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Cultural Infiltration and Workshop-Based Education: A Case Study of Digital Creative Talent Training in a Chinese Higher Vocational College

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Abstract: The digital creative industry needs graduates who combine cultural knowledge, digital production skills and the capacity to innovate, yet vocational programmes in this field often treat culture superficially, rely on weak practical platforms and remain disconnected from industry. This article presents a qualitative case study of how the animation production technology programme group at Xi'an Vocational and Technical College responded to these problems through a model it calls "cultural infiltration plus workshop practice". Drawing on documentary analysis of programme records and institutional reports, interpreted through research on experiential, situated and project-based learning, the study identifies three components. The first is a three-dimensional practice platform that links online and offline, cloud-based and on-site, and teaching and service activities around revolutionary heritage and local culture. The second is a collaborative platform involving government, industry, enterprises, the college and research institutes, organised through an industry–education consortium, an industry–education community and two industrial colleges. The third is a three-stage training path that moves students from basic practice in campus workshops to innovation in real projects. The programme reports more than fifty cultural, creative and commercial projects, improved graduate employment and wide media coverage, although these figures come from its own records. The analysis suggests that treating cultural resources as project material, coupling the roles of multiple partners, and organising workshops as production settings are the features most relevant to other colleges. Limitations and directions for further research are discussed.

Keywords: Cultural infiltration, workshop-based education, digital creative industry, industry–education integration, vocational education, case study

1. Introduction

Digital technology has changed how cultural content is produced, distributed and consumed. Animation, games, virtual exhibitions and digital derivatives of cultural heritage now form a growing industry in which economic value depends on cultural meaning as much as on technical quality. Throsby (2001) argued that cultural goods carry both economic and cultural value, and that the two cannot be reduced to one another. Workers in the digital creative industry therefore need not only production skills but also an understanding of the cultural material they work with.

Chinese national policy has made this connection explicit. The 14th Five-Year Plan for cultural development calls for the creative transformation and innovative development of traditional and revolutionary culture and for new cultural formats based on digital creativity (General Office of the CPC Central Committee & General Office of the State Council, 2022). In education, national guidelines ask every higher education course to integrate ideological and political education, including national identity and cultural literacy, into professional teaching rather than leaving it to separate courses (Ministry of Education of the People's Republic of China, 2020). In this article, "red culture" refers to the heritage of the Chinese revolutionary period, including sites, relics and narratives, which these policies identify as a resource for education.

Xi'an, the provincial capital of Shaanxi, has designated the digital creative industry as a key development chain, and the province holds a large number of historical and revolutionary sites. Local demand for graduates who combine cultural knowledge, digital technology skills and creativity has grown accordingly. According to the programme team, however, many digital creative programmes in higher vocational colleges emphasise technical training over cultural understanding,

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integrate local and revolutionary culture only superficially, offer practical platforms of limited quality, and maintain fragmented relationships with enterprises whose real production processes differ from classroom exercises.

Educational theory offers several reasons why integrating culture through practice, rather than through separate instruction, may be more effective. Dewey (1938) argued that experience educates when it is continuous with learners' previous experience and when it involves interaction with meaningful material. Experiential learning theory describes learning as a cycle of concrete experience, reflection, conceptualisation and experimentation (Kolb, 2015). Schön (1987) showed that professional artistry, especially in design fields, is developed in studio settings where learners make things and reflect on them with experienced practitioners.

Situated learning theory adds that learners develop competence by participating in communities of practice, beginning at the periphery and moving towards fuller participation (Lave & Wenger, 1991). Workshops that host real production projects can function as such communities, in which teachers, enterprise staff and students share a repertoire of tools, standards and stories (Wenger, 1998). Project-based learning, in which students work on extended, authentic tasks, is a common way of organising this participation, although a review found that its benefits depend on scaffolding, collaboration and aligned assessment, and that causal evidence is limited (Kokotsaki et al., 2016).

Cultural heritage itself has become a site of digital practice. A survey of augmented, virtual and mixed reality in cultural heritage found these technologies used for education, exhibition enhancement, exploration, reconstruction and virtual museums, especially where physical access is constrained (Bekele et al., 2018). Research on museum learning emphasises that visitors make meaning through the interaction of personal, sociocultural and physical contexts (Falk & Dierking, 2013). Students who produce digital heritage content therefore engage with culture both as producers and as mediators of other people's learning.

