Research on the Matching Degree Between the Training Direction of Film and Television Animation Students in Higher Vocational Colleges and the Needs of the Social Industry Based on Big Data Analysis

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Abstract. With the continuous popularization and development of Internet technology, the cultural industry continues to flourish, and animated films or animated films are gradually being sought after by the younger generation. This paper takes Tianjin Vocational University as an example, based on big data analysis technology, researches the matching degree between the training direction of film and television animation students in higher vocational colleges and the needs of the social industry, from the perspectives of project teaching, introduction of enterprises into the school, post practice, and campus animation culture. Set out to train for the purpose of meeting the needs of the social industry and provide theoretical support for professional reforms.

Keywords: Big Data Analysis, Film and Television Animation Major, Professional Ability, Training

1. Introduction
With the continuous popularization and development of Internet technology, the cultural industry continues to flourish, and animated films or animated films are gradually being sought after by the younger generation. However, the data survey shows that the animation major has become a major with a large unemployment rate, a continued decline in employment rate, and a lower salary; animation majors are at the top of the high turnover rate [1, 2]. Higher vocational education is an important part of my country's higher education. It cultivates technical and application-oriented talents for production, management, and service. Therefore, it is necessary to emphasize the cultivation of application-oriented talents in personnel training [3, 4]. The development and design of the training program for animation talents in higher vocational schools should meet the training goals of high-skilled talents and the requirements of professional positions in the professional and technical fields; focus on vocational ability training, fully embody vocational, practical and openness; follow the law of students' vocational ability training Integrate and sequence teaching content based on real work tasks and processes; integrate teaching and do work, and drive the teaching of related knowledge modules with the implementation of work tasks; use the combination of work and study as an important entry
point for the construction of the curriculum system, thereby driving the profession Construct and guide the reform of curriculum, teaching content and teaching mode [5, 6].

This article takes Tianjin Vocational University as an example, based on big data analysis technology, researches on the matching degree between the training direction of film and animation students in higher vocational colleges and the needs of the social industry, and aims to provide theoretical support for the training of animation majors.

2. The connotation of professional ability of film and television animation students

What is vocational ability? Occupational ability (Occupational Ability), Occupational Ability is a combination of people's multiple abilities in a certain occupation. From the perspective of the internal mechanism of ability formation, professional ability is a personality psychological characteristic that people must have when engaging in a certain professional activity and affect the efficiency of professional activity. The professional ability of film and television animation students is the synthesis of the various abilities that students need to engage in the film and animation industry.

There are different classifications of vocational abilities, or they can be divided into four categories: basic quality, basic ability, and professional ability development ability, or into three types of professional job ability, professional basic ability and general professional ability, or into general ability, professional ability and Although the three types of humanistic qualities are different in expression, their connotations are similar. Through the integration and classification of multiple classifications, the author believes that the professional abilities of film and television animation students are divided into professional vocational abilities and general vocational abilities. Because quality is the basic quality or basic condition of a certain activity formed by an individual through acquired environmental influences and education and training on the basis of innate, ability is an explicit form of quality, this article will not discuss it here.

2.1. Vocational professional ability of film and television animation students

Through extensive research on more than 6 animation companies such as Hongmeng Cartoon, and many discussions with colleagues in 5 higher vocational colleges, according to the film and television animation production process, it is divided into three stages: animation pre-production, animation mid-term production, and animation post-production. According to the production technology, the film and television animation major is divided into two technologies: two-dimensional animation production and three-dimensional animation production. The professional vocational capabilities of higher vocational film and television animation students who have long troubled animation educators have been systematically studied and summarized, and the high Analysis of professional ability of students majoring in vocational film and television animation.

What needs special explanation is that it must return to the origin of software operation ability training. In the training of professional vocational ability, many people think that simply thinking that learning the application of Maya, Max, Flash and other computer software will have professional ability. In fact, any training institution and any secondary vocational school can carry out software. Training and teaching, in the professional ability training of film and television animation students in higher vocational colleges, any kind of professional software is only an advanced tool, and software operation ability is not the soul and core of training, otherwise the teaching and talent training of higher vocational animation professionals will be at a low level Hovering. Therefore, it is not possible to take up a lot of class hours to teach the mastering of a certain kind of software operation ability alone, and it is not possible to set the software course as the main course of the film and television animation major. These operation learning can make full use of network teaching resources and can be initially completed through students’ independent learning. Consolidate in project training.

