

The Development of an Integrated Digital Art Curriculum Management Model for Enhancing the Employability of Students at Hainan Vocational University of Science and Technology, China

Jia Lili¹, Natchanun Sermsri², Nipaporn Khamcharoen³

¹²³ Faculty of Education, Dhonburi Rajabhat University, Thailand

Email: 1: 6523031046@dru.ac.th; 2: natchanun.s@dru.ac.th; 3: nipaporn.k@dru.ac.th

HOW TO CITE: ABSTRACT

Jia Lili, Natchanun Sermsri, Nipaporn Khamcharoen (2026). The Development of an Integrated Digital Art Curriculum Management Model for Enhancing the Employability of Students at Hainan Vocational University of Science and Technology, China. International Journal of Special Education, 41(23s), 617 - 626

The research objectives were: 1) to study the factors of integrated digital art curriculum management for vocational graduate employability at Hainan Vocational University of Science and Technology in China, and 2) to develop an integrated digital art curriculum management model for enhancing vocational graduate employability. This study employed a mixed-methods research design. The researchers used random sampling method to collect 240 educators in digital-art and related programs and 9 key informants through purposive sampling. The instruments used were a questionnaire and interview form for studying factor and effectiveness. The data were analyzed using frequency, percentage, CFA and content analysis.

The findings revealed that: 1) the integrated digital art curriculum management consisted of four major factors: namely, Objectives of curriculum (β = between 0.690 and 0.891), Content of curriculum (β = between 0.736 and 0.866), Curriculum experience (β = between 0.782 and 0.857), and Curriculum evaluation (β = between 0.814 and 0.897), and 2) the integrated digital art curriculum management model for enhancing vocational graduate employability consisted of four components: namely, Curriculum objectives, Curriculum content, Curriculum experiences, and Curriculum evaluation.

Keywords: integrated digital art curriculum management, vocational graduate employability, management model

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.
Open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Introduction

Digital-art education now operated at the intersection of creative practice, technological change, and vocational preparation. Visual communication, animation, interactive media,

artificial intelligence tools, and immersive platforms have altered the ways in which creative work is produced, shared, and evaluated. Consequently, employers seek graduates who can combine digital production skills with conceptual thinking, collaboration, adaptability, and

professional judgement. Vocational programmes could not respond simply by adding software modules; they must reconsider how the curriculum as a whole prepared students for a changing creative economy (Lee & Kim, 2021; Zhang et al., 2022).

Graduate employability in this setting was broader than obtaining an initial job. It included the capability to apply technical and creative competence, communicate with clients and colleagues, learn new tools, contribute to workplace projects, and adapt to industry expectations. Work-integrated learning research showed that these capacities develop most effectively when institutions connect disciplinary learning with authentic work contexts and deliberately support the transfer of learning between classroom and workplace (Jackson, 2020; Smith & Worsfold, 2020).

For digital-art programmes, this relationship made curriculum management a central educational concern. A curriculum may introduce contemporary tools yet remain poorly aligned if intended competencies, content sequence, learning activities, and evaluation practices point in different directions. Conversely, carefully coordinated curriculum management can make industry needs visible in teaching and assessment while preserving the creative, cultural, and ethical dimensions of art education. Research on vocational training in the creative sector has identified this alignment challenge as a persistent source of the gap between institutional provision and professional demand (Huang & Chan, 2020; Tan & Lim, 2021).

The Curriculum Objectives dimension provided the starting point for this coordination. It brought together knowledge development, skill enhancement, attitude and value formation, and lifelong learning orientation. This breadth was important because creative-industry careers require more than technical execution: graduates needed to make informed aesthetic and ethical decisions, work with others, and continue developing as technologies and production practices change. International discussion of creative and critical thinking in higher education

likewise emphasized the importance of outcomes that connect disciplinary expertise with transferable capabilities (OECD, 2023; UNESCO, 2024).

