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Developing Interdisciplinary Academic Leadership Model for Administrators of Art Colleges and Universities in Hainan Province

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Abstract

This study aimed to develop and validate an interdisciplinary academic leadership model tailored for administrators of art colleges and universities in Hainan Province, the People's Republic of China. Employing a mixed-methods design, the research integrated qualitative interviews and quantitative surveys. The population consisted of 1,463 administrators and faculty members, and a stratified random sample of 314 participants was selected using Taro Yamane's formula. Data collection involved semi-structured interviews and a five-point Likert scale questionnaire, while data analysis employed descriptive statistics and Confirmatory Factor Analysis (CFA). The findings demonstrated that the proposed model exhibited strong validity and reliability, with fit indices meeting recommended thresholds (χ^2/df = 1.336, GFI = 0.928, TLI = 0.987, CFI = 0.989, RMSEA = 0.033). All components achieved AVE values above 0.5 and CR values above 0.7, confirming convergent validity. This model contributes new knowledge by offering a context-specific framework that enhances interdisciplinary collaboration, strategic planning, and sustainable leadership in higher education, providing valuable implications for both local institutions and global academic leadership practices.

Keywords: Interdisciplinary Academic Leadership, Model, Educational Leadership, Administrators, Art Colleges, Universities, Hainan Province

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Introduction

In the rapidly evolving landscape of higher education, the concept of interdisciplinary academic leadership has emerged as a pivotal framework for fostering adaptability, responsiveness, and innovation in institutional management. Rooted in foundational theories of interdisciplinary collaboration and academic leadership, this paradigm underscores the integration of knowledge across disciplines, participatory decision-making, and the cultivation of collective creativity (Avolio & Bass, 1995). Studies have consistently demonstrated that interdisciplinary academic leadership not only enhances organizational performance and accelerates innovation but also strengthens institutions' capacity to address complex and multifaceted challenges (Zhou, Worapongpat, & Liuyue, 2024). As universities worldwide face escalating pressures to innovate, adapt, and advance interdisciplinary research, the role of interdisciplinary academic leadership has become increasingly critical (Worapongpat & Kangpheng, 2025). This leadership approach facilitates the transformation of rigid hierarchical structures into dynamic, flexible systems that promote collaboration, creativity, and proactive problem-solving, enabling institutions to thrive in a rapidly changing academic environment (Elovainio, Kivimäki, & Helkama, 2002).

Art colleges and universities in Hainan Province, much like their counterparts elsewhere, are undergoing significant expansion and diversification (Worapongpat & Petnacon, 2025). While this growth provides opportunities for academic and cultural enrichment, it also presents unique challenges, including the increasing need for decentralized, interdisciplinary decision-making and improved communication between administrative and academic units. Traditional leadership models, which often rely on centralized control and discipline-specific expertise, have proven inadequate in addressing these evolving demands. These models often lead to inefficiencies, fragmented communication, and delays in responding to strategic and operational challenges (Xunan & Worapongpat, 2023).

Furthermore, Hainan’s unique cultural and economic landscape, coupled with the demand for innovation in art education, necessitates a more integrative leadership approach that bridges disciplines and enhances cross-functional collaboration (Worapongpat, 2025b). This confluence of factors underscores the need for a leadership paradigm explicitly tailored to the interdisciplinary, dynamic context of Hainan’s art colleges and universities (Min & Worapongpat, 2023). Interdisciplinary academic leadership offers a promising pathway to address these challenges by fostering collaboration and communication across departments and disciplines, empowering leaders to harness diverse perspectives in decision-making.

This leadership paradigm supports university administrators in overcoming institutional challenges, optimizing resource allocation, and promoting a cohesive institutional culture that drives sustainable growth and innovation (Pintong & Worapongpat, 2024). Despite its theoretical advantages, a significant gap persists in empirical research and practical frameworks designed to meet the specific leadership needs of university administrators operating in interdisciplinary academic settings. In the context of Hainan’s art colleges and universities, this gap limits institutional leaders' capacity to effectively implement interdisciplinary strategies aligned with their operational, cultural, and academic objectives (Makjod, Worapongpat, Kangpheng, & Bhasabutr, 2025). Addressing this gap is essential for enabling these institutions to capitalize on the benefits of interdisciplinary academic leadership fully.

