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加勒比地区岭南饮食的传承传播与在地化研究

黄睿淇 (Huang Ruiqi), 苏 嫔 (Su Ping), 聂欣然 (Nie Xinran)

摘要: 加勒比的大量华工来自岭南地区, 使得岭南饮食在加勒比中餐中占据主导地位。在加勒比“将就”饮食哲学的影响下, 岭南饮食逐步扎根、传承并主动适应当地资源等客观条件, 融合加勒比本土风味, 形成了一种独特的、值得深入考究的加勒比岭南饮食美学。本文以岭南饮食为切入点, 动态关联中加两地, 通过参与式观察与半结构化访谈, 探究加勒比岭南饮食的传播情况与在地化机制。经过近两个月的沉浸式调研, 本文认为, 近年来, 依托家庭传承与数字化手段的辅助, 加勒比岭南饮食历经了从“复制再现”到“创新”再到“标准化”的发展路径。加勒比岭南饮食的传播趋势呈现出由内部走向外部、跨族群、渐趋日常化与景观化的特征。此外, 岭南饮食在地化的过程中, 不仅与本土饮食习俗、社会结构相结合, 还潜移默化地影响并参与塑造了加勒比本土的饮食文化。

关键词: 岭南饮食; 加勒比华人; 文化传承; 文化传播; 在地化

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Title: The Inheritance, Dissemination, and Localization of Lingnan Gastronomy in the Caribbean

Abstract: A large number of Chinese laborers in the Caribbean originated from the Lingnan region, making Lingnan cuisine a significant component of Chinese Caribbean cuisine. Influenced by the Caribbean philosophy of “making do” in food, Lingnan cuisine has gradually taken root, inherited, and adapted to local resources and conditions, creating a unique “Caribbean

Lingnan culinary landscape” by integrating Caribbean local flavors. This paper uses Lingnan cuisine as an entry point to explore the dynamic connection between China and Caribbean. Through participatory observation and semi-structured interviews, it examines the dissemination and localization of Caribbean Lingnan gastronomy. After nearly two months of immersive research, this paper concludes that, in recent years, Caribbean Lingnan gastronomy has evolved from “replication” to “innovation” and “standardization” with the aid of family inheritance and internet. The dissemination trend of Caribbean Lingnan gastronomy is characterized by movement from internal to external, cross-ethnic exchange, more commonplace, and more landscape-oriented. Furthermore, during its localization, Lingnan gastronomy not only merges with local food customs and social structures but also subtly influences and shapes Caribbean local culinary culture.

Keywords: Lingnan gastronomy; Chinese Caribbean; cultural heritage; cultural dissemination; localization

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一、引言

1806年10月12日，一艘英国东印度公司的商船“坚强号”（Fortitude）轮船抵达英属殖民地特立尼达（今特立尼达和多巴哥，Trinidad and Tobago），由此开启了浩浩荡荡的华人劳工流散之旅。从伊斯顿·李（Easton Lee）的《柜台之后》（*From behind the Counter*）到厄尔·拉夫雷斯（Earl Lovelace）的《龙不再舞》（*The Dragon Can’t Dance*），再到帕特丽夏·鲍威尔（Patricia Powell）的《佛塔》（*The Pagoda*），“中餐”“华人餐馆”以及“华人杂货店”等词汇频繁出现在上述华裔加勒比海英语文学作品里，几乎贯穿始终。这足以洞见，华人移民带去的饮食文化极其深刻地影响了加勒比当地的饮食文化，乃至形塑了全新的加勒比岛民生活习惯与社会风俗。作为华人移民的主力军，来自岭南地区的移民不仅用辛勤劳作重现了中国的传统美食，还凭借智慧，在当地资源稀缺与食材有限的现实条件下灵活调整，创造出独具特色的加勒比岭南饮食景观。以广式炒饭、糖水、芒果鸡、咸水饺等岭南美食为代表的中餐在地化过程完美诠释了中华饮食文化在加勒比地区的适应、融合与创新。

关于加勒比地区岭南饮食的相关研究在华侨华人研究领域中长期处于缺位状态，几乎没有被系统研究过。国外学者大多侧重于从契约华工史、殖民历程、商业经济、政治关系，以及文化表现与民族意识等宏观视角研究加勒比华人，例如沃尔顿·卢克·赖（Walton Look Lai）的专著《西印度群岛的华人》（*The Chinese in the West Indies*）聚焦契约华工与移民历史，以及华人在社会中扮演的角

色。国内相关研究更多关注文学与文化领域，例如苏娉教授（2016）将华裔加勒比海英语文学史的发展历程分为三个阶段，并逐一进行了特点概括，指出华裔加勒比海英语文学改写并颠覆了以往加勒比海文学作品中华人的刻板形象；高伟浓（2018）则关注荷属加勒比地区华侨对中华优秀传统文化的传承，对传统节日、娱乐活动以及新移民的文化活动做了详细的描述性记录。现有对加勒比岭南文化的讨论仍停留在描述层面，缺乏对岭南饮食文化在地化机制、传播方式及文化意义的分析。而正如萨莉·陈（Sally Chan）（2016）所强调的，食物在中国移民文化中占据了举足轻重的地位。加勒比地区作为一个容纳非裔、印度裔、亚裔等族裔的“大熔炉”，其饮食素来以高度多元化、杂糅化著称。进入 21 世纪，岭南饮食在加勒比的可见度与接受度显著提升，它从族群饮食走向公共文化、从家庭空间进入餐馆、节庆与旅游等公共领域。这些转变为理解移民饮食的在地化及其文化意义提供了重要的研究案例。

本文以岭南饮食作为切入点，在厘清加勒比华人移民史与中餐发展脉络的基础之上，重点呈现 2025 年 7 月至 9 月在加勒比地区，尤以安提瓜岛（Antigua）为中心开展的关于岭南饮食沉浸式调查研究（immersion）的核心发现。通过参与式观察与半结构化访谈，阐明岭南饮食在加勒比地区的传播情况与在地化机制。岭南饮食在地化的过程中，不仅与本土饮食习俗、社会结构相结合，还潜移默化地影响并塑造了加勒比本土的饮食文化。

二、加勒比地区岭南饮食的引入与发展

大约 19 世纪中叶，加勒比各殖民地陆续废除奴隶制，造成了巨大的劳动力缺口，为此，英国殖民当局从中国东南沿海省份招募了大量契约劳工（indentured labour），其中大部分来自广东和福建（苏娉，2016），这为加勒比地区中餐菜系的发展奠定了基础。随后，他们被输送至英属圭亚那、牙买加、特立尼达等地的甘蔗种植园。（Lai, 1993）这些华工在严苛的种植园环境中劳作，不得不忍受非常恶劣的生存条件，食物极为匮乏且简朴，据当时一名华工自述，“有人甚至因为饥饿而上吊自杀”。（Lai, 1998, p. 224）在当时，大部分劳工靠米饭和咸鱼填饱肚子，并且依然坚持使用岭南地区传统的炭炉与明火烹饪的习惯。在 19 世纪 60 年代，一名殖民官员视察某华人定居点时，注意到那里的中餐烹饪设备，他描述道：“这些炭炉制作精良，且全部在运行中……”（Lai, 1998, p. 225）

契约期满后，一大批华工转变身份，开始从事自耕农业、花园农业，以及小规模商业，开设主要服务于华人社群的小商店、杂货店等，兼售样式简单的岭南风味中餐。至此，华人开始参与加勒比当地经济的发展。在牙买加和特立尼达，早期的中餐馆提供广东风味的炒面、烧腊等，但因食材限制，逐渐开始以本地香料（如辣椒、姜黄）替代传统调料。（Lai, 1993）这一时期，随着华侨移民的定居，岭南饮食文化逐渐扎根，并呈现出一定的在地化趋势。萨拉·劳森·韦尔什（Sarah Lawson Welsh）曾在“吃什么（以及如何吃）决定你是谁”一文中，论证华裔加勒比人的食物与身份之间的关系时指出：“与印度劳工一样，他们[华人劳工]大多来自贫困的农村家庭，拥有基本的农业技能。一些华人种植水稻或开始栽培经济作物，但开设小商店是他们对加勒比经济最重要的贡献。”（2025, pp. 173-174）19 世纪 80 年代至 20 世纪 50 年代，华人的移民模式从契约制逐渐转向自由移民，并通过家族和同乡链式迁移，逐步在古巴、巴拿马、牙买加及特立尼达和多巴哥等地建立杂货店、洗衣店、餐馆、面包店等小型商业实体，构建出初步的华人商业网络。

加勒比地区的华人主要由广东籍、福建籍移民及其后裔构成，其中又以客家人居多。还有部分来自中国其他地区的华人，但数量相对较少。华人群体带去了各色的中国菜系，不过由于岭南移民的数量占据优势，粤菜与客家菜在加勒比中餐中占比极高，在加勒比餐饮行业大行其道。各大加勒比中餐馆的菜式皆可追溯到岭南技法的谱系，包括炒饭炒面、烧腊卤味、汤水文化和甜品糖水等。

此外，加勒比地区还出现了许多融合当地特色的中餐。（沈卫红，2022）根据霍米巴巴的“文化杂糅”理论，文化挪用与融合的过程即为文化杂糅，两种或多种文化相互模仿、融合互动、取其精华、去其糟粕。（Bhabha, 1994）移民群体母国的文化在跨地域传播后，会在新的空间中与当地文化产生互动，从而更新自身，创造出生动鲜活的杂糅文化。华工将岭南饮食带到加勒比后，因各种食材紧缺，他们在被动进行食材杂糅的同时，又主动发挥智慧，积极对中餐进行创造性改良，比如牙买加的“炭烤辣味鸡肉炒面”（Jerk Chicken Chow Mein）选用加勒比烟熏辣鸡替代广式叉烧，又如特立尼达的“咖喱炒面”（Curry Chow Mein）融合印度咖喱粉，既保留广东饮食的传统基因，又融入当地风味，可被视为文化杂糅的具象化表现。

二战后，加勒比的移民来源进一步扩展，除了原有的中国大陆移民外，还包括来自中国香港与中国台湾省的移民，他们的涌入使加勒比华人社群更加多元。此阶段的华人所担任的经济角色亦趋多样化，涵盖餐饮、零售、制造业及投资移民等领域，这一现象同时也助推了中餐业的进一步繁荣。随着自由移民的增加，中餐逐渐成为加勒比地区各大城市的主流餐饮之一，新移民带来川菜等菜系，丰富了区域内的中餐品类，但事实上，岭南饮食仍占据主导地位。源于珠三角地区的农家特色菜肴如“炒杂碎”（Chop Suey）甚至传播到了泛加勒比地区南部的圭亚那，厨师使用加勒比海鲜和木薯淀粉勾芡，形成独特风味，成为文化融合的典范。（Tjon, 2009）如今，以岭南饮食为主的中餐不仅成为加勒比地区的重要饮食选择，更是其多元饮食文化的关键组成部分，承载着岭南华人华侨的历史记忆与文化传承。

三、岭南饮食在加勒比地区的传播情况

自 20 世纪 50 年代中餐馆“首次在牙买加出现”以来（韦尔什，2025, p. 174），加勒比地区的中餐馆数量逐年递增。从中餐馆的地理分布上看，主要集中于古巴、牙买加、安提瓜和巴布达、波多黎各、特立尼达和多巴哥、巴巴多斯等岛国，特别值得一提的是，相关统计数据表明加勒比南部的库拉索岛上开设了超过 250 家中餐馆。¹ 为初步呈现岭南饮食在加勒比的传播态势，以下列举了不同岛屿上具有代表性的中餐馆及其所在地。古巴哈瓦那的华人街分布着不同的中餐馆，其中门面最大的是天坛饭店。这里的中餐馆不仅有经典的“唐人街菜系”，如宫保鸡丁、炒饭、咕咾肉，还有技术含量更高的上海松鼠鱼，以及符合当地人口味的融合菜。² 安提瓜岛上的中餐馆以客家菜、粤菜为主，其他菜系几乎不存在。中餐馆的位置主要集中在首都圣约翰，最大、生意也最火爆的是来自深圳的客家人杨文康的阿康饭馆（Stanley's Home Restaurant）（如图 1）。波多黎各有多家供应中餐的餐

¹ Yu, Kaila (2022, December 12). “‘United Nations seafood, Four Seasons chop suey’: Chinese food in Curacao a fusion of Dutch and Caribbean influences”, <https://www.scmp.com/lifestyle/travel-leisure/article/3202930/united-nations-seafood-four-seasons-chop-suey-chinese-food-curacao-fusion-dutch-and-caribbean>

² 朱幸福、杨岩松 (2015 年 1 月 29 日): “哈瓦那的‘天坛饭店’”, 《文摘报》, 07 版。

厅，较为知名的有大中华餐厅（La Gran China）、阿明中餐厅（Aming China Restaurant）、中华快餐厅（China Express Restaurant）等。其他岛上还有一些中餐馆如新兴旺中餐厅（New Thriving Chinese Restaurant）、英发中餐厅（Ying Fa Chinese Restaurant）等。上述餐馆的菜品融合了中国和拉丁风味，例如北京烤鸭玉米片、春卷墨西哥卷饼等。库拉索岛上的多数中餐馆提供荷兰、加勒比和印尼风味中式菜肴，如西班牙风格的猪排、印尼风味的炒饭（nasi goreng）、沙爹（saté）和虾片（kroepoek）等。像位于威廉斯塔德购物区的林苑餐厅（Lam Yuen）是岛上历史最悠久的中餐馆之一。¹



图 1：安提瓜岛上的华人餐馆——阿康饭馆（拍摄人：聂欣然）

Figure 1: Chinese restaurant in Antigua—Stanley's Home Restaurant (photos taken by: Nie Xinran)

加勒比地区岭南饮食的传播趋势呈现出由内部走向外部、跨族群、渐趋日常化与景观化的特征。纵向来看，加勒比岭南饮食由家庭内部封闭式传承逐渐走向由餐馆、杂货店为载体的商业式传播。最初，炒饭、炒面、叉烧、糖水等只流转于劳工家庭厨房，并在家庭内部一代代传承下去。在华工恢复自由身后，岭南饮食文化与当地饮食文化发生交融，中餐渐趋日常化，并融入了当地岛民的饮食结构。横向来看，岭南饮食走向公共空间，进入学校、机场甚至作为一种扮演异域与本地杂糅的景观角色被引入当地的美食节与音乐节。近几十年来加勒比旅游业的兴起，吸引了大量渴望体验独特美食的游客。波多黎各和牙买加等岛屿已成为备受追捧的美食目的地，当地政府举办了大量美食节甚至是烹饪课程²，中餐作为旅游资源的一部分自然得到广泛支持与传播。很多中餐馆开设在旅游景区，在助力塑造当地旅游品牌形象的同时，也于无形中使加勒比中餐获得进一步传播。

¹ Yu, Kaila (2022, December 12). “‘United Nations seafood, Four Seasons chop suey’: Chinese food in Curacao a fusion of Dutch and Caribbean influences”, <https://www.scmp.com/lifestyle/travel-leisure/article/3202930/united-nations-seafood-four-seasons-chop-suey-chinese-food-curacao-fusion-dutch-and-caribbean>

² Staff Noodle Magazine (2024 October 25). “Caribbean Fusion Cuisine: Discover the Region’s Rich Culinary Heritage”, <https://thenoodlemagazine.net/caribbean-fusion-cuisine-discover-the-regions-rich-culinary-heritage/>

值得一提的是，中餐甚至以一种“角色扮演”“符号景观演绎”的形式传播。中餐馆老板会利用“社区中的族群差异”，通过提供具有“典型中式氛围的餐饮服务”，包括中国龙装潢（图 1）、中国风音乐、亚裔服务员等，来吸引顾客。（Chan, 2016, pp. 175-176）此外，加勒比有大量中餐馆、杂货店老板及员工被邀请参与加勒比一年一度最盛大的节日——狂欢节，一方面，政府会主动设计东方形象，建议华裔穿戴中式服饰、帽子、辫子等彰显东方身份，以吸引外地游客、发展旅游业；另一方面，为招揽生意，这些华人店主也会主动穿着政府认可的服装在节日庆典现场或唐人街下厨提供中餐美食。这一传播方式围绕狂欢节展开，以“化装舞会”（masquerade/mas playing）这样的公共文化形式来宣传中餐。（Pearce, 2010, p. 1 & pp. 4-7）

从传播途径上分析，岭南饮食在加勒比的延续传播，其最小单位有赖于家族/家庭内部的传承。家族/家庭传承是一种学习机制，包括亲人间的口口相授与家族美食秘方的流传。家常宴客和节日庆典的宴席不仅是代际传承与菜式展示的重要场合，也是食物文化传播的途径之一。在这些场合中，菜式繁多，体现了不同地域和家庭的烹饪特色。当然，熟人和朋友社交圈中的饮食文化互动扩散也在此机制之中。（Lai, 1998）除此之外，以杂货店、超市为载体的食材流通链也助推了岭南风味的传播。赖收录的殖民地档案与所附的 1918 年华人店铺损耗统计表显示，华人移民在自由时期除了普遍在自家花园耕种蔬菜之外，还大量经营食品杂货店与小杂货铺，并售卖米、咸鱼、酱油、部分中式香料与其他干货。（Lai, 1998）这些店铺成为岭南食材首次进入本地市场的通路，甚至成为“社区中心”（community hubs）¹。本地人在商店里购买岭南风味食材，带回自家厨房烹饪，试图创造出相同或是相似风味的食物，在这一过程中，同时也强化了他们的味觉记忆。

在生产机制方面，中餐馆通过商业模式将岭南菜品的价格与烹饪的技艺标准化，将菜名固定化，因而菜式被固定为可重复生产的形式，菜名成为可传播的符号。它们逐渐演变成今日我们在各大加勒比中餐厅的菜单里看到的炒面（Chow Mein）、炒饭（Chow fan）等。岭南食物作为物质商品，有力地推动了跨族群的饮食消费，使其成为大众普遍能够购买和消费的食品，从而在小岛屿社会中广泛传播。

20 世纪 90 年代后，互联网逐渐在公众中普及，加勒比中餐文化宣传也历经了从线下走向线上的改变。随着数字化时代的来临，食物逐渐成为“传递记忆、渴望与怀旧情感的媒介”。（Beushausen et al., 2014, p. 19）2004 年，由香港导演卓宽拍摄的《岛屿上的中餐厅》（“Chinese Restaurants: On the Islands”）系列纪录片横空出世，导演聚焦“家庭经营的中餐馆”，走访并拍摄了特立尼达、古巴等加勒比和印度洋岛屿上的中餐厅，展现了华侨华人移民如何通过饮食融入当地以及身份认同的交织与变迁的故事。²除了影视资源，加勒比中餐菜谱以及中餐馆评价、推荐博客也大量出现在视频分享网站（YouTube）、猫途鹰（TripAdvisor）、抖音（TikTok）、谷歌地图（Google Maps）等网站上。由此观之，数字平台也起到了很大的推动作用，它使人们得以复制、模仿、推荐菜品。

在传播方式上，加勒比岭南饮食历经了从“复制再现”到“创新”再到“标准化”的路径。华工初来乍到，试图重现家乡美食，但由于第一部分所述的设备、原料、环境、气候限制等，华人无法获得原乡食材，这种物质条件构成了岭南饮食在地化的直接动因。此外，加勒比独特的历史背景本就孕育出了一套“将就”（making do）饮食哲学，即“利用任何可用资源进行创造的行为”。

¹ Villalobos, José Luis (2025 May 2). “The Influence of Chinese Cuisine on Caribbean Food”, <https://sazonytumbao.com/caribbean-chinese-cuisine/>

² Kwan, Cheuk (2016 January 9). “Chinese Restaurants: On the Islands”, <https://chineserestaurants.tv/2016/01/09/on-the-islands/>

(Houston, 2007, p. 99)而这种饮食文化同样潜移默化地影响着华人移民群体。他们制作岭南美食的原料虽然被替换成更适应当地、更易获取的食材,但极具岭南特色的蒸煮、快炒、腌制等技法得以保留,并在此基础上继续发展、融合,甚至创新。发展至后期,在高度商业化的餐馆运行模式中,菜品趋向标准化,定价逐渐走向统一。近年来,随着日常需求的扩大,这一融合菜系逐渐快餐化,成为加勒比街头、旅游景区等地常见的快餐选项。

四、岭南饮食文化的在地化机制

进入 21 世纪,加勒比地区的中餐馆和华人杂货店、超市比比皆是、随处可见。中餐成为加勒比人民的主流饮食之一,炒面、炒饭和炸鸡等菜品当属岛民们的热门之选。事实上,“跨文化间的食物共享堪称最惯常且自然的交流方式。”(Priyadarshini, Bindu, Sumathy, & Dorathy, 2024, p. 3810)随着各种仪式交流活动的举办,中餐不断融入当地饮食文化结构,其中的岭南饮食也一跃成为华人联系不同族群社区的桥梁,岛上各类聚会派对、婚礼、社区公共活动、宗教活动、学校筹款活动和狂欢节庆典等场合都能看见岭南菜品或饮品。¹像蒸炒、腌卤等岭南技法亦常见于加勒比人厨房的日常烹饪过程。加勒比岛民对岭南食物的接受度极高,这一菜系已超越其起源地,从族群内部走向公共空间,成为加勒比饮食结构中不可或缺的重要组成部分。广式混沌汤(Wonton Soup)、芙蓉虾(Fu Yong Shrimp)、广式腊肠炒饭(Pork Sausage Fried Rice)等皆是加勒比常见的岭南风味菜品(如图2)。



图 2-1: 阿康饭馆的菜单(正面)(拍摄人: 聂欣然)

Figure 2-1: The menu of Stanley's Home Restaurant (front) (photo taken by: Nie Xinran)

¹ Yu, Kaila (2022 August 10). "How Panama City Came to Have Some of the Best Dim Sum in Latin America", <https://www.cntraveler.com/story/tracing-the-roots-of-dim-sum-in-panama-city>

（二）餐馆经营的在地化

华人餐馆通过独特灵活的服务和价格优势策略获得消费者青睐。通过团队的田野调查和文献档案整理，我们发现大多数加勒比岛上的华人餐馆往往营业时间较长，一般从周一至周六持续营业。即便部分餐馆选择周日休息，也常提供电话预定服务；而本地餐馆则只在周一至周五营业。这一点与加勒比盛行周薪制是分不开的。与此同时，华人餐馆也不可避免地存在与其他族群同行商铺的竞争。在此情况下，社群组织（如华人联合会等）在商业环境中的支持作用变得尤为重要。据记载，哈瓦那华裔与西班牙裔杂货店店主曾存在竞争现象，华人店铺因价格和服务优势广受欢迎，后因政策干预和中华总商会介入，竞争有所缓和。（Wilson, 2004）因此，通过灵活的商业策略和社群组织的有效介入，华人餐馆不仅可以正常经营、参与健康竞争，也为岭南饮食在当地的融合与延续创造了物质条件。这种商业策略的选择与社区力量的发展，在岭南饮食本土化进程中发挥极大作用。

（三）菜式制作的在地化

在移入国的初代移民与二代移民既保留了原生文化精髓，同时又融入新家园的文化元素，饮食文化也不例外。岭南菜式所需的原料已高度“加勒比化”，菜谱原料融合度极高。正如前文所述，岛上食材供应短缺是在地化的直接动因，这促使厨师开始寻求原料的替代。华人保留了酱油、生姜、大蒜、大葱、五香粉、白菜、马蹄等必不可少的岭南风味原料，创造性吸收了佛手瓜（cho-cho）、大蕉（plantain）、苏格兰帽辣椒和芒果等本地食材，甚至利用本地糖类或水果制作新式酸甜风味菜品。¹然而，这种融合是双向的，加勒比食材在融入传统中式菜肴的同时，中餐也为加勒比厨房带来了多种食材。向外看，华人根据食材的限制与客观条件，主动调整菜谱；向内观，消费者推动菜谱的调整，华人则反过来吸收当地人的饮食偏好。例如，大多数餐厅提供番茄酱，一些客人喜欢将其添加到他们的炒面中。糖醋肉会配上薯条，捞面则会添加火腿罐头²，很多中餐馆老板会对菜单进行适时调整，将炒面与印度薄饼或咖喱肉类搭配等。

为深入了解岭南饮食文化的在地化，团队采访了在安提瓜生活了 30 余年的杨文康先生。杨文康是一名来自深圳的客家人，其经营的安康饭馆目前是该岛上规模最大、最受欢迎的中餐馆。杨老板首先向我们阐明了如何根据安提瓜本地顾客的需求，调整与改良菜品的饮食实践（culinary practice）过程：

聂：您还记得 90 年代有什么菜式吗？

杨：基本上跟现在差不多。但是我们要根据客人的口味或者个人喜欢，做很多改进、改良。

聂：那么菜式都是岭南风味，尤其是客家菜的风味吗？您能举几道菜吗？

杨：是的，客家菜，比如咸菜炆猪肉、芋头扣肉、三杯鸭。牙买加黑人特别喜欢咸菜炆猪肉。但是做了之后，我们就感觉到有些菜反响不是特别好。这些菜需要长时间的烹饪，时间一长根本挣不到钱。这些菜不适合安提瓜，本地人更喜欢制作速度比

¹ Villalobos, José Luis (2025 May 26). "The Influence of Chinese Cuisine on Caribbean Food", <https://sazonymbao.com/caribbean-chinese-cuisine/>

² Yu, Kaila (2022 August 10). "How Panama City Came to Have Some of the Best Dim Sum in Latin America", <https://www.cntraveler.com/story/tracing-the-roots-of-dim-sum-in-panama-city>

较快的炒饭、炒面。所有的美式中餐或者是加勒比海的中餐都是以炒饭、炒面为主。在此基础上，再做有自己特色的炸鸡。

聂：那么现在的菜都更偏向于迎合本地的口味吗？

杨：一半一半吧。比如甜酸鸡，一般的华人都能接受，本地人更能接受。华人来这里吃海鲜的比较多，当地的龙虾、鱼都不错，蒸鱼或者炸整条鱼都挺好吃的。

聂：那么，您刚才提到改良菜，是根据食材来定，还是说制作工序什么的？有什么样的考虑因素在内呢？

杨：比如麻婆豆腐，你就要改良。考虑因素是顾客是否能够持续的买，这个是最大的原因。如果能够持续的买。那你这道菜就是好菜了。

聂：那么哪些菜是顾客持续在买的呢？

杨：甜酸鸡（Sweet & Sour Chicken, 如图 3），本地人为了健康，和我们提议把鸡腿改为鸡胸肉。加汁的烤鸡，用酱油和洋葱打的汁淋在烤鸡上。做菜要灵动一些，你才能够进入市场。我会以顾客的身份来判定这个味道行不行，那么我就代表所有的顾客了。

聂：有没有特别坚持保留的岭南风味？

杨：其实这些汁都是岭南风味。酱油、蚝油，拿葱姜蒜去爆炒，然后加水。

聂：为了适应本地顾客的口味，您对菜式做了哪些最重要的改变？比如调整辣度、甜度？

杨：我们会自己调味，自己试吃。或者是他们员工自己尝试，和我说：老板，这个味道不错，那我可能就会考虑一下。¹



图 3：甜酸鸡——安提瓜岛最有名的岭南菜（拍摄人：聂欣然）

Figure 3: Sweet & Sour Chicken—The most famous Lingnan dish on Antigua (photo taken by Nie Xinran)

¹ 本文所涉采访内容均引自作者聂欣然于 2025 年 9 月 1 日对安巴华人杨文康的访谈，采访地点位于安提瓜岛的阿康饭馆。杨文康，深圳客家人、阿康饭馆的经营者，已在加勒比生活 30 余年。

传统的客家菜如咸菜炖猪肉虽然风味独特，但制作时间较长，无法满足餐馆高效盈利的需求。为此，杨老板转向制作更符合当地市场需求的炒饭、炒面等快餐化菜品，这一做法显然旨在迎合当地食客的生活节奏和就餐习惯，并提高盈利水平。然而，菜色与味型的改良融合不仅是华人出于经营目的进行的主动调整，同样受到消费者偏好的反向驱动。阿康饭馆通过调整食材与制作工艺等手段，例如使用鸡胸肉代替鸡腿肉制作甜酸鸡，以满足食客健康饮食的需求。这即是一种双向互动：华人经营者凭借替代性原料重现故乡味，而加勒比本土消费者则反向塑造出全新的本土化岭南风味。

烹饪与处理技法也实现了高度在地化。爆香、大火快炒、油炸等“实用且高温”的岭南烹饪技法¹被保留，岭南厨师又根据当地人的爆炒过程中加入大量本地香料与酱料，使成品既具有岭南传统所讲究的“锅气”，又带有加勒比特色厚重醇香的汁味；“既没有丧失各个元素的独特性，也没有将这些材料的身份固定不变”。（Huber, 2014, p. 85）此外，加勒比地区大部分位于热带气候带。在早期保鲜技术尚未成熟、冷藏设备未出现时，华人常常将油炸作为一种关键的脱水与保存技术，用于延长云吞皮、面条等高含水面制品的保存时间。这种技法也一直延续至近年加勒比中餐的处理，如预炸云吞皮、炸面条等备料方式。在中餐馆的菜单里随处可见炸云吞、炸面条、炸鱼、炸鸡等菜式，这反映出油炸手法实际上已深刻融入加勒比岭南饮食的制作过程。

此外，岭南饮食还被引入加勒比本地的节日庆典，催生了新的饮食风尚。在狂欢节、独立日、音乐节等非裔、印度裔、华裔均参加的加勒比本土节日，岭南食物是常见也是重要的存在。本地节庆期间，中餐馆员工或华裔后代会穿着戏服、旗袍、汉服等中式传统服饰参与游行，并在节庆现场或唐人街提供中餐美食。这种高曝光度的社群活动对岭南饮食文化起到了一定的宣传作用，同时还增强了华人社群内部的互动与族群凝聚力。（Pearce, 2010）

岭南饮食作为“一种象征性表现的方式”（Beushausen et al., 2014, p. 11），引导了当地新风俗的形成。在巴拿马，粤式早茶结合当地饮食习惯，衍生出“中式早餐”（desayuno Chino）习俗。这一习俗现已成为巴拿马国民级的饮食文化符号。正如巴拿马城的华人厨师费利佩·钟（Felipe Chong）所言：“在巴拿马，各族家庭都会庆祝中国节日，比如农历新年，当地人对每个中国节日的习俗、日期和食物都很了解”²。此外，华人坚持保留中国传统习俗，例如在春节期间，华人会享用团圆饭。点心、烧腊、甜汤圆等传统岭南食物会与加勒比特色配菜一同呈现。这种饮食上的文化根源回溯有助于强化文化归属感与家庭凝聚力，同时也使岭南饮食进一步渗透到加勒比社会中。在采访中，杨老板还与我们分享了他家庭内部坚守和传承客家传统的做法：

杨：过年的时候，我们就煮一些比较客家人的菜。比如，煲鸡汤，做一些好吃的鸭子，都是工艺比较繁复的一些菜。而且，我们广东人会在过年吃一些有含义的菜式。比如，我们要吃生菜，意思是“生财”。还有干的蚝豉，因为做生意要好事嘛。我们广

¹ Villalobos, José Luis (2025 May 26). “The Influence of Chinese Cuisine on Caribbean Food”, <https://sazonytumbao.com/caribbean-chinese-cuisine/>

² Yu, Kaila (2022 August 10). “How Panama City Came to Have Some of the Best Dim Sum in Latin America”, <https://www.cntraveler.com/story/tracing-the-roots-of-dim-sum-in-panama-city>

东有很多干的海鲜货，很贵。我们家会晒蚝豉。蚝豉本身很大，然后晒干之后小一点，你可以用来煲汤或用来蒸，放点酱油去蒸，很好吃的，但是比生蚝还贵好多倍。和发菜一起吃，我们叫“好事成双”。这些东西必须要在桌上。还有桌上一定要有整条鱼，但是我们也不能够把它全吃完，要留一些，这就是“年年有余”。这些习俗我的小孩也都知道，因为我们吃的时候会跟他们讲。还要派红包给他们，这些意义是什么，都要教他们。

在流散的大背景下，“食物通常是理解加勒比身份认同的核心问题。”（韦尔什，2025，p. 154）上述采访传达出华人移民社群在异乡坚持演绎传统习俗，教育后代铭记自身根脉，这一做法不仅有助于岭南饮食的传承，强化血缘纽带，更是在通过增强文化记忆来促进后代身份认同。杨老板提到的过年吃“生菜、蚝豉、整条鱼”等传统食物，虽然在异国他乡制作，但其背后的岭南文化象征意义却得以延续。这些食物的传递，不仅让华人移民社群保持与母国文化的联系，也成为他们在新环境中表达身份认同的重要途径。

如今，加勒比岭南菜品已发展至高端餐饮水平，并正朝着健康与可持续的方向迈进。大型餐馆的厨师创作出升级版菜品，如碳烤辣味猪肉饺、苏格兰帽甜酸鸡和木薯春卷。¹同时，现代社会科学膳食、营养搭配的生活方式兴起，传统的加勒比中餐因含有较高的钠、精制碳水化合物与煎炸油而引发了一些健康担忧。为此，加勒比厨师正在积极探索健康的替代方案，使用低钠酱油、椰子油或牛油果油，糙米和全麦面条代替精细米饭，同时加入更多本地蔬菜，如卡拉鲁等。在延续岭南风味的同时，这一创新性潮流也使饮食变得更加健康与科学。

五、结语

加勒比地区岭南饮食的在地化过程生动反映了加勒比海的移民历史与文化。岭南饮食文化可被视为华人在异乡抵抗身份模糊化的隐性武器，这种抵抗性体现在两个层面：对技法的坚守与对食材的创造性改良。经过几个世纪的发展，在“抵抗”与“被裹挟”的拉扯中，岭南饮食文化在加勒比并未走向纯粹的坚守或消亡，而是在模糊的交错地带形成了杂交形态。依托家庭传承与数字化手段的辅助，加勒比岭南饮食历经了从“复制再现”到“创新”再到“标准化”的路径。如今的加勒比岭南饮食，无论是在菜谱原料、食材处理，还是烹饪技法上，均以新时代“海丝”叙事策略展现了岭南与加勒比风味的跨地域融合。（张衡，2025）虽然岭南饮食不再完全保留原乡的纯粹本色，但这种深度融入加勒比元素的不纯粹性却恰恰彰显了其生命力（Goucher, 2014），并形成了一种独特的、值得深入考究的加勒比岭南饮食美学。

岭南饮食在华人家庭内部得以传承；在家庭单位以外，各岛屿的中餐馆也传播了岭南美食。这不仅体现华人移民通过饮食在地化适应与融合来保持与祖先传统的联结，还促进了跨族群的饮食文

¹ Villalobos, José Luis (2025 May 26). “The Influence of Chinese Cuisine on Caribbean Food”, <https://sazonytumbao.com/caribbean-chinese-cuisine/>

化交流，呈现出由内部走向外部、跨族群、渐趋日常化与景观化的特征。简言之，在内促进身份认同，在外助推文化交流，即为加勒比岭南饮食所蕴含的独特文化意义。岭南饮食在加勒比地区“去地域化和再地域化”的动态传播进程提供了“非西方中心”的案例样本，揭示了“文化杂糅”的本质。（韦尔什，2025, p. 197）随着 21 世纪海上丝绸之路延伸至更多加勒比国家，此案例揭示了文化交流从来都不是单向输出，而是通过包容与创新实现互联互通，共同构建多元文化共同体。

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高校职务发明专利权属界定的困境与出路 ——基于“科研人员信用权”与“单位监护权”的衡平阐释

刘 昂 (Liu Ang), 刘叔文 (Liu Shuwen)

摘要：高校职务发明专利权属界定是影响科技成果转化的核心制度问题。当前我国高校面临“专利沉睡”转化率低的困境，其深层原因在于现行法律体系未能有效平衡国家、单位与发明人之间的利益关系，存在“控制权与转化能力错位”“贡献度与收益权失衡”“公共属性与市场化需求冲突”等结构性矛盾。本文创新性提出以“科研人员信用权”与“单位监护权”的衡平作为法理重构基础，前者强调对科研人员人格价值与贡献的承认，后者侧重单位对公共资源的托管责任与转化推动义务。通过分析二者在权属制度中的张力与互补关系，主张实现从静态“所有权归属”向动态“权能配置”的治理范式转变，构建以转化为导向、分类分层、程序保障的权属制度体系。

关键词：职务发明；专利权属；科研人员信用权；单位监护权；成果转化；权能配置

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Title: The Dilemma and Solution of Defining the Invention Patent Ownership for Employee in Universities—An Interpretation Based on the Balance of “Research Personnel’s Credit Right” and the “Institutional Guardianship Rights”

Abstract: The definition of the ownership of invention patents for employee in universities is a core institutional issue affecting the transformation of sci-tech achievements. At present, Chinese universities are confronted with the predicament of “dormant patents” and low

conversion rates. The deep-seated reason lies in the fact that the current legal system fails to effectively balance the interests among the state, institutions and inventors, and there exist structural contradictions such as “misalignment of control rights and conversion capabilities”, “imbalance between contribution and income rights”, and “conflict between public attributes and market demands”. This paper innovatively proposes to take the balance between “the credit right of scientific researchers” and “the guardianship of the unit” as the basis for legal reconstruction. The former emphasizes the recognition of the personality value and contribution of scientific researchers, while the latter focuses on the unit’s responsibility for the trusteeship of public resources and the obligation to promote their transformation. By analyzing the tension and complementary relationship between the two in the ownership system, it is advocated to achieve a governance paradigm transformation from static “ownership attribution” to dynamic “power allocation”, and to construct an ownership system oriented towards transformation, classified and stratified, and procedurally guaranteed.