Curriculum Content must then translate these expectations into relevant and coherent learning. In digital-art education, content has to balance foundational concepts with emerging technologies, sustain appropriate depth, recognize cultural and contextual conditions, and remain sufficiently flexible to respond to industry developments. Content that is organized through ongoing dialogue with employers and professional communities was more likely to remain meaningful for students and relevant to creative work than content revised only through periodic administrative review (Huang & Chan, 2020; Zhang et al., 2022).

Curriculum Experience was equally consequential because employability grows through participation as well as through knowledge acquisition. Structured work experience, project-based tasks, student-centered learning, and opportunities for assessment and reflection allow learners to rehearse professional roles, test creative decisions, and make sense of feedback. Evidence from work-integrated learning indicated that the quality of the learning design, including supervision and reflection, was critical to the value of workplace or practice-based experiences (Ferns & Zegwaard, 2020; Fleming & Martin, 2019).

Curriculum Evaluation completed the management cycle. Evaluation should consider not only whether students met expected learning outcomes, but also whether content remained relevant, implementation is adequately supported, and feedback informed further improvement. Assessment in work-integrated settings was most useful when it generated actionable information for learners, teachers, curriculum leaders, and partners rather than operating solely as an end-point judgement. Reflective evidence and stakeholder feedback were therefore integral to maintaining curriculum quality in rapidly changing professional fields (Kay et al., 2020; Nguyen & Zegwaard, 2021).

Hainan Vocational University of Science and Technology offered a focused context in which to examine these relationships. Its digital-art and related programmes are expected to prepare students for regional and wider creative-industry opportunities while responding to technological change and local conditions. An integrated framework is needed to connect curriculum decisions with the knowledge, skills, learning experiences, and evaluative evidence that support vocational graduate employability. Such a framework can also help university and industry stakeholders identify where coordination requires attention (Jackson, 2021; Tan & Lim, 2021).

This paper therefore examined the factor structure of integrated digital art curriculum management and presented a stakeholder-refined management model. It contributed a coherent basis for linking curriculum planning, industry-relevant content, practice-based learning, and continuous improvement. The following research objectives stated the study's two formal aims; the remainder of the paper reported the evidence and model-development process associated with them (Tran, 2022; Trede & McEwen, 2021).

Research Questions

1. What are the factors of integrated digital art curriculum management for vocational graduate employability at Hainan Vocational University of Science and Technology in China?
2. What should the integrated digital art curriculum management model for enhancing vocational graduate employability at Hainan Vocational University of Science and Technology in China be?

Research Objectives

1. To study the factors of integrated digital art curriculum management for vocational graduate employability at Hainan Vocational University of Science and Technology in China.
2. To develop an integrated digital art curriculum management model for enhancing vocational graduate employability at Hainan Vocational University of Science and Technology in China.

2. Conceptual Framework

The framework conceptualized curriculum management as an integrated cycle. Curriculum Objectives articulated knowledge development, skill enhancement, attitude and value formation, and lifelong learning orientation. Curriculum Content operated these intentions through relevance and alignment, comprehensiveness and depth, cultural and contextual appropriateness, and integration of innovation and technology. Curriculum Experience connected the curriculum with structured work experience, skill development, student-centered learning, and assessment and reflection. Curriculum Evaluation provided evidence on learning outcomes, relevance, delivery quality, and feedback for continuous improvement (OECD, 2023; UNESCO, 2024).

Together, the four factors are expected to support graduate employability through technical and creative competence, industry-relevant skills, workplace performance, and industry satisfaction and fit. Figure 1 made this proposed relationship explicit by linking the empirical factor validation with stakeholder refinement of the model