Integrating school and industry is, however, difficult. Students often experience school-based and workplace learning as separate settings, and integrating knowledge across them requires deliberate support (Schaap et al., 2012). Boundary-crossing research suggests that shared projects, joint assessment and people who move between organisations can help connect the two (Akkerman & Bakker, 2011), and models of work experience stress the need to help learners relate formal knowledge to its contexts of use (Guile & Griffiths, 2001).

Chinese accounts of cultural education in vocational programmes tend to describe a college's initiatives and achievements without explaining how evidence was gathered or linking practice to this wider literature. This article addresses that gap through a case study of the animation production technology programme group at Xi'an Vocational and Technical College. It asks: (1) How does the programme integrate cultural resources into digital creative training? (2) How are partners organised to provide practical settings and real projects? (3) Which features appear transferable, and what are the limits of the evidence? The study describes the programme as documented by its participants; it does not measure learning outcomes against a comparison group.

2. Literature Review

2.1 Culture in Creative and Vocational Education

The relationship between culture and the creative economy has been theorised mainly in cultural economics and cultural policy. Throsby (2001) distinguished between the economic value of cultural goods, expressed in prices, and their cultural value, which includes aesthetic, spiritual, social, historical and symbolic dimensions. For education, this distinction implies that training for the creative industries cannot treat cultural content as interchangeable raw material: students need to understand what makes a cultural resource meaningful before they can transform it without losing that meaning.

In Chinese higher education, the integration of cultural and values education into professional courses has become a formal requirement. National guidelines issued in 2020 ask every course to combine value formation, knowledge transmission and skills development, and identify cultural literacy and national identity among the priorities (Ministry of Education of the People's Republic of China, 2020). The cultural development plan for the same period promotes the digital transformation of cultural heritage and the growth of digital cultural industries (General Office of the CPC Central Committee & General Office of the State Council, 2022). Vocational programmes in animation and digital media therefore sit at the intersection of two policy agendas, one concerned with values and the other with industry.

Research on digital heritage shows how these agendas can meet in practice. Immersive and mixed-reality technologies are used to reconstruct sites, enhance exhibitions and provide access to heritage that is remote or fragile (Bekele et al., 2018). Museum learning research suggests that such experiences are meaningful when they connect with visitors' personal interests and social contexts (Falk & Dierking, 2013). For students who produce this content, the work requires both technical skill and interpretive judgement about how a site or story should be presented.

2.2 Workshop and Studio Pedagogy

Workshop-based education has a long history in design and the arts. Schön (1987) described the design studio as a setting in which students learn by doing under the guidance of a coach, and in which reflection-in-action develops the professional artistry that technical rules alone cannot convey. Situated learning theory describes a similar process in terms

of communities of practice, in which newcomers acquire competence through increasing participation in real activities (Lave & Wenger, 1991; Wenger, 1998).

In vocational education, workshops that host real production combine these traditions with the demands of the labour market. They offer opportunities for authentic projects, but research cautions that students often experience school-based and workplace learning as separate, and that connecting them requires explicit support (Schaap et al., 2012). Project-based learning research similarly finds that benefits depend on scaffolding, group processes and assessment aligned with the project's goals (Kokotsaki et al., 2016).

2.3 Multi-Partner Collaboration

Collaboration between colleges, enterprises, government and research institutes is a recurring theme in Chinese vocational policy, often described as the integration of industry and education. Boundary-crossing research provides a way of analysing such collaboration: partners from different organisations bring different goals and practices, and learning occurs when these differences are identified, coordinated and, at best, transformed into new shared practices (Akkerman & Bakker, 2011). The concept also directs attention to the people and objects that move between organisations, such as enterprise mentors, shared projects and joint standards.

Despite extensive policy support, the empirical literature on how multi-partner arrangements function in vocational programmes remains thin. Many accounts list partners and agreements, but few describe how decisions are made, how responsibilities are shared, or how partnership activities reach students. The present case study contributes by describing one programme's arrangements in detail and by noting where the available evidence stops.

3. Case Study Method

3.1 Research Design

The study adopted a qualitative, single-case design that is descriptive and interpretive in purpose (Yin, 2018). The unit of analysis is the programme group's model of cultural infiltration and workshop practice, comprising its practice platforms, its partnership arrangements and its training path. The case is bounded by the three most recent years reported by the programme. The aim is to describe how culture, partners and workshops are organised in one programme and to interpret these arrangements through theories of experiential, situated and project-based learning; the design makes no causal claims about the outcomes reported in Section 4.4.