Keywords: Employee invention; patent ownership; research personnel’s credit rights; institutional guardianship rights; achievement transformation; allocation of powers and functions

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一、问题的提出

在创新驱动发展战略背景下，高校职务发明成果的转化效能直接关乎知识产权强国建设的实效。然而，我国高校长期面临“专利沉睡”困境。数据显示，2017-2022年间高校有效专利产业化率均值仅为3.02%，远低于企业（46.80%）和科研单位（13.83%）。高校拥有大量的科技研发成果，但科技成果转化率低导致相关成果难以成为促进经济增长的应用性技术。（张杰、白铠瑞，2022）这一现象不仅是转化机制不畅的表征，更深层地折射出现行职务发明权属界定制度的系统性困境。

现行法律框架虽经修订，仍难以破解“国家所有一单位管理—发明人创造”三元结构中的利益失衡。《专利法》《促进科技成果转化法》等法律法规之间存在规范冲突，例如“执行本单位任务”与“主要利用单位物质技术条件”等界定标准模糊，导致职务发明范围易被不当扩大。同时，国有资产管理体制对成果处置的过度干预，使单位在转化中面临“不敢转”“不能转”的合规风险。当前“厚雇主主义”与“厚发明人主义”的二元对立叙事，或将问题简化为产权归属之争，或将困境归因于奖励不足，忽视了职务发明作为“人格属性与组织资源融合产物”的特殊性。

推进职务科技成果权属改革，多元化的激励政策组合，能够促进高校科技成果转化。（郝涛等，2023）但当前制度存在明显的结构性错配，具体表现为三组矛盾：（1）控制权与转化能力的错位：

单位享有法定控制权，但缺乏市场化运营的专业能力；（2）贡献度与收益权的失衡：发明人的智力贡献未能在权属安排中获得充分价值体现；（3）公共属性与市场化需求的冲突：职务发明的国有资产属性与转化所需的灵活性难以协调。这些矛盾共同导致了单位“不敢转”、发明人“不愿转”、接收方“不敢接”的恶性循环。

为突破现有研究局限，本文提出以“科研人员信用权”与“单位监护权”的衡平作为新的法理基石。前者是源于创造性劳动的人格性权利，涵盖署名权、荣誉归属权及基于贡献的收益分享期待权；后者是单位基于资源投入与公共使命享有的管理权责，兼具资产属性与信托义务。该框架旨在将权属问题从静态的“所有权归属”提升至动态的“治理效能”层面，通过承认两类法益的互补性，为构建“权利共享、责任共担”的治理模式提供理论支撑。

二、“科研人员信用权”与“单位监护权”制度诘问及其生成逻辑

高校职务发明权属制度的演进并非线性过程，而是国家创新战略、法律政策与科研实践互动的产物，深刻体现出“资源依赖—权利配置—价值实现”的内在法理逻辑。2020年《赋予科研人员职务科技成果所有权或长期使用权试点实施方案》的出台，标志着我国权属制度从计划经济时期的行政主导、市场经济阶段的产权激励，逐步转向治理范式下的权能平衡，呈现出从单一管理工具向多元治理机制的转型，反映了法学理论从所有权绝对向利益衡平的演进趋势。

（一）“科研人员信用权”的制度诘问及其生成逻辑

科研人员作为职务发明的实际创造者，其“信用权”在现行制度中遭受严重侵蚀。该权利不仅包括基于贡献获得合理回报的财产性权益，更涵盖署名权、荣誉归属权等精神性权益，是科研人员在科学共同体中获得承认的核心机制。现代科学可被视为一种由多方协同主导的创新知识生成体系。在该体系中，学者必须通过推动认知进步来赢得所属学术社群的认可。他们的成果价值，通常根据其对整个科研方向的推动程度以及在实际中的可应用性来进行评估。然而，在“单位所有制”的强势逻辑下，该权利面临双重失落：

其一，精神权益在权属规则中被边缘化。现行制度过于强调职务发明的财产属性，相对忽视其人格属性。任何学术贡献的地位，可被视为通过学界的共识性确认行为才得以确立。与之相应，科学资本的核心构成，正是来自竞争对手们所给予的这种承认。尽管《专利法》明确发明人享有署名权，但在转化实践中，该权利常被弱化为形式要件。发明人在专利转让或许可中的参与权、知情权保障不足，其专业判断难以影响转化决策。学术声誉与成果社会影响力之间的关联，也未能在评价体系中得到充分体现，这既挫伤了科研人员的转化积极性，也阻塞了其通过转化构建学术声誉的通道。

其二，奖励制度存在“双重失灵”。尽管《促进科技成果转化法》规定了不低于50%的净收益奖励比例，但该比例仅适用于少数已转化成果，对大多数科研人员而言形同虚设。奖励的落实依赖单位裁量，缺乏刚性约束。更深层的问题在于，现有制度将科研人员定位为被动接受者，而非转化过程的积极参与者。科研人员无法参与转化决策，对其成果的市场价值缺乏话语权，导致其难以分享转化增值收益，奖励机制激励效果受限。

（二）“单位监护权”的制度诘问及其生成逻辑

单位监护权源于《高等学校知识产权保护管理规定》《促进科技成果转化法》等相关条款，是高校基于资源投入与组织功能所享有的特殊权能，兼具管理权与信托责任的双重属性。然而在实践中，该权利呈现明显的虚化趋势：

首先，监护权从“权利主体”异化为“管理负担”。高校作为职务发明的法定权利主体，本应积极行使管理权能，但在国有资产保值增值的责任压力下，该权能常转化为繁重的程序性义务。职务发明作为无形资产，其价值评估具有不确定性与滞后性，导致高校面临“投入当期成本、收获远期收益”的错配困境。在风险规避导向下，高校往往从积极管理者退身为保守的风险规避者。

其次，成本内化与收益不确定之间存在尖锐矛盾。高校需承担专利申请、维持和管理的显性及隐性成本，一项发明专利从申请到授权直接费用可达数万元，维持费用亦随年限累积。而这些成本需由当期经费支出，转化收益却高度不确定且周期漫长。面对大量专利因未缴费而失效的现实，高校在“高投入、低回报”的经济理性驱使下，更倾向于维持最低专利数量而非积极推动转化。

最后，权属规则模糊固化了制度惯性。现行法律对“主要利用单位物质技术条件”等关键概念界定不清，导致职务发明认定存在较大自由裁量空间，增加了高校在转化中的法律与问责风险。在“法无授权不可为”的行政逻辑下，高校普遍采取“重申请、轻转化、重保有、轻运营”的保守策略，与转化所需的市场化、灵活性形成鲜明冲突，致使大量成果滞留于“沉睡”状态。

（三）症结归结：权属界定与创新活动双重属性的脱节

制度表征着不同利益的凝聚，应借助利益平衡理论的“权利—权益”机制实现利益协调，通过限制专利权人的行为、调整职务发明规则、从法律层面认可分许可的有效性等措施对制度作出调试，辅助实施国家对高校和科研机构的专利盘活政策。(崔立红、李昶彬，2024, p. 62)职务发明权属制度的根本症结，在于其未能充分回应创新活动所具有的“人格—财产”双重属性。创新成果既是科研人员智力劳动的人格化体现，又是在单位物质技术条件下形成的组织化产出。现行制度过度强调组织属性，将科研人员贡献简化为雇佣劳动，忽视其作为创新源泉的核心地位；同时将单位角色窄化为所有权人，而非成果价值实现的推动者与服务者。这种单一维度的权属界定，导致“单位监护权”被简化为“财产所有权”，“科研人员信用权”则被狭隘理解为“奖励请求权”，二者之间难以形成协同，反而陷入“零和博弈”。

因此，破解职务发明权属困境，必须实现从“所有权思维”向“治理思维”的转变。这意味着权属不应再被视为排他性的控制权，而应重构为一组可分割、可配置的“权能束”。通过明确各方在成果创造、管理、转化及收益分配全过程的权利、责任与利益，构建基于共识、共享与共治的新型治理结构，方能真正激活各方内生动力，推动职务发明从“沉睡资产”向“创新动能”转化。

三、“科研人员信用权”与“单位监护权”的衡平法理和重构阐释

习近平总书记指出，我国科技队伍蕴藏着巨大创新潜能，关键是要通过深化科技体制改革把这种潜能有效释放出来。高校职务发明的法律本质，是科研人员智力人格与单位组织资源深度融合形成的创造性成果。其权属配置的法理基础，需同时承认“科研人员信用权”所承载的人格价值与“单位监护权”所代表的公共信托责任。二者并非简单的所有权分割关系，而是具有内在关联的权

利（力）束，共同构成职务发明治理的规范性基础。深化科技体制改革，关键就在于释放科技队伍的创新潜能，而构建二者间的衡平法理，正是释放潜能的核心制度环节。

（一）“科研人员信用权”的衡平法理与内涵拓展

在职务科技成果赋权改革中，科研单位可以赋予科研人员职务发明创造的全部所有权、部分所有权或者使用权，其中包括双方形成职务发明创造专利权共有等混合所有情形。（刘强，2022, p. 88）

“科研人员信用权”是体现创造者人格价值与创新贡献的核心权利，其法理根基源于知识产权体系对创造者人格尊严的保障，以及《专利法》所鼓励的产权激励精神。申言之，职务科技成果混合所有制实施的主要目标在于推动职务发明创造的转移和转化，主要实现路径是完善职务发明创造权利归属配置和收益分配机制，促进职务科技成果的实施运用和权利流转。（刘强、刘星，2019, p. 50）该权利的本质是科研人员基于创造性劳动所享有的精神权益集合，涵盖署名权、荣誉归属权及学术声誉承载权。其确立标志着法律对智力贡献的人格性认可，超越了单纯的物质奖励逻辑。在职务发明情境下，信用权具有双重属性：一方面，它构成了科研人员与成果之间不可分割的人格联系；另一方面，它又是表征科研成果质量的重要信号机制，为成果转化提供可信用担保。从法哲学视角看，它契合洛克劳动财产理论中“人格延伸”的理念，为发明人合理分享创新收益提供了正当性基础。

《民法典》对技术合同法律规则的适用范围进行了明确和拓展，《专利法》单位职务发明创造处置权条款的适用范围也可以相应地延伸至由其他类型知识产权保护的科技成果中，这将使《专利法》对职务科技成果混合所有制的推动作用产生制度外溢效应。（谢地，2018, p. 49）信用权的外延不限于精神层面，更是连接精神权益与财产分享的伦理与法理桥梁。它通过两条路径影响财产权益配置：其一，信用权所承载的贡献度认定，直接关系到收益分配的合理性；其二，信用权的实现程度（即人格价值是否获充分尊重）深刻影响科研人员参与转化的积极性，从而决定成果的最终市场价值。因此，在制度设计上，信用权必须转化为具体的程序性权利，包括成果转化决策的知情权、参与权以及对利益分配的话语权。这种转化既是对科研人员主体地位的尊重，也是提升转化效率的内在要求。

（二）“单位监护权”的权责内核与法律构造

“单位监护权”是高校基于资源投入和组织功能所享有的特殊权能，集管理权与信托责任于一身。其法律内涵体现为对职务发明的管理、维护与增值责任，权力来源具有三重性：资源供给形成的投资关系、组织架构产生的管理职能、以及公共使命赋予的信托责任。与传统所有权强调“所有者”地位不同，监护权更强调单位的“管家”角色，其行使必须以促进成果转化为导向，并兼顾各方利益平衡。在高校这一特殊语境下，监护权还需调和学术价值与市场价值，履行其教育与科研使命。

在法律性质上，监护权是一种兼具管理权与信义义务的混合权利（力）。作为 *stewardship*（管理责任）与 *fiduciary duty*（信义义务）的结合体，其行使受到多重约束：一方面，单位依法享有成果的管理与处置权限；另一方面，必须履行资源优化配置和公共利益最大化的义务。这种混合性要求其行使必须遵循程序正当、利益回避等原则，防止权利异化为部门利益工具。特别是在国有资产管理框架下，监护权必须在风险防控与创新激励之间审慎权衡。

（三）两种权利（力）的张力表征、互补机理与衡平目标

民事法律制度并未对科技成果“所有权”进行法律规定和概念界定，该项所有权既有科研行政

管理方面的含义，也有民事法律方面的意义。（肖尤丹、刘鑫、肖冰，2021, p. 645）信用权与监护权在法理上呈现不同的定位与取向。信用权是人身权与财产权期待权的复合体，根植于科学共同体的“承认”机制，是激发原始创新的内在驱动力。监护权则是基于契约、资源依赖与公共政策授权的复合权能，本质上是一种以公共利益为依归的“目的性授权”。两者之间存在天然的张力：信用权倾向于人格依附、长期声誉累积与创作自由；监护权则侧重组织控制、风险规避与资产变现效率。这种张力具体体现在价值取向、权利行使与利益分配三个维度，若协调不力，易导致“零和博弈”，例如单位过度干预定价侵蚀发明人收益，或发明人自行许可架空单位管理职责。

然而，在“促进转化运用”的终极目标下，二者更具有显著的互补性。信用权为成果转化提供了至关重要的质量信号、伦理正当性以及发明人的持续参与激励；监护权则提供了转化所必需的法律主体资格、风险承担平台与规模化运营能力，能有效降低交易成本。二者犹如创新之“双翼”，信用权赋予成果以灵魂，监护权则提供飞翔的平台。因此，理想的制度设计应通过程序性规则（如收益协商、决策参与机制）来缓和张力、放大互补效应，使二者在协同中实现转化价值最大化。

（四）以转化为导向的权能配置：价值追求与实现路径

专利法职务发明权属规则的调适在跟随公共政策的导向下，需保障公法领域和私法领域的平衡，既要促进成果有效转化，亦需注重国有资产的利用和保护。（刘友华、李扬帆，2023, p. 45）实现两种权利（力）衡平的核心，在于构建以“促进转化运用”为共同目标的动态权能配置模型。这意味着权属制度需从静态的“所有权划分”转向基于转化过程的“权能动态调整”。具体而言，这一模型包含三个层次：在确权阶段，遵循“约定优先”原则，允许双方灵活配置权利份额；在管理阶段，建立科研人员有效参与决策的机制，保障其知情权与建议权；在收益分配阶段，确立以贡献度为核心的评价体系，兼顾公平与效率。此外，还需配套以信息披露、争议解决等程序保障机制，确保权利行使的透明度与可预期性。

为实现上述动态衡平，制度设计需同步达成三重具体目标：其一，平衡人格价值与财产价值，既要保障科研人员的“名”（精神权益）与“利”（财产分享权），也要维护单位的“资产权益”与“管理责任”，例如通过“署名权不可转让+收益比例协商”的规则予以落实。其二，平衡创新自主与组织效率，在尊重科研人员创作自主的同时，发挥高校在资源配置与风险管控上的组织优势，例如可赋予科研人员成果转化优先受让权并辅以单位监督。其三，平衡私人激励与公共利益，通过对收益的合理共享激发个体活力，同时通过单位履行“公共信托”职责确保社会效益最大化，现有法律中的“国家介入权”与“利益冲突审查”机制正是此种平衡的初步体现。

最终，权属制度的最高价值在于通过“科研人员信用权”与“单位监护权”的结构化耦合，构建一个既能充分激励个体创造，又能切实保障公共使命的法治化治理体系，从而真正实现职务发明从“沉睡资产”向“创新动能”的根本性转化。

四、“科研人员信用权”与“单位监护权”权属行使的权利束规范建构

就市场经济而言，交易主体之间无时无刻不存在着利益获取和妥协，正是在合作本能和利己本能的相互博弈中产生的权益让渡使得价值交换有了持续进行的可能，进而形成可被尝试和效仿的战略选项。当交易方式的影响扩大为经验模式而催生出相应的制度建设时，便有了带有利益平衡理论色彩的法律规范。（崔立红、李昶彬，2024, p. 61）理想的权属制度应以“促进转化运用”为统摄目

标, 实现人格价值与财产价值、创新自主与组织效率、私人激励与公共利益的平衡。在回应“科研人员信用权”与“单位监护权”之间张力的问题上, 国际上有不同制度模式: 美国《拜杜法案》框架下的“教授特权”模式, 在赋予高校优先选择权的同时允许科研人员保留部分权利; 德、法等国的传统“单位强权”模式, 将所有权集中于机构; 英国、日本等国则探索“混合共享”模式, 通过协商或弹性规则分配权益。这些实践表明, 权属平衡点的选择必须与一国创新体系、科研文化及市场环境相匹配。

对中国而言, 需构建与自身科研体制和法治环境相协调的平衡机制。核心在于破解“专利沉睡”困境, 推动权属制度从静态的“所有权判定”转向动态的“权能精细化配置”。其实质是超越产权归属之争, 通过构建内外结合的规范体系, 实现两种权利(力)在运行中的协同制衡, 最终形成以转化为导向、兼顾效率与公平的法治化治理框架。

(一) 立法及政策理念的重塑: 基于“权利束”的规范建构

高校职务科技成果混合所有制, 试点方案只是我国科技体制改革过程中, 国有科技成果转化制度和科教事业单位国有财产管理制度之间不协调、不一致的某种极端表现形式。(肖尤丹、徐慧, 2018, p. 646) 当前立法过于强调“权利归属”的静态界定, 忽视了“权能配置”的动态优化。未来修法应实现从所有权思维向用益权思维的转变, 将职务发明权属视为可分割的“权利束”, 根据不同阶段、主体和成果类型进行精细化配置。这一理念转变的实质, 是将法律规制重点从“谁拥有”转向“如何行使”, 以适应创新活动的不确定性与连续性。

从转化的角度检视高校专利, 应认识到从学术成果到专利价值 变现是一个曲折的过程, 其中最重要的是专利权属的复杂性。(程智婷、邓建志, 2023, p. 14) 具体而言, 在确权阶段, 应建立“约定优先、贡献为基础”的权属推定规则, 允许双方通过协议明确权益分配, 无约定时则依据资金、设施、智力、风险等多因素贡献度评价体系来确定。在权利行使阶段, 须完善“信用权”的程序性保障机制, 通过法律明确科研人员在转化过程中的知情权、参与权与监督权, 并建立全程追溯机制以落实署名权、荣誉权等精神权利。在成果转化阶段, 应设计梯度化的决策与利益分享方案, 根据成果类型与价值规模实行分类管理: 对一般成果可授予科研人员较大自主权; 对重大成果则需建立多方专家参与的集体决策机制。收益分配需设定保障科研人员基本权益的法定最低比例, 同时保留协商空间以激励价值创造。

(二) 衡平路径的治理构造: 制度演进与法理跃迁

我国职务发明权属制度经历了从“管理逻辑”到“市场逻辑”, 再向“治理逻辑”演进的法理跃迁。要突破现行方案面临的合法性困境, 关键是要明晰科技成果处置权的内涵, 进而为科技成果的“权属自治”提供上位法依据。(王影航, 2020, p. 68) 在计划经济与科研建制化初期, 权属制度植根于国有资产管理行政框架, 形成“单位所有制”格局, 其核心是保障国家资产安全与控制权, 科研人员的“信用权”与财产回报被严重忽视, 导致成果长期“沉睡”。

随着市场经济确立与国际经验借鉴, 产权激励理念被逐步嵌入制度。通过法律法规修订, 职务发明所有权下放至高校, 并允许单位自主处置与收益分配。然而实践中, “单位监护权”被简化为财产所有权, “科研人员信用权”则多被视为事后奖励请求权, 二者间的法理张力未获调和, 导致单位“不敢转”、发明人“不愿转”, 产权激励效果未能充分释放。

当前,在创新驱动发展战略下,权属制度正进一步向“权能配置”深化,治理逻辑兴起。通过“赋权改革”、“混合所有制”等试点,探索单位与发明人之间的权利共享与责任共担。此阶段的核心,是试图通过权能分离与动态调整,构建一种既能激励个体创新又能保障公共使命的治理型权属制度,其法理主线在于通过优化权属配置,调和国家、单位与发明人三方利益,最终实现科技成果从“纸面”到“市场”的价值转化。

(三) 衡平路径的规则供给:基于转化导向的内外协同

1. 权属运行的内部体系建构

建立健全高校职务科技成果混合所有制化的运行机制,明确各方责任与权益,实现高校科技成果与市场需求之间的畅通对接。(高盼军、戚湧, 2024, p. 92) 内部体系建构旨在通过微观规则设计,明确主体角色、配置逻辑与责任分配,以激发内生动力。

首先,明确权利(力)主体的法律角色。科研人员作为“信用权”主体,应被确认为创新本源与成果质量的“第一责任人”,不仅享有精神权益,更应基于贡献参与收益分享与转化决策。弱化管理,意味着政府必须自觉限缩其经济权力,根据市场经济的发展情况切实转变职能,成为有限政府、法治政府、为市场服务的政府。(孙晋, 2001, p. 68) 高校作为“单位监护权”主体,需从资产管理方转型为公共信托者,承担管理、风险承担与转化推动的复合职责。技术转移办公室(TTO)应定位为“服务协调者”,提供专业化运营服务以弥合研发与市场的鸿沟。

其次,坚持分类分层与动态权能配置。根据成果来源与性质实行差异化规则:财政资助成果可默认单位所有权,但赋予发明人优先转化权或法定最低收益分享权;主要利用单位条件的成果,则允许双方协议约定权属。在转化各阶段,权能内容需动态调整,保障发明人在确权、管理、转化及收益分配中的阶段性权利(如知情同意权、建议参与权、决策共商权),并明确其对应的法定收益基准。

最后,廓清与强化各方责任。科研人员负有信息披露、配合转化及维护成果声誉的义务。高校及TTO则须承担勤勉尽责的转化推动责任,建立透明、公平的管理与分配程序,并无正当理由不得搁置转化。对怠于行使监护权导致资产流失的行为,应通过“失职追责”等机制问责,确保权责一致。

2. 权属保障的外部体系建构

外部体系侧重于通过程序、沟通与救济机制,为权能运行提供制度环境与制衡保障。

强化“程序正当”与“专业胜任”是基础。权属认定、收益分配等关键环节须遵循公开、透明、可参与的原则,例如建立权属确认的公示与异议程序。同时,需大力提升TTO的技术评估、市场分析与法律风险管理等专业能力,并可引入第三方专家参与决策,利用大数据、区块链等技术构建成果披露与评估平台,降低信息不对称。

完善权利(力)运行的说明与沟通机制。高校应建立对管理政策、转化方案及收益分配依据的强制性说明义务,保障科研人员的知情权。通过定期成果路演、发明人座谈会等常态化沟通渠道,促进双方持续互动,预防并化解潜在冲突。

健全权利救济与争议解决机制。应建立“内部先行、司法补充”的救济路径。高校内部可设立由科研人员代表、法律与技术专家组成的争议调解委员会,快速处理纠纷。对于程序严重违法、利益显失公平或单位滥用权力搁置转化等情形,司法可有限介入,审查重点应置于程序合法性、权力是否滥用及勤勉尽责义务的履行情况,而非替代专业判断。

总之，从“权利归属”到“权能配置”的转型，是高校职务发明制度走向精细化与法治化的必然。通过内部权能细分与外部程序保障的协同，方能有效激活科研人员的创新活力与单位的转化动力，最终实现职务发明从“沉睡资产”向“创新动能”的根本性转变。

五、结语

破解高校职务发明“专利沉睡”困境，需推动权属制度实现从静态“权利归属”到动态“权能配置”的治理范式转变。其核心在于衡平“科研人员信用权”与“单位监护权”：“信用权”确认创新本源的人格价值与财产期待，“监护权”则强调单位对公共资源的托管责任与转化推动义务。二者互补共生，共同服务于“促进转化运用”的根本目标。

为此，制度设计应转向精细化权能配置，通过分类确权、动态调整及程序性规则，在成果创造、管理、转化与收益分配全过程中，具体界定各方权利、责任与利益。同时，须构建内外协同的保障体系，内部提升专业治理能力与决策透明度，外部完善争议解决与政策生态支持。

本质上，这是一场从“权力本位”到“责任本位”、从“物本逻辑”到“人本逻辑”的深层变革，旨在通过法治化安排解放知识与人才的创新活力，使职务发明真正成为驱动高质量发展的核心动能。

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上行社会比较对大学生学习投入的影响：一个有调节的中介模型

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摘要：在教育公平与学生发展议题持续升温的背景下，大学生的学习投入如何受到外部社会参照与家庭资源差异的影响已成为教育社会学关注的重要问题。本研究基于社会比较理论与社会认知理论，探讨上行社会比较对大学生学习投入的影响机制，并重点考察学业自我效能感的中介作用及家庭经济水平在其中的调节作用。采用问卷法对390名大学生进行调查，统计结果表明：(1) 上行社会比较显著正向预测学业自我效能感，且学业自我效能感显著正向预测学习投入；(2) 上行社会比较对学习投入存在显著正向直接效应；(3) 家庭经济水平负向显著调节上行社会比较对学业自我效能感的影响，即在低家庭经济水平群体中，上行社会比较对学业自我效能感的正向作用更强。这说明上行社会比较既可直接促进大学生的学习投入，也可通过提升其学业自我效能感间接促进学习投入；同时，家庭经济水平作为重要环境因素影响上行社会比较向学业自我效能感的转化强度，即家庭经济条件越好，上行社会比较对学业自我效能感的正向预测作用越弱；反之，家庭经济条件越差，上行社会比较对学业自我效能感的正向影响越强。研究揭示了上行社会比较影响学习投入的心理机制及家庭经济水平作为边界条件在其中发挥的作用，为提升大学生学习投入、关注弱势背景大学生的心理资源培育提供了理论参考与实证支持。

关键词：上行社会比较；学习投入；学业自我效能感；家庭经济水平；大学生

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Title: The Impact of Upward Social Comparison on Undergraduates' Learning Engagement: A Moderated Mediation Model

Abstract: Against the backdrop of growing concerns about educational equity and student development, how students form learning motivation and invest in learning under the joint influence of external social references and differences in family resources has become an important issue in educational psychology and educational sociology. Based on social comparison theory and social cognitive theory, this study explored the mechanism through which Upward Social Comparison influences Learning Engagement, with a particular focus on the mediating role of Academic Self-efficacy and the moderating role of Family Economic Status. Using a questionnaire survey, data were collected from 390 Undergraduates. The results showed that: (1) Upward Social Comparison significantly and positively predicted Academic Self-efficacy, and Academic Self-efficacy significantly and positively predicted Learning Engagement; (2) Upward Social Comparison had a significant positive direct effect on Learning Engagement; (3) Family Economic Status negatively moderated the effect of Upward Social Comparison on Academic Self-efficacy, such that the positive effect of Upward Social Comparison on Academic Self-efficacy was stronger among the group with low Family Economic Status. The conclusions indicate that Upward Social Comparison can promote Learning Engagement directly and can also promote Learning Engagement indirectly by enhancing Academic Self-efficacy. Meanwhile, Family Economic Status, as an important contextual factor, influences the strength of the transformation from Upward Social Comparison to Academic Self-efficacy: the higher the Family Economic Status, the weaker the positive predictive effect, whereas the lower the Family Economic Status, the stronger the positive effect. This study reveals the psychological mechanism through which Upward Social Comparison affects Learning Engagement, as well as the moderating role of family economic status as a boundary condition in this process, providing theoretical references and empirical support for improving Undergraduates' Learning Engagement and for cultivating psychological resources among Undergraduates from disadvantaged backgrounds.

Keywords: Upward Social Comparison; Learning Engagement; Academic Self-efficacy; Family Economic Status; Undergraduates

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一、引言

随着高等教育的发展,社会对教育的关注点从“量”转向“质”,这意味着高校必须将提升教育质量作为核心任务。大学生是高等教育质量与个体终身发展的核心载体,学习投入因与学习结果和教育成效密切相关,已成为高等教育研究的重要议题(Li & Xue, 2023)。学习投入(Learning Engagement)是指学生在学习过程中表现出来的以活力、奉献和专注为特征的对学习的一种持续且积极的状态(Schaufeli et al., 2002)。已有研究表明,大学生学习投入呈中等偏低水平,有待提升(彭洁等, 2022)。

从学生的视角出发,学习投入是学生在在学习过程中花费的时间和精力,是学生学习成就最关键的影响因素(赵婷婷, 2024);从教师的视角出发,衡量大学生在学习活动中的投入程度有助于教师更好地理解学生学习的过程,强化教育教学的执行力(朱莲花等, 2019);从高校的视角出发,对大学生学习投入的评估已成为高等教育质量保障的重要内容(刘铁雷等, 2019)。可见,学习投入水平低不但会影响大学生的学业成绩,而且还关系到教师和高校的教育质量问题。因此,探讨学习投入对提升大学生的学业成就和高校教育质量具有重要意义。

为此,本文对大学生的学习投入展开深入探讨,在现有研究的基础上,继续探究大学生学习投入的影响因素,为改善大学生学习投入现状、提升高等教育质量提供理论参考与实践支持。

(一) 上行社会比较与学习投入

社会比较理论认为,个体会在社会生活中不断与他人进行比较以评估自身状态和能力,包括上行社会比较、平行社会比较和下行社会比较,其中与表现更好的他人比较(即向上比较),为上行社会比较。上行社会比较(Upward Social Comparison)是指个体将自己与表现更优秀的人进行比较(Collins, 1996)。这种比较会产生同化效应。同化效应指的是个体相信自己也能变得像他人一样优秀。比如,有研究表明,在捐款时,个体进行上行社会比较,其捐款额会趋近于比较对象(Croson & Shang, 2008)。这一现象不仅在日常生活中常见,而且在学习过程中也普遍存在。比如,当个体看到成绩优异的同桌正在认真听课时,自己也会抬起头来,认真听课。在这一效应的影响下,学生往往会认同、模仿并做出与比较对象类似的行为(Dijkstra et al., 2008)。因此在上行社会比较时,当个体看到比较对象持续投入,自己也会效仿比较对象,进而持续投入(陈继文等, 2024)。且已有大量研究探讨了有关学习投入的个体、家庭以及学校等影响因素,帮助我们更好地了解学生投入度的前因后果(Li & Xue, 2023),然而,这些研究多数聚焦静态影响因素,对上行社会比较这一动态社会认知过程关注不足。

因此,本研究提出假设1(H1):上行社会比较能正向预测学习投入。

(二) 学业自我效能感的中介作用

学业自我效能感(Academic Self-Efficacy)指学习者对自己是否有信心、能力和策略去完成学习任务的主观判断与能力信念(边玉芳, 2004),是自我效能感在学习领域中的体现(朱晓斌等, 2011)。一些研究发现社会比较与自我效能感联系紧密。例如,有研究发现,当个体看到他人的成功时,自己的自我效能感会增强,即当个体相信自己可以取得同样的成功时,会被优秀他人所激励(Pintrich et al., 1993)。贾绪计等人(2020)的研究表明,学业自我效能感能正向预测学习投入。即一般而言,

个体的效能感越高，其学习投入水平也就越高。据此推测，学业自我效能感在上行社会比较对大学生学习投入的影响起中介作用。

因此，本研究提出假设 2 (H2)：学业自我效能感在上行社会比较与学习投入之间起中介作用。

(三) 家庭经济水平的调节作用

家庭经济水平作为衡量家庭经济条件的重要指标，被认为是影响大学生学习行为的重要外部环境因素之一。以往关于家庭经济与大学生学习投入的研究，因研究所基于的理论视角和研究情景存在差异而呈现出“双向分歧”：一方面，传统资源理论认为，较高收入家庭通常能够提供更多教育相关资源与机会（如学习材料、教育服务、文化资本与支持性环境），从而有利于学生的学习投入与学业发展（Chen et al., 2021）；另一方面，近年的“资源替代假说”指出，高家庭经济水平学生可能依赖家庭资源的“兜底效应”，降低自主学习的努力程度；而低家庭经济水平学生更可能将学业视为阶层流动的核心途径，反而表现出更高的投入（Wang et al., 2019）。与此同时，关于优势家庭青年群体的研究亦提示，经济优势并不必然转化为更强的学习动机或更高的投入，高资源情境下可能伴随压力、困扰或对学校活动的疏离等现象（Luthar & Becker, 2002）。因此，家庭经济水平与学习投入之间的关系可能并非“单向、线性”的，而更可能体现为一种情境性作用：家庭收入通过影响学生对学习情境信息的加工方式与可用资源结构，进而改变某些心理机制的作用强度。

基于社会认知理论，自我效能感是影响学习努力、坚持与投入的重要近端机制，其形成来源之一是“替代经验”与社会参照——个体通过观察或比较他人的表现来推断自身是否具备完成任务的能力（Bandura, 1997）。在学习情境中，上行社会比较为学生提供了“更优他者”的参照线索，当学生将比较对象视为可达成的榜样并从中提取策略与路径信息时，上行比较更可能引发同化与激励，进而提升学业自我效能感（Collins, 1996）。然而，上行比较能否以及在多大程度上转化为自我效能提升，可能取决于家庭经济水平所代表的经济资源背景。

从“资源替代/边际效用”视角看，当个体拥有较丰富的经济与支持资源时，其达成学习目标可依赖的资源来源更为多元，上行社会比较所提供的能力线索对其自我效能的边际增益可能相对有限；相反，当家庭经济水平较低、可用支持与机会相对不足时，学生更可能依赖外部参照信息来完成能力校准与路径确认，上行社会比较在此情境下更可能发挥补偿性激励作用，从而更显著地增强学业自我效能感（Veenstra & Vanzella-Yang, 2022）。据此推测，家庭经济水平可能削弱上行社会比较对学业自我效能感的促进作用，即在低家庭经济水平下，上行社会比较对学业自我效能感的正向影响更强。

因此，本研究提出假设 3 (H3)：家庭经济水平负向调节上行社会比较与学业自我效能感之间的关系。相较于高家庭经济水平学生，上行社会比较对学业自我效能感的正向影响在低家庭经济水平学生中更强。

综上，研究拟构建有调节的中介模型来探讨上行社会比较与大学生学习投入之间的关系（见图 1 / Figure 1），其中学业自我效能感在上行社会比较与学习投入之间起中介作用，家庭经济水平在中介过程的前半段路径中起调节作用。

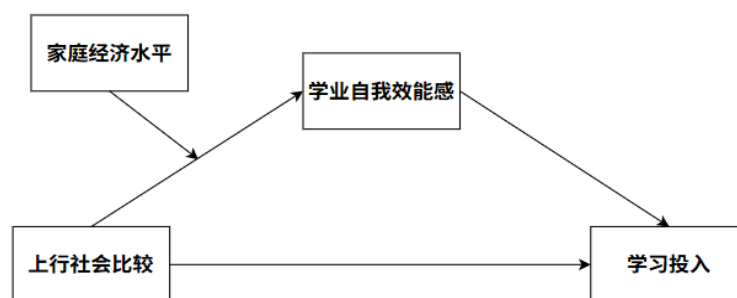


图 1：有调节的中介模型

Figure 1: Moderated Mediation Model

二、研究方法

（一）研究对象

本研究采用便利抽样法，以山东省多所高校的在校大学生为调查对象，通过线上问卷星平台发放问卷，共回收问卷 390 份。剔除作答时间低于中位时间 30%和高于中位时间 300%的问卷及直线式作答问卷后，得到有效问卷 374 份，有效回收率为 95.90%。其中男生 175 人（46.80%），女生 199 人（53.20%）；来自城镇学生 187 人（50.00%），来自农村学生 187 人（50.00%）；家庭经济水平在 3000 元以下的学生 75 人（20.10%），在 3000 元~6000 元的学生 130 人（34.80%），在 6000 元~10000 元的学生 132 人（35.30%），在 10000 元以上的学生 37 人（9.90%）。

（二）研究工具

1. 上行社会比较

选用 Gibbons 和 Buunk（1999）编制，白学军等（2013）修订的爱荷华荷兰社会比较倾向量表中的上行社会比较分量表评定大学生上行社会比较程度。该量表共包含 6 个题目，例如“当我评价自己当前生活或学习情况时，我常与那些做的比我好的人进行比较”。采用李克特 5 点评分，“1”表示“完全不符合”，“5”表示“完全符合”，1-5 五个等级分别对应 1 分、2 分、3 分、4 分、5 分。每个题目的得分相加为总分，总分越高，表明其上行社会比较的可能性越大。无反向计分题。本研究中量表的内部一致性系数为 0.86。

2. 学业自我效能感

参考 Pintrich 等（1990）编制，梁宇颂等（2000）¹修订的学业自我效能感量表评定学业自我效能感。该量表划分为两个独立维度，1-11 题测量的是学习能力自我效能，12-22 题测量的是学习行为自我效能，共 22 个条目。采用 5 点计分，“1”表示“完全不符合”，“5”表示“完全符合”，1-5 五个等级分别对应 1 分、2 分、3 分、4 分、5 分。将每个题目得分相加得到总分，总分越高说明学业自我效能感越强。量表含原四个反向计分题（第 14、16、17、20 题），为统一计分逻辑、减少作答混淆，本研究对其中 3 个反向计分题（第 14、16、17 题）进行语义正向转换处理，即通过调整题目表述使条目语义与正向计分规则一致，第 20 题保留原反向计分形式。本研究中总量表的内部一致性系数为 0.93。

¹ 梁宇颂（2000）：《大学生成就目标、归因方式与学业自我效能感的研究》，华中师范大学，硕士学位论文。

3. 学习投入

选用 Schaufeli 等 (2002) 编制, 方来坛等 (2008) 修订的学习投入量表评定大学生的学习投入程度。该量表共有 17 个条目, 包括三个因子, 分别是: 活力 (6 个条目, 包括 1-6 题)、奉献 (5 个条目, 包括 7-11 题) 和专注 (6 个条目, 包括 12-17 题)。采用李克特七点计分方式, 其中“1”表示“从来没有”, “7”表示“总是”, 1-7 七个等级分别对应 1 分、2 分、3 分、4 分、5 分、6 分、7 分。每个题目的得分相加为总分, 总分越高, 表示学习投入水平越高。所有项目均为正向计分。本研究中量表的内部一致性系数为 0.94。

4. 家庭经济水平

采用家庭社会经济地位 (SES) 的家庭月均收入维度来衡量。家庭月均收入情况计分: 1=3000 元以下, 2=3000~6000 元, 3=6000~10000 元, 4=10000 元以上, 得分越高, 表明家庭经济水平越高。

(三) 数据处理

本研究采用 SPSS 27.0 对收集到的有效数据展开分析, 进行描述性分析, 独立样本 t 检验、单因素方差分析、相关分析。此外, 采用 Process 插件进行有调节的中介效应检验。

三、研究结果

(一) 共同方法偏差

由于采用自我报告法收集数据, 可能存在共同方法偏差问题。因此, 采用 Harman 单因素检验进行统计控制, 即对所有量表题项进行未旋转的探索性因素分析, 共提取四个公因子。结果表明, 第一个因子解释的变异为 35.88%, 小于临界值 50% (Fuller et al., 2016)。

(二) 描述性统计及相关分析

1. 差异检验

首先, 检验人口学变量是否在上行社会比较、学业自我效能感以及学习投入等研究变量上存在差异, 以考察人口学变量对研究变量是否产生影响。研究结果如表 1 (Table 1) 所示: 初步分析表明, 性别、年级、是否担任班干部、是否为独生子女及父母受教育程度与核心研究变量的关系均不显著, 故在后续模型中不再把这些人口学变量纳入控制变量。独立样本 t 检验显示, 城镇生源大学生的学业自我效能感显著高于农村生源大学生 ($t=2.39, p<0.05$), 城镇生源大学生的学习投入也显著高于农村生源大学生 ($t=1.99, p<0.05$), 因此在后续研究中将生源地作为控制变量纳入模型中。

