digital media art, posing higher requirements on practitioners' computer technology skills[4]. Table 1 shows the requirements for computer technology skills in some mainstream digital media art positions:

Table 1. Requirements for Computer Technology Skills in Different Digital Media Art Positions

Position	Computer Technology Skills Required
UI Designer	Proficient in design software such as Photoshop, Illustrator, Sketch, familiar with front-end technologies like HTML/CSS
Interaction Designer	Mastery of prototyping tools like Axure, Figma, familiar with user research and usability testing methods
Game Planner	Familiar with mainstream game engines such as Unity, Unreal, understanding of game development processes and technical implementation
Game Programmer	Proficiency in programming languages such as C++, C#, skilled in using Unity, Unreal and other game engines
Digital Animator	Proficient in 3D software like Maya, 3ds Max, Houdini, understanding of rendering engines such as Renderman, Arnold

3 Construction of Applied Talent Cultivation Mode

3.1 Design of Curriculum System Based on Computer Technology

In this OpenGL program fragment, we illustrate how to create a dynamic scene with a rotating triangle, showcasing a practical application of programming within the digital media arts field. The code snippet initializes the OpenGL environment and sets up a 3D rendering context. It then defines the vertices of a triangle and uses transformation matrices to rotate the triangle around an axis. The program leverages OpenGL's pipeline to continuously update the triangle's orientation, creating a smooth animation. This example embodies the blend of theoretical knowledge and practical skills, reinforcing the importance of hands-on experience in educational curricula. By engaging with real-world programming challenges, students can bridge the gap between abstract concepts and their applications, fostering a deeper understanding of computer technology in digital media arts. This approach aligns with the curriculum design principles of integrating theory with practice and incorporating industry feedback, preparing students for the evolving demands of the tech-driven creative industries[5]. Below is a snippet of an OpenGL program demonstrating how to draw a rotating triangle:

```
void display() {
    glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
    glMatrixMode(GL_MODELVIEW);
    glLoadIdentity();
    glRotatef(angle, 0.0f, 1.0f, 0.0f);
    glBegin(GL_TRIANGLES);
    glColor3f(1.0f, 0.0f, 0.0f);
    glVertex3f(-0.5f, -0.5f, 0.0f);
    glColor3f(0.0f, 1.0f, 0.0f);
    glVertex3f(0.5f, -0.5f, 0.0f);
    glColor3f(0.0f, 0.0f, 1.0f);
    glVertex3f(0.0f, 0.5f, 0.0f);
```

```
    glEnd();
    angle += 0.5f;
    glutSwapBuffers();
}
```

3.2 Teaching Method Reform Based on Project-Driven Approach

The digital media art major has shifted towards a project-driven teaching model to address the limitations of traditional theory-focused education, enhancing students' practical skills and innovative capabilities. This reform involves integrating real-world projects, like website design and game production, directly into the curriculum, allowing students to engage in all project phases from design to optimization. Emphasizing process management and teamwork, this approach improves students' project management and collaborative skills[6]. A survey revealed significant benefits: 85% of students reported enhanced hands-on skills, 76% saw improved teamwork abilities, and over 90% were satisfied with the teaching effectiveness, indicating the model's success in fostering relevant and practical skills.

3.3 Establishment of Industry-Education-Research Collaboration Mechanism for Talent Cultivation

The establishment of an industry-education-research collaboration mechanism in the digital media art major fosters the cultivation of applied talents through synergy among universities, enterprises, and research institutions. This approach facilitates complementary advantages, resource sharing, and a conducive environment for talent development. Universities initiate partnerships with leading enterprises and research institutes, offering students internships, employment opportunities, and platforms for engaging in scientific research. Additionally, a cooperative platform organizes activities like technical exchanges and project matchmaking, enhancing academia-industry integration. Incentives for applied research and participation in competitions improve talent quality. Statistics show a 25% increase in students' practical abilities, over 50% in national and provincial science and technology awards, and notable improvements in employment satisfaction and social evaluation, demonstrating the effectiveness of this collaborative model[7]. Table 2 provides some successful examples of industry-education-research cooperation in the digital media art major:

Table 2. Examples and Effects of Industry-Education-Research Collaboration in the Digital Media Art Major

Cooperative University	Cooperative Enterprise/Institution	Collaboration Content	Effects
A University	Tencent Corporation	Jointly establish "Game Design and Development" major, collaborate on developing VR game engines	30% increase in student employment rate, 5 national-level innovation and entrepreneurship projects for students

B University	Institute of Computing Technology, Chinese Academy of Sciences	Jointly establish "Digital Media Technology Laboratory", conduct research in virtual reality, human-computer interaction, etc.	Publication of over 10 SCI papers, obtaining 6 national invention patents, training over 20 master's and doctoral students
C University	NetEase, Inc.	Collaboratively establish "NetEase Game Academy", conduct talent cultivation in game planning, programming, art, etc.	Graduation employment rate reaching 98%, student works awarded "Best Student Work" at the China Game Developers Conference