The evidence is documentary (Bowen, 2009), consisting of records produced in the course of running the programme and its projects, complemented by the authors' practitioner knowledge as staff of the programme group.

3.2 Case and Context

The case is the animation production technology programme group at Xi'an Vocational and Technical College, which, according to the college, has developed from a college-level specialty into a national backbone programme and a Ministry of Education modern apprenticeship pilot. Its partners include the Shaanxi Provincial Cultural Relics Bureau, Huawei, Xi'an Film Group, Perfect World, the Xi'an Future Digital Content Industry Research Institute and the Eighth Route Army Xi'an Office Memorial Hall.

3.3 Evidence Base

Four types of document were used, each linked to particular findings (Table 1): records of the heritage platforms and projects; cooperation agreements and documents establishing the consortium, community and industrial colleges; curriculum, workshop and textbook records; and the college's enrolment and graduate employment records together with award certificates and media reports.

Table 1 - Evidence Base Mapped to the Findings

Finding area	Main evidence	What the evidence can show	What it cannot show
Culture-based practice platform (4.1)	Platform and project records; memorial hall cooperation; competition records	Platforms built, projects undertaken and how culture enters teaching	What students learn about the cultural content
Multi-partner platform (4.2)	Consortium, community and industrial college documents; donation records	Partners, formal roles and resources committed	Depth and frequency of actual collaboration
Training path (4.3)	Training scheme, workshop records, textbooks, project lists	Stages, settings and real projects used	Students' experience and individual contributions
Reported outcomes (4.4)	Enrolment and employment records, awards, media reports	Outputs and recognition recorded by the programme	Effects relative to comparable programmes

3.4 Analytic Framework and Procedure

The analysis proceeded in three steps. First, documents were organised deductively under the programme's own three components: the practice platform, the partnership platform and the training path. Second, statements within each component were coded thematically for cultural content, settings, partners, activities and forms of assessment (Braun & Clarke, 2006). Third, the coded material was interpreted through the studio and experiential learning traditions (Kolb, 2015; Schön, 1987), situated learning in communities of practice (Lave & Wenger, 1991) and boundary crossing between partner organisations (Akkerman & Bakker, 2011). A feature was reported only when it appeared in at least two documents, and designed arrangements were kept distinct from reported results. Outcome figures were tabulated without inferential claims.

3.5 Positionality and Limitations of the Evidence

The authors work at the college whose programme is described, which provides detailed knowledge but also creates a risk of favourable interpretation. Most evidence was produced by the programme or its partners; students' and partners' views were not collected independently, and there is no comparison group. The findings therefore describe how the programme is designed and reported, not its verified effects.

4. Findings

The programme describes its approach as "cultural infiltration plus workshop practice", guided by four aims: understanding content, mastering technology, integrating culture and being able to innovate. Three components were identified: a three-dimensional practice platform, a multi-partner collaborative platform, and a three-stage training path.

4.1 A Three-Dimensional Platform for Culture-Based Practice

The first component links three pairs of dimensions. In the online and offline dimension, the college and its enterprise partners built a red-culture virtual reality experience hall and an online education platform for Shaanxi revolutionary cultural relics, combining immersive on-site experience with regular online learning. In the cloud and on-site dimension, the college worked with the Provincial Cultural Relics Bureau on a project presenting Shaanxi revolutionary sites online, while students also visited sites in Xi'an to collect material, producing a cycle of on-site collection and cloud development.

In the teaching and service dimension, more than twenty real projects serve as starting points for teaching, including digital content for a centenary exhibition on Party history at the Eighth Route Army Xi'an Office and the design of themed public transport cards. Through these projects students practise three-dimensional modelling and all-media content production. According to the programme, the digital transformation of 100 revolutionary sites has been completed, and the resulting virtual reality resources and digital cases are used in classroom teaching.

Around this platform the college describes a "four connections" mechanism: between revolutionary culture and campus culture, through digital cultural and creative competitions; between revolutionary narratives and the ideological content of professional courses, for example in animation character design; between heritage resources and teaching resources; and between the memorial hall and the college, which uses the hall as a regular off-campus practice base. This is the programme's interpretation of the national requirement to integrate ideological and political education into professional courses (Ministry of Education of the People's Republic of China, 2020).