其次, 检验不同家庭经济水平是否在上行社会比较、学业自我效能感以及学习投入等研究变量上存在差异, 以考察其是否可以作为调节变量。单因素方差分析结果 (见表 1 / Table 1) 显示, 不同家庭经济水平大学生在上行社会比较上存在显著差异 ($F=4.49, p<0.01$)。事后多重比较表明, 家庭月均收入 3000 元以下组大学生的上行社会比较显著高于 3000~6000 元、6000~10000 元及 10000 元以上组。此外, 单因素方差分析显示学业自我效能感在家庭经济水平上也存在显著差异 ($F=3.90, p<0.01$), 事后比较表明家庭月均收入 3000 元以下组显著高于 3000~6000 元组。在学习投入方面, 单因素方差分析显示, 不同家庭经济水平组也存在显著差异 ($F=5.36, p<0.001$), 事后比较结果显示家庭月均收入 3000 元以下组的大学生的学习投入显著高于其余各组。综上所述, 不同家庭经济水平大学生在上行社会比较、学业自我效能感以及学习投入三个变量上均存在显著差异, 说明家庭经济水平对上述变量具有一定影响。因此, 在后续分析中将家庭经济水平纳入研究模型, 并进一步检验其在上行社会比较、学业自我效能感与学习投入关系中的调节作用。

人口学变量		核心变量		
		上行社会比较	学业自我效能感	学习投入
性别	男生	21.85±5.60	77.47±17.98	82.31±23.02
	女生	20.79±6.06	75.30±17.28	78.21±23.58
	<i>t</i>	1.76	1.19	1.70
年级	大一	21.63±6.09	76.42±18.13	81.55±23.08
	大二	21.67±5.94	76.14±17.51	81.71±23.12
	大三	21.06±5.87	75.88±19.23	79.88±25.14
	大四	20.93±5.66	76.22±15.93	77.65±22.16
	大五	21.53±6.22	77.50±19.91	83.13±25.45
	<i>F</i>	0.29	0.06	0.66
担任班干部	是	21.78±5.67	77.99±17.53	82.85±22.90
	否	20.96±5.99	75.21±17.64	78.33±23.58
	<i>t</i>	1.32	1.50	1.83
生源地	城镇	21.63±5.80	78.28±17.93	81.83±24.21
	农村	20.94±5.94	74.28±17.89	77.72±23.25
	<i>t</i>	1.14	2.39*	1.99*
独生子女	是	21.45±5.96	76.44±18.61	80.96±24.09
	否	21.13±5.80	76.20±16.72	79.37±22.75
	<i>t</i>	0.53	0.13	0.66
父亲受教育程度	初中及以下	21.60±5.64	76.62±16.93	80.03±22.64
	高中	20.63±6.10	74.48±18.31	78.40±24.71
	大专/大学本科	21.63±5.69	79.08±16.55	84.16±21.49
	硕士研究生及以上	21.53±6.49	75.53±20.46	77.83±25.76
	<i>F</i>	0.75	1.07	1.04
母亲受教育程度	初中及以下	20.65±5.96	73.95±17.86	76.75±22.97
	高中	21.86±5.59	78.26±16.94	83.72±22.96
	大专/大学本科	21.20±6.23	77.56±18.74	79.86±25.27
	硕士研究生及以上	23.18±5.53	76.91±14.54	82.36±18.50
	<i>F</i>	1.46	1.63	2.27
家庭经济水平	3000 元及以下	23.43±4.59	81.96±13.44	89.64±17.63
	3000 元~6000 元	20.48±5.99	73.48±18.72	77.89±23.66
	6000 元~10000 元	21.05±6.18	75.59±18.41	77.77±25.26
	10000 元及以上	20.65±5.80	77.43±16.13	77.14±21.48
	<i>F</i>	4.49**	3.90**	5.36***

注: * $p<0.05$, ** $p<0.01$, *** $p<0.001$

表 1: 不同人口学变量在核心研究变量上的差异检验 ($M\pm SD$)

Table 1: Differences in Core Study Variables across Demographic Variables ($M\pm SD$)

2. 相关分析

此外, 各变量的皮尔逊相关系数如表 2 (Table 2) 所示。相关分析结果表明, 上行社会比较与学业自我效能感 ($r=0.81$, $p<0.001$)、学习投入 ($r=0.80$, $p<0.001$) 呈显著正相关, 学业自我效能感与学习投入呈显著正相关 ($r=0.89$, $p<0.001$), 家庭经济水平与上行社会比较 ($r=-0.12$, $p<0.05$)、学习投入 ($r=-0.16$, $p<0.01$) 呈显著负相关。

变量	M	SD	1	2	3	4
生源地	1.50	0.50				
1 上行社会比较	21.29	5.87	1			
2 学业自我效能感	76.32	17.62	0.81***	1		
3 学习投入	80.13	23.38	0.80***	0.89***	1	
4 家庭经济水平	2.35	0.91	-0.12*	-0.07	-0.16**	1

注：* $p<0.05$ ，** $p<0.01$ ，*** $p<0.001$

表 2：各变量的描述性统计和相关分析结果（ $N=374$ ）

Table 2: Descriptive Statistics and Correlations of Variables ($N=374$)

3. 中介模型检验

为了检验学业自我效能感在上行社会比较与学习投入之间的中介效应，本研究采用 SPSS 中 PROCESS 插件的模型 4 进行中介效应检验。控制了生源地和家庭经济水平的影响后，统计结果如表 3（Table 3）与图 2（Figure 2）所示：上行社会比较显著正向预测学习投入（ $\beta=0.79$, $t=25.14$, $p<0.001$ ）。纳入学业自我效能感这一中介变量后，上行社会比较仍显著正向预测学习投入（ $\beta=0.21$, $t=5.49$, $p<0.001$ ），学业自我效能感显著正向预测学习投入（ $\beta=0.72$, $t=19.20$, $p<0.001$ ）。

预测变量	学习投入		学业自我效能感		学习投入	
	β	t	β	t	β	t
生源地	-0.06	-1.91	-0.07	-2.45**	-0.01	-0.24
家庭经济水平	-0.07	-2.08*	0.02	0.67	-0.08	-3.60***
上行社会比较	0.79	25.14	0.81	26.25***	0.21	5.49***
学业自我效能感					0.72	19.20***
R	0.80		0.81		0.91	
R^2	0.64		0.66		0.82	
F	223.39***		237.35***		426.29***	

注：* $p<0.05$ ，** $p<0.01$ ，*** $p<0.001$

表 3：中介效应检验（ $N=374$ ）

Table 3: Mediation Effect Analysis ($N=374$)

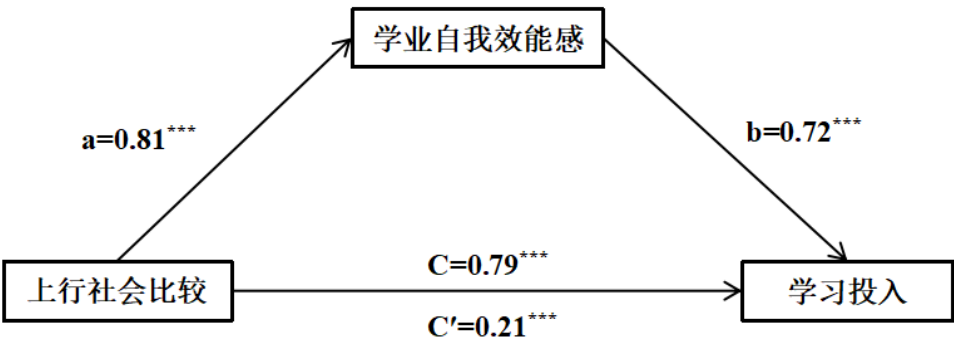


图 2：中介效应图

Figure 2: Mediation Model

Bootstrap 5000 次抽样检验表明，上行社会比较的直接效应值为 0.21，占总效应值的 26.58%，95% 的置信区间为[0.13, 0.28]，学业自我效能感的间接效应值为 0.58，占总效应值的 73.42%，95% 置信区间为[0.50, 0.67]，表明学业自我效能感在上行社会比较和学习投入之间起到了部分中介效应（见表 4 / Table 4）。

	标准化系数 β	SE	95% 置信区间		占比
			下限	上限	
总效应	0.79	0.03	0.73	0.85	
直接效应	0.21	0.04	0.13	0.28	26.58%
间接效应	0.58	0.04	0.50	0.67	73.42%

表 4：中介效应值

Table 4: Indirect Effects

4. 有调节的中介模型检验

采用 SPSS 中 PROCESS 插件中的模型 7 进行有调节的中介效应检验。控制了生源地的影响后，将家庭经济水平作为调节变量。结果表明：上行社会比较与家庭经济水平的交互项对学业自我效能感的预测作用显著（ $\beta = -0.08$, $t = -2.25$, $p < 0.05$ ），家庭经济水平在中介过程的前半段路径中均起到了调节作用（见表 5 / Table 5）。为进一步探讨家庭经济水平的调节作用机制，以家庭月收入 6000 元划分，将家庭月收入在 6000 元以上的样本（即 3 组和 4 组）归为高收入组，在 6000 元以下的样本（即 1 组和 2 组）归为低收入组，基于分组数据开展简单斜率分析，检验自变量对因变量的影响强度在不同家庭经济水平组别间的差异。结果表明：上行社会比较对学业自我效能感的预测作用在高家庭经济水平时（ $\text{simple slope} = 2.24$, $t = 17.12$, $p < 0.001$ ）弱于低家庭经济水平（ $\text{simple slope} = 2.58$, $t = 20.27$, $p < 0.001$ ），见图 3（Figure 3）。

回归方程		整体拟合指数			回归系数显著性			
结果变量	预测变量	R	R ²	F	β	SE	95%CI	t
学业自我效能感	生源地	0.82	0.66	182.46***	-0.07	0.03	[-0.013, -0.01]	-2.40*
	上行社会比较				0.81	0.03	[0.75, 0.87]	26.58***
	家庭经济水平				0.03	0.03	[-0.03, 0.09]	1.02
	上行社会比较× 家庭经济水平				-0.08	0.03	[-0.15, -0.02]	-2.60**
学习投入	生源地	0.90	0.82	546.36***	0.00	0.02	[-0.05, 0.04]	-0.07
	上行社会比较				0.22	0.04	[0.15, 0.29]	5.79***
	学业自我效能感				0.72	0.04	[0.64, 0.79]	18.79***

注：* $p < 0.05$ ，** $p < 0.01$ ，*** $p < 0.001$

表 5：有调节的中介模型检验（N=374）

Table 5: Moderated Mediation Analysis (N=374)

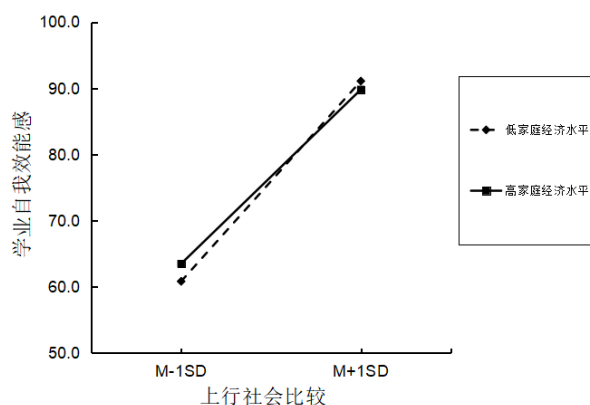


图 3：家庭经济水平在上行社会比较和学业自我效能感间的调节作用

Figure 3: The Moderating Effect of Family Economic Status on the Relationship between Upward Social Comparison and Academic Self-Efficacy

四、讨论

结果表明，上行社会比较可以直接正向预测大学生的学习投入。进一步的中介分析结果发现，上行社会比较也可以通过增强大学生的学业自我效能感间接促进学习投入。家庭经济水平在上行社会比较与学业自我效能感之间发挥调节作用。总体而言，研究结果符合研究假设。

（一）上行社会比较与大学生学习投入的关系

本研究采用横断面调查设计，验证了上行社会比较与大学生学习投入之间存在显著的正相关关系，研究结果支持了研究假设 1。这一发现与国内外多项研究结果具有一致性（陈继文等，2024）。产生这种结果的原因可能是因为个体倾向于开展上行比较，而这一过程可以帮助他们提升其自我评价，且与比自己更好的个体比较可以激励自己变得更好，这是一个内心愉悦的过程，因此上行社会比较对个体的提升作用更加强烈（张凤娟等，2022）。同时，也有研究发现，趋近性成就目标与大学生学习投入密切相关（Wang et al., 2021），这可能与上行比较引发的竞争意识有关。具体而言，当个体与学习更优秀的人进行比较时，比较对象的成功会激发自身的胜负欲，继而在竞争意识的驱使下，不断增加学习投入来提升自己。

（二）学业自我效能感的中介作用

学业自我效能感在大学生上行社会比较和学习投入之间起显著的中介作用，研究结果支持了研究假设 2。数据分析显示，上行社会比较不仅可以直接正向预测大学生学习投入，还能通过提升学业自我效能感间接促进学习投入。具体来说，上行社会比较越高，学生的学业自我效能感越强，而学业自我效能感越高，学习投入水平也越高。产生这种结果的原因可能是当大学生与表现优异的同龄人进行上行社会比较时，这种比较可能通过榜样激励效应激发其学习动力，使其相信通过努力也能取得类似的成就，从而提升学业自我效能感。而较高的学业自我效能感又会进一步促使学生在学习过程中表现出更积极的行为投入（如主动参与课堂讨论）、情感投入（如对学习保持热情）和认知投入（如采用深度学习策略），最终提升整体学习投入水平（Miao et al., 2025）。这一机制表明，在适当的条件下，上行社会比较不仅不会削弱学生的学习动机，反而可能通过增强自我效能感这一中介变量，对大学生的学习投入产生积极的促进作用。

（三）家庭经济水平的调节作用

家庭经济水平在上行社会比较与学业自我效能感之间起到了调节作用。具体表现为相较于家庭经济水平高的大学生，家庭经济水平低的大学生在上行社会比较对学业自我效能感的预测作用更强，这表明低家庭经济水平能够进一步增强上行社会比较对大学生学业自我效能感的正向影响。研究结果支持了研究假设 3。其原因可能在于，低家庭经济水平学生在学习支持、可获得的学习资源与可选择的补偿性机会方面更受限制，因此他们对外部信息线索（例如同伴榜样、有效策略、可达成标准）的敏感度更高，上行比较提供的“榜样经验”更容易转化为学业自我效能感的提升；而对家庭经济水平较高的学生而言，学业支持条件相对充足，学业自我效能感更稳定，上行比较带来的增益相对有限。上述解释也与社会认知理论关于自我效能感来源的观点一致，即观察到他人的成功（替代性经验）会增强个体在相应任务情境中的效能信念（Bandura, 1997），并在学业领域中进一步影响学习动机与自我调节过程（Usher & Pajares, 2008）。相比之下，家庭经济水平较高的学生通常拥有更充分的学习资源与支持，其学业自我效能感可能已处于较高基线水平，上行社会比较带来的激励效应相对有限，因此表现为预测作用较弱。

（四）意义与展望

1. 理论意义

现有关于学习投入影响因素的研究主要集中于个体因素（如动机、短视频成瘾）、教学因素（如教学方法、教师支持）和环境因素（如校园环境、学校氛围）三个方面，其中学业自我效能感已被证实是预测学习投入的稳定因素。然而，这些研究多数聚焦静态影响因素，对上行社会比较这一动态社会认知过程关注不足；而且关于学业自我效能感的中介机制研究尚不系统。本研究以上行社会比较为切入点，探讨其对大学生学习投入的影响，以及学业自我效能感在其中的中介作用，为大学生学习行为研究提供了新的视角。

2. 实践意义

本研究揭示了大学生在与更优秀同伴进行上行社会比较时，如何通过影响其学业自我效能感进一步作用于学习投入，并进一步指出这种作用在不同家庭经济水平背景下存在差异。基于此，学校与教师可更科学地引导比较情境（如减少单一排名刺激、强化“可达成”的榜样示范与进步性评价），并将提升学业自我效能感作为关键干预点（通过分层目标、小步达成、学习策略指导与归因训练等）来促进学习投入；家庭层面可为家长提供更有效的比较与支持方式，避免将比较简单转化为压力；教育治理层面则为资源精准投放与补偿性支持提供依据，尤其是针对家庭经济水平低的学生加强校内辅导、学习资源与支持性环境建设，从而降低家庭差异对学习投入与学业发展的放大效应。

3. 不足与展望

同时，本研究仍有不足，未来需进一步完善。（1）由于本研究采用自陈式量表收集数据，且为横断面研究设计，难以确立变量间的因果关系，未来可通过纵向随访研究与实验操纵的方法，更深入地揭示变量间的因果路径及时序特征；（2）关于大学生学习投入的未来研究，应扩大样本的选择范围，同时适当扩充样本量，以降低抽样偏差、提升数据代表性与结果稳定性；（3）在研究重点方面，未来研究可关注并长期追踪上行社会比较等动态的影响因素。

五、结论

综上所述, 本研究发现: (1) 上行社会比较与大学生学习投入呈显著正相关; (2) 学业自我效能感与大学生学习投入水平呈显著正相关; (3) 学业自我效能感在上行社会比较与学习投入的关系中起中介作用, 即学业自我效能感是上行社会比较影响大学生学习投入的重要心理机制。 (4) 家庭经济水平能够调节上行社会比较对学业自我效能感的影响, 即家庭经济水平越高, 上行社会比较对学业自我效能感的作用越小。

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Stepping Stones or Stumbling Blocks? The Impacts of Digital Finance on Urban Green Development

Liu Wang, Wang Yi

Abstract: Using data from 301 Chinese cities (2011-2021), this study empirically explores digital finance's impact on urban green development. Findings show digital finance's promotional effect—validated by endogeneity checks—is more pronounced in non-coastal and the third level cities. Decomposition regression reveals digital payment, insurance, and investment significantly boost green development, while digital credit hinders it. Moderating effect tests indicate green finance positively moderates the relationship, whereas resource endowments exert a negative moderating impact. Threshold effect analysis shows digital finance's effect is insignificant for cities with below-threshold innovation capacity (digital credit even harms green development), but both digital finance and credit drive it significantly for cities above the threshold. Non-linear analysis finds digital credit has an inverted U-shaped impact (initial promotion, subsequent hindrance), mediated by enhanced green innovation and alleviated financing constraints. Overall, digital finance, green finance's positive moderation, and sufficient regional innovation act as “stepping stones,” while excessive digital credit, resource endowments' negative moderation, and insufficient innovation are “stumbling blocks.” The conclusions inform inclusive digital finance development, high-quality economic growth, and ecological protection.

Keywords: digital finance; green development; “inverted U-shaped” effect

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标题：垫脚石还是绊脚石？数字金融对城市绿色发展的影响

摘要：本文基于 2011-2021 年中国 301 个城市的数据，实证考察了数字金融对城市绿色发展的影响。研究结果显示：经内生性检验验证，数字金融对绿色发展具有促进作用，且该效应在非沿海地区及第三类城市中更为显著。分解回归表明，数字支付、数字保险与数字投资均能显著推动绿色发展，而数字信贷则对其产生抑制作用。调节效应检验显示，绿色金融在二者关系中发挥正向调节作用，而资源禀赋则存在负向调节效应。门槛效应分析发现：对于创新能力低于门槛值的城市，数字金融的影响并不显著，且数字信贷甚至会损害绿色发展；而当城市创新能力跨越门槛值后，数字金融与数字信贷均能显著驱动绿色发展。非线性分析表明，数字信贷对绿色发展存在先促进、后抑制的倒 U 型影响，其机制为绿色创新与缓解融资约束的中介效应。总体而言，数字金融、绿色金融的正向调节以及充足的区域创新能力是绿色发展的“垫脚石”；而过度的数字信贷、资源禀赋的负向调节与创新能力不足则是“绊脚石”。本文结论为普惠数字金融发展、经济高质量增长与生态环境保护提供了参考。

关键词：数字金融；绿色发展；“倒 U 型影响”

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1. Introduction

Green development refers to sustainable development that achieves the goals of low pollution and high output without sacrificing the environment (Angang, 2011), emphasizing the balanced development of ecology, economy, and society. Among various influencing factors, financial development has always played a crucial role. On the one hand, financial development exerts effects of efficiency improvement and transformation promotion. It channels capital from low-efficiency sectors to high-efficiency ones, thereby enhancing capital allocation efficiency (Greenwood & Jovanovic, 1990). Meanwhile, it drives the development of strategic emerging industries and facilitates the green transformation of the economy (Zhang & Chen, 2021). On the other hand, financial development has a pollution expansion effect. In terms of production, a higher proportion of total credit—especially a higher proportion of private sector credit—leads to increased pollutant emissions by enterprises (Ju et al., 2023), which is particularly prominent in emerging and developing countries (Jiang

& Ma, 2019). In terms of consumption, financial development eases consumption constraints, enabling consumers to purchase large household appliances more easily (Sadorsky, 2010), thereby increasing carbon dioxide emissions (Zhang, 2011).

The development of digital finance has not only injected new impetus into the development of the entire financial industry. Digital finance generally refers to the business model in which traditional financial institutions and internet companies leverage digital technologies to conduct financing, payment, investment, and other emerging financial activities (Huang & Huang, 2018). During the three phases of 2013-2016, 2017-2019, and 2020-2022, China's digital finance has experienced explosive growth, stable and moderate growth, and a burgeoning phase of rapid development respectively (Li & Zhang, 2024). The advancement of digital finance has reduced information asymmetry and costs, helping small and medium-sized enterprises (SMEs) and state-owned enterprises (SOEs)—especially large-scale SOEs—address financing constraints (Han et al., 2023).

Digital finance has brought new opportunities for urban green development. It reduces pollutant emissions by alleviating financing constraints (Wei et al., 2023), promoting the adjustment and upgrading of industrial structure (Wang & Fan, 2022), driving technological innovation (Zhuang et al., 2022), and advocating environmental protection concepts; enhances urban ecological resilience by improving resource utilization efficiency and facilitating green investment (Zhao et al., 2024); and promotes pollution and carbon reduction in local and adjacent regions by raising the level of green financing and green innovation (Luo et al., 2024).

Some studies have also found that digital finance exerts non-linear impacts on carbon emissions at different levels. First, digital finance has an “inverted U-shaped” impact on carbon emissions across China's provinces, cities, and enterprises: it exerts an “inverted U-shaped” impact on enterprises' carbon emission intensity through scale expansion and changes in energy efficiency; it produces an “inverted U-shaped” impact on provincial carbon emissions via the output-increasing effect and energy-saving effect; and it generates an “inverted U-shaped” impact on urban carbon dioxide emissions through the superimposed effect of the emission-promoting effect from economic scale expansion and the emission-reducing effect from green technological innovation. Second, although digital finance exerts a significant overall inhibitory effect on provincial carbon emissions, when digital finance or urbanization is taken as the threshold variable, a “fluctuating” impact—characterized by initial inhibition, subsequent promotion, and then re-inhibition—emerges (Wang & Yin, 2022). Third, research using Python machine learning models has revealed that digital finance has a U-shaped-like impact on urban carbon emissions: when the development level of digital finance reaches 200, the efficiency of promoting carbon emission reduction hits a bottleneck; beyond 200, the advancement of digital finance instead increases carbon emissions (Wang et al., 2022).

Scholars have conducted relatively comprehensive research on the green economic effects of digital finance and achieved abundant research outcomes. Most studies affirm the contribution of digital finance to

carbon emission reduction, arguing that its development reduces carbon emissions by alleviating financing constraints, promoting industrial agglomeration and technological innovation, and improving production efficiency and energy use efficiency. These findings provide a certain theoretical basis for this paper, but there are still aspects worthy of improvement. First, most literatures take carbon emissions as the explained variable without considering the overall economic development. Such research, which “focuses solely on ‘greenness’ while neglecting ‘development’”, severs the connection between the output-increasing effect and the emission-reducing effect, and ignores the synergistic development relationship between economic growth and environmental protection. Second, most studies on regional analysis are conducted from a provincial perspective, lacking in-depth analysis from the perspective of prefecture-level cities. Third, there is no comprehensive analysis of the impact of digital finance on urban green development from a mechanistic perspective, and the differences in impacts generated by different sub-businesses of digital finance are overlooked. Fourth, most literatures focus on studying the promotional effect of digital finance on carbon emission reduction and energy use efficiency, but fail to analyze whether it has negative impacts or non-linear impacts on urban green development. Fifth, the moderating effect of digital finance on urban green development has not been accurately captured, and targeted policy recommendations have not been proposed.

Based on this, this study utilizes panel data of 301 cities in China from 2011 to 2021 to empirically examine the impact of digital finance on urban green development, and conducts a series of robustness tests, mechanism tests, heterogeneity analysis, decomposition regression, moderating effect tests, and threshold effect tests. The potential marginal contributions are as follows: (1) This study adopts urban green GDP as the measurement indicator for urban green development, organically unifying economic growth and environmental protection. (2) It systematically analyzes the impact of digital finance on the green development of 301 cities, filling the research gap at the urban level. (3) It elaborates on the impacts and moderating effects of various sub-indicators of digital finance on urban green development. (4) It comprehensively examines the threshold effects of digital finance and its sub-indicator—digital credit—on urban green development, and explores the impact of the innovation capacity threshold. (5) It conducts an exploratory analysis of the non-linear impacts of digital finance on urban green development and the underlying mechanisms of such impacts.

2. Data, methodology and model

Based on data availability, this paper selects 301 Chinese cities from 2011 to 2021 as the observation sample.¹ The dependent variable is Green GDP (GGDP), and the independent variable is Digital Finance (DF). The control variables are R&D Level (RD), Per Capita Income (PGDP), Level Of Openness (Open) and Infrastructure Construction (IC). Moderating variables are Green Finance (GF) and Resource Endowment (RE). The threshold variable is regional innovation (RI). The mechanism variables in the parabolic model are Green Innovation (GE) and financing constraints (FC). The data details are given by Table 1.

¹ Including municipalities, non-municipal cities, autonomous prefectures, etc.

Indicator	Calculation Method	Data Source
Green GDP (GGDP)	(Real GDP) / (Comprehensive Pollution Index ¹)	China City Statistical Yearbook China Environmental Statistics Yearbook
Digital Finance (DF)		Peking University Digital Inclusive Finance Index (2011–2022)
R&D Level (RD)	$\frac{\text{R\&D Expenditure}}{\text{GDP}}$	
Per Capita Income (PGDP)	$\ln(1 + \text{PerGDP})$	
Level Of Openness (Open)	$\frac{\text{FDI}}{\text{GDP}}$	China City Statistical Yearbook
Infrastructure Construction (IC)	$\ln(1 + \text{Passenger Traffic})$	
Regional Innovation (RI)	Regional Innovation & Entrepreneurship Index	Peking University Business Big Data Research Center
Green Finance (GF)	Comprehensive index obtained using the entropy weight method ²	National Bureau of Statistics of China, Ministry of Science and Technology, People's Bank of China
Resource Endowment (RE)	$\frac{\text{Mining industry workers}}{\text{Total workers}}$	China City Statistical Yearbook
Green Innovation (GI)	Number of green patents applied for per 10,000 people	CNRDS
Financing Constraints (FC)	Loan/GDP	China City Statistical Yearbook

Table 1: Data Description

In order to verify the impact of digital finance on urban green development, this paper constructs the following benchmark model:

$$GGDP_{i,t} = \alpha_0 + \alpha_1 DF_{i,t} + \alpha_2 Control_{i,t} + \lambda_i + \eta_t + \mu_{i,t} \quad (1)$$

Here in Eq. (1), the dependent variable is $GGDP_{i,t}$, the independent variable is $DF_{i,t}$. The vector $Control_{i,t}$ represents a series of control variables that affect urban green development; i represents the prefecture-level city, t represents the year; λ_i represents individual fixed effects; η_t represents the time fixed effect; $\mu_{i,t}$ represents the random error term.

¹ Use the entropy weight method to weight wastewater, sulfur dioxide, and smoke, obtaining the comprehensive pollution index.

² Green Credit, Green Investment, Green Insurance, Green Bonds, Green Support, Green Funds, And Green Equity

To verify whether digital finance exerts a moderating effect on green development, this paper constructs the moderating effect model as follows:

$$GGDP_{i,t} = \beta_0 + \beta_1 DF_{i,t} + \beta_2 adjust_{i,t} + \beta_3 DF_{i,t} \times adjust_{i,t} + \beta_4 Control_{i,t} + \lambda_i + \eta_t + \mu_{i,t} \quad (2)$$

Here in Eq.(2), $adjust_{i,t}$ is the moderating variable, and $DF_{i,t} \times adjust_{i,t}$ is the interaction term between the moderating variable and the explanatory variable. If the coefficient β_3 of the interaction term in the model is significant, it indicates that there is a moderating effect of digital finance on the green development of cities: if β_3 is significant and has the same sign as α_1 , it means that the larger the value of the moderating variable, the greater the impact of digital finance on the green development of cities; if β_3 is significant and has the opposite sign to α_1 , it means that the larger the value of the moderating variable, the smaller the impact of digital finance on the green development of cities.

Following the methodology of (Hansen, 1999), this study adopts the single threshold model to examine the threshold effect of innovation capability in the impact of digital finance and digital credit on urban green development, and establishes the model as follows:

$$GGDP_{i,t} = \gamma_0 + \gamma_1 DF_{i,t} \times I(RI \leq \tau_1) + \gamma_2 DF_{i,t} \times I(RI > \tau_1) + \gamma_3 Control_{i,t} + \lambda_i + \mu_{i,t} \quad (3)$$

Here in Eq.(3), RI is the threshold variable; τ_1 is the threshold value, and $I(\cdot)$ is the indicator function, which takes the value of 1 when the condition is satisfied and 0 when it is not.

To verify whether there is a U-shaped or inverted U-shaped impact, this study constructs the parabolic model as follows:

$$GGDP_{i,t} = \vartheta_0 + \vartheta_1 DF_{i,t} + \vartheta_2 (DF_{i,t})^2 + \vartheta_3 Control_{i,t} + \lambda_i + \eta_t + \mu_{i,t} \quad (4)$$

Here in Eq.(4), $(DF_{i,t})^2$ is the squared term of digital finance. If ϑ_1 and ϑ_2 are significant and of opposite signs, it indicates that there may be a parabolic impact; if the extreme point lies within the valid interval, it means the model passes the U-test and there exists a significant parabolic impact. If $\vartheta_1 > 0$ and $\vartheta_2 < 0$, it indicates a U-shaped impact; if $\vartheta_1 < 0$ and $\vartheta_2 > 0$, it indicates an inverted U-shaped impact.

To examine the mediating effects of green innovation and financing constraints, and to minimize the endogeneity of mediating variables, this study adopts the two-step method for mediating effects proposed by (Jiang, 2022), by integrating the parabolic model, and establishes the following mediating effect models:

$$mediator_{i,t} = \rho_0 + \rho_1 DF_{i,t} + \rho_2 (DF_{i,t})^2 + \rho_3 Control_{i,t} + \lambda_i + \eta_t + \mu_{i,t} \quad (5)$$

$$GGDP_{i,t} = \xi_0 + \xi_1 mediator_{i,t} + \xi_2 Control_{i,t} + \lambda_i + \eta_t + \mu_{i,t} \quad (6)$$

Here in Eq.(5) and Eq.(6), $mediator_{i,t}$ represents the mediating variable. In the first step of the test, if ρ_1 and ρ_2 in Model (5) are significant, of opposite signs, and pass the U-test, it indicates that digital finance has a significant U-shaped or inverted U-shaped impact on the mediating variable; in the second step, if the coefficient ξ_1 of digital finance in Model (6) is significant, it means there is a correlation between the mediating variable and urban green development, and the mediating effect holds.

3. Results and implications

3.1 Empirical results and discussion

To analyze the impact of digital finance on urban green development, this paper employs the individual-time double fixed effects model for empirical tests, with the regression results presented in Table 2. Column (1) reports the impact of DF on GGDP without control variables. The results show that after controlling for urban fixed effects and year fixed effects, the coefficient of DF is significantly positive, indicating that DF exerts a significant promoting effect on GGDP. Columns (2) to (5) successively incorporate control variables such as the proportion of R&D expenditure, per capita income, level of opening-up, and transportation infrastructure construction. The findings reveal that after the successive inclusion of each control variable, the coefficient of digital finance remains significantly positive, with only a slight variation in its value. Meanwhile, it can be observed that improvements in per capita income, opening-up, and transportation infrastructure also significantly contribute to GGDP. The results across Columns (1) to (5) demonstrate that the promoting effect of digital finance on urban green development passes the significance test at the 1% level.

Variable	GGDP				
	(1)	(2)	(3)	(4)	(5)
DF	0.015*** (0.002)	0.015*** (0.002)	0.012*** (0.003)	0.012*** (0.003)	0.012*** (0.003)
RD		-0.083 (0.128)	0.162 (0.209)	0.173 (0.208)	0.299 (0.229)
PGDP			0.389*** (0.130)	0.385*** (0.128)	0.370*** (0.127)
Open				1.524** (0.758)	1.563** (0.780)
IC					0.062** (0.028)
Constant	17.048*** (0.433)	17.033*** (0.433)	13.427*** (1.278)	13.429*** (1.256)	13.115*** (1.206)
City Fixed	YES	YES	YES	YES	YES
Year Fixed	YES	YES	YES	YES	YES
Observation	2,799	2,798	2,783	2,782	2,732
R ²	0.817	0.817	0.823	0.824	0.826

Table 2: Basic regression

3.2 Endogeneity test

To mitigate the bias potentially caused by endogeneity issues, this paper adopts four different instrumental variables to conduct endogeneity tests. First, to verify the existence of endogeneity arising from reverse causality, this study uses the one-period lag of the digital finance index as the core explanatory variable. Second, to address endogeneity caused by factors such as omitted variables, it refers to the approach of (Xu et al., 2023) and selects the number of internet broadband accesses (per 10,000 people) as the instrumental variable (IV1) for digital finance, conducting a two-stage least squares (2SLS) test. Third, the interaction term between the spherical distance from each city to Hangzhou and the national average of digital inclusive finance is used as another instrumental variable (IV2) for digital finance, with a subsequent 2SLS test. Fourth, leveraging the method of (Hu & Yang, 2023), this paper constructs two interaction terms—one using the number of post offices in 1984 and the number of telephones per 10,000 people, and the other combining these two indicators with the annual number of internet users—to form two additional instrumental variables (IV3 and IV4).

The above instrumental variables are closely associated with urban digital finance while not directly influencing urban green development, thus meeting the requirements for valid instrumental variables. The test results are presented in Table 3.

- Column (1) shows that the coefficient of the one-period lag of digital finance (DF) remains significantly positive, verifying the robustness of the results.

- Columns (2) to (3) indicate that when the number of internet broadband accesses is used as the instrumental variable, the coefficients of IV1 are significantly positive in both the first and second stages.

- Columns (4) to (5) demonstrate that when the interaction term constructed with the spherical distance to Hangzhou is employed as the instrumental variable, the coefficients of IV2 are significantly positive in both stages.

- Columns (6) to (7) reveal that when the interaction terms derived from the 1984 post office number and telephone number are used as variables, the coefficients of IV3 and IV4 are significantly positive in both stages.

Comprehensively analyzing the results from Columns (1) to (7) reveals that the coefficients of the lagged terms of the explanatory variable and all lagged items, as well as the F-statistics, are significant, indicating that the endogeneity test is passed.¹

¹ The endogeneity tests in this paper have passed the underidentification test, weak instrumental variable test, Hausman endogeneity test, and overidentification test. These tests are omitted due to space constraints and are available upon request.

Variable	GGDP	DF	GGDP	DF	GGDP	DF	GGDP
		Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DF			0.026** (0.012)		0.024* (0.014)		0.053*** (0.015)
Lagged DF	0.012*** (0.003)						
IV1		0.014*** (6.91)					
IV2				-19.299***			
IV3						-249.448*** (-5.70)	
IV4						249.946*** (5.69)	
Constant	13.409*** (1.258)		15.294*** (0.498)	198.411*** (5.65)	14.527*** (0.476)	1045.241*** (5.70)	14.848*** (0.566)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F Test	12.06***		21.12***		32.65***		18.69***
Observatio n	2,452		2,449		2,714		2,125
R ²	0.834		0.251		0.2643		0.2928

Table 3: Instrumental Variable Endogeneity Test

3.3 Decomposition Regression

The analysis above shows that digital finance exerts a significant promoting effect on urban green development, and this conclusion has passed endogeneity tests. However, digital finance is a comprehensive indicator encompassing multiple services—does each of its sub-indicators contribute to urban green development? To address this question, this paper conducts a decomposition regression: it decomposes digital finance into three dimensions, namely digital finance coverage breadth, usage depth, and digitalization level, and re-performs the regression analysis. The results indicate that the coefficients of coverage breadth, usage depth, and digitalization level are all significantly positive. Among these, digital finance usage depth accounts for 29.7% of the weight in the indicator system and includes 6 key sub-indicators related to consumption and production; thus, an exploratory decomposition regression of digital finance usage depth is further conducted. After decomposing digital finance usage depth into digital payment, digital insurance, digital currency funds, digital investment, digital credit, and digital credit services, the results are presented in Table 4.

Columns (1), (2), and (4) show that the coefficients of digital payment, digital insurance, and digital investment are significantly positive. Possible explanations are as follows: digital payment significantly reduces resource consumption by promoting “cashless” and “paperless” consumption; digital wealth management insurance (such as annuity insurance or participating insurance) prioritizes allocating funds to green bonds, thereby facilitating the development of clean energy.

Columns (3) and (6) reveal that the coefficients of digital currency funds and digital credit services are not significant. Potential reasons include: bank agreement deposits and short-term bonds struggle to form a green capital agglomeration effect; credit services are mostly applied in consumption scenarios, making it difficult to establish a strong connection with green development.

The result in Column (5) is completely contrary to expectations: the coefficient of digital credit is significantly negative, indicating that the development of urban digital credit hinders urban green development. According to existing literature, the improvement of urban credit level eases corporate financing constraints, creating room for enterprises to achieve green transformation in production, management, and sales. However, why does the development of digital credit hinder urban green development? After alleviating financing constraints, both excessive corporate expansion and excessive residential consumption may exert negative impacts on green development. In other words, there may be an “optimal level” of digital credit for urban green development, which necessitates further analysis of the impact of digital credit.

Variables	GGDP					
	(1)	(2)	(3)	(4)	(5)	(6)
Digital Payment	0.005*** (0.001)					
Digital Insurance		0.002*** (0.000)				
Digital Currency Fund			0.001 (0.002)			
Digital Investment				0.005*** (0.001)		
Digital Credit					-0.006*** (0.002)	
Digital Credit Investigation						0.000 (0.001)
Constant	14.103*** (1.330)	14.195*** (1.389)	17.080*** (1.070)	14.847*** (1.682)	15.316*** (1.477)	18.398*** (1.357)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
City Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Observation	2,732	2,732	1,643	1,895	2,731	1,085
R ²	0.825	0.824	0.850	0.857	0.824	0.864

Table 4: Decomposition Regression of Digital Finance Usage Depth

3.4 Test of Moderating Effect

The previous analysis reveals that the composite index and sub-indicators of digital finance exert both promoting and hindering effects on urban green development. The question then arises: how to amplify the promoting effect of digital finance while mitigating the hindering effect of digital credit? Moderating effect

analysis can be employed to verify the pathways to achieve this. Table 5 presents the moderating effect tests for the impact of digital finance (DF) and digital credit (DC) on urban green development, with green finance (GF) and resource endowment (RE) serving as the moderating variables.

