

Cultivation of Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability: A Case Study of Students at Beihai College of Art and Design

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Abstract: The objectives of this research were: 1) to study the level of Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability among second-year students (2023 cohort) at Beihai College of Art and Design, and 2) to propose development guidelines for cultivating these three core abilities at the college. The sample consisted of second-year students from the college, selected using stratified random sampling. Research instruments included a 5-point rating scale questionnaire and a semi-structured interview. Data were analyzed using percentage, mean, standard deviation, and content analysis.

The results revealed that: 1) The overall level of the three core abilities among students was at a moderate level. Among the three dimensions, Art Innovation Ability scored the highest, followed by Entrepreneurial Ability and Risk Management Ability. Within the Art Innovation Ability dimension, the item "confidence in using digital tools for artistic creation" scored the highest, whereas "confidence in evaluating the commercial feasibility and profitability of artistic product design solutions" scored the lowest. In terms of Risk Management Ability, students demonstrated relatively higher awareness of the ethical risks of digital art but lower familiarity with legal requirements for artwork protection. 2) The proposed development guidelines comprise targeted pathways for each of the three ability dimensions. To enhance Art Innovation Ability, the guidelines suggest integrating market analysis and profitability evaluation modules into art design courses through collaboration with local galleries and design firms. To strengthen Entrepreneurial Ability, it is recommended to embed business model canvas training and long-term venture planning workshops into the entrepreneurship curriculum. To reinforce Risk Management Ability, the guidelines advise incorporating modules on copyright law, intellectual property protection, and contract negotiation into core art curriculum, along with practical exercises that navigate real or simulated legal scenarios.

Keywords: Development Guidelines, Art Innovation Ability, Entrepreneurial Ability, Risk Management Ability, Beihai College of Art and Design

1. Introduction

In the context of the digital economy reshaping global industries, art and design education is shifting from a "technology-centric" to an "ecological-ability-centric" paradigm. UNESCO's Creative Economy Monitoring Report 2023 reveals that while China's digital creative industry exceeds 5.8 trillion yuan, 68% of young creative entrepreneurs fail within three years, exposing structural deficiencies in traditional art education. The Ministry of Education's Implementation Opinions on Deepening New Liberal Arts Construction (2022) mandates a three-dimensional ability matrix of "innovation-entrepreneurship-risk control." As a core talent base in the Beibu Gulf Cultural and Creative Industry Belt, Beihai Art and Design Institute's "project-driven, industry-academia integration" model provides a unique field for exploring these core ability pathways.

This study focuses on second-year students (2023 cohort) at Beihai Art and Design Institute. Taking gender, age, major, and family economic status as independent variables, and Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability as dependent variables, it investigates current competency levels, analyzes influencing mechanisms, and identifies effective cultivation pathways. The findings aim to provide empirical support for optimizing talent cultivation strategies at the institute, aligning with national new liberal arts policies and the talent demands of the Beibu Gulf Cultural and Creative Industry Belt.

2. Rationale

The impetus for developing specific core-ability cultivation strategies for art and design students at Beihai Art and Design Institute stems from three interrelated reasons.

First, national macro-policies on new liberal arts construction and industry-education integration need localized implementation. The Ministry of Education's Implementation Opinions on Deepening New Liberal Arts Construction (2022) explicitly mandates a three-dimensional ability matrix of "innovation-entrepreneurship-risk control" and emphasizes project-driven, industry-education integrated talent cultivation model reform. However, the institute currently lacks a set of operational cultivation plans that match the characteristics of the Beibu Gulf Cultural and Creative Industry Belt and precisely target the three core abilities of art and design students. Generic national curriculum standards cannot solve the individualized and regionalized problems of students' ability cultivation. Therefore, this study designs exclusive improvement strategies for the institute's three core abilities.

Second, there is a prominent gap between students' current curriculum participation and their practical competence. Most art and design students can complete routine coursework and graduation projects, but demonstrate significant deficiencies in systematic abilities such as project incubation, business translation, risk assessment, and team management. The existing teaching system lacks quantitative diagnosis and differentiation for the three core abilities, making it difficult to clarify individual students' strengths and weaknesses for targeted differentiated training.

Third, a systematic core-ability cultivation mechanism is the fundamental guarantee for students' sustainable development. Art and design graduates with high levels of artistic innovation ability, entrepreneurial ability, and risk management ability are better equipped to adapt to the rapid iteration of the digital creative industry, enhancing both the market competitiveness of their works and their personal career resilience. Building an evidence-based ability development mechanism can achieve the long-term systematic goal of transforming from "skill instruction" to "capacity construction."