To address this critical gap, this research aims to develop a comprehensive interdisciplinary academic leadership model specifically tailored to the unique needs of art colleges and universities in Hainan Province (Ning, Worapongpat, Wongkumchai, Zidi, Jiewei, & Mingyu, 2023). Guided by three key objectives, the study first seeks to determine the components and indicators of interdisciplinary academic leadership that are most relevant for

administrators in these institutions, providing a foundational basis for the model's development by identifying the essential elements underpinning effective interdisciplinary leadership. Second, it aims to propose a comprehensive interdisciplinary academic leadership model that integrates these components and indicators into a cohesive framework, aligning with the distinct administrative and educational characteristics of Hainan's art colleges and universities (Worapongpat & Arunyakanon, 2025). By emphasizing interdisciplinary collaboration, equipping leaders with necessary tools, and fostering an integrative institutional culture, the model is designed to support effective decision-making, optimize resource utilization, and create an environment conducive to innovation and academic excellence (Schaufeli & Bakker, 2002).

Third, the study will propose practical guidelines to improve interdisciplinary academic leadership by offering actionable strategies for administrators to implement the model and address institutional challenges effectively (Smith, Kendall, & Hulin, 1985). While the model is primarily designed to address the unique challenges of Hainan's art colleges and universities, it is expected to generate broader insights applicable to higher education institutions globally (Worapongpat, 2025a). By offering guidance on implementing interdisciplinary academic leadership across diverse academic contexts, the findings of this research aim to bridge the gap between theory and practice, ultimately advancing innovation, adaptability, and excellence in higher education leadership (Spector, 1985).

The findings of this study are expected to extend beyond the regional context of Hainan Province, providing valuable theoretical and practical implications for academic leaders worldwide. As universities globally face growing demands for interdisciplinary collaboration and innovation, this research will offer actionable strategies for fostering leadership that promotes adaptability, creativity, and academic excellence. By bridging the gap between theoretical constructs and practical applications, this study seeks to enhance the capacity of higher education institutions to navigate the complexities of interdisciplinary leadership, ultimately driving sustainable development and organizational resilience in the global academic community.

Objectives

To develop and validate an interdisciplinary academic leadership model for administrators of art colleges and universities in Hainan Province, the People's Republic of China.

Hypothesis

H1: The proposed interdisciplinary academic leadership model for administrators of art colleges and universities in Hainan Province demonstrates a good fit with the empirical data, confirming its structural validity and reliability.

Literature Reviews

Significance of Interdisciplinary Academic Leadership

Interdisciplinary academic leadership has become vital in higher education as institutions confront global challenges that demand cross-disciplinary collaboration. By integrating diverse perspectives, it fosters innovation, adaptability, and inclusivity while enhancing institutional resilience amid rapid technological and societal changes (Fornell & Larcker, 1981). Leaders who encourage interdisciplinary collaboration strengthen intellectual vitality, promote diversity in decision-making, and align academic programs with broader societal goals such as sustainability and social justice (Jianfeng & Worapongpat, 2024).

Leadership in Chinese Art Colleges and Universities

In Chinese art colleges, interdisciplinary leadership addresses the growing need for creative problem-solving in a globalized context. Leading institutions, such as Tsinghua University, integrate traditional art with modern technology to enhance innovation (Hakanen, Bakker, & Schaufeli, 2006). Research shows that interdisciplinary collaboration improves both research productivity and teaching quality (Kahn, 1990) and fosters inclusivity through projects that link art with fields such as the environmental sciences (Klassen & Chiu, 2010). Despite hierarchical challenges, many institutions are now investing in leadership development to promote cross-disciplinary skills.

In summary, interdisciplinary academic leadership enhances innovation, collaboration, and sustainability in higher education, positioning universities to meet complex challenges and remain globally competitive.

Methodology

The study began with a qualitative phase using content analysis of existing literature to establish a theoretical framework for interdisciplinary academic leadership. Semi-structured interviews with administrators and full-time faculty from Hainan's art colleges provided in-depth insights into the core components and indicators of effective interdisciplinary leadership. This phase ensured a contextualized and nuanced understanding of leadership dynamics.

Quantitative Phase

Building on qualitative findings, the study proceeded with a quantitative survey distributed to a broader group of administrators and faculty. Data were analyzed using descriptive statistics and Confirmatory Factor Analysis (CFA) to validate the structural integrity of the proposed leadership model. This mixed-methods approach enhanced the study's rigor and applicability.