- Column (1) shows that the coefficient of the interaction term (DF×GF) is significantly positive, sharing the same sign as DF and being statistically significant. This indicates that the higher the level of a city's green finance development, the stronger the promoting effect of digital finance on its green development.

- Column (2) reveals that the coefficient of the interaction term (DF×RE) is significantly negative, bearing the opposite sign to DF. This suggests that the stronger a city's resource endowment, the weaker the promoting effect of digital finance on its green development.

- Column (3) demonstrates that the coefficient of the interaction term (DC×GF) is significantly positive, showing the opposite sign to DC and being statistically significant. It implies that the higher the level of a city's green finance development, the weaker the hindering effect of digital credit on its green development.

- Column (4) indicates that the coefficient of the interaction term (DC×RE) is significantly negative, sharing the same sign as DC. This means that the stronger a city's resource endowment, the stronger the hindering effect of digital credit on its green development.

The results from Columns (1) to (4) indicate that: green finance strengthens the promoting effect of digital finance on urban green development and suppresses the hindering effect of digital credit on it; resource endowment weakens the promoting effect of digital finance on urban green development and reinforces the hindering effect of digital credit on it. A plausible explanation is as follows: On the one hand, with the backing of green finance, more loans released by digital finance flow to clean energy enterprises, which enhances the level of regional environmental governance and improves regional environmental quality (Hu et al., 2023), thereby reducing pollution emissions (Cui et al., 2023). On the other hand, the comparative advantage of resource endowment is likely to give rise to a minority rentier class, which gradually renders environmental regulation ineffective, slows down the pace of regional green development, and leads to the “resource curse” effect.

Variables	GF	RE	GF	RE
	(1)	(2)	(3)	(4)
DF	0.011*** (0.003)	0.009*** (0.002)		
DC			-0.236*** (0.051)	-0.004*** (0.001)
Moderating variable	-0.734** (0.334)	-0.084 (0.541)	-1.672** (0.807)	0.146 (0.427)
Interaction Term	0.003* (0.002)	-0.005** (0.002)	0.323** (0.163)	-0.005** (0.003)
Constant	13.372*** (1.212)	14.430*** (1.218)	18.372*** (0.391)	18.134*** (0.366)
Control Variables	Yes	Yes	Yes	Yes
City Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Observation	2,732	2,283	2,729	2,278
R ²	0.827	0.832	0.821	0.828

Tabel 5: The Moderating Effect of Green Finance and Resource Endowment

4. Further research: Nonlinear effect

4.1. Threshold Effect Test

From the above analysis, it can be seen that moderating effects can be used to amplify promoting effects and reduce hindering effects. However, do these promoting and hindering effects only exist in certain stages of urban development? In fact, digital finance may exert different impacts on urban green development in different stages of regional innovation capability development. Enterprises' green transformation not only requires sufficient funds provided by digital finance but also relies on the innovation capability of their respective regions as a foundation.

In the stage of low regional innovation capability, digital finance struggles to drive urban green development due to factors such as high costs for new enterprises, a small number of high-quality foreign-funded enterprises, limited access to venture capital, and weak technological advantages. After regional innovation capability reaches a certain level, digital finance can effectively promote green development, thanks to a significant reduction in the cost of new enterprises, an increase in advanced management experience, more venture capital opportunities, and the expansion of regional technological advantages.

To verify this, this paper employs the Bootstrap method to test whether there is a threshold effect of regional innovation (RI) on the impact of digital finance (DF) and digital credit (DC) on urban green development. The results in Column (1) of Table 6 show that when digital finance is the explanatory variable, regional innovation passes the single threshold effect test at the 1% significance level, with a threshold value of 45.392. The results in Column (2) show that when digital credit is the explanatory variable, regional innovation capability also passes the single threshold effect test at the 1% significance level, with the same threshold value of 45.392. Therefore, based on the results of the threshold effect test, this paper selects the single threshold model to study the threshold effect of digital finance on urban green development.¹

	Single-Threshold Model	Single-Threshold Model
	(1)	(2)
Explanatory Variable	DF	DC
Threshold Variable	RI	RI
Threshold Value	45.392***	45.392***
	(31.03)	(31.53)
95% Confidence Interval	[41.638,47.270]	[41.638, 47.270]

Table 6: Threshold Effect Test

The results in Columns (1) to (2) of Table 7 show that the impact of digital finance (DF) on urban green development exhibits a threshold effect: when regional innovation (RI) is less than or equal to 45.392, the coefficient of DF on urban green development is approximately 0 and statistically insignificant; when regional innovation exceeds 45.392, the coefficient of DF on urban green development is approximately 0.001 and

¹ Furthermore, this paper also conducted tests on the double threshold model and triple threshold model, and the significance of their thresholds and interval coefficients is lower than that of the single threshold model.

passes the significance test at the 1% level. The results in Columns (3) to (4) indicate that the impact of digital credit (DC) on urban green development also presents a threshold effect: when regional innovation is less than or equal to 45.392, the coefficient of DC on urban green development is approximately -0.001 and passes the significance test at the 5% level; when regional innovation exceeds 45.392, the coefficient of DC on urban green development is approximately 0.001 and passes the significance test at the 5% level.

Synthesizing the results from Columns (1) to (4), it is found that when regional innovation is less than or equal to the threshold value, the impact of digital finance on urban green development is insignificant, and even its sub-indicator—digital credit—exerts a hindering effect on urban green development. When regional innovation is higher than the threshold value, both digital finance and digital credit significantly promote urban green development.

This result suggests that the promoting effect of digital finance on urban green development requires a certain level of regional innovation as a foundation. The possible explanation for this is that the stage of low regional innovation is often accompanied by high innovation costs; therefore, enterprises fail to allocate the funds released by digital finance to the green transformation of production processes, pollution treatment, and other links. Some enterprises even only use the funds released by digital credit to expand production scale, which instead hinders urban green development. Only when regional innovation reaches a certain level, enterprise innovation costs are lower, so enterprises have the incentive to allocate the funds released by digital finance to green transformation, thereby promoting urban green development.

Explanatory variable: DF		Explanatory variable: DC	
Range/Variable	Coefficient	Range/Variable	Coefficient
(1)	(2)	(3)	(4)
RI≤45.392	0.000 (0.000)	RI≤45.392	-0.001** (0.000)
RI >45.392	0.001*** (0.000)	RI >45.392	0.001** (0.000)
Constant	17.374*** (0.825)	Constant	19.680*** (0.044)
Observations	2,484	Observations	2,484
R ²	0.033	R ²	0.014

Table 7: Threshold Model Estimation Results

4.2. U-shaped effect test

The previous analysis found that although digital finance exerts an overall promoting effect on urban green development, its impact is not necessarily linear, and there may be an “optimal level of digital finance”. To verify whether digital finance has a non-linear impact on urban green development, this paper linearly standardized both the explanatory variable and the explained variable, and then conducted a non-linear test incorporating the quadratic term of digital finance (DF).

The results in Column (1) of Table 8 show that the coefficient of the quadratic term of DF is significantly negative, while the coefficient of the linear term of DF is significantly positive. The slope changes from negative to positive, the extreme point falls within the interval, and the U-test is passed significantly. Thus, there exists a significant “inverted U-shaped” curve. A possible explanation is as follows: In the early stage of digital finance development, on the one hand, the enabling effect of digital technology on finance reduces “financial discrimination” against private enterprises and micro, small, and medium-sized enterprises (MSMEs), improves regional financial allocation efficiency, alleviates financing constraints on technological innovation, and promotes the transformation of industrial structure from labor and capital-intensive to knowledge-intensive, thereby boosting urban green development. On the other hand, financial tools such as Huabei, Jingdong Baitiao, and WeChat Baitiao greatly ease household consumption constraints, stimulate household consumption, and household consumption drives per capita real income through the multiplier effect, reducing pressure from environmental pollution and promoting urban green development (Grossman & Krueger, 1991). In the late stage of digital finance development, on the one hand, the urban industrial structure adjustment process has been completed, and credit funds are more used to expand industrial scale. During the expansion of industrial scale, the marginal effect of technological innovation diminishes, and the growth rate of energy consumption and pollutant emissions exceeds that of industrial output, thus hindering urban green development. On the other hand, excessive consumption caused by personal consumer loans leads to excessive consumption-related pollution, resulting in the continuous accumulation of domestic waste such as plastics and worsening environmental pollution (Cai et al., 2022).

When the regression results are plotted as a parabola, Figure 1 is obtained. This figure shows that there is an “optimal level of digital finance”: when the currently standardized DF is 0.516, urban green development reaches a peak.

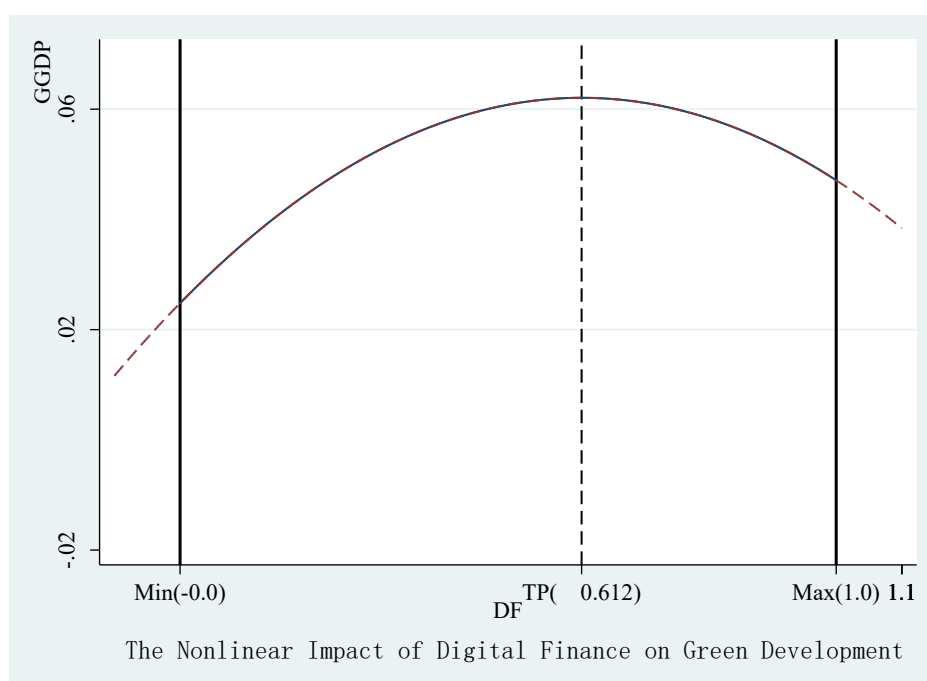


Figure 1: Nonlinear Impact of Digital Finance on Urban Green Development

What is intriguing is that what factors contribute to this “inverted U-shaped” impact? To explore the mechanism of this nonlinear impact, this paper conducts mediating effect tests for green innovation (GI) and financing constraints (FC).

Column (2) of Table 8 shows that digital finance (DF) exerts a significant “inverted U-shaped” impact on green innovation and passes the U-test. Column (3) reveals that green innovation is significantly positively correlated with GGDP. The results in Columns (2) to (3) indicate that digital finance achieves its “inverted U-shaped” impact on urban green development by exerting a first-promoting-then-impeding effect on green innovation. Column (4) shows that digital finance has a significant “U-shaped” impact on financing constraints. Column (5) demonstrates that financing constraints are significantly negatively correlated with GGDP. The results in Columns (4) to (5) suggest that digital finance realizes its “inverted U-shaped” impact on urban green development by first reducing and then increasing financing constraints.

The possible reasons behind the results in Columns (2) to (5) are as follows: In the early stage of digital finance development, financial institutions optimize risk control and alleviate financing constraints, enabling funds to accurately match the financing needs of green projects, promoting corporate green innovation, and thereby driving urban green development. After the scale of digital finance exceeds the critical point, the growth rate of lending outpaces that of financial supervision, leading to funds flowing into short-term high-yield areas, causing resource misallocation, exacerbating financing constraints, and leaving green innovation without sufficient financial support—this in turn hinders urban green development.

Variables	GGDP	GI	GGDP	FC	GGDP
	(1)	(2)	(3)	(4)	(5)
$(DF_{i,t})^2$	-0.104** (0.050)	-0.118*** (0.021)		0.234*** (0.057)	
$DF_{i,t}$	0.108** (0.048)	0.107*** (0.021)		-0.215*** (0.056)	
GI			0.087*** (0.029)		
FC					-0.053*** (0.012)
Constant	-0.191*** (0.066)	0.057* (0.031)	-0.181*** (0.049)	0.531*** (0.080)	-0.156*** (0.048)
U-TEST	Yes	Yes		Yes	
extreme point	0.516	0.453		0.459	
Range	[0,1]	[0,1]		[0,1]	
Slope	[0.108,-0.101]	[0.107,0.129]		[-0.215,0.252]	
Conclusion	Inverted U-shape	Inverted U-shape		U-shape	
Control Variables	Yes	Yes	Yes	Yes	Yes
City Fixed	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes
Observation	2,782	2,529	4,093	2,802	4,391
R ²	0.684	0.946	0.665	0.758	0.645

Table 8: Benchmark Regression of Nonlinear Effects and Mechanism Effects

5. Conclusion

Based on data from 301 prefecture-level cities in China from 2011 to 2021, this paper analyzes a series of impacts of digital finance on urban green development. The study finds that although digital finance can promote urban green development, its impact is not linear. (1) The composite index of digital finance exerts a significant promoting effect on urban green development, which has passed endogeneity tests. (2) Different sub-indicators of digital finance have varying impacts on urban green development: digital payment, digital insurance, and digital investment show significant promoting effects, while digital credit has a significant hindering effect. (3) Green finance amplifies the promoting effect of digital finance and weakens the hindering effect of digital credit; resource endowment weakens the promoting effect of digital finance and amplifies the hindering effect of digital credit. (4) There exists a threshold effect in the model: for cities with innovation capability exceeding the threshold, both digital finance and digital credit can significantly promote urban green development; for cities with innovation capability below the threshold, the impact of digital finance on urban green development is insignificant, and digital credit even has a significant negative effect on urban green development. (5) Digital finance has an “inverted U-shaped” impact on urban green development, with the mechanism being that it promotes green innovation and reduces financing constraints in the early stage of development, while hindering green innovation and exacerbating financing constraints in the later stage.

Based on the conclusions and the current status of digital finance development, this paper puts forward the following suggestions:

First, continuously deepen the development of digital finance to give full play to its role in promoting green development. Establish financial data centers, build high-speed and secure financial network communication systems and new computing power systems, improve the information integration capabilities of financial institutions, form more accurate “user profiles,” and enhance financial risk prevention and control capabilities; vigorously cultivate and reserve professional talent teams in financial technology, improve the digital service capabilities of financial institutions to meet the financing needs of core user groups; set up special funds for digital inclusive finance to support cities in applying for national-level digital inclusive finance pilot zones, and encourage enterprises to implement green process innovation and product innovation; accelerate the construction of digital financial infrastructure in rural and remote areas, reduce the “digital divide” between cities at different development levels, further improve the coverage breadth, usage depth, and digitalization level of digital finance, and enhance its inclusiveness; improve the digital financial service system, launch targeted digital financial products, and promote environmental protection concepts such as green travel and green consumption.

Second, actively promote regional innovation and adopt differentiated development strategies based on urban development conditions to better leverage the promoting effect of digital finance. On the one hand, continuously improve the intellectual property system, implement policies for the transformation of scientific and technological achievements and the identification of high-tech technologies, steadily advance the development of technology business incubators, increase support for scientific research innovation,

technological development, and talent introduction, promote collaborative innovation among universities, research institutes, and enterprises, drive high-level development of regional technological innovation, lead more cities to cross the “innovation threshold,” and release the promoting effect of digital finance on urban green development. On the other hand, based on differences in natural resource endowments, talent endowments, and technological innovation efforts among different cities, promote cooperation between financial regulatory authorities and research institutions to build real-time monitoring systems and risk early warning systems for urban digital credit scales using big data and intelligent analysis; by setting optimal ranges for digital credit, promptly release early warning information to help local financial institutions adjust credit scales, implement appropriately tight interest rate policies in regions with excessive credit expansion, and relatively loose interest rate policies in regions with insufficient credit, thereby reducing the inhibitory effect of excessive credit expansion on green development.

Third, improve the regional green finance mechanism to guide the orderly, leapfrog, and transformational development of resource-based cities. (1) Give full play to the positive regulatory role of green finance in digital finance, establish priority approval mechanisms for green projects, continuously promote the innovation of financial instruments such as green investment and green funds, and steadily reduce the financing costs of green and low-carbon projects; set “environmental thresholds” for financing of heavily polluting enterprises such as chemical and building materials enterprises, and design clean technology transformation plans in combination with regional characteristics to direct more digital financial resources to green fields such as environmental protection and clean energy; strengthen the joint supervision of green finance and digital credit, formulate green finance guidelines for consumer loans and operating loans, expand the scope of green consumption and green operations, ensure that the flow of digital credit funds is in line with the overall goals of green finance, and reduce the negative impact of excessive lending on urban green development. (2) Promote the digital transformation of financial institutions in resource-based cities, use digital finance to drive the application of green technologies in resource-based industries, encourage financial institutions to allocate more funds to green projects using digital technologies such as big data and artificial intelligence, provide tax reductions or loan interest subsidies for projects in fields such as ecological restoration and clean energy, reduce excessive dependence on natural resources, and weaken the negative regulatory effect of resource endowment on digital finance.

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乡村振兴中普惠金融的“监管沙盒”制度： 理论证成与本土化构建

严斌彬 (Yan Binbin)

摘要：随着乡村振兴战略的深入推进，农村地区普惠金融的发展面临服务覆盖有限、模式创新缓慢等挑战。数字技术的应用显著提升了金融服务的效率与可达性，但同时也带来了数据安全、算法公平性等新型风险。在此背景下，监管沙盒作为一种包容审慎的金融创新监管工具，通过构建一个风险受控的测试环境，为普惠金融产品提供了安全的试错空间，从而在鼓励创新与防范风险之间取得了有效平衡。我国在吸收国际实践经验的基础上，亟需建立适应国情的本土化实施框架，包括构建多层次沙盒体系以契合不同区域的发展实际，深化数字技术与普惠金融具体场景的融合，健全风险治理与金融消费者权益保护机制，并强化跨部门的政策协同与生态体系建设。最终，旨在形成一套能够支撑普惠金融高质量发展、助力乡村振兴目标实现的制度体系，推动金融服务实现创新突破。

关键词：监管沙盒；普惠金融；乡村振兴；金融创新；风险防控

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Title: The “Regulatory Sandbox” System for Inclusive Finance in Rural Revitalization: Theoretical Justification and Localization Construction

Abstract: With the in-depth advancement of the rural revitalization strategy, the development of inclusive finance in rural areas is confronted with challenges such as limited service coverage

and slow model innovation. The application of digital technology has significantly enhanced the efficiency and accessibility of financial services, but it has also brought about new risks such as data security and algorithmic fairness. Against this backdrop, the regulatory sandbox, as an inclusive and prudent regulatory tool for financial innovation, provides a safe space for trial and error for inclusive financial products by creating a risk-controlled testing environment, thus achieving an effective balance between encouraging innovation and preventing risks. Based on the absorption of international practical experience, China urgently needs to establish a localized implementation framework that suits its national conditions, including building a multi-level sandbox system to meet the development realities of different regions, deepening the integration of digital technology with specific scenarios of inclusive finance, improving risk governance and consumer rights protection mechanisms, and strengthening cross-departmental policy coordination and ecosystem construction. Ultimately, the aim is to form a system that can support the high-quality development of inclusive finance and help achieve the goal of rural revitalization, promoting innovative breakthroughs in financial services.

Keywords: Regulatory Sandbox; Inclusive Finance; Rural Revitalization; Financial Innovation; Risk Control

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引言

我国正处于全面推进乡村振兴、加快建设农业强国的关键时期，党的二十大报告及历年中央一号文件均明确指出，要“全面推进乡村振兴”，“强化农业科技和装备支撑”。金融作为现代经济的核心，是激活乡村“人、地、钱”等各类要素、促进产业兴旺、实现共同富裕的血脉。然而，长期以来，农村金融服务体系存在着供给不足、效率不高、风险成本高企等深层次问题。以信息不对称、信用体系不健全、抵押担保品缺乏为代表的结构性障碍，使得传统金融机构在农村地区的业务拓展面临天然的“商业可持续性”挑战，导致大量小农户、新型农业经营主体等“长尾客户”被排斥在正规金融服务体系之外。

近年来，大数据、人工智能、区块链等数字技术与金融业务的加速融合，催生了数字普惠金融这一新兴业态。数字普惠金融凭借其在信息获取、风险定价、服务触达等方面的独特优势，为破解农村金融困境带来了历史性机遇。然而，技术赋能的金融创新是一柄“双刃剑”，在提升效率、扩大覆盖面的同时，也带来了数据安全、算法歧视、技术依赖、操作风险等新型风险，对现有“一刀切”的规则导向型金融监管框架提出了严峻挑战。如何在鼓励金融创新以服务乡村振兴，与防范化解系统性金融风险之间寻求精妙平衡，成为摆在监管当局面前的重大时代课题。

在此背景下，“监管沙盒”（Regulatory Sandbox）这一源自英国并已获得多国监管部门实践的理念与工具，日益受到关注。它标志着监管理念的一次重要演进：从以往相对僵化的“一刀切”或事后补救的“先发展后治理”模式，转向一种鼓励先行先试的“试点监管”新范式。这一范式旨在为金融创新开辟一个风险可控的测试空间，从而在激励创新与管控风险之间建立动态平衡，并促进

监管机构与市场创新主体之间的对话与合作。然而，纵观现有研究与实践，焦点大多聚集于城市地区的金融科技创新，关于如何将监管沙盒这一工具与乡村振兴战略下的普惠金融具体需求进行深度适配，相关探讨仍显薄弱。尽管我国央行推出的“金融科技创新监管工具”已涵盖若干涉农项目，但迄今为止，尚未发布专门针对乡村普惠金融场景的监管沙盒官方指引或顶层设计。此外，对于该机制在农村场域中应如何评估其实际效能，以及如何构建一套真正契合中国农村社会经济特点的本土化运行方案，学术界的系统性研究尚付阙如。

有鉴于此，本文的核心论述将围绕以下层面展开：首先，从理论层面论证在乡村振兴背景下，引入监管沙盒制度对于破解乡村普惠金融发展瓶颈的特殊价值与必要性；其次，通过梳理国际经验与检视国内现有实践，尝试构建一个符合中国国情、能够有效支持乡村普惠金融高质量与可持续发展的本土化监管沙盒实施框架。

一、乡村振兴背景下普惠金融的挑战与监管诉求

（一）当前普惠金融在乡村场域中面临的主要挑战

实施乡村振兴战略，对农村地区金融服务的覆盖面、可获得性与适配性均提出了更高标准。普惠金融旨在以可负担且可持续的方式提供金融服务，是支撑乡村现代化发展的重要力量。然而，其在实际推进过程中仍遭遇诸多现实挑战，这相应地也对监管模式创新提出了迫切需求。

1. 金融服务存在明显缺口与有效供给匮乏

受限于运营成本高、风险管理复杂等因素，传统金融机构在农村市场的服务渗透动力不足，导致对广大农户、新型农业经营主体及农村小微企业的信贷支持相对有限，许多真实的融资需求未能得到有效满足。尽管农村基础金融服务网点已实现较高覆盖率，但服务的深度与质量仍有待提升。与此同时，农村居民金融素养整体偏低、涉农信贷占比不高、非正规金融活动缺乏规范引导等问题依然存在。（梁环忠、李少辉，2022, p. 51）

2. 面临风险约束与创新滞后的双重挑战

农村金融市场存在典型的信息不对称、缺乏合格抵押物、生产周期长等特征，导致金融机构面临较高的信用风险和市场风险。同时，农村金融产品与服务同质化严重，缺乏针对乡村振兴场景的个性化创新。数字技术为解决这些问题提供了可能，但金融机构在乡村场景中应用新技术时又面临监管不确定性，抑制了创新活力。

3. 监管环境与创新需求错配

传统金融监管模式将风险防控和合规性放在首要考量因素，因而对新兴金融创新的态度往往较为审慎。这种监管取向虽然在维护金融稳定方面发挥了重要作用，但抑制了有益的金融创新，尤其在农村地区，普惠金融创新需要更大的试错空间。现有监管取向和框架难以跟上金融科技驱动的创新节奏，导致许多针对乡村市场的创新金融产品和服务缺乏合规的准入条件，面临制度性障碍。

（二）数字普惠金融的兴起及其伴生的监管挑战

数字技术的融合应用正深刻重塑普惠金融的形态。移动互联网、大数据、人工智能与区块链等技术的普及，有效突破了传统金融服务在地理、成本与门槛方面的限制，显著拓展了金融服务的覆盖范围并提升了使用频率。根据世界银行的相关报告，全球范围内无法获得银行服务的成年人口数

量已从 2011 年的约 25 亿大幅下降至 2021 年的 14 亿，这一进展在很大程度上得益于数字支付账户的推广¹。中国在该领域的发展尤为突出，第三方支付、线上信贷、智能投顾等创新模式已深入渗透至农村、小微企业及低收入群体。然而，数字普惠金融的迅猛发展也催生了一系列新的风险与监管难题。

其一，数据安全与用户隐私保护面临严峻考验。数字普惠金融的运作高度依赖于对用户身份、交易记录、社交关系乃至位置信息等敏感数据的收集与分析。一旦发生数据泄露、不当使用或算法歧视，将直接侵害金融消费者权益。农村居民、老年人等群体数字素养相对不足，更易成为受损害的对象。当前，在数据合规标准、算法透明度及用户授权机制等方面，现有监管框架仍存在完善空间，亟需进一步围绕共享经济和人财两分理论确立数据财产权的性质，明确数据采集的边界、使用规则及相应的问责机制。（严斌彬，2025）

其二，技术性风险与系统稳健性构成潜在威胁。数字金融服务所依赖的网络与技术系统，面临着网络安全攻击与技术故障的挑战，算法自身的缺陷也可能干扰服务的正常运行。（贺思仪、曾帅，2025, p.92）此外，“技术黑箱”和模型偏差可能导致信贷分配不公或风险误判，而监管机构目前尚缺乏足够有效的技术检测与评估工具来应对这些问题。

其三，创新业务模式时常与既有监管规则产生摩擦。许多数字普惠金融创新处于现有法规的模糊地带，例如，基于区块链的供应链金融可能涉及数字货币与智能合约的法律效力认定问题；（周雷、朱奕、胡若兰，2022, p. 24）而农业遥感信贷中运用的地理信息数据，则超出了传统征信规则的覆盖范围。此类监管空白或规则滞后不仅可能抑制企业的创新积极性，也容易引发监管套利行为。

其四，数字鸿沟所导致的金融排斥风险仍未消除。虽然数字技术拓宽了服务渠道，但偏远地区基础设施薄弱、老年人数字技能欠缺、以及语言文化差异等因素，依然可能将部分群体排除在数字金融服务之外。完全依赖于智能手机或电脑应用的创新模式，难以有效触达并服务那些不熟悉或无法使用这些设备的农村居民。

二、监管沙盒促进普惠金融的理论证成

（一）监管理论的演进与“适应性监管理念”

金融监管理论经历了从市场自由主义到严格管制，再到包容性监管的演进过程。早期监管理论以市场失灵理论为基础，强调通过政府干预纠正信息不对称、负外部性等市场缺陷，形成了以“命令—控制”为特征的刚性监管模式。然而，随着金融创新的加速推进，传统监管模式逐渐暴露出滞后性与创新抑制的双重困境，一方面，冗长的规则制定程序与快速的技术迭代速度难以匹配；另一方面，具有潜力的创新方案易受制于严格的合规要求，甚至遭到扼杀。

在此背景下，适应性监管理念开始显现。该理念强调监管应根据市场变化及时调整策略，允许在风险可控环境中测试创新产品，并通过监管实践持续优化规则设计。（戚聿东、刘欢欢，2022, p.67）而在数字经济背景下，生产要素、成本结构以及商业模式都发生了深刻变革，技术风险与市场风险相互交织和叠加，金融创新更需要适应性监管来予以应对。

¹ 世界银行（2023 年 03 月 14 日）：“金融科技与金融的未来报告”，<https://www.199it.com/archives/1569588.html>

监管沙盒正是对适应性监管理念的实践,为探索破解创新与监管的“二元悖论”提供了可行路径。(张龙, 2021, p. 134)它通过创设“安全空间”,为金融创新提供测试场域与容错机制,既避免因监管过度而抑制创新,又防止因监管缺位而引发风险,以实现金融安全与创新激励的平衡。

(龚强、马洁、班铭媛, 2021, p. 60)值得注意的是,监管沙盒并非监管宽松化,而是构建了一种新型的公私合作治理范式,即监管机构与创新企业之间不再仅仅是监管与被监管的关系,而是通过二者的密切互动,帮助企业更好地理解监管要求,同时监管机构也能够及时掌握创新动态,从而解决信息不对称问题。从更深层次上看,监管沙盒体现了监管理念从传统“刚性监管”向“柔性监管”的范式转化。

(二) 监管沙盒的核心机制与功能

监管沙盒的核心运行机制及其功能主要体现在准入管理、测试运行、退出评估三大环节。

在准入方面,通过创新性、普惠性、风险可控性等标准筛选测试项目。英国金融行为监管局(FCA)要求申请项目必须证明其具有技术原创性或商业模式创新性,能够为消费者带来真正附加值,且能提升金融服务效率或可及性。具体而言,FCA的准入标准包括创新必须属于英国金融服务市场受监管范围,具有突破性或与现有市场产品显著不同,有利于消费者并促进竞争,企业还须证明有真实需求在沙盒内测试创新,且具备完善的测试计划并准备好测试。(胡滨、杨涵, 2019, p. 103)新加坡金融管理局(MAS)则增设“快捷沙盒”通道,为风险较低的创新提供简化审批流程,体现了准入机制的灵活性。(叶宣含, 2024, p. 136)

测试运行的关键在于风险隔离与动态监测,主要体现在三个方面:一是限制性授权,即对测试范围、客户数量、交易金额等设置上限阈值,防止风险外溢;二是监管豁免,即在测试期内暂免部分合规要求,降低合规门槛,为创新提供空间;三是实时监测,利用监管科技工具跟踪资金流向、舆情变化等风险指标。(蔡元庆、黄海燕, 2017, p. 1)随着监管科技的发展和应用,监管响应更加高效,接近实时,风险识别和防控能力得到显著提升。(孟娜娜、蔺鹏, 2018, p. 42)

退出环节的重点是消费者保护问题。项目经测试成功,将获得正式授权或监管规则调整,测试失败则终止项目运作并启动风险处置程序。欧盟《人工智能法》要求沙盒退出必须包含第三方影响评估和消费者补偿方案,以确保退出决策的公正性。(徐磊, 2025, p. 21)

(三) 监管沙盒促进普惠金融的理论逻辑

普惠金融面临的核心矛盾是服务高风险群体与维持商业可持续性之间的张力,而监管沙盒能够通过其灵活且可控的机制缓解这一矛盾,为技术创新和制度创新搭建起双向互动的桥梁。

第一,降低市场准入门槛。沙盒能够为资源相对有限的中小型金融创新企业提供与大型机构同等的监管支持,有助于培育更加多元化和竞争性的市场环境,促进市场公平。(尹振涛、范云朋、费洋, 2021, p.74)还可以通过设置普惠性指标,如设置农村用户占比指标、调低小微企业服务成本指标等等,引导数字创新更精准地服务于乡村振兴。

第二,提供合规试错空间。农村金融市场信息碎片化与征信缺失问题相对比较严重,传统监管手段难以对农户信用做出有效评估。沙盒允许测试机构利用大数据、区块链等技术构建风控模型,例如通过卫星遥感技术监测农作物长势,评估信贷风险,通过物联网设备追踪抵押物状态等等。这些创新举措在传统监管框架下常常遇到数据合规阻力,而沙盒通过临时性监管豁免为创新提供了试错空间。

第三，降低创新试错成本。普惠金融创新具有正外部性，但其商业回报周期长、不确定性高，尤其是服务农村市场的项目面临更高试错风险。沙盒通过提供限定范围的监管豁免，显著降低创新项目的合规成本与政策风险，加快创新产品上市进程，减少资源浪费。在英国，参与监管沙盒的企业融资成功率提升 50%，测试周期缩短至 6-9 个月。（胡滨、杨涵文，2019, p. 103）这种支持对服务农村市场的小型金融机构尤为重要，帮助其突破资本与人才约束开展农村金融创新。

第四，优化风险收益结构。沙盒可以通过设置单户损失上限、用户数量、建立风险补偿基金等措施对金融消费者权益实行差异化保护，（邓玮婷，2021, p. 72）金融创新机构亦可以因此避免创新失败承担过度责任，从而更有动力服务于传统金融排斥群体。印度、印尼等国的沙盒实践表明，针对普惠金融项目的特殊风控安排，能起到显著提升创新成功率的效果。（牛淑雅，2017, p. 69）

第五，促进监管学习，增强政策协同。监管沙盒为监管者提供了在创新早期进行观察和互动的窗口，有助于其更直接地积累关于新兴业务模式与风险的知识，从而制定出更具前瞻性和适应性的规则。（郑步高、林淼、张继行，2021, p. 49）同时，这一机制也可作为普惠金融相关政策的“压力测试区”，用于评估财政补贴、定向货币政策工具等与具体金融创新结合的实践效果，防范因政策与市场实际脱节而可能引发的资源错配或激励失效风险。（王凡迪，2021, p. 101）

第五，沙盒为监管机构提供了早期接触创新的机会，有助于监管机构积累新兴风险知识，制定更加行之有效的监管政策。沙盒作为普惠金融政策的“试验田”，也可以测试财政补贴、货币政策工具与金融创新的协同效果，避免因政策设计脱离实际而导致的市场失效风险。

三、国际监管沙盒实践与中国本土化探索

监管沙盒作为一种旨在平衡金融创新与风险防控的机制，通过创设一个受控的测试环境，为新兴金融产品与服务提供了现实的试验场。全球多个主要金融中心都已发展出各具特色的沙盒运行模式，其积累的实践经验为我国设计符合自身国情的监管框架提供了有益参照。

（一）国际监管沙盒的实践模式与经验借鉴

英国是这一制度的先驱，其金融行为监管局（FCA）于 2016 年率先建立了沙盒监管框架。该框架通过设定清晰的测试边界、提供有限的监管豁免以及实施全过程的监控，在有效控制潜在风险向外扩散的前提下，显著减轻了创新企业的合规压力。FCA 采取了分阶段、滚动开放的做法，每轮会筛选数十家涵盖支付、信贷、保险等多个领域的公司进入测试。这些企业在受监督的环境下试验其创新方案，但必须遵守事先约定的风险控制指标和消费者保护条款。（李黎、付文刚、伊文英等，2021, p. 11）

新加坡金融管理局（MAS）的制度设计突出了跨境协作与效率。其沙盒不仅对国际企业开放，还针对人工智能、分布式账本等技术设立了快速审批通道。（张苑、瞿晶晶、张暄昱，2025, p. 54）2019 年推出的“沙盒快车”计划，通过标准化流程将低风险项目的评估时间从通常的数月大幅缩短至三周左右，（周雷、陈佳慧、熊舒琪等，2024, p. 60）加速了创新从概念到市场的转化。

澳大利亚的监管实践则特别强调对消费者的保障。其制度明确要求参与测试的企业必须预先设立赔偿基金并建立风险隔离机制。（蒋辉宇、芦雯青，2022, p. 42）此外，监管机构还创新性地设立了消费者申诉快速响应机制，以确保在测试出现问题时，受影响的消费者能够获得及时的补救。（李黎、付文刚、伊文英等，2021, p. 11）

欧盟国家近年来将沙盒的应用范围扩展至数据治理等新兴领域。例如，法国和挪威分别推出的“健康数据沙盒”与“人工智能伦理测试沙盒”，为如何在促进数字经济发展的同时保护个人隐私，提供了探索性的监管思路。（庞林源，2023, P. 22）

然而，国际经验也暴露出一些普遍性问题。例如，瑞士过高的“颠覆性创新”准入门槛实际上将许多中小企业挡在门外；而加拿大因缺乏明确的退出机制，导致了测试项目堆积，反而影响了市场效率，扭曲了市场竞争秩序。跨境测试中可能出现的监管套利，也增加了企业的运营复杂性，提高了合规成本。这些问题都为我国完善自身制度提供了前车之鉴。

国际实践表明，一个运行良好的监管沙盒通常具备几项关键要素：首先是清晰的测试边界和动态风险管控体系，通过限定测试规模、期限和范围来约束风险敞口；其次是构建多层次的协同创新网络，包括跨境监管协作和重点技术领域的专项支持；此外，一套覆盖风险告知、损失补偿和纠纷解决的全方位消费者保护机制也必不可少。

（二）中国监管沙盒的探索与实践

中国版监管沙盒的实践始于 2019 年末，当时中国人民银行在北京、上海、深圳、雄安新区、杭州及重庆等地启动了金融科技创新监管试点。随后在 2020 年，这项试点工作被推广到全国更多重点省市。经过数年发展，到 2023 年，各试点地区已陆续公示了百余个创新项目，涵盖区块链、人工智能、大数据和物联网等技术，服务于支付结算、信贷风控、保险理赔等多样化的金融场景。

中国监管沙盒采用“信息公开、产品公示、社会监督”的柔性监管方式，构建了包含创新应用说明书、风险补偿机制、违规退出安排等在内的制度体系。（周雷、陈佳慧、熊舒琪等，2024, p. 60）与域外沙盒相比，中国模式更加强调以下特点：一是坚持金融持牌经营原则，测试主体必须为持牌金融机构或与持牌机构合作的技术企业；二是注重金融服务实体经济导向，鼓励测试项目面向小微企业融资、乡村振兴、普惠金融等领域；三是构建多元协同监管机制，形成央行牵头、多方参与的协同监管格局。（郑步高、林淼、张继行，2021, p. 49）

监管沙盒作为一种金融创新监管工具，在中国乡村振兴战略中扮演了重要角色，特别是在普惠金融领域。在已公布的沙盒测试项目中，多项创新涉及普惠金融和乡村振兴领域，有的项目探索基于卫星遥感数据和区块链技术的农业信贷风险评估模型，有的测试基于物联网设备的活体抵押贷款管理平台，还有的尝试利用大数据分析为新型农业经营主体建立信用画像。（李丹，2020, p. 91）截至 2023 年末，已有 33 个试点项目成功“出盒”，包括 27 个金融服务类项目和 6 个科技产品类项目。这些项目经评估后面向市场提供常态化服务，标志着监管沙盒完整机制流程的落地，促进了数字金融创新与服务实体经济相结合，发挥了示范效应。（周雷、陈佳慧、熊舒琪，2024, p. 60）