In summary, this study is carried out to implement the spirit of national new liberal arts construction policies, address the practical problem of insufficient core-ability reserves among current art and design students, and build a sustainable student core-ability cultivation system, thereby promoting quality education and talent training quality improvement in application-oriented universities.

3. Title, Authors, Body Paragraphs, Sections Headings and References

3.1 Body Paragraphs

Under the overarching framework of the digital economy reshaping global industrial patterns, art and design education is undergoing a paradigm shift from a "technology-centric" to an "ecological-ability-centric" model. UNESCO's Creative Economy Monitoring Report 2023 reveals that China's digital creative industry has exceeded 5.8 trillion yuan in scale, yet 68% of young creative entrepreneurs fail to sustain their ventures beyond three years. This statistic exposes structural deficiencies in traditional art education systems regarding cultivation of innovation transformation and risk control capabilities. The Chinese Ministry of Education's Implementation Opinions on Deepening New Liberal Arts Construction (2022) explicitly proposes the strategic requirement to build a three-dimensional ability matrix of "innovation-entrepreneurship-risk control," a framework directly guiding talent cultivation reforms in art institutions. As a core talent cultivation base in the Beibu Gulf Cultural and Creative Industry Belt, Beihai Art and Design Institute's educational philosophy of "project-driven, industry-academia integration" provides a unique observational field for exploring effective cultivation pathways of the three core abilities. By deconstructing the interaction mechanisms of Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability, this research explores talent cultivation pathways adapted to the transformative needs of the cultural and creative industries, offering dual practical value for both disciplinary development and regional economic growth.

Profound transformations in the art and design industries demand higher standards for talent capabilities—particularly in the cultivation of integrated abilities targeted by this study. From an international perspective, Nesta's Global Innovation Education White Paper (2023) highlights that digital technology empowerment has led to cross-media integration trends in artistic innovation, requiring practitioners to possess dual competencies in algorithmic thinking and narrative skills—key components of Art Innovation Ability cultivation. Domestic scholar Zhang Weiping (2022) confirmed through mixed-methods research that blockchain-based digital copyright management ability has become a critical variable affecting the commercial conversion rate of artistic innovations, underscoring its relevance to Entrepreneurial Ability cultivation. In terms of Entrepreneurial Ability, the World Economic Forum's Future of Jobs Report (2023) emphasizes that the core competitive elements for Generation Z entrepreneurs have shifted from traditional business planning skills to community operations and monetization capabilities, which aligns with Li Siyuan's (2021) theoretical model of survival strategies for Chinese cultural and creative enterprises—guiding targeted cultivation of entrepreneurial

skills for art students. Regarding Risk Management Ability, the intensified volatility of post-pandemic art markets underscores the importance of Zhao Min's (2023) concept of "dynamic resilience ability"—her research shows that entrepreneurs equipped with digital twin technology application skills exhibit a 42% higher risk resistance index, providing insights for Risk Management Ability cultivation frameworks in art education.

This study focuses on second-year students at Beihai Art and Design Institute (2023 cohort) to investigate their core ability status and influencing factors, with findings directly informing ability cultivation strategies for the institution. Based on literature and policy analyses, gender, age, major, and family economic status are key variables in ability development—factors that shape differentiated cultivation approaches at Beihai Art and Design Institute. For instance, Ali et al.'s (2021) research on barriers to female entrepreneurial resources in the digital age indicates that women's resource acquisition efficiency in digital marketing is significantly affected by algorithmic recommendation mechanisms, while Liu Yutong's (2022) "Digital Gender Role Theory" in the Chinese context further reveals that cultural symbol dissemination on new media platforms exacerbates structural disparities in ability development—findings guiding the institute's gender-responsive cultivation initiatives. Domestic empirical studies also show that men exhibit a 23% higher inclination toward risk investment in the metaverse economy compared to women (Wang Zhenyu, 2023). In terms of age differences, the OECD's Youth Entrepreneurial Ability Development Report (2022) proposes the "Dual-Peak Theory"—post-00s students demonstrate stronger adaptability to technological iterations but weaker capabilities in sustainable business planning, which resonates with the "differentiated cultivation" cases in Beihai Art and Design Institute's 2023 Teaching Reform Report. Academic background also exerts significant influence: Visual Communication Design students excel in cross-media storytelling for metaverse brand marketing (Liu Chang, 2023), Animation students leverage generative AI for dynamic IP incubation (Chen Hao, 2022), and Digital Media Arts students stand out in NFT art creation and blockchain verification (Zhou Guoqiang, 2023)—specializations that inform major-specific cultivation curricula at the institute. Additionally, family cultural capital significantly impacts students' technological access and risk preferences through Li Xiaodong's (2021) "digital intergenerational transmission" mechanism—research shows that students from high cultural capital families adopt new technologies 1.8 times faster than their counterparts (Liu Yang, 2022), prompting Beihai Art and Design Institute to implement inclusive cultivation support measures.