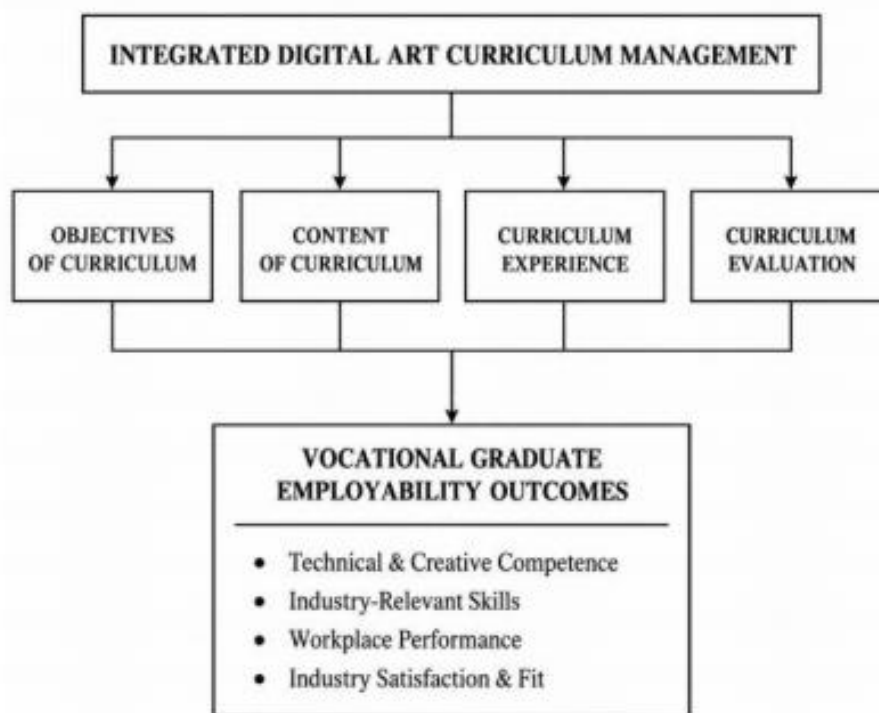


Figure 1. Conceptual framework for the study

3. Methodology

3.1 Research design

A sequential mixed-methods design was adopted. The quantitative stage used a questionnaire and CFA to validate the factor structure of integrated digital art curriculum management. The qualitative stage used a semi-structured focus-group discussion to interpret the validated factors and specify the model's stages, stakeholder roles, resources, and implementation guidance.

3.2 Population and sampling

The sample for the Confirmatory Factor Analysis (CFA) consisted of 240 educators. The sample size was determined using the guideline of at least ten respondents per observed variable. Because the questionnaire contained 24 observed variables, the minimum sample required was 240 respondents ($24 \times 10 = 240$). Respondents were selected from educators directly involved in digital-art or related vocational programs in Hainan so that the data reflected experience with curriculum implementation and graduate employability by random sampling methods.

For the model-development stage, nine key informants were selected purposively to ensure information-rich, complementary perspectives. The group included educators, digital creative-industry entrepreneurs, and graduates or practitioners. Their roles were appropriate for interrogating the model's practical coherence, industry relevance, implementation conditions, and feedback cycle.

3.3 Instruments, validity, and reliability

The questionnaire comprised demographic items and 24 indicators across the four curriculum-management factors, rated on a five-point Likert scale. Five subject-matter experts assessed item-objective congruence; the Item-Objective Congruence (IOC) values ranged from .80 to 1.00. Internal consistency was satisfactory across the 16 sub-dimensions, with Cronbach's alpha values from .85 to .92. Convergent validity was examined through factor loadings, critical ratios, and average variance extracted (AVE).

The model-development protocol used a semi-structured focus-group guide. Open questions prompted discussion of the four validated factors, the sequence of curriculum-

management activities, stakeholder responsibilities, required resources, and mechanisms for feedback and continuous improvement. With participants' consent, contributions were recorded, transcribed, and synthesised thematically to refine the proposed model.

3.4 Analysis

Descriptive statistics and reliability coefficients were calculated for the questionnaire. First-order CFA assessed factor loadings, critical ratios, convergent validity, and model-fit indices. The focus-group data were then synthesised with the CFA results to develop the integrated

management model. The analysis is confined to factor validation and model development.

4. Results

4.1 Factor structure of integrated curriculum management

The CFA results supported the four-factor structure proposed in the conceptual framework. Across the 16 sub-dimensions, all critical ratios exceeded 1.96 and all loadings were significant at $p < .001$. Table 1 shows that alpha values ranged from .85 to .92 and every AVE value exceeded .50, supporting internal consistency and convergent validity.