Population and Sample

The target population comprised 1,463 administrators and full-time faculty members across art colleges and universities in Hainan Province. Using Taro Yamane's formula and stratified random sampling, 314 respondents were selected: 33 administrators and 281 faculty. This sampling strategy ensured representativeness and generalizability.

Research Instruments

Two instruments were employed:

- Semi-structured interviews for qualitative insights.
- A five-point Likert scale questionnaire (1 = strongly disagree, 5 = strongly agree) to measure perceptions of interdisciplinary leadership practices.

The questionnaire items covered all identified leadership dimensions, enabling both breadth and depth of analysis.

Data Analysis

Descriptive statistics summarized demographic and professional characteristics (gender, age, education, job level, and professional title).

Confirmatory Factor Analysis (CFA) tested construct validity by examining relationships between observed indicators and latent leadership constructs, ensuring precision and reliability of the model.

Results Overview

CFA confirmed strong alignment between the proposed model and empirical data. Fit indices indicated excellent model fit ($\chi^2/df = 1.336$, GFI = 0.928, TLI = 0.987, CFI = 0.989, RMSEA = 0.033). Convergent validity was established, with AVE values > 0.5 and CR values > 0.7.

Key Components of the Model

The validated model includes five dimensions, each with specific indicators:

Interdisciplinary Vision and Thinking (IVT) – e.g., integrating diverse knowledge to solve complex problems.

Interdisciplinary Resource Integration Capacity (IRIC) – e.g., optimizing allocation and coordination of cross-disciplinary resources.

Interdisciplinary Strategic Planning and Decision-making Capacity (ISPDC) – e.g., long-term interdisciplinary planning and risk assessment.

Interdisciplinary Communication and Collaboration Capacity (ICCC) – e.g., effective knowledge-sharing and conflict resolution in teams.

Interdisciplinary Sustainable Development Planning Capacity (ISDPC) – e.g., embedding sustainability principles into strategic planning.

Results

Table 1 Model Fit Indices for the Interdisciplinary Academic Leadership Model (N = 314)

Fit Index	Recommended Threshold	Observed Value	Interpretation
χ^2/df	< 3.00	1.336	Excellent Fit
df	—	217	Adequate Complexity
GFI	≥ 0.90	0.928	Good Fit
TLI	≥ 0.90	0.987	Excellent Fit
CFI	≥ 0.90	0.989	Excellent Fit
NFI	≥ 0.90	0.956	Good Fit
RMSEA	< 0.05 (Excellent)	0.033	Excellent Fit

Note. GFI = Goodness of Fit Index; TLI = Tucker–Lewis Index; CFI = Comparative Fit Index; NFI = Normed Fit Index; RMSEA = Root Mean Square Error of Approximation.

Figure 1: The Second-Order Model of Interdisciplinary Academic Leadership Consistent with Empirical Data.

(Insert path diagram here, showing five latent constructs — IVT, IRIC, ISPDC, ICCC, ISDPC — loading onto the higher-order construct "Interdisciplinary Academic Leadership," with standardized factor loadings.)

Note. Factor loadings are standardized estimates obtained through CFA (N = 314). All paths are significant at $p < .05$.

Table 2 Convergent Validity and Reliability of the Interdisciplinary Academic Leadership Model (N = 314)

Component	AVE	CR	Threshold Criteria	Interpretation
IVT (Interdisciplinary Vision & Thinking)	0.62	0.84	AVE ≥ 0.50; CR ≥ 0.70	Acceptable
IRIC (Interdisciplinary Resource Integration)	0.65	0.86	AVE ≥ 0.50; CR ≥ 0.70	Acceptable
ISPDC (Interdisciplinary Strategic Planning & Decision-making)	0.68	0.88	AVE ≥ 0.50; CR ≥ 0.70	Acceptable
ICCC (Interdisciplinary Communication & Collaboration)	0.70	0.90	AVE ≥ 0.50; CR ≥ 0.70	Excellent
ISDPC (Interdisciplinary Sustainable Development Planning)	0.66	0.87	AVE ≥ 0.50; CR ≥ 0.70	Acceptable

Note. AVE = Average Variance Extracted; CR = Composite Reliability.