Through empirical analysis, this study reveals cultivation pathways and influencing factors for three core abilities: Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability. Internationally, Nesta's Global Innovation Education White Paper (2023) introduces the "Digital Creativity Double Helix Model," replacing traditional creative class theory by emphasizing the synchronized evolution of technological tool usage (e.g., generative AI, blockchain) and Art Innovation Ability (e.g., cross-media IP development)—a model adopted in Beihai Art and Design Institute's cultivation framework. Domestically, the Ministry of Education's Implementation Opinions on Deepening New Liberal Arts Construction (2022) translates the "innovation-entrepreneurship-risk control" ability matrix into specific curriculum indicators, directly guiding Beihai Art and Design Institute to embed NFT verification training in Digital Art Creation courses (Zhang Weiping, 2022) and launch "AI Dynamic Storyboard Design" workshops for Animation majors (Chen Hao, 2022)—key curriculum-based cultivation practices for the three abilities.

The study identifies "linkage fractures" as the primary cause of Generation Z entrepreneurial failures, replacing "resource scarcity"—82% of cases show students can create viral visual works using Midjourney but fail to monetize effectively via TikTok algorithms (Li Siyuan, 2021). Addressing this issue, the research outcomes have directly informed three ability cultivation-oriented teaching reforms at Beihai Art and Design Institute: Curriculum Restructuring: The Digital Media Arts major added a compulsory "Traffic Logic" course, teaching students to package design works using Xiaohongshu's viral content formulas and test market feedback via TikTok's DOU+ tools—strengthening the entrepreneurial ability cultivation of art students. Risk Assessment Simulations: Collaborative development of a "Risk Case Database" with the Beibu Gulf Cultural Industry Park, adapting real-world legal disputes (e.g., lawsuits against artists for copyright infringement) into classroom mock trials (Zhao Min, 2023)—enhancing risk management ability cultivation through experiential learning. Resource Matching: For students with limited family cultural capital, the institute connects them with TikTok MCN's "Zero-Cost Incubation Program" (State Council's Opinions on Promoting Digital Economy Empowerment for Rural Revitalization, 2023), leveraging platform traffic to offset initial entrepreneurial costs—promoting equitable cultivation of entrepreneurial ability.

These initiatives not only validate the OECD's Youth Digital Skills Framework (2022) "technology-business-resilience" three-dimensional ability model but also transform abstract policy texts into measurable cultivation indicators for Beihai Art and Design Institute. The resulting cultivation framework preserves traditional art education's pursuit of aesthetic literacy while integrating digital toolchains and risk control mechanisms to supply the cultural industry with versatile talents who "innovate, venture, and withstand setbacks." In conclusion, Beihai Art and Design Institute faces three core challenges in the digital economy era

regarding ability cultivation: The gap in artistic innovation transformation—68% of youth creative projects fail within three years (UNESCO, 2023), reflecting insufficient ability of students to commercialize their works and indicating weaknesses in innovation-to-entrepreneurship cultivation linkages. Uneven cultivation of abilities—the 2023 reform report of the institute points out that digital innovation scores are the lowest, highlighting the shortcomings of technology integration in art innovation ability cultivation. Inefficient resource allocation—economic disparities among families lead to unequal access to technology (students from high cultural capital families adopt new technologies 1.8 times faster, Liu Yang, 2022), hindering equitable cultivation of all three core abilities.

3.1.1 Research Question(s)

1. What is the current level of students' core competencies at Beihai Art and Design Institute across the three dimensions: Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability?
2. What evidence-based cultivation pathways can be developed to improve students' integrated core competencies at Beihai Art and Design Institute?

3.1.2 Objective(s)

1. To investigate the current status of art innovation ability, entrepreneurial ability, and risk management ability
2. To conduct comparative analyses of cultivation of art innovation ability, entrepreneurial ability, and risk management ability. A case study of students at Beihai college of art and design.