Table 1. Descriptive statistics and reliability of curriculum sub-dimensions (N = 240)

Sub-dimension	Loading range	α	AVE	C.R. range
Knowledge Development	.816–.891	.90	.717	16.65–21.21
Skill Enhancement	.833–.876	.92	.738	17.72–20.37
Attitude and Value Formation	.846–.849	.91	.718	18.39–18.87
Lifelong Learning Orientation	.690–.792	.85	.569	11.90–15.23
Relevance and Alignment	.830–.846	.89	.699	17.66–18.80
Comprehensiveness and Depth	.736–.848	.86	.619	13.38–18.43
Cultural and Contextual Appropriateness	.802–.866	.91	.705	16.04–20.14
Integration of Innovation and Technology	.811–.859	.90	.696	16.55–19.52
Structured Work Experience	.802–.842	.89	.690	16.04–18.30
Skill Development	.808–.850	.91	.712	16.49–18.89
Student-Centred Learning	.782–.857	.90	.703	15.04–19.48
Assessment and Reflection	.795–.853	.89	.680	15.59–18.96
Effectiveness of Learning Outcomes	.837–.859	.90	.722	18.20–19.52
Relevance and Appropriateness	.814–.897	.92	.742	16.96–21.36
Implementation and Delivery Quality	.839–.862	.91	.713	18.24–19.59
Feedback and Continuous Improvement	.854–.861	.91	.731	18.96–19.57

For Curriculum Objectives, the retained CFA diagram showed robust item loadings for knowledge development (.816–.891), skill enhancement (.833–.876), attitude and value formation (.846–.849), and lifelong learning orientation (.690–.792). The pattern supported an employability-oriented objective structure that includes both technical preparation and continuing professional development.

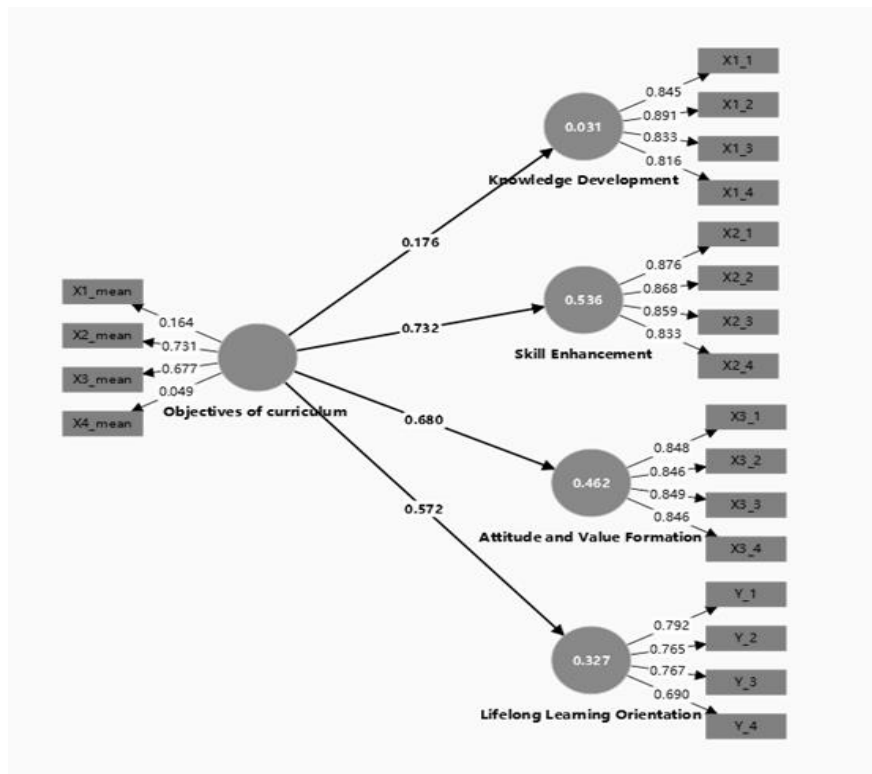


Figure 2. CFA results for Curriculum Objectives

For Curriculum Content, the four sub-dimensions captured industry alignment, scope and depth, contextual suitability, and technological innovation. Relevance and alignment (.830–.846) and integration of innovation and technology (.811–.859) were particularly strong, affirming the need for content that remains responsive to changing digital creative practice.