尽管中国当前监管沙盒实践在支持乡村振兴方面取得了一定进展，但仍存在明显不足：一是数字鸿沟与产品适配困难。农村地区存在显著的数字鸿沟，农户金融素养较低，难以明确自身需求，导致金融科技产品适配困难。例如，亿联银行的项目在实际操作中面临农户需求不明确的问题，不法分子还利用互联网进行诈骗，误导农户办理贷款，侵犯消费者权益。（谭雪、邢伊凡，2024, p. 55）二是监管机制不完善。缺乏针对农村金融特点的差异化安排，在消费者保护、测试周期、准入标准等方面未体现乡村特性。三是政策与协调不足，地方监管沙盒缺乏统一的顶层设计和政策指导，各地试点口径不一致，迭代优化效率低。

四、面向普惠金融的监管沙盒本土化构建

监管沙盒具有促进金融创新的积极作用，但其效果发挥依赖于具体的制度设计和实施环境。中国应根据普惠金融发展的特殊性与现实需求，通过制度设计、技术赋能和生态协同，探索符合国情的普惠金融监管沙盒的实施路径。

（一）基于分层分类的沙盒框架设计

中国普惠金融服务具有多元性和地域差异性特征，在监管沙盒的框架设计上，应采用分层分类的准入与实施机制。

在准入机制上，准入标准应聚焦于“三农”、小微企业及弱势群体的金融创新，建立“全国-省级-地方”的三级沙盒体系。国家级沙盒负责跨区域、系统性创新项目，如大型银行与科技公司联合开发的普惠金融平台；省级沙盒针对区域特色产业，如沿海地区的渔业保险创新；地方级沙盒则侧重于县域及农村基层的微型金融产品，如基于土地经营权的抵押贷款试点。这一分层设计既能保障创新项目的代表性，又可避免资源过度集中导致的试点同质化。

在实施机制上，可采取平衡效率与风险的分层监管模式。参考英国 FCA 的“适应性豁免”原则，可根据创新风险等级将测试项目划分为“高风险强制测试”“中风险备案测试”及“低风险自主测试”三类。（张景智，2018, p. 57）例如，涉及资金池或跨境支付的创新需强制入盒测试，而基于现有技术的流程优化，如农村普惠金融服务站的数字化升级等可适用备案制。同时，需建立动态退出机制，测试期一般为 6-24 个月，成功后转为常规业务并纳入持续监管，失败则立即终止并启动风险处置预案。（赵杰、牟宗杰、桑亮光，2016, p. 56）

分层分类的沙盒框架，既能提升沙盒的覆盖面和适配性，又能避免“一刀切”监管对创新活力的抑制。

（二）技术赋能与普惠金融场景深度融合

监管沙盒的本土化必须依托技术赋能，重点解决普惠金融面临的“最后一公里”服务难题。

一方面，应鼓励人工智能、区块链、大数据等技术在沙盒测试中的深度融合应用。例如，通过区块链实现农业产销链的信用穿透，解决中小农户融资信息不对称问题；利用人工智能开发多方语音交互系统，提升农村老年群体的数字金融服务可得性。这些技术驱动的创新需在沙盒内验证其稳定性、合规性与普惠价值，确保技术应用不脱离实体经济需求。

另一方面，普惠金融场景的差异化要求沙盒测试贴近现实环境。可建立“沙盒测试专区”与“真实场景试点”联动的双轨机制，即在技术验证阶段，于模拟环境中测试系统承压能力与风险阈值；在业务推广阶段，选择典型区域比如乡村振兴重点帮扶县，开展小范围试点。以连云港市的实践为例，其通过“普惠金融+海洋经济”沙盒项目，针对渔民季节性融资需求开发了基于船舶动态数据的信贷模型，在模拟测试后于灌云县实地应用，显著降低了融资违约率。（李松涛、姜庚，2024, p. 1011）

技术与场景的深度结合，能够确保创新成果可复制、可推广，真正惠及目标群体。

（三）风险防控与金融消费者权益保障体系构建

普惠金融创新在推动发展的同时需警惕潜在风险，本土化监管沙盒应建立立体化风险防控框架。

在风控机制上，应构建“资金防火墙+情景模拟”复合型风控模型。准入机构需计提专项风险拨备或投保责任险，建立测试失败时的资金偿付保障；运用监管科技手段实施动态监测，如设置单账

户交易熔断机制、区域资金流动异常预警等,实时识别和防范资金风险;定期开展极端环境压力测试,重点评估偏远地区通讯中断、极端气候等场景下的系统稳定性,测试系统韧性,防止风险扩散。

在消费者权益保障上,建立“透明披露+快速救济”双轨制。要求测试机构需以显著方式公示风险要素及免责条款,并向消费者提供“先行赔付”承诺;(张红,2018,p.77)构建争议处理和补偿救济网络,如设立沙盒专属金融调解和仲裁通道;试点“风险准备金池”制度;探索监管机构代位追偿机制;推行差异化保护政策,对农村低收入群体设置风险暴露上限。当然,对消费者开展普惠金融素养教育,也是不可少的,可开发适应性金融教育工具包,提升用户风险认知能力。

(四) 政策协同与普惠生态共建

为确保监管沙盒机制的长期有效运行,离不开配套政策的协同支持以及一个健康生态系统的培育。

从纵向的监管架构来看,有必要建立中央与地方协同配合的治理体系。中央层面主要负责确立基础性、原则性的监管规则;地方层面则可根据本地的产业结构和经济需求,制定更具体的落地方案。例如,在西藏等地区,可以重点鼓励面向农牧业的绿色金融产品进行测试;而在长三角等外向型经济活跃的区域,则可尝试为中小微企业设计跨境结算的便利化方案。与此同时,应推动建设全国层面的沙盒数据互通平台,汇聚各层级测试中产生的数据,这样既能避免各地重复投入资源,也有助于减少因标准不一而可能产生的监管套利空间。

从横向的协作生态来看,关键是要促成监管部门、传统金融机构、科技公司以及社区组织等多方力量的深度合作。可行的举措包括:鼓励商业银行与金融科技公司共同设立联合实验室,以及将扎根基层的农村信用社、社区金融网点等纳入测试场景,以更真实地反映普惠金融的需求。为了加快创新成果的转化,可考虑设立专项的“产业化引导基金”,对那些经过测试且社会效益显著的项目,给予一定的税收优惠或研发补助。

通过构建这种上下联动、多方参与的立体化的政策与协作生态,监管沙盒不仅能持续发挥金融创新的“试验田”作用,更能成为推动普惠金融服务提质增效的“加速器”。

五、结论

监管沙盒作为平衡金融创新与风险管控的重要工具,其本土化构建对于推动中国普惠金融高质量发展具有深远意义。有效的监管沙盒需以分层分类机制适配多元创新场景,以技术赋能破解普惠金融服务“最后一公里”难题,以多层次风控体系保障消费者权益,并通过政策协同激发市场活力。当前,中国普惠金融仍面临区域发展不均衡、小微主体融资难、数字鸿沟等挑战,而监管沙盒可通过提供安全空间加速创新试验与迭代,为这些问题的解决提供新思路。在乡村振兴重点领域,沙盒机制能够推动区块链、人工智能等技术与普惠场景深度融合,提升金融服务的覆盖率、可得性和满意度。

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文化体验型全域旅游驱动都市可持续发展研究 ——以西安个性化文旅引导服务系统设计构思为例

邵振宇 (Shao Zhenyu), 张华元 (Zhang Huayuan)

摘要: 21 世纪以来, 经济持续增长, 交通状况逐步改善, 全球众多旅游热门地的游客数量持续攀升。历史文化城市经常遭遇客流过度集中, 公共资源短缺, 交通拥堵等问题, 这已成为制约可持续发展的关键矛盾 (梁增贤等, 2025), 而且, 文旅消费形式从团队观光转变为自主个性化体验之后, 游客对于历史文化场景的深入感知和情感共鸣的需求大幅增多 (卢俊阳等, 2025), 将传统实体导览与智能手机数字服务的优势相融合, 创建起覆盖全城的综合性文旅引导系统, 向游客提供精准又个性化的文旅信息及体验建议, 能够有效地优化城市旅游服务质量, 减轻过量旅游造成的不良影响, 本研究以历史文化名城西安为对象, 提出一种以文化体验为核心, 以直观可视引导为重点的个性化文旅引导服务系统, 经由创建多目标整数线性规划模型, 并结合专家经验来制订路线规划的办法, 从而让游客可以便捷, 直观而高效地领略到西安的历史文化内涵, 进而为东亚地区历史文化都市创建可持续旅游发展支撑体系。

关键词: 文化体验; 全域旅游; 西安; 个性化服务; 导游导览

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Title: Research on Cultural Experience-Oriented All-for-One Tourism Driving Urban Sustainable Development—A Case Study of the Design of Xi'an's Personalized Cultural Tourism Guidance Service System

Abstract: Since the beginning of the 21st century, driven by economic development and improved transportation accessibility, tourist arrivals have continued to grow in most global tourism hot spots. Historic and cultural cities are generally confronted with problems such as excessive tourist concentration, strained public resources, and traffic congestion, which have become prominent contradictions restricting their sustainable transformation (Liang Zengxian et al., 2025). Meanwhile, cultural tourism consumption patterns have shifted from group sightseeing to independent and personalized experiences, and tourists' demand for in-depth perception and emotional resonance with historical and cultural scenes has increased significantly (Lu Junyang et al., 2025). Integrating the advantages of traditional on-site guidance and smartphone-based digital services to build a citywide comprehensive cultural tourism guidance system can provide tourists with precise and personalized cultural tourism information and experience recommendations, effectively improving urban tourism service quality and mitigating the negative impacts of over-tourism. Taking Xi'an, a famous national historical and cultural city, as the research object, this study proposes a personalized cultural tourism guidance service system centered on cultural experience and focused on intuitive and visual guidance. By combining a multi-objective integer linear programming model with expert experience for route planning, the system enables tourists to perceive the historical and cultural connotations of Xi'an conveniently, intuitively and efficiently, providing a sustainable tourism development support system for historic and cultural cities in East Asia.

Keywords: Cultural Experience; All-for-One Tourism; Xi'an; Personalized Service; Tour Guide and Navigation

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一、研究的背景与目的

（一）研究背景

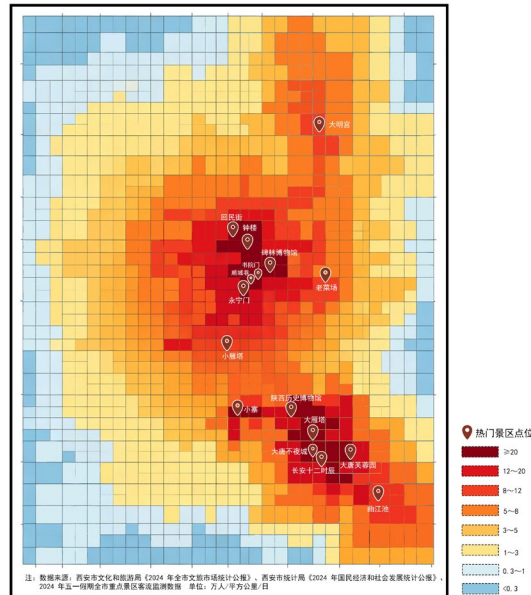


图 1：西安二环内旅游客流网格热力分布图（2024 年节假日峰值）

Figure 1: Grid Thermal Distribution Map of Tourism Passenger Flow within Xi'an Second Ring Road (Holiday Peak of 2024)

当前，旅游消费正加速从传统观光向追求深度文化体验与情感共鸣的个性化模式转变，游客对历史文化场景的沉浸式感知与仪式感需求显著提升（卢俊阳等，2025）。西安有着兵马俑等享誉世界的旅游资源，按照西安市统计局的数据，2024 年全市共接待国内外游客 3.06 亿人次，这个数字是西安常住人口的 20 倍之多，如今西安的旅游以秦、汉、唐文化为基础，依靠秦始皇帝陵（兵马俑）、陕西历史博物馆，大雁塔-曲江大唐不夜城等热门观光景点，彰显明清古城历史文化特色，逐步优化服务品质，而且，永兴坊陕西非遗文化特色街区，长安十二时辰主题街区之类的再现历史文化的仿古商业项目日益增多，小雁塔-太古里等项目也将陆续开始营业。书院门-三学街，建国门内老菜场以及西仓露天集市等传统文化街区正处于重新开发阶段，并向旅游商业转型，在此过程中，这些街区的传统文化及其原有居民的生活习惯遭遇着保护方面的难题，当大量游客集中在传统著名景点时，大明宫国家遗址公园等大型遗址公园却并未迎来太多外来游客（图 1），其旅游经济显得不够繁荣，公园收入远远无法抵偿巨额的建设和经营成本，经营公司的财政状况陷入困境已成社会问题，主要原因在于西安地区的遗迹大多属于土遗址类型，现存可视性极低，想要让各类遗迹吸引游客的兴趣，必须要有较为丰富的历史知识储备。

旅游产业持续发展给西安经济以及城市知名度带来很大提升，不过这同样对旅游规划布局，基础设施塑造，社会治理能力提出了需求，旅游产业持续发展虽带来经济效益，但游客在热点景区的过度集聚也引发了交通拥堵、居民生活质量下降等“过度旅游”（Overtourism）问题，已成为制约城市旅游可持续发展的突出矛盾（梁增贤等，2025）。2017 年因为欧洲各地爆发了针对旅游公害的大

规模抗议活动，所以这个词语的使用量骤然上升，到了 2018 年就被收录进《牛津英语词典》，联合国世界旅游组织将其界定为“旅游给目的地或者其中某些区域带来的影响，这种影响从消极方面来讲，既损害了当地民众的生活品质，又降低了游客的感受程度”。近些年来，日本等地也出现了类似的现象，并且形成了“过度旅游”这个概念，当游客规模超出城市承载阈值，将引发居民生活质量下降与游客体验恶化的双重困境，形成系统性发展风险（梁增贤等，2025），所以西安市有必要尽快出台一些具有前瞻性的对策。

（二）研究目的

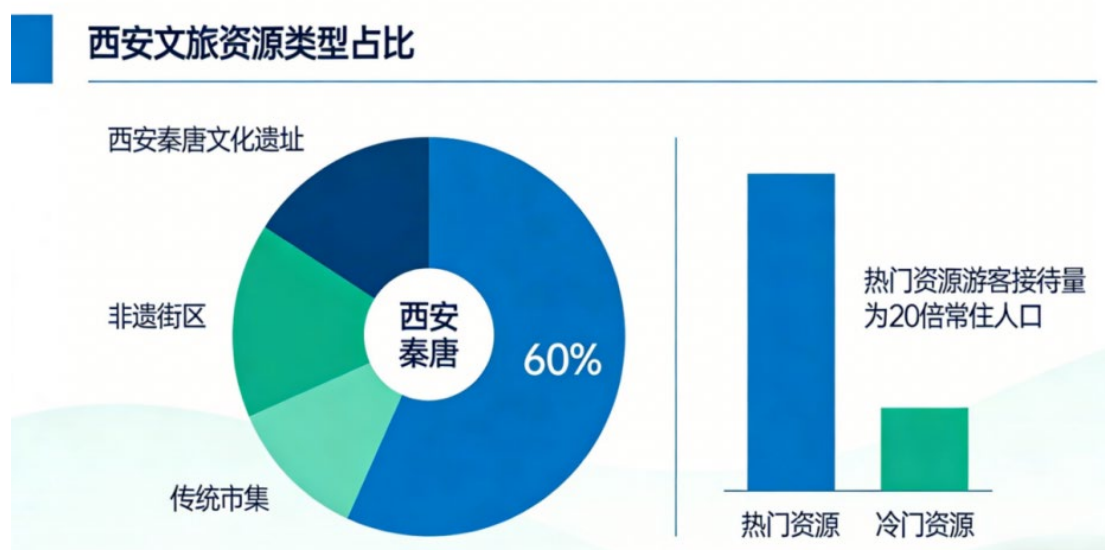


图 2：西安文旅资源类型占比

Figure 2: Proportion of Xi'an Cultural Tourism Resource Types

旅游属于面对面交流的一种形式，它在推动文化互鉴方面比互联网，社交软件之类的数字传媒有着更为显著的效果，深度的文化体验型旅游能够让游客和到访地双方都得到好处，从而加深区域之间的文化理解。当前西安的旅游活动大多聚集在大雁塔-大唐不夜城，古城墙-回民街这些少数区域，存在交通拥堵，废弃物处理迟缓，餐饮房租物价上涨等情况，如果一直维持这样的状况，那么欧洲古城出现的“过度旅游”，京都等古都发生的“过度旅游”之类的社会问题也许就会出现在西安，不过另一方面，西安有百余处文化遗产点和旅游观光地，其中超过 60%的地方游客很少（图 2），星级酒店也经常出现较高的空房率，引导游客去城市各个文旅角落，并把客流分散开来，一方面可以改善游客的体验质量，另一方面也能改良城市旅游治理的水平。文化体验型旅游把文化体验当作核心部分，对于西安这样一座历史悠久的城市来说，传统文化就是主要的文化体验来源，旅游服务所获得的利益以及宣传效果，能够给传统文化的传承给予强有力的支撑，很多游客参与到文化体验当中，不但可以填补当地对非物质文化遗产重视不够或者认可度低的情况，而且还能为非遗的发展带来经济效益，做到可持续经营，当原住民的生活场景与非遗技艺被有机地纳入旅游体验，不仅能填补当地对非物质文化遗产重视不足的缺位，还能通过经济效益反哺文化传承，实现可持续经营（林安琪，2023；张国超等，2022），即使有些业态成了文化体验的内容，它们也会因为客流被分散而保

持稳定的发展态势，像西安的胡辣汤这种本土特色店铺，即便有少量游客增多，也不会去调价或者扩大规模，而是会更加关注品质的提升，改善店面的环境和装饰。

二、个性化文旅引导服务系统促进体验型全域旅游的基本思路

（一）体验型全域旅游的基本形态

体验型全域旅游（图 3）作为一种全新的发展理念，旨在突破传统景区孤岛效应，将整个城市区域打造为吸引物要素完备、能全面满足游客深度体验需求的综合性旅游目的地（厉新建等，2013）。因为重视参与式，沉浸式体验，游客在单一城市片区内的停留时间会大幅增长，旅游消费行为更为充分，相关业态与衍生产品也愈加丰富，比如游客参加羊肉泡馍制作体验活动时，其停留时间就会明显大于普通用餐时长；骊山温泉住宿体验能够进一步推动仿唐妆造，温泉文创，养生产品等相关业态的发展，从而形成一条更加完整且附加值更高的旅游体验链条。



图 3：西安文旅景点组合多目标整数线性规划模型图

Figure 3: Multi-objective Integer Linear Programming Model of Xi'an Cultural Tourism Scenic Spot Combination

（二）个性化文旅引导服务系统的基本形态

个性化文旅引导服务系统针对不同的游客群体，给予差异化的，精准化的文化旅游项目推荐以及路线指引，其整体特性表现在四个方面。

个性化文旅引导服务系统的核心在于构建一个动态更新、多源融合的综合数据库，并在此基础上形成多层级、可视化的信息分类与导览体系（丁熊等，2016）。为了做到精准个性化推荐，系统需把城市历史文化，旅游资源，交通设施，公共服务，特色业态等信息全面整合，形成一个能够不断扩充，持续完善的数据库，在此基础上，把信息按照主题划分成多个层级，这样既方便检索调用又利于直观显示，比如在城市交通图之上，叠加历史信息图，遗址分布图，美食信息图，旅游项目图，

文化体验图等等，这些信息既可以由数字化平台来运作，也可以利用立体成像，艺术装置等形式在机场，火车站等城市门户处予以实体化表现，从而达成多层次信息的叠加与直观展示。

系统具备信息检索与主动推介功能，可弥补现有搜索引擎及通用 AI 系统的不足，传统检索平台按用户历史行为推送内容，无法满足旅游过程中探寻未知，发掘新体验的需求。通用人工智能系统依靠已数字化的文本，图像等训练数据，对于未被数字化，缺少文字记录的本土民俗，非遗技艺，街巷文化，生活场景等内容无法识别，也难以形成真正意义上的理解与情感判断，在文旅体验推荐方面，AI 只能执行数据归纳操作，并不能给出契合情感，场景，文化内涵的引导结论，所以，本系统由文旅，规划，历史，设计等跨领域专家一同梳理典型客群以及典型体验路线，创建起稳定，专业且可行的主动推介框架，这更加符合文化体验旅游的实际需求。

系统包含经专业研究确立的典型路线及体验组合，可以做到高效，合理又舒适的游览组织，旅游属于人的空间移动行为，把相关联的体验内容科学地串联起来，缩减无效移动和重复路程，一方面能改善游客的游览效率与体验质量，另一方面还能减轻城市的交通压力。路线规划要合理安排各个节点的停留时间，既要改良路程，也要考虑游客的体力，兴趣以及感受，以古城墙内钟楼为中心三公里范围为例，回民街，碑林—书院门—三学街，南门—含光门，易俗社文化街区，西仓—西五台等片区分别以餐饮，书法，城墙，戏曲，市集为核心，覆盖多种体验类型，在规划的时候，要综合考量游客的文化背景，兴趣喜好，游览时长，团队构成，年龄和身体状况等因素，制定出最合适的方案。

这一组合优化问题在数学上属于多准则决策问题，可抽象为多目标整数线性规划模型。设 X_i 为 0-1 决策变量， $X_i=1$ 表示选择景点 i ， $X_i=0$ 表示不选择； t_i 为景点 i 所需时间， T 为游客总时间上限； S_i 为游客对景点 i 的兴趣匹配度，则基础模型可表示为：

(1) 目标函数（最大化兴趣总匹配度） $\max \sum_{i=1}^n s_i x_i$

(2) 约束条件（时间限制）： $\sum_{i=1}^n t_i x_i \leq T$

(3) 变量约束： $x_i \in 0,1$

注：参数说明

n ：待选景点总数

x_i ：0-1 决策变量， $x_i=1$ 表示选择景点 i ， $x_i=0$ 表示不选择景点 i

s_i ：游客对景点 i 的兴趣匹配度（归一化至[0,10]）

t_i ：游览景点 i 所需时间

T ：游客可支配总时间上限

本研究中，景点 i 与游客的兴趣匹配度 s_i 由四个维度加权计算得出：

- 1 景点历史文化价值（依据文物保护等级、历史影响力等赋值 1-10 分）
- 2 游客兴趣偏好匹配（通过小程序中游客自选的兴趣标签计算余弦相似度）
- 3 体验类型适配度（依据“六感体验”分类体系匹配，如味觉体验对应美食类景点）
- 4 实时客流舒适度（依据当前客流密度反向赋分，人流越少得分越高）

各维度权重由专家小组采用层次分析法（AHP）确定，最终 s_i 归一化至[0,10]区间，分值越高表示该景点与当前游客的匹配程度越高。

在此基础上添加景点之间的交通耗时，用餐与休憩需求，参观先后逻辑以及文化理解顺序等约束条件，该模型便可以进一步发展成为高维非线性规划问题，以兴趣契合度最大化为目标，兼顾文化理解深度和游客身心舒适度，普通游客很难独自执行复杂的计算任务，所以需要专业人员预先规划诸如文化深度游，美食休闲游，亲子轻松游，遗址探访游之类的经典路线组合。

为解决多目标优化背景下路径规划所面临的难题，本研究结合智能算法与专家知识，运用自适应遗传算法等模型，期望能高效生成兼顾合理性，舒适性以及个性化特点的旅游方案（卫晨等，2025），站在数学角度上来说，要想找到游览路线的理论最佳解，就要考虑很多变量，这个计算过程既麻烦又费时，所以其实用性比较低。然而，长期居住于本地的文旅专家却能凭借自身经验，针对那些复杂且高维的问题实施快速降维，并在短时间内给出一种兼顾兴趣，文化，体力，交通以及节奏等方面较为合理的方案，专家的经验实质上就是一种对多目标优化问题的启发式快捷求解方法，这种方法不去谋求穷尽式的全局最优解，而是尽快输出游客可立即采用并感到满意的解，数据库创建起一种把季度更新同事件触发更新关联起来的机制，从而确保交通，客流，节庆等动态信息具有时效性。

模型计算与专家经验融合体现在三个层级上，其一，在参数设置阶段，要让文旅，历史，规划等领域的专家一同审议模型内部各景点的推荐权重，时间限制，文化理解顺序这些关键参数，从而保证量化指标遵照文化规律和游览常识；其二，路线生成的时候，会把模型产生的最佳解存进候选库，专家小组凭借人文关怀，街区节奏，体力承受能力等无法量化的要素来执行筛选并做微调，于是就得到了入库的经典路线；其三，在动态改良期间，系统会定时汇总游客的使用数据以及满意度反馈，由专家小组评判模型参数是否合适，进而促使模型不断更新换代，如此便形成了“模型生成-专家校核-反馈改善”的闭环，使得系统既有计算速度又具人文温情。

数学模型的意义在于确保推荐逻辑的严谨性，使量化约束具有合理性，专家经验的优势体现在提升方案的灵活性，场景适配性和人文关怀度上，能够兼顾老年人体力耐受情况，文化爱好者停留时长，家庭游客互动需求，街区节奏舒适度等难以量化的因素，本系统将科学运算与经验判断有机融合，一方面保证了推荐方案的科学性，另一方面也改善了实际落地效果，从而达成了优化游客体验并均衡城市客流的目标。

三、系统基本框架：数据库+实体导+手机推介

本研究创建的个性化文旅引导体系由综合数据库，实体导览导视系统以及手机推介平台这三部分组成，这些部分经数据互通和功能协同，形成了线上线下一体化的闭环服务系统（丁熊等，2016），进而创建起全面覆盖且精准高效的文旅引导体系（图 4）。数据库为整个系统提供底层的信息与计算支撑，实体导览导视系统给予直观，可感知又充满沉浸感的物理引导界面，手机推介体系能够随时开展个性化的智能推送，这三者相互配合，以完成客流均衡疏导，历史文化宣扬以及游览体验改善这些主要目标，五级导览体系在设计时深入融入秦唐文化元素，兼顾功能引导和文化展示这两个方面。



图 4：个性化文旅引导服务系统实施效益逻辑图

Figure 4: Logic Diagram of Implementation Benefit of Personalized Cultural Tourism Guidance Service System

（一）数据库

数据库属于个性化文旅引导系统的核心支撑模块，其负责信息整合，分类梳理，存储运算，路线匹配以及方案生成等重要功能，系统经由整合政府部门，科研机构，行业协会以及专业调研所形成的权威数据，创建起全面覆盖，结构清晰，动态更新且标准统一的文旅信息资源库。信息内容大致包含区位与气候状况，对外交通及市内交通网络，酒店和民宿分布情况，自然景观与历史遗迹等级，非遗展演与特色节庆活动，美食街区与本土业态，旅游咨询服务以及多语种标识，各时期历史地图等基本要素，在此基础上，系统形成起依靠六感体验视角的旅游项目分类办法，不同于传统的景点划分形式，这种做法更为接近游客的实际游览感受及其身心需求；

创建起统一坐标体系之下的多时期历史地图对照体系，从而化解历史空间与现代城市无法精确对应的难题；把出土文物，馆藏文物与其出土地点之间的联系信息加以整合，冲破博物馆和历史遗址彼此割裂的传统规划观念。系统把多目标整数线性规划模型用于大数据计算，从而得到景点适配和体验适配的基础数据，再融合专业知识来处理高维复杂问题，生成可以直接应用的经典路线与体验组合数据，给系统精准推荐赋予稳定，可靠又专业的数据支持。

本系统当中，多目标整数线性规划模型的计算包含离线和在线这两个部分，在离线期间，系统凭借综合数据库里储存的历史客流数据，景点特性，交通耗时等静态信息，由服务器按照一定的时间间隔（比如每周）执行模型，产出许多种典型的路线组合（诸如文化深度游，美食休闲游等等），并将这些结果存进数据库中的“经典路线库”里。而在线的时候，游客借助小程序给出自己的个性化需求（时长，兴趣，体力，人群类型），系统先做规则筛选，从经典路线库挑选出候选方案，再依照实时的客流情况，天气状况，拥堵程度等动态信息加以微调排序，该模型并非直接面向游客即时求解（以免造成计算延迟），而是采用“离线生成+在线适配”的形式融入系统，如此一来既能保障推荐方案的改良品质，又能顾及响应速度与用户体验。

（二）实体导览导视系统

实体导览导视系统是个性化文旅引导服务的一种具体体现，其设计采用五级分层布局策略（图 5），涵盖城市门户，街巷节点等诸多层级，目的在于实现可视展示与沉浸式文化引导功能。咸阳国际机场，西安站，西安北站以及西安绕城高速曲江口等重要地点处于第一层级的城市门户级，这里设有三维体验型艺术导览空间，借助立体成像装置形象地表现出城市文旅格局和体验结构；第二层级片区核心级，在地铁枢纽，大雁塔，小雁塔，钟鼓楼广场等核心区域安置大型文化主题导览图，为片区范围的游览提供指引并规划路线；第三层级街巷节点级，在唐长安城范围内的街巷路口以及景点周边设置超过 500 处体验分类导视牌和特色艺术装置，准确传达文化主题；第四层级点位精准级，凭借二环内的既有门牌体系实施改造创建街巷导游体系，从而做到点位级别的精准导览与信息获取；第五层级街区氛围级，经由建筑立面，城市景观以及相关店铺的整体规划营造出街区级别的文化景观导览环境，用来改善空间氛围和历史文化认知。五级体系层层递进且相互关联，可将隐性历史信息转化为直观可视，可触摸，可体验的物理形式，这便弥补了数字导览所存在的不足。



图 5：城市五级导览系统

Figure 5: Urban Five-level Guidance System

（三）手机推介体系

手机推介体系以官方微信小程序为主要载体，其界面设计简洁实用，操作逻辑顺应大众使用习惯，未设置多余装饰，着重体现信息效率和服务实用性，该系统包含两个核心功能模块，分别为检索与分类推介。检索功能让游客可自主输入游玩时长，兴趣方向，体力状况，出行人群，体验偏好等个性化需求，经由 AI 技术对需求实施智能拆解与梳理，从而找到最为合适的文旅体验方案；分类推介功能从兴趣爱好，旅游目的，体力接受度，出行人群等方面出发，直接推送诸如文化深度游，美食休闲游，亲子轻松游，历史遗址探访游之类的经典路线组合（图 6）。

微信小程序充当系统的数字入口，把实体导览设施上的二维码同线上内容讲解关联起来，使得线下导览可以和线上内容讲解无缝对接，游客获取信息就更为方便，体验也得到了改善（王伟，李阳，2022），周边相关的体验和拓展讲解能够做到线上线下无间断连接。小程序融合景区预约，交通查询，客流实时播报，应急求助，住宿查询等基本服务功能，依靠数据库自动更新内容，并遵照游客的使用行为和体验反馈不断改良推荐算法，成为游客便捷，高效，直观感受西安历史文化的重要数字工具。

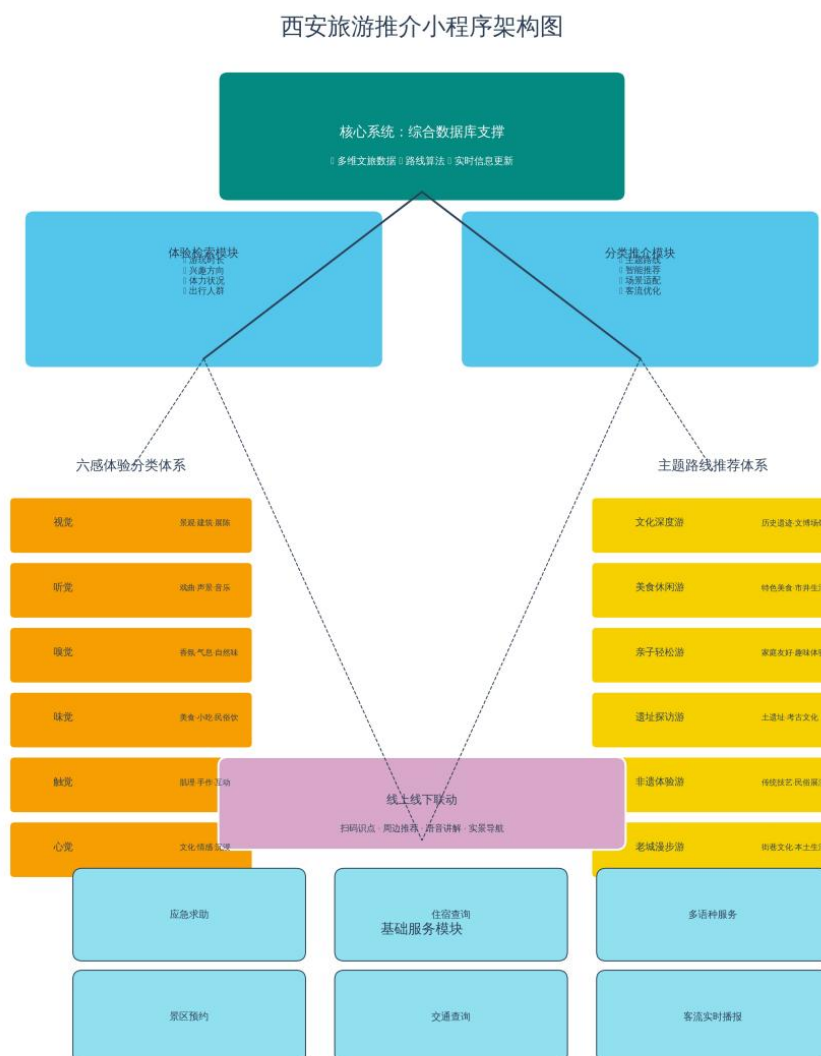


图 6：西安旅游推介小程序·完整架构图（含六感体系）

Figure 6: Complete Architecture of Xi'an Tourism Promotion Mini Program (Including Six-sense System)

四、西安市个性化文旅引导服务系统综述

（一）目标和意义

本系统意在应对西安旅游发展遭遇的四大核心难题，其一，需解决游客过度集中所引发的交通拥堵及公共资源紧缺状况，以减小“过度旅游”的风险。其二，要顺应文旅消费朝着体验化与个性

化方向发展的大势，去满足游客对于深层次文化体验的需求。其三，应促使客流得以均匀分配，从而激发遗址公园，小众文化街区等利用率较低的文旅资源，进而优化全域旅游的发展水平，其四，凭借旅游发展来推动历史文化保护以及城市可持续发展进程，助力游客更为直观且高效地领悟西安的历史文化底蕴。

（二）系统主要涵盖范围

西安市个性化文旅引导系统主要着眼于三环以内的区域，特别关注唐长安城遗址所在地，古城墙内部的全域被当作核心体验引导区，此系统的实体导览设施以及数字推介内容将会优先围绕唐文化遗存，历史街区，非遗体验点，特色市集等资源来开展，兼顾历史文化展示和游客的实际需求。

（三）相关城市发展设定

结合西安古城保护及旅游发展的需求，未来城市的发展应维持古城墙内的现有街巷尺度，避免拓宽道路，不兴建大规模现代建筑以及大型集中停车空间。可以考虑采用小型路面电车系统来改善慢行交通和公共交通状况，街区业态主要围绕文化，艺术，旅游体验等方面展开，并加强对共享单车等占用公共空间行为的管理，以陕西历史博物馆，西安博物院等重要场馆为中心创建连片文化体验区，从而达成文化展示与旅游服务的有效融合。

（四）系统构成

西安市个性化文旅引导服务系统由综合数据库、实体导览导视系统、手机推介体系三部分组成，三者数据互通、功能联动，形成完整的个性化文旅引导体系。

（四）1. 综合数据库内容

综合数据库包含城市多维基础信息及文旅专题信息，涉及交通，市政，公共服务，生态能源等基础设施数据，地理区位，气候，文旅资源，特色业态等旅游核心数据，还有各时期历史地图，文物出土地点与馆藏场馆关联信息等历史文化数据。数据库运用统一坐标体系，达成历史空间和现代地理信息的精准对接，而且创建依靠六感体验的旅游项目分类方法，经由多目标整数线性规划模型执行景点与体验的适配计算，并融入专业经验生成经典路线组合数据，给系统运行赋予全面，精准又动态更新的数据支持。

（四）2. 西安市文化和旅游局主管的手机推介体系：西安旅游推介小程序

西安旅游推介小程序由西安市文化和旅游局负责开发与经营，该系统是至关重要的数字平台，此小程序界面简洁明了，未添加任何多余装饰元素，其设计遵循功能优先原则，主要包含两个核心功能：城市体验检索和旅游内容分类推荐。体验检索功能使游客可输入游玩时间，兴趣偏好，体力水平，出行人员等信息，经由人工智能智能匹配文旅方案；分类推荐功能按兴趣爱好，旅游目的，体力承受能力等因素，给出文化深度游，非遗体验游，美食休闲游，亲子轻松游等多种主题路线，小程序能同实体导览设施的二维码相连接，做到线上线下导航无缝对接，而且整合景区预约，交通查询，客流播报，应急求助等基本服务，依靠数据库实时更新内容，并遵照游客使用数据不断改良推荐算法，进而成为服务游客，均衡客流，宣扬文化的官方工具。系统凭借统一的数据接口以及后台逻辑，确保前端手机推介（图 7），中端实体导览设施与底层数据库之间存在实时联动关系并达成数据同源，给游客带来精准且一致的引导服务（王佩，2023）。



图 7：个性化文旅引导服务系统实施效益逻辑图

Figure 7: Implementation Benefit Logic Diagram of Personalized Cultural Tourism Guidance Service System

五、重点项目设计

本章凭借前文所构建的系统框架及设计思路，融合西安文旅资源特色，城市发展定位以及旅游经营实际情况，针对数据库创建，实体导览落实，数字推介开发，核心区域优化这四个方面规划出四类具备可行性，可操作性和可持续性重点工程，并且促使这些工程相互配合协作，从而给文化体验型全域旅游发展，古城风貌守护以及城市可持续发展给予实际操作层面的支持。

（一）西安文旅综合数据库升级建设项目

本项目旨在形成起多维融合，动态更新且权威精准的文旅数据支撑体系，为此，我们与西安市文物，住建，交通，文旅以及考古研究院等多个部门展开合作，完成了文旅数据的整合，梳理及标准化工作，着重做到唐长安城等各个时期的历史地图同现代城市坐标体系精确对应，并创建出土文物，出土地点，馆藏场馆之间关联的三维信息库，增添土遗址可视化解读相关内容，按照六感体验的标准，开展三环以内重点文旅资源的调查并收集数据，从而完善体验型旅游项目的分类系统。成立跨部门数据共享机制，随时获取交通，客流，住宿，天气等动态经营信息，改良多目标整数线性规划模型，加强路线组合与体验契合的精准度，组建专业运维团队，创建数据库常态化更新，审核及守护机制，给实体导览布设和手机小程序推荐赋予统一，权威，实时的数据底层支持。