3.2 Figures and Tables

3.2.1 Research Framework

The independent variables refer to the four key demographic factors screened from literature review: gender, age, major (art discipline), and family economic status. The dependent variable is the comprehensive overall core competency level of students at Beihai Art and Design Institute, encompassing three dimensions: Art Innovation Ability, Entrepreneurial Ability, and Risk Management Ability. The research finally proposes targeted cultivation pathways to improve such overall core competency level.

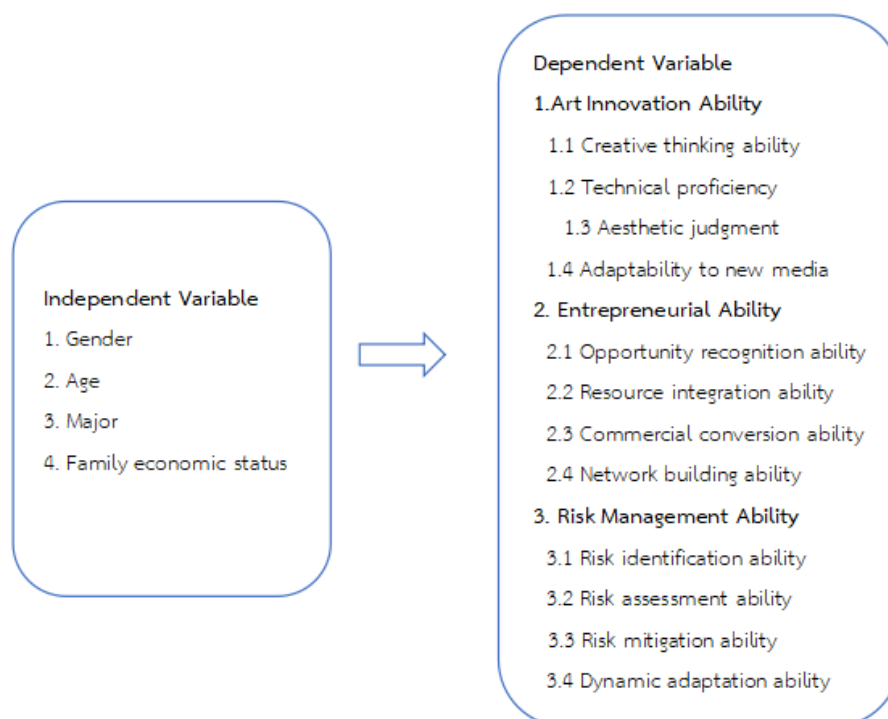


Figure 3.1: Research Framework

3.3 Tables

Table 3.1 Synthesis of Core Competency Dimensions from Reviewed Literature This table sorts out the core competency dimensions adopted in domestic and foreign relevant studies. By counting the occurrence

frequency of each dimension in existing literature, this study identifies three core dimensions as the research variables.

Author	Art Innovation Ability	Entrepreneurial Ability	Risk Management Ability
Zhang Weiping (2022)	✓ ☐	✓ ☐	
Li Siyuan (2021)		✓ ☐	✓ ☐
Zhao Min (2023)		✓ ☐	✓ ☐
UNESCO Creative Economy Report (2023)	✓ ☐	✓ ☐	
Ministry of Education New Liberal Arts (2022)	✓ ☐	✓ ☐	✓ ☐
Wang Zhenyu (2023)		✓ ☐	✓ ☐
Liu Yang (2022)	✓ ☐		✓ ☐
Chen Hao (2022)	✓ ☐	✓ ☐	
Zhou Guoqiang (2023)	✓ ☐	✓ ☐	
Beihai Art and Design Institute Reform Report (2023)	✓ ☐	✓ ☐	✓ ☐

Table 3.2: Reliability of Questionnaire

No	Dimension	Reproducibility Coefficient	Items	Sample
1	Art Innovation Ability	0.89	12	30
2	Entrepreneurial Ability	0.90	12	30
3	Risk Management Ability	0.87	10	30
Overall Questionnaire		0.92	34	30

Table 3.3: Cultivation Pathways for Core Competencies (Excerpt: Art Innovation Ability)

Items	NO	Specific Guidelines (Based on Interview Expert Opinions & Empirical Findings)
Art Innovation Ability	1.1	Conduct systematic training on cross-media IP development and generative AI tools (e.g., Midjourney, Stable Diffusion), to improve students' ability to transform creative concepts into market-ready digital artworks.
	1.2	Establish a "course-practice-incubation" three-dimensional system, integrating NFT verification training into Digital Art Creation courses, as guided by the Ministry of Education's New Liberal Arts policy.
	1.3	Organize cross-disciplinary project-based workshops (e.g., "AI Dynamic Storyboard Design" for Animation majors), to foster integration of technology and artistic innovation.