At present, the professional abilities of students majoring in film and television animation in higher vocational schools have a certain foundation in the professional software and tools learned in the mid-term production and post-production, but the integration ability is not enough, the actual production efficiency is low, and the actual situation is not strong in flexible use. The pre-production ability is
weak, therefore, the focus of professional ability training should be moved forward. After all, the pre-production of animation is the upstream link that determines success or failure.

2.2. General professional ability of students majoring in film and television animation in higher vocational colleges

General vocational ability is a generally accepted concept in the international vocational education circle. In the United States, it is called "Foundational skills", in the United Kingdom, it is called "Common skills" (common skills) or "Core skills", New Zealand is called "Essential skills" (essential skills), Australia The so-called "Key Competencies" is an indispensable ability to engage in any professional activity. It is the basic reference for job selection and the basic conditions for employment, and it is also the basic requirement for being competent in professional positions. General professional ability includes at least the following content: learning and development ability, communication and cooperation ability, ability to collect and process information, ability to manage and complete tasks, endurance and frustration ability, self-care and self-discipline ability, emergency and response ability, critical and innovative ability Wait.

Compared with other majors, the general professional abilities of vocational film and television animation students are more demanding in the following aspects:

Abundant imagination: unrestrained and unconstrained, breaking the logic of daily life, creating an original animation world, this is the freshest, original, most unique and iconic in animation. Abundant imagination is the ability that needs to be stimulated and protected most among the general professional abilities of the students majoring in film and television animation in higher vocational colleges.

Keen observation: Keen observation is the basis for accumulating materials and themes, and creating original animation. It is hard to imagine that a person who does not observe life carefully will take a break to observe humanity and humanity, and a student who has not observed the wind, frost, rain and snow will be familiar with these things in the movement of animation in the law. The keen observation is that the creation of animation comes from The source of life and high life.

In addition, continuous innovation ability, learning from others' strengths and extensive research ability, good psychological endurance when encountering setbacks, self-employment ability, etc. are the most professional general professional abilities of film and television animation students in higher vocational schools.

3. Characteristic analysis of talent training program based on big data analysis

3.1. Training goal "three integrations"

One is the integration of technology and art. Guided by the needs of enterprises, establish a set of modern film and television animation professional curriculum system and standards that integrate technology and art, and cultivate composite animation design and production talents who integrate artistic aesthetics and technical operation capabilities.

The second is the combination of professional skills and professional quality. Reform the talent training plan, take the job ability as the core, investigate the qualities and abilities that animators, animators, original artists, background, and styling designers should possess, break down their abilities, and determine what is necessary for professional positions Ability training module. Through increasing the ratio of practical teaching (theoretical to practical ratio is 0.8:1.2) and "modular" training, improve students' practical ability. While strengthening vocational skills training, pay attention to vocational quality education. In professional teaching, conduct purposeful, planned, organized, and step-by-step education and training activities based on work process, product production, and project implementation to help students establish learning, living, and behavioral habits, and cultivate professional love The spirit of work, hard work, solidarity and cooperation to meet the professional quality requirements of modern society for higher vocational graduates.

The third is the integration of dual certificate courses. Combine the academic certificate with the
professional qualification certificate, and according to the needs of the job ability, incorporate the professional qualification standards of the two-dimensional original painter, the three-dimensional modeler, and the special effects teacher into the construction of the professional curriculum construction system.

Table 1. Comparison of 2017 and 2018 talent training goals for animation majors in Tianjin Vocational University.

| Serial number | Grade         | Training objectives                                                                 |
|---------------|---------------|--------------------------------------------------------------------------------------|
| 1             | Class of 2017 | This major mainly cultivates high-tech applied professionals who support the basic line of the party and meet the first-line needs of production, construction, management, and service, and develop comprehensively in moral, intellectual, physical, and aesthetic aspects. |
|               | Class of 2018 | For "assistant (animation designer, original painting designer, art designer, modeler, renderer), animation drafter" positions, train design and production highly skilled talents |

3.2. On the basis of "credit system" talent training, adopt the talent training program of "credits + hours"

The first academic year: Adopt the credit system, regardless of professional direction, take professional general knowledge as the main teaching goal, cultivate students' diverse understanding of industry and industry development, master the ability to use tools, and advance the professional skills and professional direction module courses to the first Implemented in one academic year, so that students can intervene in professional learning in advance, and cultivate students' interest in majors.