（二）西安文旅实体导览导视系统全域落地项目

遵照五级导览体系的规定，着重体现文化内涵，直观感受以及实用价值，依照区域文旅特点采取不同策略加以落实，创建起包含整个城市，层次分明且连接有序的实体导览网络，在咸阳国际机场，西安站，西安北站，西安绕城高速曲江口这些城市的门户位置，营造出集秦唐文化元素于一体的三维互动艺术导览空间，并设有旅游咨询服务及多种语言支持功能。在地铁枢纽，大雁塔，小雁塔，钟鼓楼，大唐不夜城等主要景点附近，共设置了十几处主题化的大型导览图，它们清楚地展示了各片区的文化架构和游览路线，在唐长安城所辖的街巷交叉点，遗址周边以及文化街区等地，布置了超过 500 个具有体验分类功能的导视牌和小型艺术装置，可以做到扫码关联并扩展相关信息，

在二环以内依靠已有的门牌系统实施改良升级，从而创建起“一条街道一个标识牌，一家店铺一个二维码”的精确街巷导游体系。对书院门—三学街，西仓，顺城巷等特色街区展开整体景观改造与文化氛围营造，塑造街区级别的文化景观导览体系，以加深沉浸式体验感。

（三）西安旅游推介官方小程序开发与运营项目

该项目由西安市文化和旅游局牵头，其负责开发并经营一个具备检索，推介，导航及服务功能的官方微信小程序，以此创建西安文旅个性化的官方入口。小程序界面干净实用且操作方便，符合全年龄段游客的使用习惯，主要开发了两个核心功能：城市体验检索和旅游内容分类推介。体验检索可依游客的游玩时长，兴趣喜好，体力状况，出行人群等因素智能推荐最佳方案；分类推介则包含秦唐文化深度游，非遗技艺体验游，老城美食休闲游，亲子轻松打卡游，历史遗址探访游等主题线路，小程序同实体导览设施二维码紧密关联，达成线下导览，线上导航，内容讲解的无缝对接，并且融合景区预约，酒店查询，旅游专线，客流实时播报，应急求助等基本服务，形成用户行为反馈与算法改良机制，不断加强推介精准度，由专业团队承担日常运维，内容更新以及功能升级任务。

（四）古城墙内文旅体验提升与配套优化项目

项目将把古城保护当作前提，把体验改善作为核心，把古城墙内塑造成系统的核心示范区，促使文旅发展和城市风貌达成和谐共生的局面。严格限制古城内的街道拓宽以及大规模现代建筑的创建，严格把控大型集中停车场的规划安排，引导业态朝着文化展示，非遗体验，艺术创意，特色商业方向转变，扶持本土老字号和特色店铺稳定发展，改良古城内部的交通体系，探究采用小型路面电车系统，加强共享单车停放的管理，完备步行和慢行系统，围绕陕西历史博物馆，西安博物院形成连片的文化体验区，规划博物馆与周边街区相衔接的体验路线，改进文化展示的完整性和连贯性。同时完善多语种标识，旅游咨询服务点，公共休息设施，旅游厕所等基础配套，营造古城保护，文化传承，旅游体验，居民生活协同发展的标杆区域。

（五）项目落地保障与长效运营机制

最终形成起政府主导，部门协作，专业运作和社会参与的全面保障体系，以保证项目得以高质量落实并可持续发展。设立由西安市文旅局统一领导的项目建设领导小组，细化职责划分及推进时间表，创建政府专项资金引领，社会资本介入，经营收益回馈的多元资金保障机制，制订数据库，实体导览，小程序等项目的运维管理规则，确定责任单位，更新频率和服务准则，经由官方平台，线下场所，媒体宣传，景区推广等诸多渠道执行系统的普及工作，加强游客的使用率和认同感，搭建项目效果综合评价系统，定时融合游客问卷，系统使用数据，客流分布变动，景区经营状况等内容展开评定，并依此不断改良内容，功能和服务，确保系统能长久稳定发挥效用，该评价体系着重观测热门景区客流下滑情况，冷门资源游客增长态势以及游客满意度这些关键指标，从而对系统执行成果实施量化分析。

六、结论

文旅消费正在朝着体验化，个性化的方向转变，在此大背景下，怎样把突然涌入的“流量”变成可持续的“留量”，成了西安这些历史文化名城做到旅游业高质量发展的关键课题（卢俊阳等，2025），本研究选取西安作为案例，形成了一套借助文化体验型全域旅游来推动的个性化文旅引导服务系统，为历史文化都市实现旅游可持续发展供应了一种可行的操作方法。

当下西安旅游存在热点景区人流密集, 众多文化遗产点及遗址公园使用率较低, 土遗址表现力欠佳, 传统街区保护与旅游开发之间矛盾凸显等实际状况, 本研究给出的个性化文旅引导服务系统, 其底层依托是综合数据库, 物理载体为多级实体导览, 数字入口则是官方小程序, 经由将科学计算同专家经验融合的路线规划, 达成对游客的精确指引并促使客流合理分流, 该系统一方面可切实改善热门区域的拥挤现象, 减轻“过度旅游”造成的不良影响; 另一方面则能唤醒冷门文旅资源, 优化全域旅游的发展品质, 使游客于便捷而直观的感受当中深入领悟西安的历史文化底蕴。

旅游发展有益于文化传承, 可形成“以旅彰文”的良性循环格局, 这既是非遗保护, 社区活力延续的重要依靠, 又是城市可持续发展的关键所在, 要让旅游效益, 文化保护, 城市治理和民生保障相互配合, 本研究成果给西安解决“过度旅游”难题并做到文旅高质量发展给予了可行途径(梁增贤等, 2025), 还给东亚地区历史文化名城应对旅游发展与遗产保护, 城市可持续发展之间的关系供应了有价值的参照范例。后续研究可借助时空大数据及强化学习算法提升路线推荐精准度, 并在更多历史文化城市实施实证验证, 以此来完善数据动态更新, 跨部门协同运作, 长效经营守护等机制, 从而不断提升系统的实用性与覆盖面, 推动历史文化都市的可持续发展不断向前迈进。

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情感人工智能国际研究热点及趋势分析

王 威 (Wang Wei), 鲍 芳 (Bao Fang)

摘要: 本文通过整理 2020-2025 年间 Web of Science 核心数据库中有关情感人工智能的研究, 并运用了结构化主题建模方法进行分析。从中识别出关于语言教育、服务场景、人机交互机制以及教育情境中的情感支持五大主题。进一步分析这些主题之间的关联, 我们发现早期研究更关注情感识别技术和算法本身, 而现在越来越多的研究开始转向具体应用场景中的人机情感交互和系统设计问题, 特别是与教育相关主题之间的联系非常紧密。随着应用范围的不断扩展, 目前的研究在跨文化适配、伦理规范与数据隐私等方面的讨论仍相对有限。未来研究可以扩大数据范围, 拓展研究情境, 进行更为全面细致的探讨。

关键词: 结构化主题建模; 语言教育; 服务场景; 人机交互; 教育情境; 情感人工智能

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Title: International Research Hotspots and Trends in Emotional Artificial Intelligence: Topic Mining Study Based on STM

Abstract: By collating research on affective artificial intelligence from the Web of Science Core Collection database between 2020 and 2025 and employing structural topic modeling for analysis, this paper identifies five major themes: language education, service scenes, human-

computer interaction mechanisms, and emotional support in educational contexts. Through further analysis of the interconnections among these themes, we found that early research focused more on emotion recognition technologies and algorithms themselves, whereas an increasing number of studies are now shifting towards issues of human-computer emotional interaction and system design in specific application scenarios, particularly demonstrating a very close connection with education-related themes. With the continuous expansion of application scopes, current research remains relatively limited in discussions regarding cross-cultural adaptation, ethical norms, and data privacy. Future research could broaden the data scope and expand research contexts to conduct more comprehensive and detailed inquiries.

Keywords: Structural Topic Modeling; Language Education; Service Scenes; Human-Computer Interaction; Educational Contexts; Affective Artificial Intelligence

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随着人工智能（Artificial Intelligence, AI）技术的进步，如果说早期的关注点主要集中在让机器“看得见、听得清”这类感知能力上，那么现在大家更关心的是，如何让 AI 更“懂人心”，也就是迈向认知智能的阶段。近年来，以 ChatGPT、Gemini、DeepSeek 等为代表的大规模语言模型（Large Language Models, LLMs）的快速迭代，在一定程度上重塑了人机交互的新范式，研究关注点正从单纯传递准确信息，转向关注互动中那些更“人性化”的层面。比如，人们开始更多地探讨技术的社会属性和情境特征，比如：一段对话里的情感底色是什么？在不同的场景下，AI 的回应方式应该如何调整？它的反馈会给用户带来怎样的心理感受？

正是因为这些问题越来越受到重视，我们看到了“情感智能”这个分支的兴起。人们逐渐认识到，情感绝非对话中的噪音或干扰，而恰恰是理解意图、建立信任、实现有效沟通的核心纽带。在这一背景下，情感因素逐渐被引入对人机互动关系的理解之中，并由此推动情感人工智能成为一个受到关注的研究方向。

初期的人机交互以模拟人类智商为主，主要通过智能聊天助手与人类进行简单对话。这些机器人能够快速回答用户提出的常见问题，具有较高的应答准确率，并能提供良好的用户体验。然而，当回答复杂问题时，这类机器人往往答非所问，几乎不能通过图灵测试中的类人性要求。（赵妍妍等，2024, pp. 1377-1402）

近年来越来越多的研究将情感元素纳入 AI 系统设计当中。例如，Meta 于 2023 年发布的 CAIRaoke 框架，尝试通过语音韵律、面部微表情等多模态情感信号来实时调整对话策略。在多语言、跨文化交互环境中，如何实现情感自然表达与共鸣，成为情感人工智能研究急需解决的核心问题。

（Li et al., 2020, pp. 4454-4466; Majumder et al., 2020, pp. 8968-8979; Shin et al., 2020, pp. 7989-7993）

在此背景下，本文选择 2020-2025 年 Web of Science 核心数据库中关于情感人工智能的相关文献，采用结构化主题建模（Structural Topic Modeling, STM）方法进行分析，为揭示该领域的热点主题、并探讨不同主题之间的连接关系及随时间变化的演变特征，从而为该研究领域的理论创新和实证探索提供参考。

一、研究问题与研究工具

（一）研究问题

围绕情感人工智能的近年来的发展状况，本文主要关注以下四个问题：1）2020 至 2025 年，关于情感人工智能研究的论文数量与引用情况有何变化趋势；2）STM 建模可以提取出哪些热点主题；3）不同主题之间是否存在一定的结构性联系，其关联程度如何；4）今后研究还应关注哪些方面。

（二）研究工具

在情感计算研究初期阶段，关键词网络分析方法被广泛采用，例如通过共现图谱来呈现研究领域的显性知识结构。然而，此类方法在面对高维数据和复杂问题时，往往容易出现语义信息被过度简化的情况。（Chen et al., 2022, pp. 24-47）

传统方法的局限促使研究者转向自然语言处理（Natural Language Processing, NLP）技术以深入挖掘文本内容。例如：通过潜在狄利克雷分配（Latent Dirichlet Allocation, LDA）模型分析电动汽车评论，识别出消费者关注点的变化。但 LDA 模型的主题解释性较弱，需预设主题数量，在研究方向快速变化的情况下，主题数往往较难确定。（He et al., 2022）

在此基础上，部分研究开始引入 BERTopic 和结构化主题建模。BERTopic 结合 Transformer 表征与聚类算法，在主题区分度和精度识别方面有所提升，更适合处理复杂语境下的文本数据。不过，其计算成本相对较高，在语料规模较少时，模型稳定性不足。（Grootendorst, 2022）相比之下，结构化主题建模可以将元数据作为协变量，在识别出潜在研究主题的同时，还可以进一步分析主题与时间、作者等结构性变量之间的关系，从而增强模型的解释能力。（Tenison et al., 2023, pp. 659-687）已有研究表明，STM 在梳理主题演化路径和知识结构方面具有较好的效果。（Sharma et al., 2021）

此外，STM 并不要求所有文档具有完全相同的主题结构，而是允许在不同条件下表现出差异性。这一特性使其在跨学科研究以及时间跨度较长的文本分析中具有较强的适应性。（Bialas et al., 2024）

通过对比分析，本文最终选择 STM 方法进行分析，从文献标题、关键词与摘要提取关键信息，以发表年份作为协变量，系统识别情感人工智能研究的热点主题、主题关联结构及其随时间变化的特征。

二、研究过程

（一）文献收集与检索策略

数据收集分为两个步骤。首先，选择 Web of Science 为检索数据库，原因在于它在学科覆盖面和引文索引方面具有显著的优势，广泛应用于科学计量与知识图谱等研究。其次，通过主题（TS）和标题（TI）构建以下检索式：

TS=（（“artificial intelligence” OR “AI” OR “intelligent” OR “Large Language Model” OR “ChatGpt” OR “intelligent Agent”） AND TS=（“emotion” OR “dialogue”）） AND TI=（（“artificial intelligence” OR

“AI” OR “intelligent” OR “Large Language Model” OR “ChatGpt” OR “intelligent agent”) AND TS= (“Emotion” OR “Dialogue”))。

(二) 文献筛选

根据检索式共得到 633 篇文献，经过进一步筛选，限定文献发表时间为 2020-2025 年，以突出该领域近期研究成果，时间跨度在五年以上的数据通常能够稳定反映研究主题演化特征。（徐汉青、滕广青，2024, pp. 119-128）去除非英文发表论文以降低语言差异影响。主要选择期刊与会议论文以保证研究质量与学术影响力的一致性，减少不同类型文档的差异性对主题建模结果的影响。（Hosseini et al., 2018, pp. 235-247）

最终筛选出 345 篇文献作为研究样本，从样本中提取出关键词 2122 个，去重后最终得到 1563 个有效关键词，检索日期 2025 年 11 月 4 日。

(三) STM 主题建模

1、数据清洗

主题建模前需进行数据预处理以提升模型效果，主要围绕文本规范化与噪声控制展开。比如清除文本中的数字、标点、特殊字符及常见停用词（如“me” “I” “or” “him” “a” “they”），以降低非语义信息对模型训练的干扰，将术语转为小写并清除可能残留非字母编码字符（如“amacr” “eacute”），确保语料在格式与编码上的一致性。

分词处理采用 tidytext 包分词，剔除英文通用停用词（如“the” “and”）及长度不超过 2 字符的低信息词项。利用 textstem 包进行词形还原，将不同词形映射为对应基本形式，如“learning”还原为“learn”，将“models”还原为“model”。最后过滤低频词，保留单篇文献中出现次数不少于 2 次的词汇，以保证语义信息完整性，同时有效降低噪声水平提升主题建模的稳定性。

2、模型参数设定

在 STM 建模中，主题数 K 的设定对结果影响重大。为避免主观设定偏差，表 1 通过主题连贯性与语义区分度指标，对不同的主题数进行比较。结果显示，K=5 时，模型在语义连贯性与主题区分度间取得良好平衡，整体拟合效果最佳。

参数	取值	说明
主题数(K)	5	通过“主题连贯性”与“语义区分度”测试，K=5 时模型拟合最优。（连贯性= 0.68，区分度= 0.82）。
迭代次数	160 次	当相邻迭代的“每词边界值”变化 $<1e-05$ 时，判定模型收敛。
输入格式	文档-词矩阵	通过 cast_dtm 函数构建，转换为 stm 包可识别的语料库格式。

表 1：模型参数设定表

Table 1: Model parameter setting

3、模型收敛检验与验证

在完成 160 次迭代后，模型边界值稳定在-5.940，相邻迭代变化幅度低于 $1e-05$ ，满足常用模型收敛条件（见图 1）。使用 stm 包中 TopicQuality 函数评估模型质量，5 个主题的平均连贯性得分 0.68，优于通常认为良好语义一致性阈值 0.5，表明主题、关键词语义关联紧密，具备较为清晰的聚类特征。

通过“主题间余弦相似度”计算，5个主题间平均相似度 0.23，低于经验阈值 0.3，表明不同主题在语义上相对独立，没有出现明显的重叠。

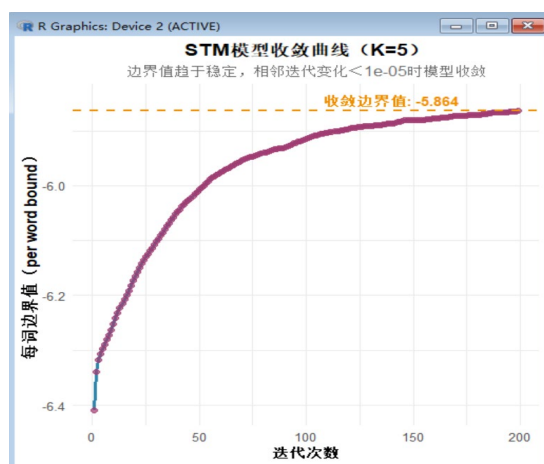


图 1：STM 模型收敛曲线

Figure 1: Convergence Curve of the STM Model

4、STM 主题生成流程

数据清洗、文档-词矩阵构建及可视化分析主要在 Python 环境中执行，结构化主题建模则在 R 环境中调用 stm 包实现。通过使用 stm 包中 t-SNE 的降维方法，将高维主题分布投射至二维平面，生成基于主题分布的文档聚类，其主题生成的流程如图 2 所示。

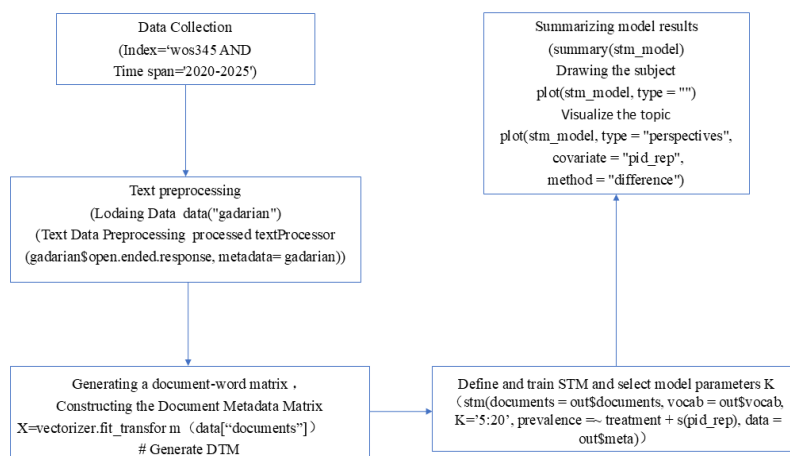


图 2：主题生成的流程图

Figure 2: Flowchart of Topic Generation

三、研究结果与分析

(一) 文献发表与引用概况

学科的年度论文发表量和被引用情况往往是其是否热点研究方向的“晴雨表”。通过对检索出的

文献进行统计，情感人工智能的研究规模总体上呈现出快速上涨趋势（图 3）。2020 至 2025 年间，年度发文量从 12 篇持续增长至 130 篇，其中 2024-2025 年实现显著跃升，较 2022 年的 50 篇几乎翻倍。尽管 2023 年收录量略有回调至 48 篇，且 2025 年数据因统计时限可能存在不全，但整体发文数量仍保持强劲增长态势。

就引用次数而言，该领域年度被引频次持续攀升，显示出关于情感人工智能的研究在学术界的影响力不断增强。这一发展态势既得益于生成式 AI、多模态感知等关键技术的突破，也反映出情感人工智能与人机交互、教育、医疗等场景的深度融合。随着 AI 技术的快速更新与应用场景的拓展，情感人工智能相关研究预计仍将保持较高增速，并在理论创新与技术落地持续释放潜力。

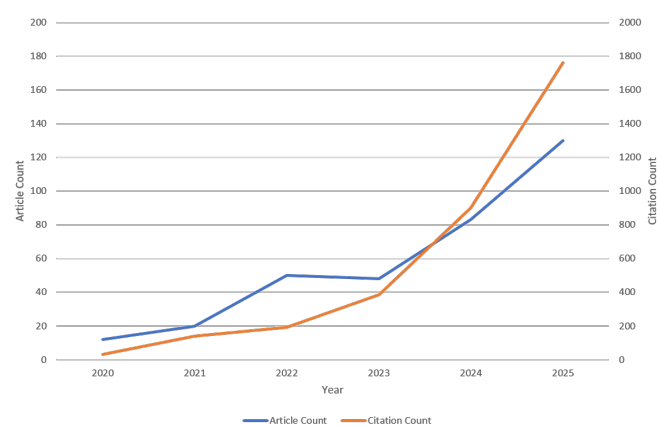


图 3：发文量及引用次数

Figure 3: Number of Publications and Citation Counts

（二）高被引文献

为了更好的挖掘出有代表性的主题信息，被引次数较高的文献通常能揭示一个领域内的核心思路 and 关注重点。这份认识，也引导着我们的分析工作。在整理文献时，我们特别留意了那些被引用超过 60 次的文章，并对它们进行了系统性梳理，从中识别出在情感人工智能领域具有代表性的研究成果。

序号	文献标题	引用次数
文献 1	Emotion recognition and artificial intelligence: A systematic review (2014-2023) and research recommendations	196
文献 2	The effects of over-reliance on AI dialogue systems on students' cognitive abilities: a systematic review	291
文献 3	Bots with Feelings: Should AI Agents Express Positive Emotionin Customer Service?	132
文献 4	Half human, half machine-augmenting service employees with AI for interpersonal emotion regulation	87
文献 5	Research Challenges and Security Threats to AI-Driven 5G Virtual Emotion Applications Using Autonomous Vehicles, Drones, and Smart Devices	69

表 2：高被引文献

Table 2: Highly cited literature

文献 1 通常被视为该研究领域的技术起点。该研究通过梳理并整合面部表情、语音、文本以及生理信号等多模态数据,构建起较为完整的情感计算技术框架。回答了情感 AI “是否具备技术可行性”这一基础性问题,使情感计算从概念设想转向实践,为后续研究与应用提供了理论方法、算法与模型支撑。在这一意义上,该研究奠定了整个领域向纵深发展的技术前提。

与此形成对照的是,文献 2 并未着力推进技术能力本身,而是从应用后果的角度重新审视 AI 的使用方式。研究指出,即便在技术条件成熟的情况下,如果过度依赖 AI,将在认知与行为层面引发负面影响。因此有必要为技术应用划定边界,讨论重心由“是否可用”转向“如何使用才是合理的”,并推动伦理考量与设计约束逐步纳入情感 AI 研究过程。

文献 3 是典型的场景化验证研究。研究视角不再停留在“技术能不能识别情感”这一层面,而是转向“是否应该表达情感”以及“表达何种情感才合适”等更具深度的交互设计问题。该研究对提升客服机器人满意度提供了更清晰的分析框架,推动情感 AI 走出实验室,进入更为真实的商业应用场景。

在人机交互中,文献 4 对情感人工智能在人机关系中的角色进行了进一步探讨,提出了一种人机协同的新范式。研究认为,在高情感需求的服务中,人类的同理心与 AI 计算能力并非对立关系,而是可以相互补充。AI 更应被视为辅助工具,而不是对人的简单替代,这种理解有助于避免将技术应用简化为“机器取代人”的二元对立。这一视角为情感人工智能在复杂服务场景中的应用提供了更为开放的想象空间。

如果说上述研究仍主要围绕微观交互层面展开,文献 5 则将视角提升至宏观层面。该研究指出,当 AI 与 5G 通信、自动驾驶及无人机等深度结合应用之后,其潜在风险不再局限于单一的交互失误,而可能会演变为涉及影响安全、可靠性、伦理等更为广泛的社会问题。因此对 AI 的发展进行风险评估与制度设计不可忽视。

可以看出,这些高被引研究在研究对象与问题意识上呈现出一定的连续性,但其关注重点并不完全相同。早期工作更多致力于研究情感识别与生成技术,而随着技术逐步成熟,研究重心逐渐转向人机交互中的情感对话能力,以及 AI 与新技术深度融合后存在的风险。这一研究脉络不仅为不同应用场景提供了针对性的解决思路,也为本文在主题范围界定与研究重点选择方面提供了重要的方法。

(三) 主题分布分析

为了更直观地展示每个主题下的文档分布特征,我们从 STM 中提取的 `theta_matrix` 包含每个文档的主题比例,使用 t-SNE(t-distributed Stochastic Neighbor Embedding)将主题可视化 2D 空间集群,t-SNE 投影的散点图显示了热点主题的文档聚类。在散点图中,每个点代表一篇文献,其颜色对应文献最可能归属的主题,由此可以观察热点主题的聚集形态。

运用 t-SNE 降维技术,可以得到 345 篇文献在二维空间上的分布情况。如图 4 所示,结构化建模后的文献依据主题相似性聚集成五个边界较为清晰、内部相对集中的集群,显示出较高的语义一致性。t-SNE 有效保留了高维空间中的邻近关系,使得主题相似的文献在二维投影中彼此靠近,主题差异较大的则相对分离,少数孤立点则可能对应非主流主题。

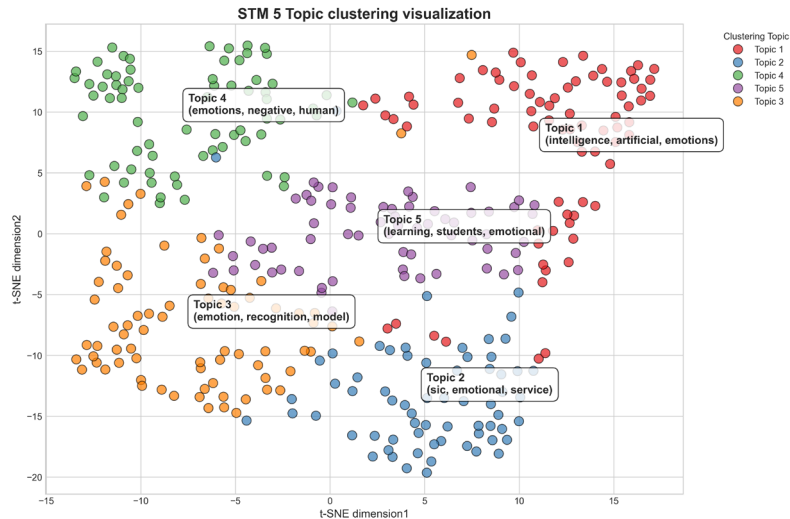


图 4：主题聚类分布图

Figure 4: Topic Clustering Distribution Map

（四）主题可视化展示

通过 `labelTopics` 函数提取每个主题排名前 10 的高频关键词，结合领域知识对 5 个核心主题进行语义解读，利用 STM 库中的 `plot(stm_model, type = "summary")` 函数对关键词进行可视化展示（图 5）。

由图 5 可见，部分词汇（如“emotions”“emotional”“human”）在主题间出现了重叠。此类现象是主题建模的固有特征，即特定词汇可同时归属于多个主题（Vayansky, I., & Kumar, S. A., 2020），这些共享词汇在不同主题中与其它词汇形成了差异化的共现语境。该分布特性不仅提升了模型的鲁棒性，也为理解文本语义结构及主题间的关系提供了新的视角。从提取出的主题词来看，它们较为集中地反映了当前情感人工智能研究中的关注重点，既体现了学界对相关问题的持续兴趣，也为后续拓展研究问题和应用场景提供了参考。

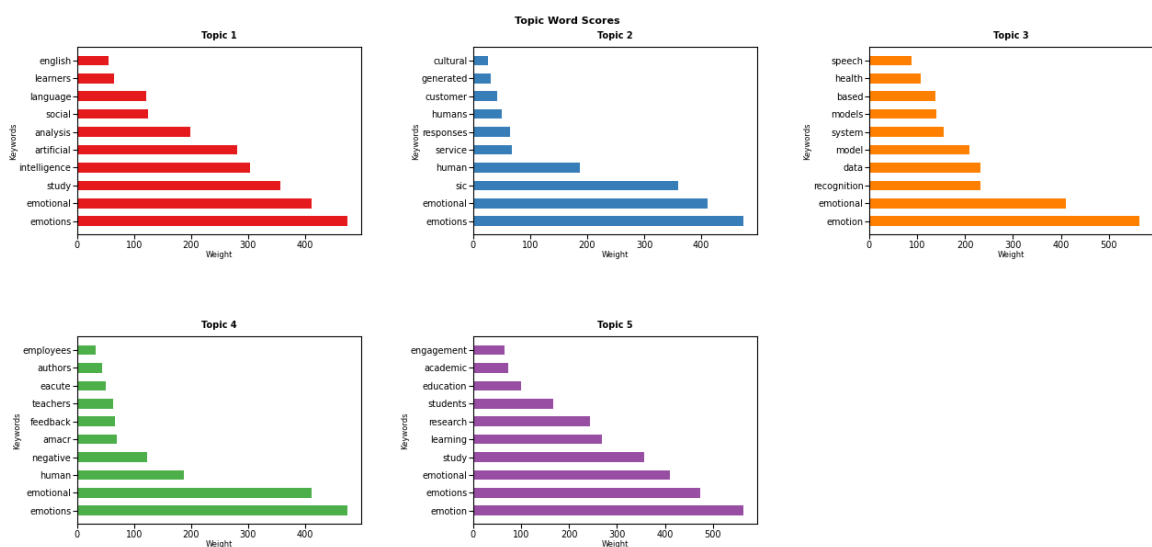


图 5：主题分布图谱

Figure 5: Topic Distribution Map

（五）主题内容分析

结合主题聚类及分布图谱，本文归纳出五个相对集中的研究主题。需要说明的是，这里的划分并非严格意义上的分类，而更像是对不同研究在应用场景和问题取向上自然聚合状态的一种概括。

Topic 1 主要围绕人工智能在语言教育中的情感应用展开。早期的研究主要倾向于情感识别技术及其性能，该主题下的研究开始把注意力放在情感感知能力如何融入语言学习过程之中。大量研究表明，外语学习者的情绪体验与其课堂参与度、投入意愿以及学习成效之间存在密切关联，因此，情感反馈逐渐被视为智能语言学习系统中不可或缺的组成部分。（Wu, 2023, pp. 3921-3932）部分实证研究发现，引入情感感知的教学系统在一定程度上有助于改善学习体验，并缓解学习焦虑。

（Mahmoudi-Dehaki & Nasr-Esfahani, 2025; Huang et al., 2025）不过，这类结论多建立在短期干预或样本规模有限的情境下，其效果的稳定性以及在不同文化语境下的适用性仍存在争议。（Wang & Dong, 2025; Wang, 2025）

Topic 2 关注服务场景中的情感化 AI 设计。在 2020 至 2025 年间，依托情感计算技术,实现了从技术到具体应用的跨越。研究重点逐渐从“是否能够识别情感”转向用户对情感化系统的主观感受。

（Sanjeeva et al., 2024）在医疗健康、公共服务和客户支持等情境中，研究者开始探讨情感化 AI 是否以及在何种条件下，能够改善用户体验，而不仅仅是提升服务效率。（Lee et al., 2025）部分研究表明，在资源受限或人工服务不足的情况下，具备基础情感反馈能力的 AI 系统有助于缓解用户的孤独感与焦虑。（Pu et al., 2019, pp. e37-e51）但其效果高度依赖具体场景、用户特征及文化背景，且并非总能稳定复现。（Chin et al., 2023）当情感表达过度拟人化时，部分研究甚至观察到用户不适感与信任下降的风险。（Cihodaru-Ştefanache & Podina, 2025）因此，如何在持续优化用户体验、伦理边界与用户自主性之间取得平衡，逐渐成为有待解决的核心问题。（Rahsepar Meadi et al., 2025）

与前两个偏应用取向的主题相比，**Topic 3** 更侧重情感人工智能的技术基础。在技术上，通过融合面部表情、生理信号以及语音等多种模态数据，并结合神经模糊系统、知识驱动推理等混合模型，情感识别的准确性与稳定性在一定程度上得到提升。（Ayari et al., 2022, pp. 3567-3576; Zhang, 2025, pp. 1-12）同时，以 Transformer 为代表的可解释性模型，增强了情绪识别系统开发的可信度。（Yi et al., 2025）在应用层面，该系统已成功应用于医疗健康、汽车安全等场景，并展现出良好性能。未来，该领域将朝着轻量化、实时化、跨模态融合方向发展（Jurist, 2019, pp. 193-198; Rogelj, 2025），但在临床数据的标准化、模型的泛化能力、伦理合规性等方面仍存在挑战。未来需加强产学研协作，推动技术从实验室走向实际应用，同时注重数据隐私与算法公平性问题。（Calvo & D'Mello, 2020, pp. 18-37）

Topic 4 主要关注人类在与 AI 互动过程中的情感心里机制。由于 AI 并不具备与人类相同的主观经验与意向性，传统社会心理学中的解释框架能否直接迁移至人机互动情境，尚未形成共识。部分研究强调用户对系统功能的先验预期在情感反应中占主导地位，也有研究指出角色认知与社会规范同样显著影响用户对 AI 情感表达的接受程度（Devillers & Cowie, 2023, pp. 1445-1458），用户对 AI 情感反馈的反应建立在双重基础之上：一方面是对系统功能可靠性的理性评估，另一方面是对其情感表达是否符合具体互动情境的主观判断。（Meyer & Okuboyejo, 2021; Liu et al., 2025）

当人工智能在交互过程中呈现负面情感反馈时，其对用户产生的心理影响并不完全等同于来自他人的负面评价。有研究通过对比实验发现，这两种情境可能引发不同类型的情绪反应。（Li et al.,

2025) 不过, 相关结论多依赖特定实验条件, 在复杂现实互动中的适用性仍有待进一步检验。随着互动的逐步深入, 情感反馈的文化适配问题逐渐收到关注。由于不同文化背景下对情感表达的理解和规范存在明显差异 (Sutoyo & Permana, 2025), 若情感 AI 未能充分考虑这些差异, 其设计意图可能被误读, 甚至引发用户抵触。因此, 越来越多研究强调将情感交互视为一种高度情境化、需要动态调节的过程, 而非固定不变的功能模块。(Hou et al., 2023)

在教育领域, 人工智能的应用也在不断深化, Topic 5 主要聚焦于教育场景中的 AI 情感学习, 即通过智能技术识别和回应学生的情感状态, 辅助优化学习体验与学习成效。

现有研究普遍认为, 学习情绪、学习动机与学业投入之间存在复杂交互关系, 这一理论视角为情感 AI 在教育中的应用提供了重要支撑。(Tara et al., 2025) 在具体实践中, 学生学习效果往往受到个体差异、课堂组织方式以及教师参与程度等因素的影响。不少研究尝试引入机器学习方法, 对学习行为日志、面部表情、语音信息和交互记录等多模态数据进行整合分析, 用以识别学习过程中可能出现的消极情绪, 并据此提供相应的个性化建议。(Ma et al., 2025; Shafait et al., 2021)

从目前的研究来看, 单独衡量情感支持在教育中的实际效果, 并不容易。这要跟具体的课堂情境、教学方法紧紧相连。其效果在不同学习者、不同阶段及学习环境中可能呈现出明显差异, 这也促使研究者开始反思情感 AI 在教育体系中的角色定位, 情感 AI 更应该成为教师的得力助手, 帮助老师更好地观察课堂、理解学生, 而不是独自扮演情感陪伴的角色。(Yu et al., 2025; Costa & Faria, 2025, pp. 2732-2756)

(六) 主题关联强度分析

从表 3 主题相似度矩阵可以看出, 各主题之间的关联程度分布并不均匀。一些主题在语义特征上表现出较高的接近性, 而另一些主题之间的相似度则相对较低。这种差异表明, 不同研究方向在关注重点和研究内容上存在明显分化。

其中, Topic 1 与 Topic 5 的关联度最高, 相似度为 0.78, 两者均集中于教育相关研究, 尤其在语言教育的情感支持应用方面存在较多重叠内容。反映出教育场景下情感 AI 研究的相对集中性与内在一致性。Topic 2 与 Topic 4 的相似度次之, 表明服务场景与人机情感交互研究共享若干相近议题。如用户服务体验设计、情感表达方式等, 在理论结构与实证方法上具有较强的互补性。相较之下, Topic 2 与 Topic 5 的相似度较低, 显示两类应用领域在现有研究中尚未形成显著交叉。

这一发现提示, 情感 AI 在不同终端应用场景下的知识积累相对独立, 服务领域更偏重商业化部署与用户心理机制, 教育领域则聚焦学习过程干预与教学协同, 未来研究可进一步探索跨场景的通用设计原则或迁移学习策略。

Topic	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
Topic 1	1.0	0.18	0.42	0.35	0.78
Topic 2	0.18	1.0	0.29	0.63	0.15
Topic 3	0.42	0.29	1.0	0.31	0.45
Topic 4	0.35	0.63	0.31	1.0	0.28
Topic 5	0.78	0.15	0.45	0.28	1.0

表 3: 主题关联强度分析表

Table 3: Topic association strength analysis

（七）主题研究热点演变

表 4 呈现了 2020-2025 年各主题的研究热度变化，其以年度主题占比（主题文献数/总文献数）为衡量指标。数据直观反映了各主题在时间维度上的变化趋势。

年份	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
2020-2021	15.2%	18.7%	32.1%	16.8%	17.2%
2022-2023	18.5%	22.3%	25.6%	19.1%	14.5%
2024-2025	22.8%	25.9%	18.3%	20.7%	12.3%

表 4：研究热点与趋势

Table 4: Research hot spots and trends

从表 4 的数据可以看到，不同主题在研究占比上呈现出明显的趋势性变化。具体而言，服务场景导向的研究占比从 18.7%提升至 25.9%，增长 7.2 个百分点，这一趋势与后疫情时代服务业数字化转型的迫切需求相呼应，特别是在情感化客服、个性化推荐等领域，AI 技术正通过模拟人性化交互来弥补传统服务的不足。

与此同时，与语言教育相关的研究比重呈现出持续上升的趋势，由最初的 15.2% 提高至 22.8%，增幅为 7.6 个百分点。这与生成式 AI 对话系统的快速发展密切相关。随着相关技术在实际教学中的逐步应用，具备即时反馈和个性化引导功能的语言学习工具不断涌现，在一定程度上降低了语言学习的进入门槛，也推动了该研究方向的扩展。

从时间分布来看，围绕情感识别技术展开的研究在样本文献中的占比有所回落，由 32.1% 降至 18.3%。这一变化并不意味着相关技术的重要性减弱，而更可能反映出研究关注点的转移。学术界开始将更多关注点投向具体应用情境，服务系统与语言教育逐步成为情感人工智能研究的重要实践领域。

四、展望

通过对 2020-2025 年 Web of Science 核心合集文献的结构化主题建模研究，本文对情感人工智能领域中的主要研究主题及其变化趋势进行了梳理。从整体情况来看，相关研究已不再单纯围绕情感识别算法性能展开研究，重心逐渐从“基础情感识别技术”向“场景化应用”转移。这一变化在一定程度上反映出学界在真实交互环境中对 AI 情感元素的关注不断增强，也表明单一技术指标已难以充分解释情感人工智能在不同应用中的表现差异。

从主题结构关系来看，与教育相关的主题呈现出较为紧密的关联，这一现象说明，在当前研究阶段，教育场景仍是情感人工智能应用中发展较为成熟，且可持续推进的研究方向之一。同时，服务场景与人机交互心理机制之间的关联也较为明显。在服务情境中，情感化系统的实际效果往往不仅与其功能设计有关，还受到用户对情感反馈是否符合自身预期和情境理解的影响。相比之下，不同应用场景之间联系不够紧密的情况也说明，情感人工智能在实际设计和评估过程中，很难直接套用统一标准。其应用效果往往会受到具体任务目标和使用环境的影响，而这些因素在不同场景中差异较大。

基于上述情况，后续研究有必要在已有工作的基础上，进一步扩大数据来源，并尝试引入更多的应用情境。同时，围绕跨文化适配、伦理规范以及数据隐私等问题，开展更深入的讨论。情感人工智能的发展不仅取决于技术层面的进步，还需要在实际使用过程中不断检验其情感反馈是否合理，以及可能带来的社会影响。

当然，本研究仍存在一定不足。其一，所选数据仅来自 web of science 期刊论文，未覆盖其他类型文献，这在一定程度上忽视了对非英语研究成果的统计。再者，相关分析主要围绕标题、摘要和关键词文本信息展开，仅引入了时间因素，未进一步考虑可能影响主题关系的其他变量，在一定程度上削弱了主题间的关联强度。值得探讨的是，主题分析结果受参数设定和数据处理方式的影响较为明显，在不同条件下，其稳定性仍有待进一步验证。

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语言符号学视角下的儿童道德隐喻研究

孙 荣 (Sun Rong), 刘清源 (Liu Qingyuan), 孙 澳 (Sun Ao)

摘要: 本研究以索绪尔的语言符号学为理论基石, 对隐喻现象进行符号学重释, 系统探讨了隐喻的符号本质、生成机制及其在儿童道德认知建构中的动态作用。研究从静态与动态两个维度构建了隐喻的分析框架: 静态维度聚焦于词汇层面的符号相似性与句法层面的符号象似性, 揭示了隐喻生成的语言结构基础; 动态维度则通过寓言故事的实证分析, 考察了儿童在意义解读中如何主动构建道德隐喻, 并展现其道德判断的多元性与主体性。基于理论阐释与实证发现, 本研究为国际中文教育领域借助隐喻资源培育儿童的道德思维及判断能力, 提出了兼具学理性与可操作性的教育建议。

关键词: 语言符号学; 隐喻生成机制; 道德隐喻

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Title: A Study on Children's Moral Metaphor from the Perspective of Linguistic Semiotics

Abstract: This study is grounded in Saussure's linguistic semiotics, offering a semiotic reinterpretation of metaphor. It systematically explores the symbolic nature of metaphor, its generative mechanisms, and its dynamic role in children's moral cognitive construction. The research establishes an analytical framework from both static and dynamic dimensions. The static dimension focuses on symbolic similarity at the lexical level and symbolic iconicity at the

syntactic level, uncovering the linguistic-structural foundation of metaphor generation. The dynamic dimension, through empirical analysis of fables, investigates how children actively construct moral metaphors during meaning interpretation, demonstrating the plurality and subjectivity of their moral judgments. Based on theoretical elaboration and empirical findings, the study further proposes pedagogical suggestions, both theoretical and practical, for utilizing metaphorical resources in international Chinese education, to cultivate children's moral thinking and judgment abilities.