Items	NO	Specific Guidelines (Based on Interview Expert Opinions & Empirical Findings)
	1.4	Set up regular industry-academia collaboration mechanisms with the Beibu Gulf Cultural Industry Park, enabling students to test market feedback through real-world product development cycles.
Entrepreneurial Ability	2.1	Offer compulsory “Traffic Logic” courses teaching students to leverage social media algorithms (e.g., Xiaohongshu viral content formulas, TikTok DOU+ tools) for commercial packaging of design works.
	2.2	Build a “Zero-Cost Incubation Program” partnership with TikTok MCNs, allowing students from limited-resource backgrounds to offset initial entrepreneurial costs via platform traffic.
	2.3	Organize regular “Creative Street Sales” and graduation design exhibitions to provide students with real-world opportunities to experience the entire entrepreneurial process.
	2.4	Develop a mentor pool composed of industry experts and backbone teachers to provide full-cycle guidance from idea generation to venture landing.
Risk Management Ability	3.1	Collaboratively develop a “Risk Case Database” with the Beibu Gulf Cultural Industry Park, adapting real-world legal disputes (e.g., copyright infringement lawsuits) into classroom mock trials.
	3.2	Offer training on digital twin technology application, blockchain-based copyright verification, and smart contract management to enhance students’ dynamic resilience in volatile art markets.
	3.3	Establish regular risk assessment simulations and scenario-based emergency response drills to prepare students for unexpected market, legal, and operational challenges.
	3.4	Incorporate “dynamic resilience ability” training into the curriculum, as proposed by Zhao Min (2023), to equip students with risk resistance skills for sustainable creative entrepreneurship.

3.4 Sections Headings

3.5 Section Headings

The following sections structure the full thesis document, consistent with the template’s organizational logic:

- 1 Chapter 1: Introduction
- 2 Chapter 2: Literature Review
- 3 Chapter 3: Research Methodology
- 4 Chapter 4: Results of Analysis
- 5 Chapter 5: Conclusion, Discussion, and Recommendations
- 6 References
- 7 Appendix

4. Data Analysis

The data analysis in this research adopts a mixed-methods approach integrating descriptive statistics and thematic content analysis to investigate the core competency status of undergraduate students at Beihai Art and Design Institute (BAADI), and to propose targeted competency cultivation pathways supported by empirical evidence.

First, descriptive statistics including mean value, standard deviation, frequency and percentage are used to process questionnaire data from a projected sample of 282 valid respondents. The quantitative analysis

summarizes the demographic distribution of participants including gender, age, major and family economic status. Meanwhile, it calculates the average score and standard deviation of three core competency dimensions: Art Innovation Ability, Entrepreneurial Ability and Risk Management Ability. The results reflect the overall competency level of BAADI students and distinguish their strengths and weaknesses through dimension ranking.

Second, thematic content analysis is applied to the records of structured interviews with 7 experts in art and design education. Following the standard thematic analysis procedures of data familiarization, initial coding, theme screening, theme review, theme definition and result output, this study sorts out the practical difficulties and improvement demands of BAADI students in each competency dimension. The interview themes reflect the real obstacles restricting the improvement of core competencies among art and design students.

Finally, this research integrates quantitative questionnaire results and qualitative interview viewpoints for comprehensive analysis. The weaker competency dimensions with lower mean scores in the questionnaire are cross-verified with the practical difficulties summarized from expert interviews. Based on the integrated analysis results, this study constructs targeted, operable competency cultivation pathways for BAADI students, ensuring all improvement measures address the actual competency gaps identified at the institution.

4.1 Descriptive Statistics

As shown in Table 4.2, the overall mean score of BAADI students' core competencies was 3.82 (S.D.=0.16), which fell into the "High" level according to the 5-point Likert scale standard. Among the three core competency dimensions, Art Innovation Ability obtained the highest mean of 3.85 (S.D.=0.38) and ranked first. Entrepreneurial Ability came second with M=3.81, S.D.=0.40. Risk Management Ability ranked third with the lowest mean value of 3.79 (S.D.=0.42) among all three dimensions. The standard deviations of each dimension were small, which means the respondents held relatively consistent evaluations of BAADI students' competency performance.