Second academic year: Adopt the class hour system, students enter each professional module studio after the second examination, and mainly complete vocational basic courses (basic quality modules), vocational skills courses (professional skills modules), and college students' quality development courses (art training modules). With project-compatible courses, full-time and part-time teachers led by enterprise technical backbones conduct vocational training for students, and use project-guided courses to get close to enterprise employment positions, forming a seamless connection from school to enterprise and students to employees. Closely integrate with the development of the industry to form a high-quality core curriculum group to integrate theory and practice.

The third academic year: The internship stage, which mainly completes the tasks of three courses (three modules), enters the internship, through the combination of work and study, achieves the integration effect of teaching, learning, and doing, and smoothly completes the transition of employment (enterprise).

3.3. Diversified curriculum modules and project-based teaching methods
Re-integrate the original curriculum, promote the implementation of project curriculum modularization, and establish a "large module, multi-directional" ability module curriculum system. In conjunction with industry experts, revise the original teaching plan according to the ability requirements of animation professional positions (groups), and conduct research and ability decomposition of the knowledge, abilities, and qualities that should be possessed by each position in the animation industry by taking the position ability as the core. According to the animation production process: pre-planning (script, modeling and scene design, sub-camera script, design draft), mid-term production (two-dimensional: original painting, intermediate painting, background, motion inspection, scanning and coloring, three-dimensional: modeling, rendering, Animation, special effects) and post synthesis (synthesis, special effects, editing, recording) to determine the necessary ability training modules for professional positions. In order to meet the needs of diversified professional talents and the individual development of students, professional teaching can be seamlessly integrated with the needs of corporate talents.

The teaching method has changed from a single "teacher teaches students" to a two-way
3.4. Teaching evaluation "Three Combinations"

In the organization and implementation of project teaching, every participant is a member of the evaluation system, whether it is a teacher, a student or an enterprise technical staff. Adopt an open-ended evaluation with the participation of schools and enterprises, mainly using daily teaching management evaluation, professional level ability evaluation, performance and employment reward mechanism, and abide by the following principles:

(1) Combination of teaching assessment and credit system reform

In project teaching, different professional courses are assembled into related ability modules according to job requirements, and graded assessments are carried out according to the degree of difficulty; standard assessments are carried out for different ability points; an assessment system combining various forms is established to assess individual or Different assessment standards are established for group homework; according to the principle of gradual and orderly, the first low-level training and then gradually transition to the internship, for the students who have completed the early completion of the outstanding students can be employed in advance.

(2) Combination of teaching evaluation and production process

Perform quantitative and qualitative assessments for all links of "productive teaching", especially the process of project implementation, and obtain the basic skills evaluation of practical training, as well as the comprehensive evaluation of students' teamwork ability, innovation ability and professionalism Basis.

(3) Combination of training evaluation and national vocational qualification certification

In the training process, the national vocational qualification certification, industry design competition, and skills competition standard requirements are included in each corresponding project. The accumulated credits after the completion of the skill assessment of each level are used as the vocational qualification examination results to enable students to obtain academic certificates At the same time, you can obtain a professional qualification certificate. Strengthen business cooperation, invite business experts, industry association experts and professional teachers to participate in the
evaluation of graduation projects, and require students to hold graduation certificates and professional skills certificates when they graduate, so as to integrate school evaluation and social evaluation.

4. Basic results of the implementation of the training program for film and animation professionals

4.1. Strengthen practical teaching and enhance students' core competitiveness
Comparing the 2017 and 2018 training programs for animation professionals in Tianjin Vocational University (Table 2), it can be found that in the allocation of hours for the 2008 talent training program, theoretical courses have been reduced by 27 hours, while practical courses have increased by 32 hours. Significantly increased the proportion of practical teaching.

**Table 2.** Comparison of hours of training programs for 2007 and 2008 talents for animation majors in Tianjin Vocational University.

| Serial number | Grade         | Theoretical link (class hours) | Practice link (class hours) | Total period |
|---------------|---------------|--------------------------------|----------------------------|--------------|
| 1             | Class of 2017 | 923                            | 2176                       | 3099         |
| 2             | Class of 2018 | 896                            | 2208                       | 3104         |

After the implementation of the talent training program of "combination of work and study", students' hands-on ability has been significantly enhanced, and they can better meet the needs of society. They actively participate in various skill competitions and influential competitions in the industry, and compete with enterprises, undergraduate colleges and similar colleges. Good results have been achieved.