4.2 A Multi-Partner Platform for Industry–Education Integration

The second component is a collaborative structure that the programme describes as "consortium plus community, with two industrial colleges", summarised in Fig. 1. With Huawei, the college formed a Xi'an industry–education consortium for new-generation information technology with 87 member organisations; the enterprise donated training equipment reported at RMB 1.6 million and opened channels for posts, training resources and enterprise mentors. With Perfect World, the college established a digital film and animation industry–education community, and with the Xi'an Future Digital Content Industry Research Institute it set up a digital creative industry college and an animation and digital media industry college.

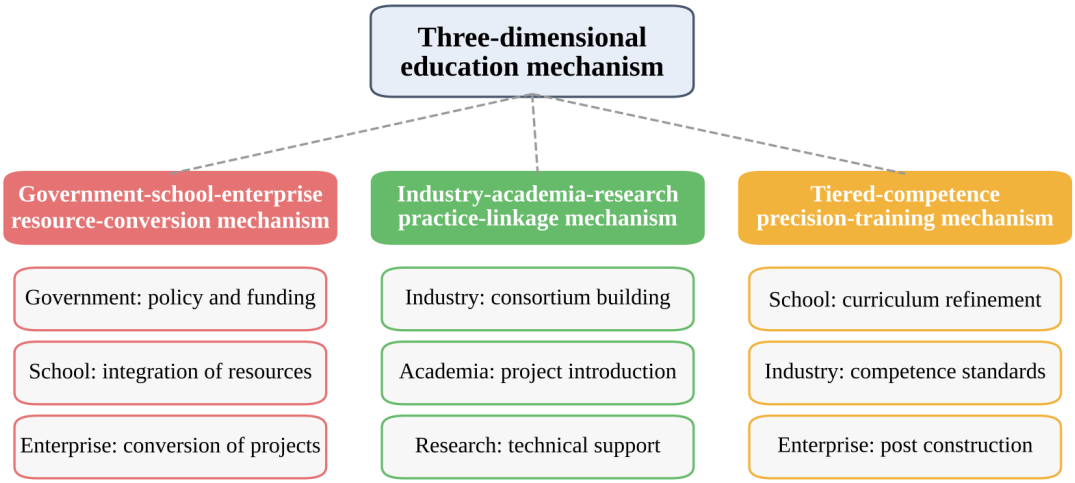


Fig. 1 - The Three-Dimensional Education Mechanism

On campus, scattered training areas were consolidated into creative collaboration workshops that combine production, skills training, competitions and entrepreneurship, providing a path from creative idea through project development to market promotion. Enterprise production projects are brought into the workshops, and off-campus museums and enterprise sites serve as additional practice points. The programme assigns distinct roles to each partner: government coordinates policy and funding, industry associations supply competence standards, enterprises provide projects and mentors, the college organises teaching resources, and research institutes provide technical support.

4.3 A Three-Stage Training Path

The third component is a staged training path built on shared resources, platforms and standards. The partners report jointly writing ten new-form textbooks, building nine digital creative workshops, introducing production projects from Xi'an Film Group (described in the original as Western Film Group) and integrating 1+X vocational skill certificate standards into the curriculum. The stages are summarised in Table 2. The documents describe the first two stages explicitly; the third, real-project stage is reconstructed from their account of project work.

Table 2 - The Three-Stage Training Path

Stage	Setting	Activities
Consolidating basic abilities	Campus digital creative workshops; red-culture VR field-engineer class	Professional orientation and basic practical training; participation in production as prospective enterprise employees
Developing innovation	Craftsman cultural and creative centre	Comprehensive practical training; complex cultural and creative tasks; personalised innovation
Producing in real projects	Enterprise and college joint projects	Selection, decomposition and delivery of real tasks, including participation in animated film production and the original "Manxiaogong" IP

According to the programme, students took part, under joint school–enterprise guidance and through partner studios, in production work on 34 animated films, including Nezha 2. The documents do not specify the nature or extent of individual students' contributions, so this claim indicates exposure to commercial production rather than responsibility for particular outputs. Students also developed original cultural and creative projects such as the "Manxiaogong" intellectual property, taking part in creative design, content production and delivery.

4.4 Reported Outcomes

The programme reports outcomes in three areas, summarised in Table 3. These figures come from its own records and have not been independently verified.