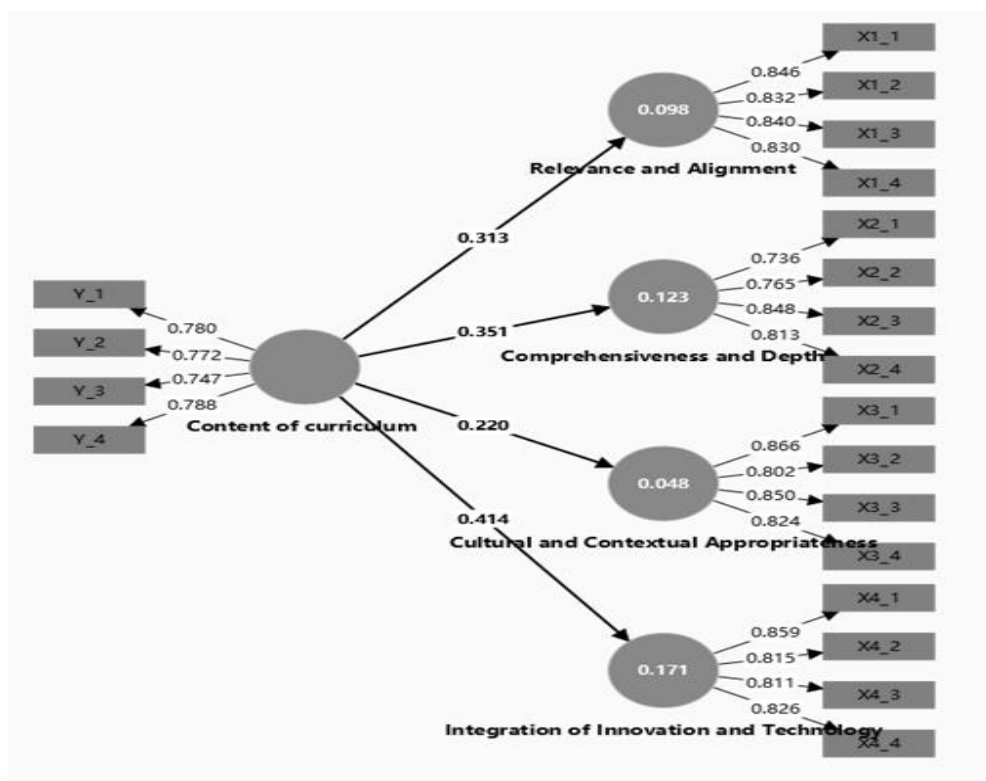


Figure 3. CFA results for Curriculum Content

For Curriculum Evaluation, the diagram confirmed effectiveness of learning outcomes, relevance and appropriateness, implementation and delivery quality, and feedback and continuous improvement as the evaluation structure. The standardized coefficients were

.263, .371, .354, and .317, respectively. These coefficients described the measurement-model relationships and should not be interpreted as evidence of causal effects on graduate employment.