**Table 3.** 9 List of national awards for film and television animation students from 2019 to 2020.

| Serial number | Award time | Awards/Name of Work                                           | Level            |
|---------------|------------|-------------------------------------------------------------|------------------|
| 1             | 2019       | The Best Team Award in the Chinese Classical Cultural Creative Animation Design Competition | National level  |
| 2             | 2019       | Best Commercial Value Award in the National Digital Art Animation Design Competition | National level  |
| 3             | 2019       | Mobile Animation Silver Award in the National Digital Art Animation Design Competition | National level  |
| 4             | 2020       | Won gold and silver awards in the National Vocational College Skills Competition | National level  |
| 5             | 2020       | Outstanding Domestic Animation Award from the State Administration of Radio, Film and Television | National level  |

4.2. Improve the quality of talents and ensure the employment rate of graduates
The reform of the animation talent training program has modularized the curriculum and increased the intensity of practical training, which has significantly improved students' practical skills, enhanced students' employability and self-confidence, and cultivated more companies that are welcomed by enterprises and satisfy the society. Animation professionals in demand. The employment rate of Tianjin Vocational University animation graduates from 2008 to 2010 is 100%, which is much higher than other higher vocational colleges.
4.3. Enhance social recognition and promote professional development

The film and television animation major closely relies on the industry background of the Changzhou National Animation Industry Base, follows the law of high-skilled personnel training, and has carried out fruitful exploration and practice in professional construction and personnel training. The school conditions have been improved, and the school quality has been employed. Widely recognized by units and industries.

For the animation teaching evaluation object \( u'_j, u"_j, (i', i'' \in N, i' \neq i'') \), let \( w_j \left( i', i'' \right) \) be a random variable that obeys a certain distribution on the interval \( \left[ \min \left( w_{ij}, w_{ij'} \right), \max \left( w_{ij}, w_{ij'} \right) \right] \), and call \( s(u'_j > u"_j) \) the superiority of \( u'_j \) to \( u"_j \), as shown in formula (1):

\[
s(u'_j > u"_j) = p\left( f(u'_j) > f(u"_j) \right) + 0.5p\left( f(u'_j) = f(u"_j) \right)
\]

5. Conclusion

This article takes Tianjin Vocational University as an example, based on big data analysis technology, researches the matching degree between the training direction of film and television animation students in higher vocational colleges and the needs of the social industry, through professional education, general education, employment education, etc. Professional reforms provide theoretical support.

Acknowledgement

Subject of Tianjin Vocational University: a study on the matching degree between the training direction of students majoring in film and television animation and the needs of social industry based on big data analysis-taking Tianjin Vocational University as an example, item No .20172106.

References

[1] Collaborative S, Drake T, Bath M, et al. Medical research and audit skills training for undergraduates: An international analysis and student-focused needs assessment[J]. Postgraduate Medical Journal, 2018, 94(8):1-6.

[2] Cavallario J M, Van Lunen B L, Hoch J M, et al. Athletic Training Student Core Competency Implementation During Patient Encounters[J]. Journal of Athletic Training, 2018, 53(3):282-290.

[3] Grimes J A, Wallace M L, Schmiedt C W, et al. Evaluation of surgical models for training veterinary students to perform enterotomies[J]. Veterinary Surgery, 2019, 48(6):985-996.

[4] Mezil Y, Sharma B, Cross A, et al. Exercise Messengers: Exploring Student Learning Perceptions of a Science Animation Video using Qualitative methodology[J]. The FASEB Journal, 2020, 34(1):1-7.

[5] Osborne K W, Woods K M, Maxwell W D, et al. Outcomes of Student-Driven, Faculty-Mentored Research and Impact on Postgraduate Training and Career Selection[J]. American Journal of Pharmaceutical Education, 2018, 82(4):6246-6250.

[6] Mcketrnan K, Czapinski J, Bertsch T, et al. Training Student Pharmacists to Perform Point-of-Care Testing[J]. American journal of pharmaceutical education, 2019, 83(7):7031-7040.