Table 3 - Outcomes Reported by the Programme

Area	Reported outcome
Programme development	National backbone programme and Ministry of Education modern apprenticeship pilot; 10 loose-leaf textbooks; a provincial teaching resource library; 4 core courses; 2 planned textbooks; leadership of a Xi'an industry–education consortium; vice-chair of nine national industry–education communities; an industrial alliance with 30 enterprises; two national training bases
Students and graduates	Enrolment rate for new students of 96.2%; graduate employment rising from 90% to 95%; local employment of 85%; job-relevance rate 12.7 percentage points above similar colleges in the province; 1+X certificate rate of 92%; 7 national and 95 provincial awards; more than 40 cultural animation works
Service to society	3 commercial, 12 public-welfare and 11 enterprise projects; 30 episodes of intangible cultural heritage animation; an IP prototype with 20 derivatives and 30 further digital creative derivatives; 27 practice carriers serving more than 12,000 trainee visits a year; a provincial first prize for the revolutionary-sites cloud exhibition; more than 6,000 offline and about 30,000 online users; coverage by more than 40 media outlets

Note. Source: programme records for the most recent three years; employment and comparison figures are taken from the college's graduate employment records.

5. Discussion

5.1 Cultural Resources as Project Material

The most distinctive feature of the case is that cultural resources are used as material for production rather than as content for separate instruction. Students learn modelling and content production by digitising revolutionary sites, designing heritage-themed products and producing animation based on local culture. This is consistent with Dewey's (1938) view that experience educates when it engages learners with meaningful material, and with the studio tradition in which professional artistry develops through making and reflecting (Schön, 1987). It also places students in the role of mediators of heritage for others, which research on museum learning suggests is an active, meaning-making role (Falk & Dierking, 2013).

The approach also aligns with the policy goal of integrating values education into professional courses (Ministry of Education of the People's Republic of China, 2020), but it raises questions the documents do not answer. Integrating cultural or ideological content through production may be more engaging than lectures, yet its effects on students' understanding were not assessed, and the programme does not report how students' own interpretations are handled when they diverge from the intended message. These are matters for future evaluation rather than grounds for criticism of the design.

5.2 Coupling the Roles of Multiple Partners

The second feature is the explicit allocation of roles among government, industry, enterprises, the college and research institutes. In boundary-crossing terms, the consortium, community and industrial colleges act as structures that coordinate different organisational logics and give each partner a defined contribution (Akkerman & Bakker, 2011). The arrangement is ambitious: the programme reports nine national communities, an alliance with thirty enterprises and multiple industrial colleges. The documents do not show how often these structures meet, what decisions they take, or which partners contribute most, and the depth of collaboration may vary considerably across them.

5.3 Workshops as Production Settings

The third feature is the reorganisation of workshops into settings that host real production and support movement from idea to product. Seen through situated learning theory, these workshops can function as communities of practice in which students move from peripheral tasks to responsibility for parts of real projects (Lave & Wenger, 1991; Wenger, 1998). The three-stage path is consistent with this progression and with the project-based learning literature, which emphasises authentic tasks and products (Kokotsaki et al., 2016). Its success, however, depends on scaffolding and assessment, which the documents describe only briefly.

5.4 Implications for Other Colleges

For other colleges, the case suggests three lessons. First, local cultural resources can provide authentic, distinctive project material that differentiates a programme from similar programmes elsewhere. Second, partnerships work best when each partner's role is defined and linked to teaching, rather than recorded only as a signed agreement. Third, workshops should be designed as production settings with real clients and deadlines, so that students experience the standards of the

industry. These lessons are consistent with research on work-based and experiential learning (Guile & Griffiths, 2001; Kolb, 2015), although their transfer depends on the availability of cultural resources and industry partners in each region.

5.5 Limitations and Further Research

Four limitations qualify these findings. The evidence is documentary and produced largely by the programme; there is no comparison group; students' and partners' perspectives were not collected independently; and the authors' position may have shaped interpretation. Further research could compare the employment and portfolio quality of programme graduates with those of similar students, examine how students understand the cultural content they produce, and document the actual functioning of the multi-partner structures over time.

6. Conclusion

This case study described a digital creative programme that integrates cultural heritage into vocational training by using it as material for real production, supported by multi-partner platforms and a staged path from basic practice to real projects. Read through research on experiential, situated and project-based learning, the features most relevant to other colleges appear to be the use of cultural resources as project material, the explicit coupling of partners' roles, and the design of workshops as production settings.

The programme's reported outcomes are encouraging but come from its own records. Independent evidence on students' learning, on the quality of their work and on the functioning of the partnerships would make the case more useful as a model for other colleges.

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Conflict of Interest

The authors are employed by Xi'an Vocational and Technical College, the institution whose programme is described in this case study. The authors declare no other conflicts of interest.

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