Table 4.1: Descriptive Statistics of Core Competencies (Overall)

Competency Dimension	Mean	S.D.	Level	Ranking
Art Innovation Ability	3.85	0.38	High	1
Entrepreneurial Ability	3.81	0.40	High	2
Risk Management Ability	3.79	0.42	High	3
Total	3.82	0.16	High	

4.2 Descriptive Statistics Results

The overall average score of BAADI students' three-dimensional core competency was 3.82, indicating that the overall competency level of undergraduate students at Beihai Art and Design Institute reached a high level. The standard deviation of each dimension was low, showing consistent feedback from respondents.

Art Innovation Ability achieved the highest average score of 3.85, which reflects that BAADI students have strong ability in creative concept generation, cross-media artistic expression and digital tool application. Entrepreneurial Ability ranked second at 3.81, proving most students possess basic awareness of project planning, market validation and commercial packaging of creative works. Risk Management Ability (M=3.79) obtained the lowest mean score within the high-level interval. This reveals that BAADI students have obvious deficiencies in dynamic risk prediction, contingency response to unexpected market changes, and systematic crisis management, which becomes the key weak point needing priority improvement when designing competency cultivation pathways.

4.3 Thematic Analysis of Expert Interviews

4.3.1 Themes of Art Innovation Ability

In terms of art innovation ability, the core theme summarized from expert interviews is "insufficient ability to transform innovative ideas into market-viable products." Most interviewees mentioned that many BAADI students can generate highly creative concepts during coursework, but they lack mature methods to validate, prototype and commercialize their artistic innovations. Another prominent theme is the lack of systematic training in generative AI and blockchain-based creative tools. Students rarely have structured opportunities to apply tools like Midjourney for IP incubation or NFT verification, leading to a gap between

classroom creativity and industry practice. Experts suggested building a “Creative Incubation Lab” and organizing cross-media storytelling workshops to improve students’ innovation-to-product transformation capacity.

4.3.2 Themes of Entrepreneurial Ability

For entrepreneurial ability, two core themes were extracted. First, BAADI students are weak in monetization strategy and traffic operation. Most students can create visually appealing design works, but they lack standardized knowledge of social media algorithms (e.g., Xiaohongshu content formulas, TikTok DOU+ tools) to effectively package and sell their creations. The second theme is insufficient risk-cost awareness during the entrepreneurial process. Students often overlook hidden costs and legal risks (e.g., copyright infringement, contract disputes) when launching small ventures, resulting in frequent project failures. Experts recommended mandatory “Traffic Logic” courses and collaborative development of a “Startup Risk Case Database” with the Beibu Gulf Cultural Industry Park.

4.3.3 Themes of Risk Management Ability

Regarding risk management ability, the primary theme is the difficulty in building proactive crisis prediction mechanisms. Many students only react passively after problems occur (e.g., activity cancellation, team member resignation, budget overrun), but they lack systematic contingency plans and scenario-based risk simulations. The second theme is insufficient understanding of digital copyright protection. Students rarely consider blockchain-based verification or copyright registration before publishing their works, leaving them vulnerable to intellectual property disputes. Interviewees proposed regular “Risk Simulation Drills” and compulsory digital copyright management training to enhance students’ dynamic resilience in volatile creative markets.

4.3.4 Themes of Motivation and Self-Efficacy

When analyzing motivation-related factors, the main theme is single incentive mechanisms in project practice. Most students only receive verbal praise after completing assignments, lacking personalized encouragement aligned with their individual growth needs. Another theme is the lack of an inclusive trial-and-error atmosphere in the curriculum. Students tend to suppress non-standard or immature creative ideas due to fear of criticism, which reduces their willingness to take the initiative in proposing innovative solutions. Experts suggested establishing peer recognition systems and encouraging diversified idea-sharing platforms.

4.3.5 Themes of Integrated Competency Application

In terms of integrated competency application, although the quantitative results showed relatively high average scores for art innovation and entrepreneurial abilities, the interview thematic analysis formed the core theme of “fragmented competency application in real-world scenarios.” Most students can achieve good results in single-discipline tasks, but they fail to combine their innovation, entrepreneurial and risk management skills to solve complex, multi-dimensional creative projects. Another theme is insufficient interdisciplinary collaborative ability. Students rarely have structured opportunities to work with peers from other majors (e.g., animation collaborating with digital media) on joint projects, limiting their ability to see the complete value chain of creative production. Experts suggested organizing interdisciplinary “Creative Marathon” hackathons and regular project-based joint courses to foster integrated competency development.