Keywords: linguistic semiotics; metaphor generation mechanism; moral metaphor

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一、引言

隐喻,作为一种古老而深邃的语言与思维现象,始终贯穿于人类认知与表达的历史长河。其英文词源“metaphor”源自希腊语“metaphora”,本义即“由此及彼”,形象地揭示了隐喻的核心机制:以一个认知域(始源域)的经验来理解另一个认知域(目标域)的经验,通过跨域映射实现意义的创造与传递(Lakoff & Johnson, 2003)。自亚里士多德(2003)将其界定为将属于彼事物的名称用于此事物,并建立起经典的类比公式(A is to B as X to Y)以来,隐喻研究便从修辞学的沃土中萌芽。在中国,早在《诗经》的“赋、比、兴”体系中,“比”作为比喻的核心手法,已蕴含着丰富的隐喻实践,成为中华诗性智慧的重要表征。

纵观学术史,隐喻研究的范式历经多次转向。从古典修辞学对辞格本身的分类与赏析,到哲学层面对隐喻与真理、存在关系的思辨,再到现代语言学,特别是认知语言学的勃兴,将隐喻提升至人类基本思维方式的高度。费尔迪南·德·索绪尔(Saussure, 1980)开创的语言符号学,为隐喻研究提供了另一套极具洞察力的方法论工具。索绪尔将语言视为一个由能指(音响形象)与所指(概念)构成的符号系统,强调符号的任意性、系统性以及意义产生于系统内部要素的差异与关系之中。这一视角促使我们思考:隐喻是否可以理解为一种特殊的符号关系?隐喻意义的生成,是否可视作符号所指在特定语境下的层级性延伸与创造性建构?将隐喻置于符号系统的网络中进行考察,有望更清晰地揭示其从静态语言资源转化为动态认知工具的内在机制。

本研究旨在融合语言符号学的理论视野与儿童道德发展的现实关切,尝试对以下核心问题进行探索:1)如何从语言符号学的基本原理出发,重新阐释隐喻的本质及其与一般符号的关系?2)隐喻的生成具有怎样的静态语言机制和动态建构过程?3)在儿童接触和理解富含隐喻的文本(特别是寓言故事)时,如何基于符号互动建构其道德认知?这种建构呈现出怎样的特点?对这些问题的回答,不仅有助于深化隐喻的符号学理论,也能为儿童道德教育,尤其是国际中文教育中利用语言材料进行价值引导,提供科学的参考路径。

二、道德隐喻的研究现状

自亚里士多德将隐喻纳入修辞学范畴以来，隐喻研究历经了从古典辞格分析到现代认知科学探索的深刻范式转型。这一转型的标志性成果，当属乔治·莱考夫和马克·约翰逊（Lakoff & Johnson, 2003）提出的“概念隐喻理论”，提出了“结构隐喻”、“方位隐喻”和“本体隐喻”三种基本类型，并以“映射论”解释其工作机制，即从始源域向目标域的系统性投射。韩礼德（Halliday, 2000）的“语法隐喻理论”将隐喻研究扩展到词汇语法层面，关注同一意义在不同语法形式间的隐喻式体现，丰富了系统功能语言学的意义观。吉勒·福科尼耶（Gilles Fauconnier, 1994）的“概念合成理论”则引入了“心理空间”的概念，认为隐喻意义的产生是多个心理空间选择性整合的结果，更具动态解释力。尽管这些理论从认知和功能视角极大地深化了我们对隐喻的理解，推动了研究范式的多元繁荣，但仍存在一定的视角局限：传统修辞学研究多囿于词汇层面的替代与静态分类，对句子及篇章层面的动态意义生成关注不足；而主流认知理论虽揭示了概念映射的普遍性与系统性，但对映射在具体语言符号层面如何精确实现，以及个体在隐喻生成与解读中表现出的主体性和差异性，尚未给予充分的理论阐释。

在国内学界，隐喻研究同样呈现出引进与本土创新相结合的特点。一方面，学者们对西方理论进行了深入引介与评述；另一方面，也着力挖掘中国传统文化与语言中的隐喻智慧。近年来，曾毅平、李春红（2023）则通过语料库方法实证考察了汉语喻体的语法占位规律。具体到道德隐喻与儿童教育的研究领域，哲学与教育学研究者探讨了隐喻在道德概念形成和道德教育中的独特价值。例如，李宏翰、许闯（2012）明确提出“道德隐喻”的研究范畴，指出道德概念常通过隐喻得以理解和表达。邓达、易连云（2007）认为故事中个体或群体的思想、言行进行事实描述和情感表达，能够考察儿童对其中蕴含的道德原则、价值标准进行生活层面的理解。

然而，系统梳理现有文献可以发现，尽管研究视角多元，但从严密的语言符号学体系出发，对道德隐喻的生成机制及其在儿童认知中的建构过程进行系统阐释的研究仍较为鲜见。多数研究或侧重于隐喻的认知心理效果，或侧重于教育文本的内容分析，未能充分剖析其从语言符号到道德意义的转化密码。尤其在国际中文教育语境下，如何利用汉语符号系统的特性，通过隐喻教学促进学习者的道德认知发展，更是一个亟待开垦的交叉领域。本研究试图在此薄弱环节有所突破，将索绪尔语言符号学的基本原理作为核心分析工具，为道德隐喻研究开辟一条新的路径。

三、语言符号学研究视角的合理性阐释

（一）语言符号学概述

语言符号学，是用符号学的思想和方法来研究语言问题。费尔迪南·德·索绪尔的现代语言学让语言学跟符号学有了科学的联结，他认为符号学是心理学的一部分，语言学是符号学的一部分，语言是一个符号系统。他建立了经典的二元对立范畴：“语言”与“言语”、“共时”与“历时”、“能指”与“所指”、“组合关系”与“聚合关系”。其中，“能指”指音响形象，“所指”指概念，两者的联结在根本上是任意的，但一旦在社会共同体中约定俗成，便具有强制性。

这种系统关系视角对于隐喻研究极具启发性。隐喻的理解和生成，恰恰依赖于在符号系统的网络中发现并建立新的关系连接。一个词项的隐喻义，并非凭空产生，而是其固有意义（作为系统中的一个节点）在特定语境下，与其他符号节点（包括文本内外的符号）发生创造性关联的结果。索绪尔关于符号“不变性”（社会规约的稳定性）与“可变性”（历史演变的可能性）的辩证论述，也为解释隐喻意义如何从个人创新最终可能固化为语言常规提供了理论空间。

（二）隐喻与符号的关系

从索绪尔的能指/所指二元结构出发，我们可以对隐喻进行一种清晰的符号学定位。在日常的、规约化的语言使用中，一个语言符号的“所指”通常是其第一层级的概念意义，即词典中收录的基本义或指称义。然而，在隐喻的使用中，符号的“所指”发生了创造性的滑动与扩展，进入了第二乃至更高的层级，具有开放性、多层级性、模糊性的特点。

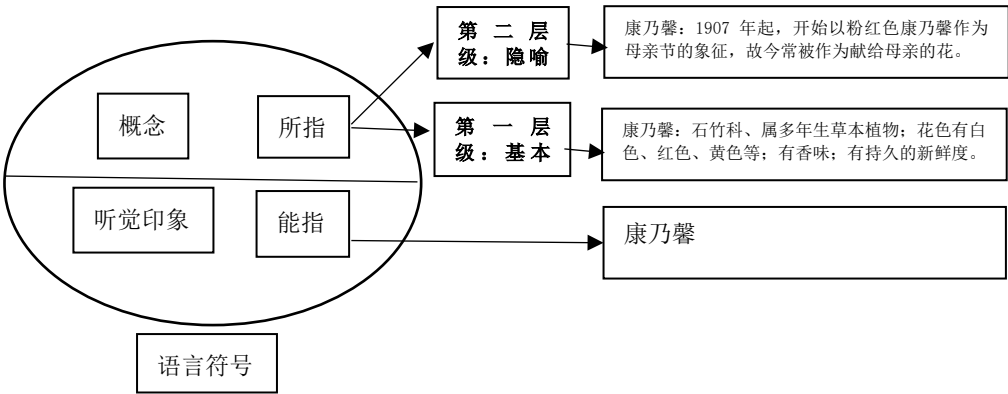


图 1：语言符号的层级性
Figure 1: The Hierarchy of Language Symbols

如图 1 所示，以“康乃馨”为例。其作为能指的声音形象或书写形式是固定的。在第一层级，其所指是作为植物的客观特征集合。而在第二层级，由于特定的历史文化实践（如美国母亲节的习俗传入），其被赋予了“母爱”、“感恩”等强烈的文化情感意义。当我们在母亲节引导儿童制作康乃馨手工时，我们所调动和强化的，正是这个第二层级的隐喻所指。这个过程生动展示了符号如何超越其直接指称，承载并传递道德情感价值。

在科技领域，术语的创造大量利用了这种符号的隐喻性延伸机制。如“电脑”、“鼠标”、“病毒”、“防火墙”、“云存储”、“QQ 医生”、“电子词典”等，无一不是借用日常概念的能指，通过隐喻映射，将熟悉领域的特征投射到陌生的科技领域，从而创造新的专业所指。这充分证明了隐喻是推动符号系统扩展、新意义生成的内在动力之一。

（三）隐喻与符号的建构

隐喻的意义并非完全客观地存在于符号之中，而是在使用与理解的交际过程中被动态建构的。这一过程可以模型化为一个主体间的符号互动循环（图 2）。

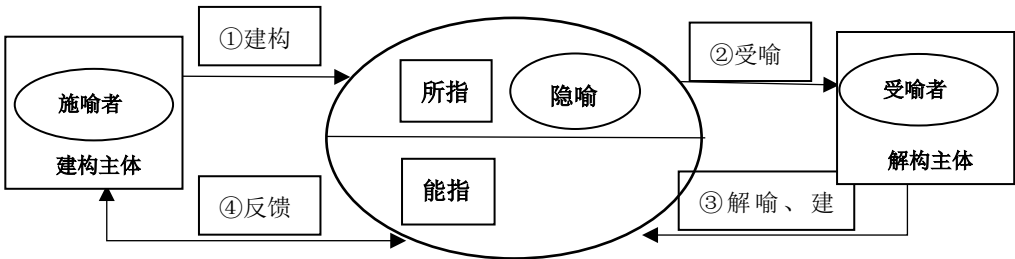


图 2：隐喻意义的主体间建构循环模型
Figure 2: The inter-subjective construction and circulation model of metaphorical meaning

首先,建构主体(施喻者)基于自身的认知、意图和文化背景,从语言符号系统中选择符号,并赋予其包含隐喻维度的所指(第①步)。这个符号(能指)被传递给受喻者(第②步)。受喻者作为解构主体,并非被动接收,而是主动调动自身的知识体系、生活经验和认知框架,对符号进行解码,尝试重建其意义,其中就包括对隐喻可能的解读(第③步)。这一解读结果可能通过言语或非言语方式反馈给施喻者,从而引发进一步的确认、澄清或协商(第④步)。这个过程在交际中不断循环,隐喻意义得以在主体间生成、调整和确立。

寓言故事作为复杂的符号文本,是观察这一建构过程的绝佳场域。一个寓言故事的文字层面(能指序列)提供的只是一个基础的情节框架(第一层级所指)。其深刻的道德寓意(第二层级隐喻所指)需要儿童作为积极的“解构主体”去发掘和建构。研究表明,儿童并非简单地接受成人预设的“标准答案”,而是会基于不同的主体定位(代入故事中哪个角色)、生活经验和情感偏好,生成多样化的、甚至出人意料的道德解读。这正体现了隐喻理解的主体性和创造性,也是道德认知个体差异在语言符号层面的反映。

让·皮亚杰(Jean Piaget, 2015)的认知发展理论指出,儿童道德认知的发展是在“同化”与“顺应”的平衡过程中实现的。面对富含隐喻的寓言,儿童试图用已有图式去理解故事(同化),当标准解读与自身体验冲突时,则可能调整图式,产生新的理解(顺应)。语言符号的隐喻开放性,恰恰为这种认知冲突和平衡提供了丰富的素材与空间,从而促进道德判断结构的进化。

四、隐喻生成的静态与动态双重机制

(一) 静态机制:语言系统内的意义潜势

隐喻的生成首先根植于语言符号系统本身所提供的静态潜势。这种潜势主要体现在词汇和句法两个层面。

1. 词汇层面:符号间的相似性

隐喻在词汇层面的生成,直接依赖于本体与喻体符号之间被感知到的相似性。这种相似性是隐喻得以建立的认知基石。根据相似性的性质,可大致分为两类:

例如:

①人体部位-事物:山头-山脚、头儿(领导)、头等;左右手、情同手足

②颜色:红色-喜庆-春节、黄色-尊贵-皇权、白色-悲痛-葬礼

物理特征相似性,基于事物之间外在形态、功能等可感知属性的相似。例如,基于空间位置相似性的“山头”、“山脚”;基于形状或功能头部重要性相似的“头儿”(领导)、“头等”;基于手足协作关系的“左右手”(得力助手)、“情同手足”。

抽象/文化规约相似性,基于社会文化赋予某种特征的象征意义或心理联想。颜色隐喻是典型代表,如“红色”在中国文化中与“喜庆”(春节)、“革命”(鲜血)关联;“黄色”曾与“尊贵”(皇权)相连;“白色”与“悲痛”(葬礼)相通。这些关联并非天然,而是文化建构的结果,构成了语言符号系统中稳定的隐喻资源库。

2. 句法层面:符号的象似性

索绪尔强调符号能指与所指关系的任意性,但当代符号学,深受皮尔斯影响,同样关注“象似性”,即符号形式与其所指对象之间的理据性关联。在句法层面,象似性为隐喻的生成和解读提供了

结构动力。象似符又分 3 小类：映象符、拟象符、隐喻符。根据这些研究，本研究基于国际中文教学，提出了隐喻生成的静态机制，见图 3。

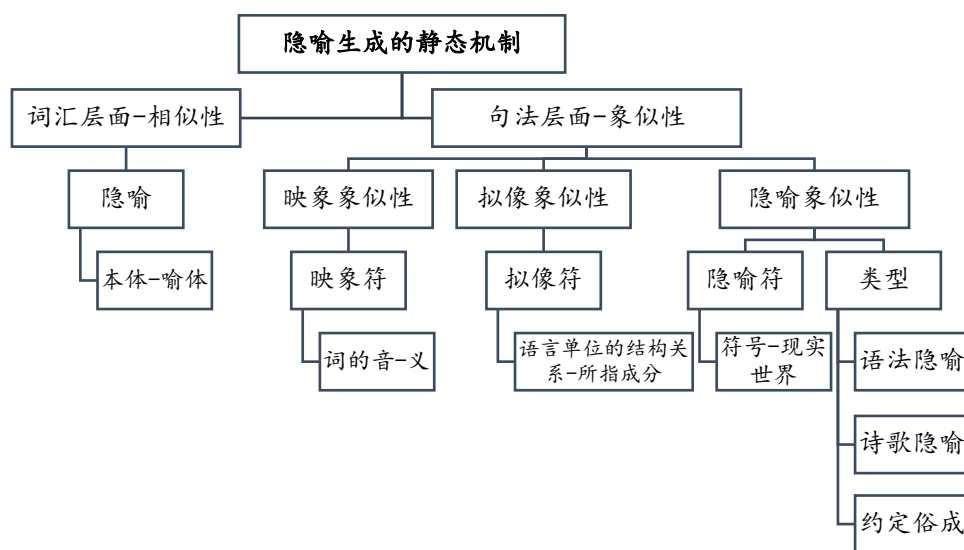


图 3：隐喻生成的静态机制

Figure 3: Static Mechanism of Metaphor Generation

认知语言学派的罗纳德·兰卡赫尔（Ronald Langacker, 1987）提出“基体”与“凸体”理论，认为语言表达是对认知域中某一特定部分的“凸现”。每个符号建构主体处于不同观察视角，对同一语言符号有不同的识别、选择、解码、加工方式，语言符号使用者会选取某一凸显的外在特征或内在属性上的相似性，并将这种相似性扩大化和具体化。如下面的例句，“月亮”用作始源域时，不同作者有不同解读。

例如：

- ①举头望明月，低头思故乡。（李白《静夜思》）
- ②人有悲欢离合、月有阴晴圆缺。（苏轼《水调歌头》）
- ③月出惊山鸟，时鸣春涧中。（王维《鸟鸣涧》）

三首诗词里“明亮”、“圆”、“月出”是月的不同的概念凸显，赋予了不同的隐喻义，让读者深入体会到作者此时此刻的心境与情感。

句法层面，隐喻化思维的形成是隐喻构建的重要环节。符号使用者对本体与喻体间相似性进行“识别—选择—解码—加工—理解—输出—再造—反馈—认知—内化”的过程就是隐喻化思维形成的过程。始源域与目标域间的关系是“差异中的相似”（束定芳，2004）。

例如：

- ④不知细叶谁裁出，二月春风似剪刀。（贺知章《咏柳》）
- ⑤梅须逊雪三分白，雪却输梅一段香。（卢梅坡《雪梅》）

在例句④中，将“春风”置于主语位置，将“剪刀”置于喻体位置，并用“似”连接，这种“X 似 Y”的句法构式本身就是一个强大的隐喻生成框架，强制读者在“春风”与“剪刀”之间寻找功能上的相似性（裁出细叶），从而完成诗意的创造。例句⑤中，把“梅花”、“雪”进行了拟人，赋予人的意识进行比较，突出了“梅花”的香气与“雪”的洁白。

（二）动态建构机制：主体在语境中的意义创造

静态机制提供了隐喻生成的可能性，而动态建构则描述了隐喻在具体交际和认知活动中如何实现。这是一个以主体为核心、语境为依托的创造性过程。

1. 主体考察

隐喻的建构与解读高度依赖主体因素。主体因素有共性因素和个性因素，共性因素是符号使用者之间达成的共识，往往受到文化底蕴影响，以保障施喻者与受喻者之间的交际行为顺利进行；由于社会经历、世界知识、生活环境、思维方式、文学修养、情感等不同，符号使用者又会表现出个性因素。钱钟书的“两柄多边”理论精妙地概括了这一点，“两柄”指同一事物可因情感态度的褒贬不同而形成相反的喻义（如“水”可喻“柔情”亦可喻“祸患”）；“多边”指同一事物具有多种属性，隐喻时可能只取其一端（如“月”可取其“圆”喻团圆，取其“明”喻皎洁，取其“缺”喻遗憾），其观点蕴含博大的中国传统哲学和文化，是对英美以认知为导向和驱动的概念隐喻理论的有力补充（孙毅、唐萍，2023）。

在儿童道德隐喻理解中，个性因素表现得尤为突出。他们的生活经历、情感偏好、既有道德观念（个性因素）以及所处文化社群的共同规范（共性因素），共同影响着其解读路径。例如，在《龟兔赛跑》的故事中，一个性格好胜、看重结果的儿童，可能更倾向于对兔子因骄傲而失败感到惋惜（凸显“谨慎”属性）；而一个性格坚韧、相信努力的儿童，则可能更钦佩乌龟的坚持（凸显“毅力”属性）。这种基于不同“边”的选择和带有不同情感“柄”的判断，直接构成了儿童多元道德立场的语言表达。

2. 基于寓言故事的道德隐喻建构

为具体揭示儿童如何动态建构道德隐喻，本研究选取经典寓言《龟兔赛跑》为材料，依据教育部中外语言交流合作中心（2021）研制的《国际中文教育中文水平等级标准》进行语言改编。改编中控制词汇量、词汇复现率及难度，充分考虑个性与共性因素，区域国别文化词汇（戴玮玮，2025，p.309），同时重视口语表达，角色间对话丰富生动，喻义注重塑造儿童道德价值观。此外，通过创设真实语境、推动读写融通、引入多元文本等方式激发学生主体性（周建强，2025，p.321）。在改编案例寓言故事《龟兔赛跑》，控制词汇难度及故事长度（共 144 个字），注重难点词汇复现率（“兔子”6 次、“乌龟”9 次，“跑”5 次，“慢”3 次，“比”2 次）。

教学改编材料：

龟兔赛跑

兔子和乌龟是邻居。

兔子：乌龟你跑步太慢！我跑得最快。

乌龟：我们比比吧！

第二天，他们比赛跑步。

兔子一会儿就跑了很远，乌龟慢慢爬。

兔子：乌龟太慢了，我先睡一会，然后再跑。

乌龟没有睡觉，一直爬，爬呀爬呀。

当兔子醒来时，乌龟快要到终点了。

最后乌龟是第一名。

乌龟：啊，我是第一名！

兔子：哇……（哭了）

随后对 42 名 8 岁儿童（来自国际学校，具备基本中文理解能力）进行故事讲述与开放式访谈，引导他们分享对故事的理解和看法，而不预先给出任何道德结论。儿童的反馈呈现出丰富的多样性（见表 1）。我们将其解读按“主体定位”（代入谁的角度）、“道德判断”（是否公正等）、“情感色彩”（赞同/反对/中立）和“凸显属性”（关注哪个道德维度）四个维度进行编码分析。

序号	主体定位	频次	儿童的隐喻理解	道德判断	“两柄”情感色彩	“多边”凸显属性
1	乌龟	10	乌龟第一名，是意外。	非公正	反对	偶然性
2			我们是乌龟，我们要努力跑。	公正	赞同	努力
3			乌龟太累了。	非公正	中立	努力
4	兔子	20	兔子不要睡觉，就第一名。	非公正	反对	告诫
5			兔子不哭，下次是最棒的。	非公正	反对	鼓励
6			乌龟太丑了，我喜欢兔子。	中立	赞同	个人情感
7			不要说别人（跑得慢），不好。	非公正	反对	交际
8	旁观者	12	下次比游泳，乌龟第一名。	公正	中立	公正
9			为什么不叫醒兔子？比赛不公平	非公正	反对	公正
10			他们不是好邻居。	非公正	反对	交际
11			下次，乌龟和兔子一起跑步，一起运动。	公正	中立	合作

表 1：隐喻性蕴含图谱统计

Table 1: Statistical Analysis of Metaphorical Inference Patterns

研究发现，第一，儿童主体定位多元化，儿童并不天然认同“主角视角”（乌龟），而是自由代入乌龟、兔子甚至旁观者角色，从不同立场出发构建意义。第二，道德判断个性化，仅有约 59.5% 的儿童认同“努力就有回报”的传统公正判断，相当一部分儿童从“运气”、“规则公平”、“合作”甚至“个人情感”等维度做出“非公正”或“中立”判断，这反映了其道德认知的复杂性与初期的批判思维。第三，“两柄多边”鲜明体现为同一角色（如兔子）既可能因“骄傲睡觉”被反对，也可能因“可爱”被喜爱；故事寓意既可凸显“努力”，也可凸显“公平”或“合作”；儿童的选择是其个人认知与情感倾向的投射。这一微观实证表明，寓言故事的道德隐喻意义绝非单一线性的传递，而是在儿童作为主动建构者的解读过程中，与文本符号互动、碰撞、合成的结果。教育者需要尊重并引导这种建构的多样性。

五、结语

本研究从索绪尔语言符号学的系统观和关系论出发,重新审视了隐喻的符号本质,将其界定为语言符号所指在特定语境下的创造性、层级性延伸。通过构建“静态-动态”双重分析机制,研究阐明了隐喻既植根于语言系统内部的相似性与象似性潜势(静态),又实现在具体交际中主体基于认知与语境进行的主动建构(动态)。结合对儿童寓言理解的实证观察,研究进一步揭示,儿童道德隐喻的生成是一个高度主体化、多元化的符号建构过程,深受其主体定位、情感倾向和个人经验的影响。

研究对国际中文教育中的价值观培养,具有以下启示:首先,重视隐喻资源的系统性开发。教材编写与教学活动中,应有意识地选择和分析富含隐喻的语言材料,关注多层次的文化与道德隐喻义,引导儿童探索符号背后的意义世界。其次,尊重并引导多元意义建构。教师应创设开放、安全的讨论环境,鼓励儿童从不同角度解读文本,分享各自构建的隐喻意义,培养其批判性思维和同理心。再次,儿童促进符号认知与道德发展的协同,语言学习与道德教育可有机融合。最后,关注教育者的符号意识,在儿童意义建构的过程中提供适时、恰当的“支架”,促进其认知与道德的协同发展。

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全球科技治理变革下中国职教师资培养模式创新 ——基于 EPIP 的鲁班工坊标准化进阶体系建构研究

张媛远 (Zhang Yuanyuan), 翟风杰 (Zhai Fengjie)

摘要: 鲁班工坊作为一种新兴的职业教育国际合作方式其师资能力的培养借助工程实践创新项目 (EPIP) 得到有效提升。作为中国职业教育本土创新发展而成的教育教学模式, 根据外方需求和中方标准要求按照阶梯式逐级递升的方式对鲁班工坊骨干师资通过鲁班工坊合作领域中标准化的技术要求指标针对专业及教学能力开展培训与提升。当前全球科技治理体系变革形势下, 通过中外双方实施的多形式培训实践总结出可行经验并建立起鲁班工坊骨干师资标准化进阶培训模型为全球职教师资培养和教育合作提供参考与借鉴。

关键字: 鲁班工坊; 工程实践创新项目; 骨干师资; 标准化进阶培训

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Title: The Model of Vocational Teacher Training in Africa: Standardized Advanced EPIP Teacher Training of TUTE

Abstract: Luban Workshop, as an emerging mode of international cooperation in vocational education, has effectively enhanced the training of its teaching staff through Engineering Practice Innovation Projects (EPIP). As an educational teaching model developed from local innovation in China's vocational education, it conducts training and improvement for the key teachers of Luban Workshop based on foreign demands and Chinese standard requirements,

according to a tiered progression model, focusing on standardized technical requirements indicators in the cooperative fields of Luban Workshop regarding professionalism and teaching capabilities. In the current context of global technological governance system reforms, the training practices implemented by both Chinese and foreign parties have summarized feasible experiences and established a standardized progressive training model for key teaching staff of Luban Workshop, providing references and insights for the global training of vocational education teachers and educational cooperation.

Keywords: Luban Workshop; EPIP; key teachers; Standardized advanced training

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在全球化时代，职业教育成为连接人力资本与产业需求的关键纽带。中国以“鲁班工坊”为平台通过工程实践创新项目（EPIP）教育模式的系统性输出，开创了“标准引领——师资培养——平台共建”的职业教育国际合作新范式。在亚非欧美洲 31 个国家建立了 36 个职业教育基地和 30 个海外研究中心。从职业教育体系的融入者变为规则制定者，为发展中国家提供可复制的人力资本“中国方案”。埃塞俄比亚鲁班工坊既是中非命运共同体建设的教育实践样本，更承载着技术地缘政治与教育治理创新的双重意涵。其以技术标准和制度扩散辐射东非，推动职教合作从援助转向共建，既印证了中国职业教育从模式输入者向规则制定者的角色跃迁，也为全球技术治理体系多极化能力建构提供了中国范式^[1]，标志着职业教育国际合作从资源援助型向制度共建型的范式革新。

一、非洲及埃塞俄比亚本土职教师资能力分析

非洲作为全球最年轻的大陆，虽有人口红利优势，但其职业教育因历史原因长期发展滞后且不平衡，严重制约地区可持续发展。近年来，随着非洲经济快速增长，企业技术人才需求激增，但本土职业人才培养能力远不能满足市场需求。埃塞俄比亚作为非洲人口排名第二大国，该国自 1990 年代起大力发展职业教育：创建结果导向培养模式，建立职教院校并开展职业教育培训。然而，随着全球经济加速，其职教体系面临双重挑战——师资数量短缺且专业素养不足，培养的人才难以对接现代制造业需求。尽管政府专门设立职教师资培养机构，但因缺乏现代技术技能培训，实际成效有限，职业教育质量提升仍面临紧迫压力。

中非职业教育合作通过“一带一路”框架为非洲提供职教支持，但合作过程中也面临可持续发展、资源共享与产教融合等新挑战。为此，鲁班工坊项目基于平等合作、互利共赢原则推出创新方案：采用 EPIP（工程实践创新）教学模式，结合非洲各国政治经济现状、资源条件及教育基础，制定“平等合作、优质优先、产教融合”等五项实施原则。项目重点聚焦三大领域——提升非洲职教师资理论实践能力、对接当地产业需求、完善职业教育体系，着力解决人才培养与经济发展脱节的核心问题。

二、本土职教师资能力维度解析

从理论上根据职教师资能力体系结构模型，职教师资能力主要体现在职教师资基础能力、专业能力和扩展能力 3 个维度，着眼于教师的认知、沟通、管理、分析、教学、创新、实践、语言、指导等不同能力单元。从认知上看职教师资能力不仅包括学科理论知识储备和实际应用，还包括了教学指导能力、行业互动交流能力、创新提升能力以及教师行为道德等。通过对这些能力单元的解析可以对埃塞俄比亚本土职教师资能力做出简要的分析，以从本质上了解埃塞本土职教师资的能力构成。

埃塞俄比亚的职业教育教师在从事该职业前基本可被分为两类，一类教师在入职前曾接受过职业教育理论和实践的专门培训，通常被定义为应用技术型教师；另一类只接受过理论文化知识的学习，入职职业院校后依托入职机构开展教学教法和实践应用环节方面的培训。笔者曾对埃塞俄比亚职业教育领域的教师及官员开展调研，让其对职教师资能力中的部分主要环节开展自我评价，评价结果见下图所示。

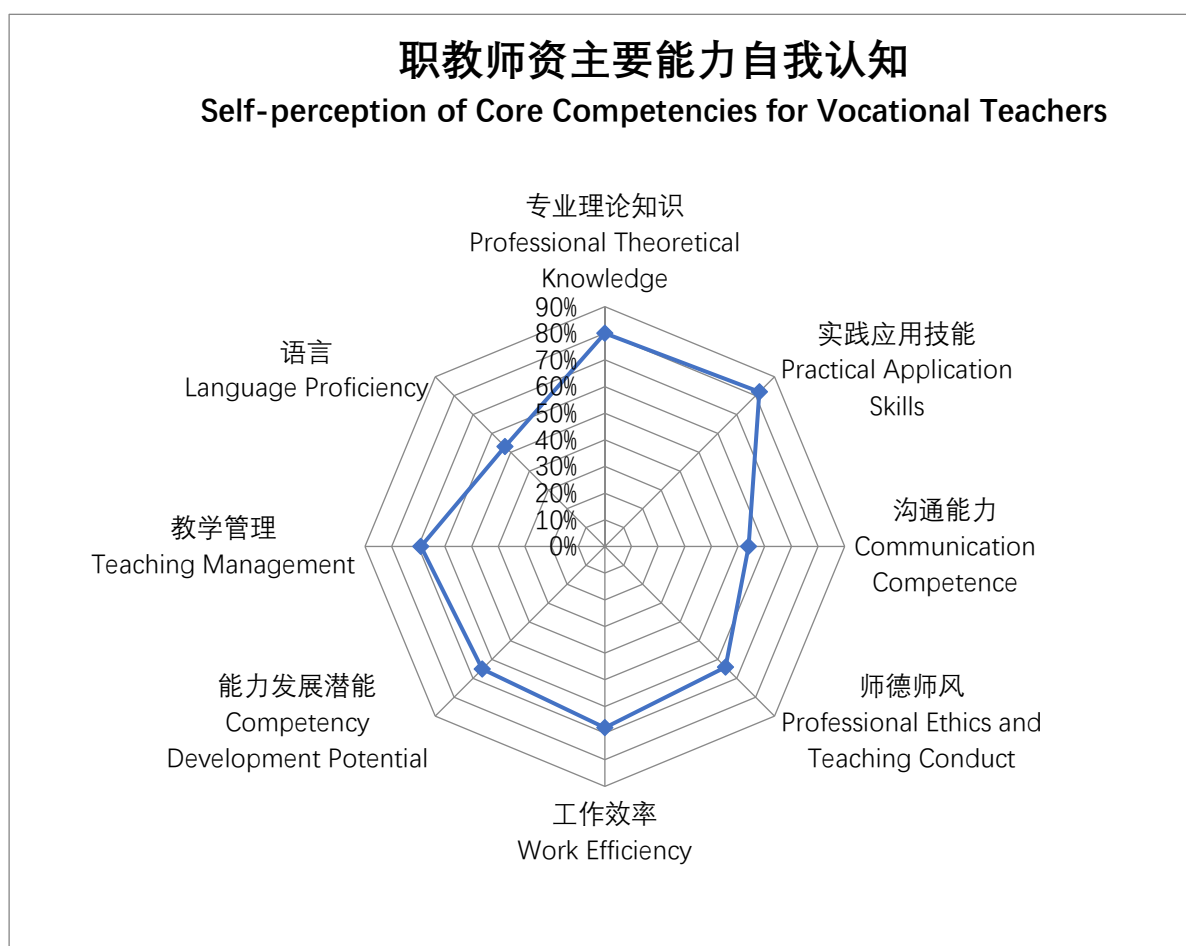


图 1：职教师资主要能力自我认知分析

Figure 1: Self-perception of Core Competencies for Vocational Teachers

调查结果显示，埃塞本土职教师资对自身学科理论知识和实操技能的重视程度较高，对教学和表达方面的反映出较低的重视程度，这些认知从一个层面上反映出该国职教师资提升的关注方向。

EPIP 是鲁班工坊项目建设的核心内容, 不仅关注人才理论和实践应用方面的能力提升, 而且注重教学方式方法的体系建设。根据埃塞产业发展和技能人才市场需求, 鲁班工坊的职教师资培养计划将使该国本土职教师资能力提升将得到有效地改善。

三、本土职教师资能力提升支持要素

教育的基本要素包括教育者、受教育者、教育内容、教育手段、教育途径以及教育环境。其中教育者是教育的首要基本要素, 教育者能力的提升关乎教育质量提升的整体把控。由此可见, 本土职教师资能力提升关系到埃塞职业教育质量提升, 而职业教育质量提升直接影响着其本国职业技能人才培养的质量与水平, 进而间接影响其国家的经济和产业发展。埃塞俄比亚鲁班工坊项目坚守共研、共建、共享、共用、共赢的“五共”机制, 建设过程涉及场地、设备、师资、课程标准、教学资源五个维度的硬件及标准建设, 并在空中课堂、师生竞赛等互动系统建设方面有所创新, 契合埃塞俄比亚职教师资能力提升所需的主要因素, 从教育者、教育手段、途径以及环境等多重要素入手来改善该国的职业教育条件, 分享中国职教师资培养方案。在建设过程中, 工坊不仅着力于师资的专业理论基础、实践应用的培养, 而且重视职业教育体系和 EPIP 教学方法、模式的传授, 更加注重师资培养和科学研究, 设立埃塞俄比亚 EPIP 教学研究中心, 并与东非职业技术教育改革与区域一体化项目 (EASTRIP) 卓越中心合作, 同时为肯尼亚、坦桑尼亚等东非各国提供服务, 开展面向东非地区的技术技能人才培养和职教师资培养, 服务“一带一路”建设, 推进非洲的一体化进程。

四、本土职教师资能力提升的解决方案

天津职业技术师范大学与埃塞俄比亚职业技术培训学院以鲁班工坊为平台, 在人工智能领域引领了埃塞俄比亚等东非国家的技术技能人才培养和行业发展, 被非盟总部设立为面向整个非洲的技术技能人才培养基地。不仅为埃塞俄比亚培养人工智能领域的高级技能人才和职教师资, 更为整个非洲地区打造出该领域最先进的职业技能培训平台和职业教育师资培训基地。