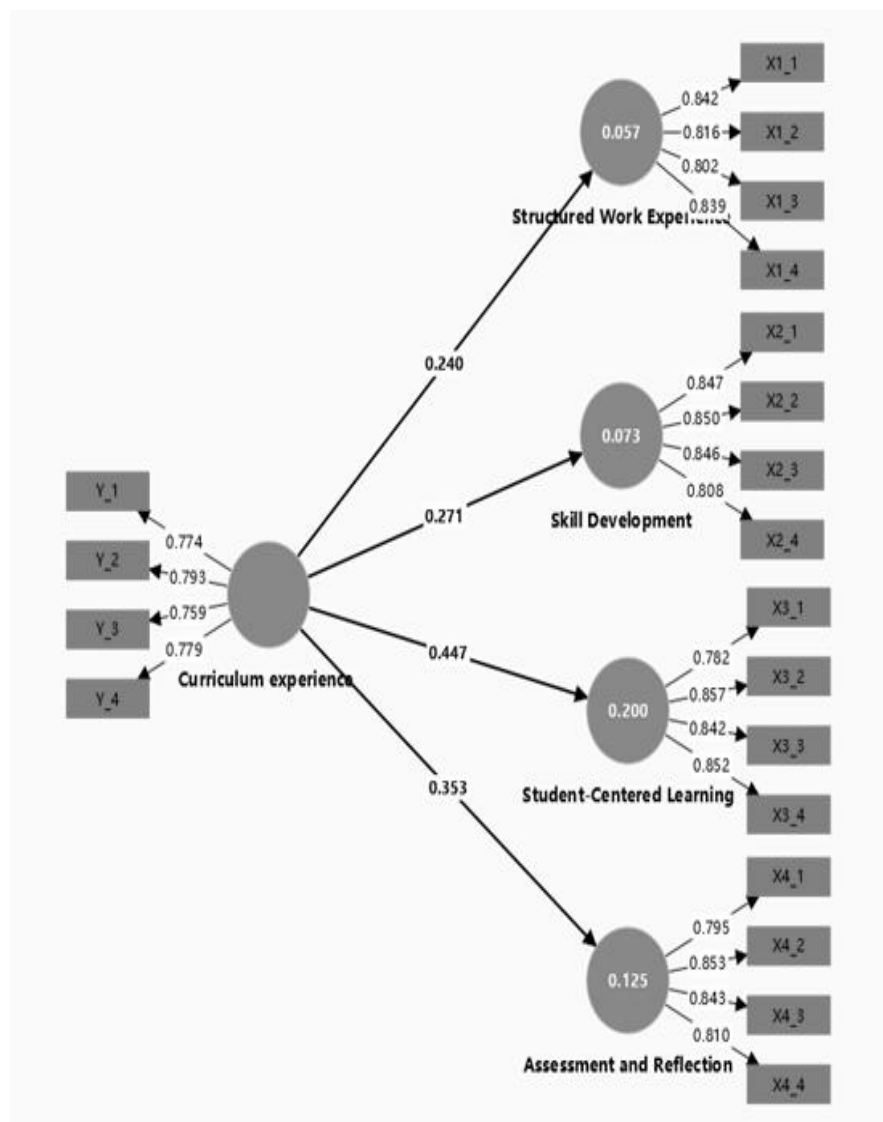


Figure 4. CFA results for Curriculum Experience

4.3 Integrated digital art curriculum management model

The nine-member semi-structured focus group translated the validated CFA structure into a curriculum-management cycle. Planning and orientation clarified employability-oriented objectives; curriculum content is then designed for relevance, depth, context, and technological currency; curriculum experience created structured, learner-active opportunities for skill

application and reflection; and curriculum evaluation fed evidence back into the next planning cycle. Educators, curriculum managers, students, graduates, and industry representatives are involved throughout. The model specified the conditions under which the four factors can operate as a coordinated management system rather than as disconnected curriculum elements.