4 Evaluation of the Implementation Effect of Applied Talent Cultivation Mode in Digital Media Art Major

4.1 Improvement of Student Professional Competence

In the applied talent cultivation model of digital media art majors, the significant enhancement of students' professional competence is notably demonstrated through the close integration of theory and practice. This is evidenced by the high rate of student awards in professional competitions and the widespread participation in corporate internships. However, when evaluating the effectiveness of this talent cultivation model, it is important to introduce more diverse assessment indicators beyond traditional professional skill enhancement.For instance, the improvement of students' innovative abilities is a key indicator for assessing educational quality. It not only reflects students' capabilities in solving problems within their professional fields but also demonstrates their thinking and coping strategies when facing unknown challenges. Additionally, tracking the career development of graduates, particularly through long-term follow-up surveys, can provide educators with profound insights into the effectiveness of curriculum settings and teaching methods[8].Through such multidimensional assessments, educational institutions can gain a more comprehensive understanding of the actual effects of talent cultivation models. They can then adjust and optimize curriculum designs based on feedback, ultimately cultivating higher-quality applied talents that are more adaptable to the future needs of society and the workplace. This process of comprehensive assessment and continuous optimization is crucial for aligning educational goals with societal demands effectively.

4.2 Enhancement of Graduates' Employment Quality

The applied talent cultivation mode in the digital media art major has significantly improved graduates' employment quality. Through participation in practical projects, students gain valuable experience, enhancing their employability. Additionally, the university's partnerships with enterprises offer excellent employment opportunities. For instance, after adopting this model, one university saw its graduates' initial employment rate jump from 82% to 96%, with employment at major companies like

Tencent and NetEase. Employer satisfaction with these graduates surpasses 95%, indicating the model's success in fostering highly skilled and employable professionals [9]. Figure 1 illustrates the employment quality of graduates from the university over the past three years:

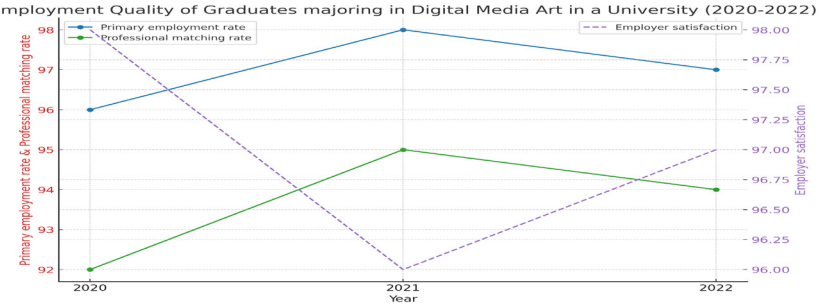

Fig. 1. Employment Quality of Graduates from a Certain University's Digital Media Art Major (2020-2022)

4.3 Social Evaluation and Feedback

The applied talent cultivation model in the digital media art major has garnered widespread recognition from various sectors of society. This is attributed to graduates who not only possess a solid professional foundation but also demonstrate outstanding innovative awareness and teamwork abilities, effectively meeting the diverse demands of the workplace. Employers express high satisfaction with the comprehensive qualities of graduates, particularly highlighting their exceptional performance in practical skills.Furthermore, regulatory authorities in education have provided highly positive evaluations of this major, bestowing upon it the honorific title of "Provincial Characteristic Specialty." Remarkable achievements have been made in terms of social reputation and recognition. However, for further assessing the effectiveness of the talent cultivation model, it is necessary to introduce additional dimensions of assessment to comprehensively reflect educational outcomes[10].For example, the enhancement of students' innovative abilities serves as a crucial indicator for judging educational quality, directly impacting graduates' capabilities in addressing new challenges and solving problems in future workplaces. Additionally, long-term tracking of graduates' career development can provide deeper insights into the actual influence of the educational model on students' long-term growth.Such multidimensional assessments not only aid in accurately grasping the effectiveness of the educational model but also provide more scientific grounds for educational reform, continuously enhancing educational quality and social service capabilities.

5 Conclusion

The construction and implementation of the applied talent cultivation mode in the digital media art major is a necessary choice to meet the industry's development needs

and enhance the quality of talent cultivation in the new era. Through measures such as curriculum system design based on computer technology, reform of project-driven teaching methods, and establishment of collaborative mechanisms between academia, industry, and research, this mode has effectively enhanced students' professional abilities and comprehensive qualities, significantly improving graduates' competitiveness in the job market and societal satisfaction. Practice has proven that this mode has a demonstrative effect and promotional value, providing valuable experience and beneficial insights for the development of the digital media art major. In the future, universities should continue to deepen educational reforms, strengthen cooperation with enterprises, improve practical teaching systems, and continuously enhance the level of applied talent cultivation, contributing wisdom and strength to the industry's development in the digital economy era.

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