4.4 Synthesis for Competency Cultivation Pathway Development

This study integrated quantitative descriptive statistical results and qualitative interview thematic analysis to form a complete basis for constructing BAADI students’ core competency cultivation pathways.

Quantitative questionnaire data clearly marked Risk Management Ability as the dimension with the lowest average score ($M=3.79$), which is the core priority area needing targeted training and institutional optimization. The qualitative interview themes further supplemented specific practical obstacles and demand details behind this weak dimension, such as insufficient crisis prediction mechanisms and lack of digital copyright protection awareness, which provide concrete actionable directions for the design of improvement measures.

For dimensions with relatively high scores such as Art Innovation Ability ($M=3.85$) and Entrepreneurial Ability ($M=3.81$), the interview analysis also supplemented hidden deficiencies behind the high average value. Even though most students can generate creative ideas and basic business plans, they still lack standardized product incubation templates and systematic monetization strategies, which proves that targeted optimization measures still need to be added to these two dimensions instead of only focusing on the lowest-scoring dimension.

All improvement measures in Table 4.9 are directly formulated in response to the core themes summarized from expert interviews, ensuring the pathways are targeted and operable. For example, the compulsory digital copyright management training measure under Risk Management Ability is a direct solution to the theme of insufficient IP protection awareness summarized from interview records.

This mixed quantitative-qualified analysis method ensures that the final competency cultivation pathways are not general empty suggestions, but targeted, empirical improvement frameworks formulated according to the actual competency gaps and learning difficulties of undergraduate students at Beihai Art and Design Institute.

5. Discussion, Conclusion and Recommendations

5.1 Discussion

The development of art innovation ability, entrepreneurial ability, and risk management ability among sophomore students at Beihai College of Art and Design is discussed as follows:

The quantitative findings revealed that the overall level of three core abilities was at a moderate level, with "Art Innovation Ability" ranking first. This relatively higher competence in digital artistic creation aligns with the college's strategic focus on integrating technology into art education. The research results indicated that "Art Innovation Ability" ranked first among the students' three abilities. This high level of competence aligns with the college's strategic focus on technology-enhanced artistic creation and the widespread availability of AI art tools in contemporary art education. This finding is consistent with Davis (2023), who noted that vocational education programs significantly enhance students' employability by providing practical skills directly applicable to specific industries. Similarly, Johnson et al. (2021) emphasized the importance of complementing technical expertise with soft skills for career success, which supports the balanced development observed across dimensions.

Regarding "Art Innovation Ability", the highest-ranking item was confidence in using digital tools for artistic creation, whereas confidence in evaluating feasibility and profitability of artistic product design solutions was the lowest. The reason is that creative digital tools are often taught in studio settings with immediate feedback, whereas applying commercial evaluation criteria to assess the market viability of artistic outputs requires interdisciplinary knowledge of business and economics that is sometimes lacking. This indicates a curriculum-industry misalignment where artistic skill development outpaces commercial awareness training. This finding is consistent with Davis (2023), who highlighted that traditional curricula often prioritize theoretical or technical knowledge over practical business skills, creating a gap between what students learn and what the creative industries require. Furthermore, Xie and Wang (2021) argued that the competency-based education (CBE) model provides a foundational reference for structuring skill development to bridge this gap.

The analysis of "Risk Management Ability" indicated that while students understand ethical risks of digital art, their familiarity with legal requirements for artwork protection was relatively lower. The reason is that ethics discussions are frequently integrated into art critique sessions, whereas legal literacy, particularly concerning copyright registration and intellectual property protection, receives relatively limited emphasis in the standard art curriculum. This result is consistent with Balay and Misleng (2022), who found that students generally demonstrated strong awareness of ethical principles but limited engagement with practical legal applications. Similarly, Duong and Nguyen (2021) reported that while university students recognized the importance of protecting their creative work, their actual knowledge of legal procedures for registration and rights enforcement was relatively limited.

It was found that implementing systematic strategies, such as industry-co-designed commercial evaluation projects, can bridge the gap between ability awareness and confident, applied performance. The reason is that targeted guidelines translate general competencies into concrete actions within the specific institutional context of Beihai College of Art and Design, directly addressing the challenges of curriculum-industry misalignment and resource limitations. This supports the literature which suggests that successful models involve collaborative curriculum development and the establishment of practical training bases to ensure learning is grounded in authentic work contexts.