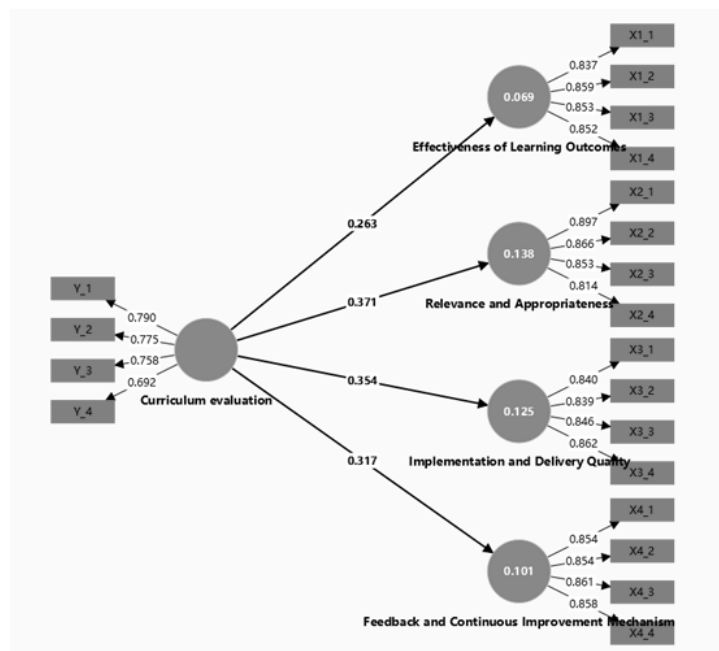


Figure 5. CFA results for Curriculum Evaluation

4.2 Model fit

All four CFA measurement models met the study's decision criteria (Table 2). Chi-square/df ranged from 1.54 to 2.20, RMSEA ranged from .02 to .04, GFI, AGFI, NFI, and CFI were above .90, and RMR was .04 or lower. Collectively, the results support the use of the four-factor structure as the evidence base for model development.

Table 2. Goodness-of-fit indices and decision criteria for four curriculum CFA models

Fit index	Criterion	Objectives	Content	Experience	Evaluation
Chi-square/df	< 3	2.20	1.98	2.02	1.54
RMSEA	< .08	.02	.03	.04	.02
GFI	> .90	.92	.91	.97	.93
AGFI	> .90	.93	.91	.95	.94
NFI	> .90	.94	.94	.94	.93
CFI	> .90	.94	.94	.93	.94
RMR	< .05	.02	.02	.04	.03

4.3 Integrated digital art curriculum management model

The nine-member semi-structured focus group translated the validated CFA structure into a curriculum-management cycle. Planning and orientation clarify employability-oriented objectives; curriculum content is then designed for relevance, depth, context, and technological currency; curriculum experience creates

structured, learner-active opportunities for skill application and reflection; and curriculum evaluation feeds evidence back into the next planning cycle. Educators, curriculum managers, students, graduates, and industry representatives are involved throughout. The model specifies the conditions under which the four factors can operate as a coordinated management system rather than as disconnected curriculum elements.

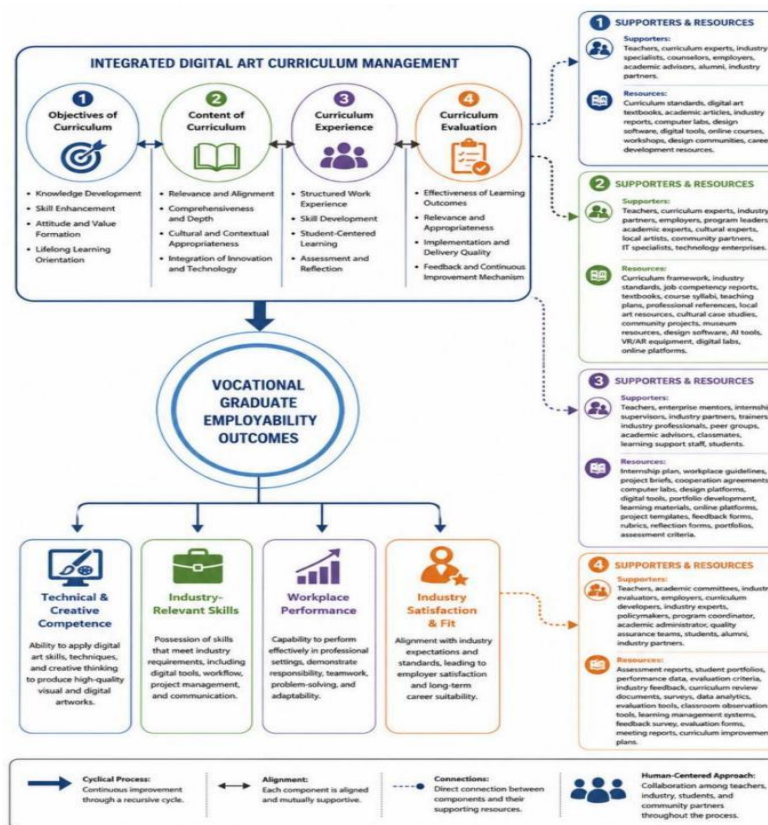


Figure 6. Integrated digital art curriculum management model

5. Discussion and Conclusion

5.1 Conclusion

The model provided a practical basis for curriculum leaders to align intended competencies, technologically current content, authentic learning opportunities, and evidence-informed improvement. Its contribution was a structured approach to managing digital art curricula for employability while preserving the educational value of creativity, reflection, contextual relevance, and lifelong learning.