Discussion

The findings confirm that the interdisciplinary academic leadership model for administrators of art colleges and universities in Hainan Province aligns strongly with both theoretical foundations and empirical data. Robust CFA results ($\chi^2/df = 1.336$, GFI = 0.928, TLI = 0.987, CFI = 0.989, RMSEA = 0.033) validate the model's structural integrity, while AVE (>0.5) and CR (>0.7) values affirm convergent validity and reliability. Central to the model's effectiveness is its emphasis on adaptive and inclusive leadership. By fostering transparent communication, collaborative decision-making, and cross-departmental participation, the framework enhances institutional agility and responsiveness, which are essential for higher education institutions operating in rapidly changing environments. The results echo prior studies: Bakker and Bal (2010) demonstrated that interdisciplinary collaboration enhances professional growth and innovation, consistent with the model's Communication and Collaboration dimension. Similarly, Bloomquist, Chayboonkrong, and Worapongpat (2024) highlighted the value of combining strategic foresight with interdisciplinary planning, reinforcing the Strategic Planning and Decision-Making capacity. Dongling and Worapongpat (2023) further emphasized this approach, underscoring its relevance for institutional adaptability and long-term success. This underscores the role of interdisciplinary approaches in advancing sustainability and directly supports the Sustainable Development Planning dimension. Overall, this model provides a comprehensive framework for strengthening the operational efficiency, innovation capacity, and long-term resilience of art colleges and universities. Beyond Hainan, the findings contribute to global higher education by offering a validated framework that integrates communication, resource integration, strategic decision-making, and sustainability. Limitations and Implications: While the study validates the model in the context of Hainan Province, future research should test its applicability across different regions and institutional types. Policymakers and higher education leaders may draw on this framework to design leadership training and institutional strategies that foster interdisciplinary collaboration, ensuring academic institutions remain innovative, inclusive, and sustainable.

Originality

From the study of "Developing an Interdisciplinary Academic Leadership Model for Administrators of Art Colleges and Universities in Hainan Province", new knowledge has been discovered that can be synthesized into a conceptual model as shown in Figure 2.

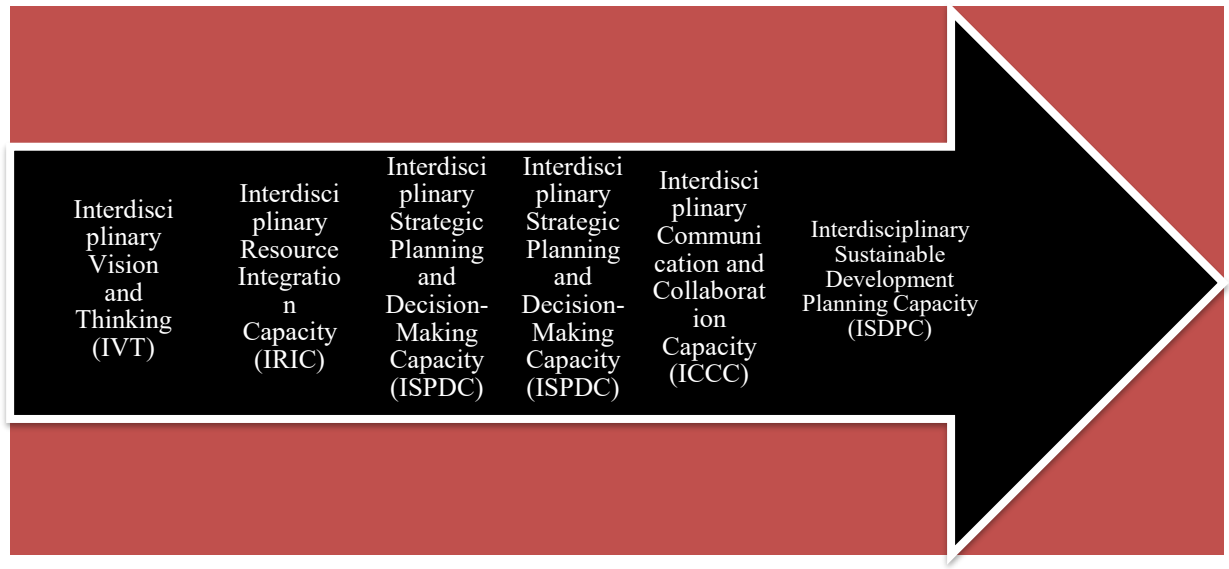

Figure 2 illustrates the validated interdisciplinary academic leadership model, which integrates five key components supported by empirical evidence. The model highlights how these capacities collectively enhance leadership effectiveness, institutional adaptability, and sustainable development in higher education.