5.2 Conclusion

The results of this study are consistent with the objectives of this study. Through the analysis of three core abilities and thematic analysis of interview data, the following two main conclusions can be drawn:

5.2.1 The overall level of three core abilities among sophomore students at Beihai College of Art and Design across 3 dimensions was at a moderate level. The analysis of the three dimensions revealed the following order: the highest rank was "Art Innovation Ability", which was at a high level. It was followed by "Entrepreneurial Ability" whereas "Risk Management Ability" was the lowest rank.

- 5.2.1.1** Sophomore students' ability at Beihai College of Art and Design on "Art Innovation Ability" was at a high level. Considering the results of this research aspect were as follows: the highest rank was "Students can use digital tools such as AI image generation software to assist artistic creation", whereas, "Students can evaluate the feasibility and profitability of new artistic product design solutions" was the lowest rank.
- 5.2.1.2** Sophomore students' ability at Beihai College of Art and Design on "Entrepreneurial Ability" was at a moderate level. Considering the results of this research aspect were as follows: the highest rank was "Students are aware of the use of digital marketing tools and algorithm platforms to promote artworks", whereas, "Students are confident in developing long-term business plans for artistic ventures" was the lowest rank.
- 5.2.1.3** Sophomore students' ability at Beihai College of Art and Design on "Risk Management Ability" was at a moderate level. Considering the results of this research aspect were as follows: the highest rank was "Students understand the ethical risks associated with digital art creation", whereas, "Students are familiar with the legal requirements for registering and protecting original artworks" was the lowest rank.
- 5.2.2** Based on the quantitative findings and qualitative insights from educators, a set of comprehensive and actionable development guidelines for each ability dimension has been formulated. The guidelines aim to address specific areas of relative weakness identified in the study.

The key recommendations derived from the interviews are summarized as follows:

- 5.2.2.1** For Art Innovation Ability, addressing the gap between digital tool usage and commercial application, experts suggested that integrating market analysis and profitability evaluation modules into art design courses is essential; therefore, collaborating with art galleries and design firms to provide real-world product feasibility assessment projects is necessary to build students' confidence in evaluating commercial viability of artistic outputs.
- 5.2.2.2** For Entrepreneurial Ability, moving from awareness of digital marketing tools to sustainable business planning requires structured support; thus, experts recommended embedding business model canvas training and long-term venture planning workshops into the entrepreneurship curriculum, explicitly linking artistic creation to sustained business strategy development.
- 5.2.2.3** For Risk Management Ability, to systematically enhance legal and ethical risk awareness for art professionals, experts advised incorporating modules on copyright law, intellectual property protection, and contract negotiation into core art curriculum, and designing practical exercises where students navigate real or simulated legal scenarios related to artwork registration and protection.

5.3 Recommendations

The research indicates that building commercial evaluation skills requires practical, real-world experience. Therefore, educators should adopt strategies like integrating market analysis assignments and profitability assessment projects into art design courses through collaboration with local galleries and design firms.

The research result indicates that moving from tool awareness to sustainable business planning requires structured support. So, schools should design entrepreneurship curricula that incorporate business model canvas training, long-term venture planning workshops, and mentorship from alumni entrepreneurs.

The finding showed that enhancing legal risk management knowledge comes from practical, scenario-based learning. As a result, teacher training and curriculum development should include modules on copyright law, intellectual property protection, and contract negotiation, with simulated legal exercises for artwork registration.

The findings suggest that students demonstrate high digital art creation ability but need support in evaluating commercial viability. Therefore, educators should integrate interdisciplinary modules combining art, business, and legal literacy directly into discipline-specific courses rather than teaching these skills in isolation.

The findings suggest that integrating risk awareness training across the curriculum encourages deeper adaptive skills for creative professionals. As a result, the college should develop a systematic approach that combines ethics discussions, legal workshops, and scenario-based risk management exercises within core art modules.

5.4 Future Research

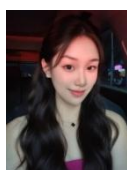
1. Art innovation, entrepreneurial, and risk management abilities and their development guidelines should be studied longitudinally to assess the impact of implemented strategies over time at Beihai College of Art and Design.

2. These three core abilities should be studied in comparison with other art and design colleges to identify best practices and contextual differences.
3. Research the relationship between specific guideline implementations (e.g., industry-co-designed commercial evaluation projects) and measurable changes in student confidence and performance metrics.
4. Research the relationship between students' prior art-related experiences (as shown in the demographic data) and their scores across the three ability dimensions.
5. Research the relationship between faculty development programs focused on interdisciplinary business and legal training and the effectiveness of the proposed development guidelines.

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