5.2 Discussion

The results showed that employability-oriented digital art curriculum management is multidimensional. The validated factors placed objectives, content, experience, and evaluation within one evidence-based structure. This was consistent with scholarship that frames work-integrated learning as an intentional curriculum design rather than a stand-alone placement activity (Ferns & Zegwaard, 2020; Tran, 2022). In digital art education, the arrangement is particularly consequential because tools, aesthetic

practices, and industry workflows develop rapidly.

The CFA pattern highlighted the importance of balancing creative-technological competence with student-centered and reflective learning. The relatively strong contribution of student-centered learning and assessment and reflection within Curriculum Experience suggested that practical exposure alone was insufficient; students needed opportunities to make decisions, received feedback, and articulated learning in relation to professional work. This interpretation accorded with prior work on reflection and professional identity in work-integrated learning (Nguyen & Zegwaard, 2021; Trede & McEwen, 2021).

The focus group added implementation specificity to the statistical structure. Its cyclical model required sustained participation by educators and industry representatives, current technological and studio resources, authentic projects or workplace links, and a feedback process that informs revision. Thus, the model should be understood as a curriculum-

management guide for alignment and continuous improvement, not as direct causal proof of employment outcomes.

References

- Ferns, S., & Zegwaard, K. (2020). Critical conversations: Work-integrated learning theory and professional practice. *Studies in Higher Education*, 45(4), 706–716.
- Fleming, J., & Martin, A. (2019). Impact of work-integrated learning on student learning: Design and assessment. *Higher Education Research & Development*, 38(1), 107–120.
- Huang, J., & Chan, C. (2020). Bridging the gap between creative industry demands and vocational training. *International Journal of Art & Design Education*, 39(3), 487–499.
- Jackson, D. (2020). Re-conceptualising graduate employability: The role of work-integrated learning. *Higher Education Research & Development*, 39(3), 403–417.
- Jackson, D. (2021). Enhancing graduate employability: The impact of structured work placements. *Journal of Education and Work*, 34(5), 527–542.
- Kay, J., Watts, R., & Simpson, L. (2020). Assessment for learning in work-integrated contexts. *Assessment & Evaluation in Higher Education*, 45(1), 15–30.
- Lee, S., & Kim, H. (2021). Digital transformation in art education: Implications for vocational institutions. *Educational Media International*, 58(1), 57–73.
- Nguyen, N., & Zegwaard, K. (2021). The role of reflection in work-integrated learning: Students' perspectives. *International Journal of Work-Integrated Learning*, 22(2), 100–115.
- OECD. (2023). The assessment of students' creative and critical thinking skills in higher education across OECD countries: A review of policies and related practices. OECD.
- Smith, C., & Worsfold, K. (2020). Enhancing student employability through work-integrated learning. *Asia-Pacific Journal of Cooperative Education*, 21(1), 21–33.
- Tan, K., & Lim, S. (2021). University-industry collaboration in the creative sector: A curriculum perspective. *Journal of Education and Training*, 13(2), 112–125.
- Tran, L. T. (2022). The pedagogical design of work-integrated learning: A curriculum integration perspective. *Teaching in Higher Education*, 27(3), 314–328.
- Trede, F., & McEwen, C. (2021). Professional identity development in work-integrated learning: A systematic review. *Journal of Vocational Education and Training*, 73(3), 415–436.
- UNESCO. (2024). UNESCO framework for culture and arts education. UNESCO.
- Zhang, H., Wang, J., & Xu, Q. (2022). The skills gap in digital art vocational training: Employer perspectives. *Journal of Vocational Education Research*, 40(1), 33–49.