The Interdisciplinary Academic Leadership Model for Administrators of Art Colleges and Universities in Hainan ProvinceKey: Key Insights from the Model. From Figure 2, it can be seen that Interdisciplinary Vision and Thinking (IVT) enables leaders to integrate diverse perspectives, generate innovative solutions, and adopt a global outlook in addressing institutional challenges. Interdisciplinary Resource Integration Capacity (IRIC) Promotes the efficient coordination and optimal use of academic, financial, and human resources across departments. Interdisciplinary Strategic Planning and Decision-Making Capacity (ISPDC) *equips leaders to conduct long-term, risk-informed planning through interdisciplinary collaboration. Interdisciplinary Communication* and Collaboration Capacity (ICCC) Fosters open dialogue, conflict resolution, and effective knowledge-sharing across academic boundaries. Interdisciplinary Sustainable Development Planning Capacity (ISDPC) ensures that institutional strategies incorporate environmental, social, and economic perspectives, contributing to long-term resilience and global sustainability goals.

Recommendations

Suggestions for Applying Research Results

1. Based on Research Objective 1To identify the key components and indicators of interdisciplinary academic leadership relevant to administrators of art colleges and universities in Hainan Province. Findings: The study identified five essential leadership components: Interdisciplinary Vision and Thinking (IVT), Resource Integration Capacity (IRIC), Strategic Planning and Decision-Making Capacity (ISPDC), Communication and Collaboration Capacity (ICCC), and Sustainable Development Planning Capacity (ISDPC). Each component was supported by valid and reliable indicators, confirming their significance in enhancing academic leadership. Recommendations: Relevant agencies should develop leadership training programs that focus on these five components to strengthen university administrators' competencies.
Establish institutional policies to integrate these components into the professional development framework for higher education leaders. Promote collaborative projects that explicitly apply the identified indicators to foster cross-disciplinary innovation and efficiency.

2. Based on Research Objective 2: To develop a comprehensive interdisciplinary academic leadership model integrating the identified components and indicators into a cohesive framework. Findings: The proposed model demonstrated an excellent fit with empirical data ($\chi^2/df = 1.336$, GFI = 0.928, TLI = 0.987, CFI = 0.989, RMSEA = 0.033), confirming its validity and reliability as a structural framework for academic leadership. Recommendations: Relevant agencies should: Officially adopt the interdisciplinary leadership model as a guideline for administrative practices in art colleges and universities. Integrate the model into institutional strategic planning processes to ensure long-term sustainability, inclusivity, and innovation. Encourage cross-departmental committees to apply the model in policy formulation, resource allocation, and institutional governance.

3. Based on Research Objective 3: To provide practical guidelines for administrators to implement the interdisciplinary academic leadership model effectively. Findings: The research produced actionable strategies across areas, including interdisciplinary seminars, resource-integration platforms, strategic-planning groups, communication frameworks, and sustainable-development initiatives. Recommendations: Relevant agencies should implement regular interdisciplinary workshops and collaborative forums to enhance administrators' leadership capacity. Create digital platforms to share interdisciplinary resources and ideas, fostering collaboration and problem-solving. Provide targeted funding for interdisciplinary research and

sustainability projects aligned with institutional goals. Establish monitoring and evaluation mechanisms to assess the model's effectiveness in real institutional contexts.

Suggestions for Future Research

This study confirmed the validity of an interdisciplinary academic leadership model for art colleges and universities in Hainan Province, providing new knowledge on the integration of leadership capacities across disciplines. The findings highlight the importance of adaptability, inclusivity, and sustainability in academic leadership. Future research should investigate the influence of cultural and contextual factors on the implementation of interdisciplinary leadership in different provinces and regions of China. Conduct longitudinal studies to examine the long-term impact of interdisciplinary leadership on institutional performance, faculty collaboration, and student outcomes. Carry out comparative research across different types of higher education institutions (e.g., comprehensive universities, technical colleges) to identify best practices and transferable strategies. Explore the use of digital technologies and artificial intelligence in supporting interdisciplinary leadership and cross-disciplinary collaboration.

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