(一) EPIP 与鲁班工坊在埃塞俄比亚的推广

工程实践创新项目(EPIP)是中国职业教育本土创新发展而成的教育教学模式, 传承转化了墨子“行为本”朴素唯物思想, 结合现代职业教育实践经验, 以实际工程为背景, 以工程实践为导向, 以能力培养为目标, 以工程项目为统领的技术技能人才培养的教学模式, 以用立业, 知行合一, 举旗彰理, 落地取效, 是鲁班工坊的主旨要义。EPIP 教学模式创新发展了陶行知教育思想和黄炎培职业教育思想, 广泛借鉴世界上先进职教理念, 结合了技术技能人才培养的中国实际而创立, 经过近 20 年的实践探索、理论研究、经验总结、模式推广, 形成了 EPIP 教育论、专业论和课程论, 构建了中国特色职业教育的教学模式和国际话语, 是鲁班工坊在海外实施建设和开展教学核心理念。

鲁班工坊不只是综合素质实训场的建设和运营, 更是中国职业教育 EPIP 教学模式、国际化专业标准、教学方案和技术装备国际化进程的象征。鲁班工坊研究是中国职业教育的新领域、国际职业教育的新思潮, 采取学历教育与技能培训相结合的方式, 为所在国培养高级技术技能人才。随着鲁班工坊建设运营的进一步实施, 中国职教模式和职教理念正以此为平台推广开来。埃塞俄比亚鲁班工坊致力于完善非洲鲁班工坊建设体系, 打造非洲鲁班工坊师资培训基地, 为非洲地区鲁班工坊师资培训提供平台, 成为中非合作的典范。

（二）鲁班工坊骨干师资培训

鲁班工坊建设包含了场地、设备、专业标准、教学资源建设和师资培训五部分，即“五到位”或“鲁班工坊建设五要素”。为了实现鲁班工坊项目实施的本土化落地，按照师资培训先行，装备、标准协同的合作模式，采用以工程实践创新项目（EPIP）为核心的中国职教模式，双方共同开发双语教材、信息化教学资源及课程体系，依从“五共”原则

实现双方的资源共享与互学互鉴。

埃塞俄比亚鲁班工坊自建设初始不仅为埃方合作伙伴提供了先进的国际化专业教学标准和优质的工程实践导向类教学装备，还有新的教育理念和教学模式。鲁班工坊标准化 EPIP 师资研修培训是鲁班工坊建设在这五要素中的基础性工程。鲁班工坊骨干师资通过工坊提供的师资培训不仅能够掌握新技术应用，更能学会新的教学模式、领会 EPIP 职业教育新理念，具备了装备的实际操作能力和一定的专业技术技能研究及传授能力等的综合应用。

1. 中方标准化 EPIP 师资培训

埃塞俄比亚鲁班工坊定位为人工智能领域，对接埃塞职业技术培训学院的机械制造、电子与信息通信、电气-电子技术三个本科专业，具体内容涉及工业传感器技术、机电一体化技术、工业控制技术、机器人技术 4 大领域。针对埃塞俄比亚鲁班工坊师资建设，学校规划了线上、线下的进阶式 EPIP 师资培训，为埃方合作院校骨干师资提供 4 期标准化培训，如图所示。通过实践证明，这种标准化进阶式的 EPIP 师资培训具有可复制性，在技术技能人才培养的方面值得推广应用。

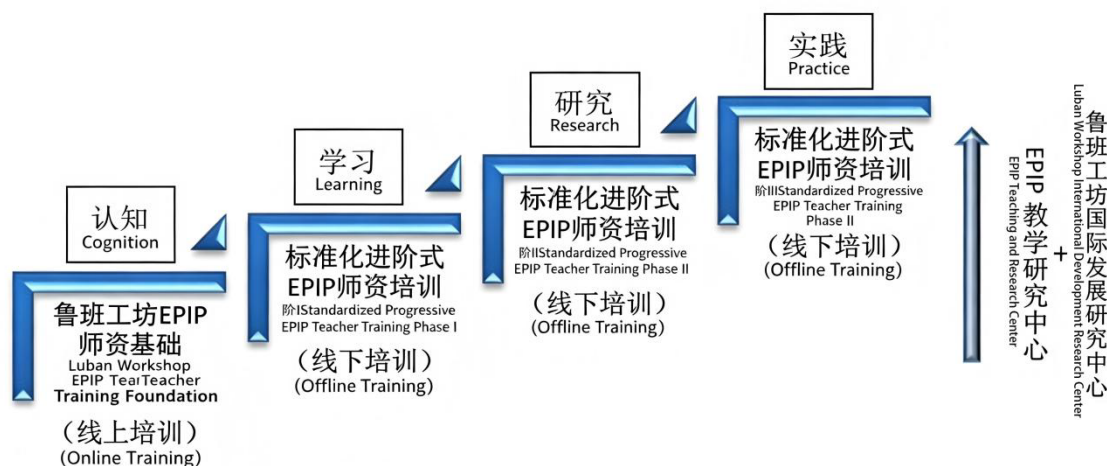


图 2：鲁班工坊标准化进阶式 EPIP 师资培训

Figure 2: Luban Workshop Standardized Progressive EPIP Teacher Training

（1）鲁班工坊 EPIP 师资线上培训（基础）

2021 年 11 月，针对埃塞俄比亚鲁班工坊人工智能领域教学需求，学校依托网络直播技术搭建跨区域教学平台，组织校内世界技能大赛指导专家团队，面向境外埃塞本土工坊骨干师资开展 EPIP 专项线上培训。本次培训聚焦职业教育实操性特点，结合埃方师资教学实际与当地产业需求，构建了从认知到实践再到反思的递进教学体系。

培训过程中, 专家团队通过实时屏幕共享、设备拆解演示、操作步骤拆解等可视化手段, 系统讲解职业安全规范、机械基础、电气基础、控制器基础、机电技术、工业技术等核心模块。在互动环节, 专家针对埃方师资提出的设备操作疑点、教学难点进行在线答疑, 通过案例分析引导学员结合当地教学场景优化教学思路, 同步布置针对性练习任务并逐一点评指导。

这种沉浸式、交互式的线上培训模式, 有效突破了地理空间限制, 使埃方师资直观掌握各模块关键知识点与实操技能, 形成对职业安全规范的系统认知、对机电及工业技术的具象理解。培训结束后, 学员已能够初步构建人工智能领域的知识框架, 为后续开展本土化教学、培养符合埃塞产业需求的技术技能人才奠定了坚实基础。

(2) 线下标准化进阶式 EPIP 师资培训 (阶 I)

2021 年 3 月, 为进一步夯实埃塞鲁班工坊人工智能领域教学基础, 提升本土师资核心教学能力, 学校组建以国家级技能大师为核心的专项专家团队, 面向埃塞鲁班工坊合作院校选派的 7 名专业博士、硕士留学生, 开展为期 130 学时的进阶式 EPIP 线下培训。

本次培训在教材选用上兼顾国际化标准与本土化适配, 采用英国出版的中华文化走出去项目推荐教程《Teaching Mode of EPIP》《Key Principals of Luban Workshop》, 确保教学理念与国际接轨。与此同时, 结合埃塞鲁班工坊人工智能领域 4 大专业模块教学需求, 学校专项编制配套教材和教学大纲, 实现理论知识与实操场景的精准对接。培训按电气信息、机械电气两个专业方向划分班组, 体现一体化课堂教学模式, 将理论知识集中授课与实践操作巩固练习紧密结合, 重点围绕鲁班工坊 4 大领域核心设备开展基础操作训练, 具体涵盖 PLC 编程基础、传感器信号采集与处理、设备性能检测标准及常见故障排查流程等实操性内容。

本次进阶培训内容丰富多元, 不仅聚焦技术应用与技能操作的传授, 更注重教学能力的系统性培养, 对 EPIP 教学模式及应用方法进行了深入讲解。培训期间, 学校特别邀请 EPIP 教学模式创始人亲临现场, 开展 EPIP 核心理念专题讲座, 通过案例拆解、互动研讨等形式, 帮助学员深化对该教学模式的理解, 拓宽其在未来本土化教学中的应用思路。为保障培训效果的长效转化, 所有理论授课、实操演示环节均全程录制视频资料, 经后期整理编辑形成系统化专业培训教材, 交付埃方用于指导本土教师开展后续教学工作, 形成从培训实施到资源积累与共享的完整闭环。

(3) 线下标准化进阶式 EPIP 师资培训 (阶 II)

2021 年 7 月, 在阶 I 培训奠定的基础上, 学校专家团队持续深化埃塞鲁班工坊师资培养工作, 为工坊在华骨干教师开展为期 90 学时的阶 II 进阶式培训。本次培训聚焦能力提升与实践赋能, 以深化应用、拓展技能、实战锤炼为核心目标, 在设备安全规范操作、综合应用拓展及工程实践能力培养等方面实现进阶突破。

培训内容紧扣鲁班工坊 4 大领域核心设备的深层应用需求, 通过深化理论、实操精练、综合实训升级的三阶教学模式, 引导学员掌握设备复杂功能调试、多模块协同运作及实际工程问题解决等高阶技能。培训过程深度融入 EPIP 教学理念与教法, 组织学员全程参与教学研讨, 围绕工坊本土化教学的痛点优化教学方案。参训学员深度参与 EPIP 专业应用教材的编写工作, 通过学、研、攥一体化模式强化教学能力, 通过实操环节独立完成指定的应用操作任务, 切实提升技术应用的熟练度与独立性。

为实现工程实践沉浸式体验,学校创新培训形式,一方面组织团队赴世界技能大赛中国代表队培训基地开展专项训练,让学员对标国际技能标准锤炼实操能力;另一方面组队参与北京世界机器人大赛,以赛促学、以赛促练,最终斩获1金2银2铜的优异成绩,充分展现了培训成效。此次培训的成果获得广泛认可,埃塞俄比亚多家主流媒体对培训及竞赛成绩进行专题报道,外交部非洲司司长吴鹏通过推文致以祝贺,埃塞驻华使馆亦专门致函学校,对鲁班工坊骨干教师培训工作的扎实开展及显著成效表示诚挚感谢,进一步扩大了鲁班工坊项目在中非教育合作领域的影响力。

(4) 线下标准化进阶式 EPIP 师资培训(阶 III)

阶 III 培训作为埃塞鲁班工坊师资培养体系的高阶阶段,核心在于推动学员实现从“受训者”到“教学实践者”的身份转换。培训全程秉持以学员为主体的理念,不仅要求学员独立完成工坊应用教程的编撰优化,更注重锤炼其教学指导能力。通过设置模拟教学、实操带教等实践环节,确保学员能够独立指导其他学生完成专业教学实践任务,实现学以致用、以教促学的闭环。

为检验培训成效并深化中外教育协同,学校创新实践形式,任命经前两阶系统培训、考核合格的埃塞鲁班工坊学员担任外方指导教师,让其牵头指导校内相关专业的在华本科留学生,与中国师生相互配合、优势互补,联合组建中外混合联队。

这支联队共同备战首届世界职业院校技能大赛对应赛事项目,在备赛过程中,外方指导教师充分运用 EPIP 教学理念与实操技能,与中国师生协同制定训练方案、攻克技术难点,既实现了技能经验的双向交流,也锤炼了跨文化协作能力。最终,中外联队在赛事中展现出扎实的专业功底与高效的协同能力,取得优异成绩,不仅印证了阶 III 培训“身份转型+实战锤炼”模式的有效性,更彰显了鲁班工坊在推动中外职业教育融合、培养国际化技术人才方面的显著成效。

2. 埃方标准化 EPIP 师资培训

埃塞俄比亚鲁班工坊采用工程实践创新项目(EPIP)教学模式开展教育教学活动,为埃塞俄比亚当地工业园和中资企业提供急需的人力和技术支持。培训实施精准对接埃塞俄比亚当地工业园产业升级诉求与中资企业技术落地需求,构建起教育供给对标产业需求的精准匹配的人才支撑体系,为区域经济发展提供了急需的人力保障与技术支持。在师资培养层面,埃塞俄比亚鲁班工坊形成独具特色的双轨并行培训机制:一方面承接中方鲁班工坊标准化进阶式 EPIP 师资培训的核心资源与体系,另一方面充分依托在埃塞援教的中方教师专业优势,以鲁班工坊实体平台为依托,同步开展本土化线下 EPIP 师资培训,实现国际标准与本土实践的深度融合。受疫情防控客观条件影响,工坊创新采用线下为主与线上补充相结合的混合教学模式,援埃中方教师利用课余时间定向对埃方合作院校电气、机械等相关专业教师开展 EPIP 进阶培训,既保障了培训的连续性,又最大化适配本土教学安排。经过系统的理论学习与实操锤炼,埃方本土教师已具备独立完成工业自动化、传感器、PLC 控制系统及工业机器人等 4 套核心设备的安装与调试能力,熟练掌握设备工作原理、内部结构与实操方法,成为支撑当地职业教育高质量发展的核心骨干力量。

在人才培育的延伸维度,埃塞俄比亚鲁班工坊建立择优遴选机制,面向合作院校本科生开展专项技术培训,课程体系聚焦 PLC 原理与编程、工业机器人操作与维护等核心技术领域。参训学生通过理论学习和实操演练最终实现培训成果的转化。这种培养路径不仅实现了参训学生独立编程调试的技能突破,更以埃塞俄比亚官方语言——阿姆哈拉语为载体,在 Youtube、Facebook 等国际社交媒体平台发布技术教学视频,既完成了个人技能的实践输出,更以通俗化、本土化的传播方式扩大了工坊培训品牌的国际影响力,形成从技能习得到技术传播,继而实现品牌推广的良性循环。

截至目前，埃塞俄比亚鲁班工坊已成功实施五批次 EPIP 师资培训，累计培训时长达 300 学时，培训成效显著且辐射范围持续扩大。其不仅深度赋能埃塞俄比亚阿瓦萨大学、亚的斯亚贝巴科技大学等本土核心院校，更凭借标准化的培训体系、显著的实操成效与开放的合作理念，吸引了索马里、坦桑尼亚、肯尼亚、南非等多个非洲国家的高校主动寻求合作，推动跨国联合培训与认证机制的建立，为构建非洲区域一体化职业教育体系、强化工业振兴人才支撑奠定了坚实基础。

五、结语

鲁班工坊的跨国实践不仅开创了中国职业教育国际化的新范式，更在全球科技治理体系变革中彰显了中国职业教育体系的建设性角色。作为中国传统工匠精神与现代职教体系深度融合的创新载体，鲁班工坊秉持平等合作、因地制宜、优质优先、强能重技、产教融合的建设原则，稳步推进各项工作。随着埃塞俄比亚等项目的成功落地，鲁班工坊实现了职业教育标准与模式的系统性输出。其独创的 EPIP 教学模式，不仅突破了本土经验的局限，更凭借“技术+文化”双轮驱动的模式，形成了一套可复制、可推广的国际职业教育方案。这种实践不仅突破传统教育援助的单向输出模式，更通过共建鲁班工坊国际发展研究中心及非洲首个 EPIP 研究中心，构建起从研究到实践，进而再创新的跨国协作网络。这种深度参与全球职教治理的创新探索，既是中国教育自信的文化转译，更是推动构建人类命运共同体教育维度的生动实践，为发展中国家职业教育现代化提供了兼具本土智慧与全球视野的中国方案。

（一）构建非洲区域性职业教育师资培养体系

埃塞俄比亚鲁班工坊立足中非职业教育合作与非洲区域发展需求，通过配置人工智能领域前沿尖端设备，搭建起集技术实训、教学创新、人才培养于一体的“技术赋能+产教融合”高端技术技能教育平台，为本土化高水平师资培养与区域职教协同发展筑牢硬件基础。依托中方院校成熟的职业教育师资培养体系与硕博研究生培养机制，项目创新构建并落地实施“标准化阶梯式”的全周期能力师资培育模式，既服务于埃塞本国职业教育质量提升与产业发展需求，同时面向非洲多国开展师资培养与经验输出，通过标准化培训流程、规范化教学体系、可复制的培养模式，逐步搭建起辐射周边的非洲区域性鲁班工坊师资培养网络。依托持续的知识转移、技术扩散与教学经验共享，不断提升非洲本土职业院校的自主办学能力与人才培养水平，有效助力非洲地区职业教育整体能力建设，深度对接非洲联盟《2063 年议程》关于人力资源开发与可持续发展的战略目标，充分彰显了中国职业教育国际合作服务区域发展、助力共同繁荣的重要社会价值。

（二）构建东非职业教育师资协同发展机制

在东非职业技术教育改革与区域一体化进程中，埃塞俄比亚鲁班工坊走出了一条独具特色的合作之路。它突破传统职教输出的单一模式，创新构建院校、研究机构与区域合作组织三方协同机制，通过资源互补、优势整合，与东非职业技术教育改革与区域一体化项目（EASTRIP）卓越中心达成深度战略伙伴关系，将中国职业教育经过实践检验的标准体系系统引入东非大地，精准聚焦三个核心维度，确保合作落地见效。摒弃“一刀切”的师资培输出模式，打造国际化认证与本土化实践并举的双轨范式，结合肯尼亚、坦桑尼亚等东非国家的产业需求与教学实际，引入 EPIP 职教教师资格认证标准，定制实操培训内容，让师资既能掌握先进教学理念，又能贴合本土教学场景。在资源建设方面，工坊以世界技能大赛为标杆，开发适配东非产业特点的装备标准与课程资源库，涵盖新能

源、智能制造等关键领域，推动区域内技术技能标准的国际互认，为青年就业搭建跨国桥梁。通过“标准输出-模式移植-质量监测”闭环体系，实现全流程保障。从核心标准的精准输出，到办学模式的本土化移植，再到动态化的质量监测，确保每一所合作院校都能达到高水平办学标准，逐步构建起具有强区域辐射力的非洲鲁班工坊标杆集群。这一创新实践的价值远超单一项目本身。该项目通过本土化适配实现了中国职教模式的海外扎根，既为东非青年提供了高质量的技能教育，也为南南合作注入了新活力，最终形成了可复制、可推广的南南教育合作新范式，为全球职业教育合作提供了宝贵的实践样本。

（三）创建非洲技术技能人才培养战略支点

埃塞俄比亚鲁班工坊立足南南合作框架与埃塞俄比亚“2025 非洲制造中心”战略需求，以产教融合机制创新破解当地高端技术技能人才短缺瓶颈，实现院校学科优势与轻工制造业升级诉求的深度耦合。作为非盟认定的区域性高端技术技能人才培养基地，其构建的技术研发、成果转化、人才培养三位一体平台，通过中埃联合技术攻关、校企协同成果落地与“工学交替”实践教学，形成了精准对接产业的人才培育闭环。这一实践不仅为埃塞俄比亚产业结构升级提供了定向人才支撑，更以标准化培训体系辐射东部非洲多个国家，成为践行非盟《2063 年议程》的战略性教育基础设施。其验证的“教育赋能产业、产业反哺教育”良性循环，既实现了中国职教模式的非洲本土化适配，也为南南合作背景下的国际职业教育合作提供了可复制范式，对推动非洲工业振兴与繁荣一体化发展具有重要战略意义。

（四）构建全球职教师资治理中国范式

鲁班工坊依托 EPIP 工程实践创新项目，创新性构建需求导向、标准植入、能力进阶的系统化师资培养架构，形成具有自主知识产权的阶梯递进式培训模型。该模型以目标国家产业人才需求为起点，将成熟的中国职教标准转化为国际通用技术语言，精准植入智能制造、数字技术等关键领域的教学体系，并通过分层递进的培养路径实现师资能力的梯度提升。在此基础上，项目进一步建立覆盖核心技术领域的标准化师资能力评估体系，为师资培养质量提供科学量化支撑。在全球科技治理体系重构的关键进程中，鲁班工坊通过技术赋能与模式输出双轨并行机制，既有效推动合作国家本土师资专业能力的跨越式跃升，满足区域产业升级对高素质师资的迫切需求，更以标准化体系与可复制模式为全球职教师能力培养提供了兼具实操性与适配性的“中国方案”，在国际技术技能领域的规则博弈中彰显了发展中国家的话语权与规则制定参与权，为全球职业教育治理体系优化注入新的活力。

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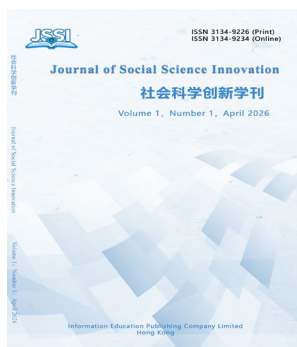
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中国现行小学低年级语文教材的理论重构与实践启示

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摘要：在核心素养导向的教育改革背景下，传统教材的知识载体范式面临挑战。本文提出并论证一个新的理论框架，将教材重构为“教学生态系统”。该框架包含两个核心命题：教材效能取决于其内部子系统（内容选编、教学设计、文化表征、学习成果）的协同性，以及其与外部多层语境（国家政策、学校社区、课堂情境）的适应性。通过对现行低年级语文教材的案例诊断，展示了该框架如何系统揭示教材内部失调（如文化内容碎片化、技能迁移机制缺失）及其与新课标要求的落差。基于此，文章阐明了这一范式转换对教材设计、教师使用及教育评估的深刻启示，为素养时代的教材建设提供了新的理论工具与发展方向。

关键词：语文教材；教学生态系统；核心素养

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Title: The Theoretical Reconstruction of Current Chinese Primary School Lower-Grade Chinese Textbooks and Its Practical Implications

Abstract: Under the context of educational reform oriented towards core competencies, the traditional paradigm of textbooks as mere carriers of knowledge faces challenges. This paper proposes and substantiates a new theoretical framework that re-conceptualizes textbooks as “instructional ecosystems.” This framework encompasses two central propositions: the effectiveness of a textbook depends on the synergy among its internal subsystems (content selection, instructional design, cultural representation, and learning outcomes), as well as its

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adaptability to the external multi-layered contexts (national policies, school communities, and classroom situations). Through a diagnostic case study of current lower-grade Chinese language textbooks, this paper demonstrates how the framework systematically reveals internal misalignments within the textbook—such as fragmented cultural content and a lack of mechanisms for skill transfer—as well as the gaps between these textbooks and the requirements of the new curriculum standards. On this basis, the article elucidates the profound implications of this paradigm shift for textbook design, teacher implementation, and educational assessment, thereby providing a new theoretical tool and a developmental direction for textbook development in the era of competency-based education.

Keywords: Chinese language textbooks; instructional ecosystem; core competencies

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一、引言

在全球教育向核心素养本位演进的大背景下，教材的角色与功能正面临根本性重估。中国《义务教育语文课程标准（2022年版）》的颁布与实施，标志着语文教育正式迈入以“文化自信、语言运用、思维能力、审美创造”为核心素养的新阶段。这一转型对教材建设提出了新的要求，教材必须超越传统的知识传递与技能训练功能，成为培育学生综合素养、承载文化血脉、并激发终身学习能力的核心媒介。

然而，当前广泛使用的低年级语文教材，其内在的设计逻辑与时代要求之间存在着深刻的张力。大量研究与教学反馈表明，教材在实践中常呈现出以下典型困境：文化内容虽被纳入却流于符号化陈列，难以促成深度的价值认同；语言知识的编排具备系统性，却缺乏将其转化为真实语境中沟通能力的有效路径；学习活动形式多样，但对学生批判性思维与社会性协作的支撑不足。这些现象并非孤立的技术性缺陷，其根源在于指导教材编写的底层范式——将教材视为结构化的知识载体与教学脚本——已难以适应素养时代对复杂性、情境性、生成性学习的追求。

这种范式危机在学术领域表现为一种分析无力。既有研究往往从单一视角（如文化内容分析、可读性测量、活动设计评价）切入，提供了有价值的局部诊断，却未能提供一个整合性的理论框架，以揭示教材内部各要素（内容、教学、文化、评价）如何相互关联、协同或制衡，并最终如何与变动不居的课堂生态、社区环境及国家政策语境相耦合（Pingel, F., 2010）。没有这样的整体性视角，我们对教材的优化建议便容易陷入头痛医头、脚痛医脚的碎片化状态。

因此，本研究旨在回应这一理论与实践的双重需求。我们提出，欲建设真正支撑核心素养落地的教材，首要任务在于推动其底层范式的根本性转换。本文将论证并初步探索一个替代性的理论框架：将教材重构为一个动态的、适应性的“教学生态系统”。这一范式不再将教材视作静态的、封闭的容器，而是将其理解为由内部诸要素有机互动、并与外部多层环境持续交换能量与信息生命性整体。本文将首先阐述这一生态系统理论框架的核心构成，继而通过一个典型案例展示其强大的诊断力，最终讨论该范式转换对教材设计、教学实践与教育政策所带来的系统性启示。

二、“教材生态系统”理论框架的构建

为解决当前面临的困境，本文借鉴生态学与复杂系统理论的核心思想，提出一个全新的教材分析框架——“教材生态系统”。此框架旨在超越将教材视为孤立产品或线性流程的传统认知，转而将其理解为一个具有生命特征的、动态演化的复杂适应系统。

（一）理论渊源与核心隐喻

生态系统观念强调，系统的生命力与稳定性取决于其内部各组分之间的互依性，以及系统与外部环境之间的适应性交换。将此隐喻引入教材研究，并非简单的术语替换，而是根本视角的转换。它意味着教材的效能不再仅由其内容的正确性或活动的丰富性单独决定，而更取决于其内在设计的协同程度，及其在具体教育语境中的生态位适宜性。这一视角与维果茨基的社会文化理论（Vygotsky, L. S., 1978，强调学习的社会中介性）、以及当代的分布式认知理论（Van de Pol, J., Volman, M., & Beishuizen, J., 2010，强调认知分布于个体、工具与环境之中）内在相通，为整合多学科见解提供了元理论基石。

（二）框架的双层结构：内部协同与外部嵌入

“教材生态系统”框架由两个相互关联、缺一不可的层面构成，共同定义了教材的存在与作用方式。

1. 内部生态系统

教材的内部结构可解构为四个相互依存、循环作用的核心子系统：

内容选编子系统为系统的物质基础与营养源。它涉及对语言材料、文化主题与知识要素的选择与组织逻辑，其质量在于是否具备基础性、序列性与情境关联性。

教学设计子系统为系统的代谢过程与能量流。它将静态内容转化为动态的学习体验，通过活动序列、任务支架、互动设计来驱动认知与情感参与，其效能在于能否提供清晰、递进且具支持性的学习路径。

文化表征子系统为系统的意义气候与价值场域。它决定了文化知识、价值观念与集体记忆以何种方式（显性/隐性、单模态/多模态）被呈现与体验，其深度在于整合的有机性、适龄性与启发性。

学习成果子系统为系统生长指针与反馈回路。它定义了预期的素养发展目标，并通过内嵌的评估设计监控系统运行效果，其关键在于与前述三个子系统的一致性，以及目标本身的整合性（如知识、技能、态度的融合）。

这四个子系统的关系非机械叠加，而是协同共生。卓越的教材表现为精当的内容（子系统 1）通过科学的活动设计（子系统 2）被有效转化，在这一过程中，浸润性的文化情境（子系统 3）赋予学习以意义，最终导向可观测、可评价的素养成长（子系统 4）。任一子系统的弱化或失调，都将如生态链断裂般，损害整个系统的健康与产出。

2. 外部生态位

教材的内部生态系统并非悬浮于真空，它必须扎根并活跃于具体的教育土壤之中，即存在于一个由三层嵌套构成的外部生态位：

宏观系统包括国家课程政策、意识形态导向、社会文化期望及国际教育趋势。它构成了系统生存与发展的政策气候与价值光照，决定了教材的根本方向与合法边界。

中观系统涵盖地方教育生态、学校特色、社区资源及家庭背景。它如同系统所处的地方水土，要求教材具备一定的可调适性与开放性，以便与本土文化资源和现实议题相连接。

微观系统即具体的课堂情境，包括教师的专业信念与教学法知识、学生群体的先有经验与认知风格、以及师生、生生之间的即时互动。这是生态系统进行最关键的能量交换的现场。

教材的有效性，本质上取决于其内部生态系统设计与外部这三层语境需求的匹配度与动态调适能力。一套在宏观层面符合国策、在中观层面包容地方特色、在微观层面能赋能教师并回应学生的教材，才堪称具有良好生态适应性的优质教材。

综上所述，“教材生态系统”框架首先是一个强大的诊断与分析工具。它促使研究者和实践者追问：教材内部四大子系统是否形成了正向循环？其设计是否敏锐地回应了多层外部语境的要求与挑战？例如，当发现学生文化认同感薄弱时，我们不应仅归咎于文化内容（子系统 3）的量不足，而需检视教学内容（子系统 2）是否提供了深度体验的通道，以及评估设计（子系统 4）是否鼓励价值反思。更重要的是，它指向一种未来的教材设计哲学。它意味着教材开发应从追求完备无瑕的脚本，转向设计富有生长潜力的种子或根茎系统——即提供一个内部协调、结构清晰、同时具备与多样环境互动接口的弹性框架，从而在具体的、千变万化的教学实践中，与教师和学生共同生长出充满活力的学习生态。这正是素养时代对教材范式的深层呼唤。

三、生态系统框架的应用示例

为验证“教材生态系统”框架的解释力与诊断价值，本研究将其应用于国内广泛使用的低年级语文教材的针对性分析。诊断聚焦于新课标强调的文化自信与语言运用两项核心素养，揭示教材设计在生态系统层面的内在机制问题。

（一）文化传承的悬浮化与语言迁移断裂带

通过对教材系统的文本与活动分析，本研究发现两个突出的问题，即文化传承的悬浮与语言迁移的断裂。文化传承悬浮体现为传统文化符号（如节日、古诗、典故）被大量纳入，但其学习往往止步于识记与复述，未能有效转化为学生的情感认同与行为参照。语言迁移的断裂带表现在学生在识字与课文朗读（输入与模仿）上表现达标，但在独立、有意义的书面或口头创作（输出与生成）上存在明显困难，口语能力未能有效向书面语能力迁移。若沿用传统视角，可能会分别归因为文化内容不够生动或写作练习不足。然而，运用生态系统框架进行关系性诊断，则揭示了更深层的、系统性的病因。

（二）子系统协同失效与语境反馈缺失

从生态系统内部审视，文化传承的悬浮化源于文化表征子系统与教学设计子系统、学习成果子系统的协同失败。具体表现为教材中的文化内容（如“春节”主题）常以精美的插图与简短的叙述文（文化表征子系统）呈现，随后附以认读生字、背诵节日的练习（内容与基础教学）。然而，缺失了关键的教学设计转化，没有围绕“春节”创设需要学生调研家庭过年习俗、比较地域差异、动手制作简单年饰或规划一份节日安排表的探究性、交际性或制作性任务。¹因此，文化内容未能通过深度教学活动（教学设计子系统）被代谢为学生的切身体验与意义建构，结果是预期的学习成果（文化理解与认同，属学习成果子系统）因缺乏关键的过程支撑而落空。文化如同未能被土壤（教学活动）吸收的养分，悬浮于系统表面，无法促进真正的成长。这并非单一内容问题，而是内容—教学—成果链条的生态断裂。

¹ Li Ming (2020). A Study on the Inheritance of Traditional Chinese Culture in Primary School Chinese Textbooks [Doctoral Dissertation]. East China Normal University.

语言迁移的困难,从生态视角看,凸显了教材内部系统与外部微观系统(即真实课堂中的学生认知发展状态)的适配不良。具体表现为教材在引入新字词和句型后,常见的练习是仿写句子或填空(内部教学子系统活动)。然而,这类活动往往假设学生已能自然完成从口头掌握到书面组织的跳跃。但依据认知发展理论(微观系统的关键语境),一年级学生正处于从口头语言优势向书面语言意识过渡的关键期,他们需要显性的、结构化的支架来搭建这座桥梁。这就导致生态适配不良,教材内部系统未能提供如“口语作文-教师板书关键词-学生依词连句-同伴分享修改”这样的 *scaffolded sequence* (*scaffolding* 序列),来适应学生最近发展区的微观生态需求。因此,内部的教学活动设计未能与外部学习者的认知发展规律进行有效能量交换,导致知识技能在系统内部淤积,无法顺畅地迁移、应用至新的语境,形成能力生长断裂带。

本案例表明,“教材生态系统”框架能够将表面的教学问题,追溯至教材内部子系统间协同关系的缺失,以及内部设计与外部具体语境(尤其是学习者认知规律这一微观语境)的错配。它揭示出低年级语文教材在承担素养培育使命时面临的核心挑战,并非单纯的内容增删或活动加减,而是其作为一个系统,在机制设计上缺乏促成深度文化代谢与有效语言迁移的生态功能。这一诊断结果为系统性的优化而非零散的修补,提供了精准的靶点。

四、范式转换带来的变革

“教材生态系统”框架的提出,不仅是一个分析工具的创新,更预示着一场从理念到实践的多维变革。它将教材从教育工程的标准化零件重新定义为需要精心培育的有机生命体,由此对教材设计、教师使用与教育评价产生了一系列深刻的启示。

(一) 教材设计的变革

传统的教材设计近乎编纂百科全书或教学脚本,追求内容的全面性与流程的精确性。生态系统范式则要求设计思维发生根本转向:教材的核心产出不应再是包罗万象的内容大全,而应是一份旨在培育素养的学习历程生态蓝图。这意味着教材设计重心从孤立地编排知识点,转向精心规划知识、活动、文化、评价之间动态互动的协同回路。例如,设计必须内在包含如“感知体验(文化子系统)-探究建构(教学子系统)-表达创造(成果子系统)”这样的闭环,确保学习能量在系统内循环增值,而非线性耗散。教材的设计属性需从封闭系统转变为半开放系统。它应提供清晰、坚实的核心生态结构(如核心概念、关键能力路径),同时刻意预留生态接口——即允许并引导地方课程资源、学校特色项目、教师个人专长乃至学生兴趣经验,像附生植物或共生生物一样,有机地接入主干系统,丰富本地化的学习生态。教材因而成为一种可生长的支架,而非不可更改的模具。

(二) 教师角色的转换

在生态系统视角下,教师与教材的关系被彻底重构。教师不再是教材预设流程的被动执行者或传声筒,而是课堂这一微观生态系统最主要的协同构建者与智慧调节者。其新角色要求教师要具有生态诊断力。教师需运用框架意识,诊断所教班级(独特的微观系统)的学情生态——学生的认知土壤、兴趣光照、社会互动气候如何。同时,评估教材(内部生态系统)的哪些设计能与该生态良好匹配,哪些存在水土不服。基于诊断,教师的专业能力体现在对教材进行创造性的本地化调适。这包括激活教材预留的接口,注入本土资源;调整活动序列或分组方式,以适配当前课堂的能量流动(学生注意力、合作动态);甚至像生态系统中的关键物种一样,通过自身的叙事、提问与反馈,创造教材文本未曾直接提供的意义联结与情感温度。教学因此成为教材生态与课堂生态持续对话、共同进化的生成性过程。

（三）评价体系的更新

现行的教材评价标准多类似于零件质检清单，侧重于审查内容的正确性、政治导向的合规性以及设计要素的完整性。生态系统范式呼吁建立一套关注系统生命力的生态健康度评估体系。这一新体系的核心指标应包括内部协同性，即评估教材内容、教学、文化、成果四大子系统之间，是否存在清晰的、相互增强的联结机制，而非简单并列。例如，不仅看是否有传统文化内容，更评估是否有引导深度理解与价值反思的相应活动与评价设计。

情境适应性则是评价教材是否具备应对不同外部语境（尤其是多样化的学校与课堂微观系统）的弹性与支持性。例如，评估其是否提供分层、分路径的学习选择，是否包含便于教师进行本土化改造的模块或建议。另外还应包括生态功能实现度，即超越对知识覆盖率的检查，重点评估教材在真实教学环境中实际催生的生态功能——尤其是促进能力迁移与素养生成的功能。这需要通过课堂观察、学生作品分析、师生访谈等方式，考察教材是否有效支撑了从模仿到创造、从接受到探究、从知情到行（价值实践）的关键跃迁。

五、结论

综上所述，“教材生态系统”范式的价值，在于它提供了一种统整性的语言和思维模型，将教材改革中常被割裂讨论的内容问题、教学法问题、评价问题以及教育公平问题，置于同一个动态、关联的系统中加以审视和解决。它指引我们不再追问教材里有什么，而是去探索教材能孕育什么样的学习生命。这或许是素养时代教材建设通往高质量发展的必由之路。

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Depicting the Development of University Humanities and Social Sciences through a Multidimensional Indicator System: A Review of *Development Report of Humanities and Social Sciences in Chinese Universities 2025*

Wang Baixun, Cheng Wanhong

Abstract: Against the backdrop of global contractions in humanities and social sciences (HSS) resources in higher education and China's shift from scale expansion to quality enhancement, *Development Report of Humanities and Social Sciences in Chinese Universities 2025* (hereafter, "the Report") adopts an "evaluation for development" orientation to construct a multidimensional indicator system and an integrated evaluation methodology, thereby portraying cross-institutional differences and structural characteristics of HSS development in Chinese universities. Building on a review of evaluation theories and practical dilemmas, the Report proposes a "5–14–24" indicator framework and comparatively selects technical procedures for data standardization, weighting, and aggregation. It develops a full process from data collection and preprocessing to tiered release of results. Methodologically, it introduces Sigmoid standardization to mitigate distribution-induced "natural weight" bias and applies the Generalized Weighted Bonferroni Mean (GWBM) operator for correlation-sensitive aggregation. Collectively, the Report offers an actionable and replicable technical route that may improve the scientific rigor, transparency, and operability of HSS evaluation in China.

Keywords: University humanities and social sciences; Multidimensional indicator system; Composite evaluation; Data standardization; GWBM operator

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标题: 以多维指标体系刻画高校人文社科发展——评《中国高校人文社科发展报告2025》

摘要: 面对全球高校人文社科资源收缩与国内人文社科由规模扩张转向质量提升的新阶段,《中国高校人文社科发展报告 2025》(以下简称《报告》)以“评价促建”为导向,构建多维指标体系与综合评价方法,刻画我国高校人文社科发展的状态差异与结构特征。《报告》在梳理评价理论与现实困境基础上,提出“5-14-24”的指标框架,比较并选择数据标准化、赋权与聚合算子,形成从数据采集、预处理到结果分档发布的流程。其以 Sigmoid 标准化缓解“自然权重”偏差,并采用广义加权 Bonferroni 平均(GWBM)进行关联聚合,为提升我国高校人文社科评价的科学性、透明度与可操作性提供了可借鉴的技术路线。

关键词: 高校人文社科; 多维指标体系; 综合评价; 数据标准化; GWBM 算子

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Humanities and social sciences (HSS) in universities not only perform foundational functions in knowledge production and talent cultivation, but also play distinctive roles in value formation, cultural inheritance, social service, and the modernization of national governance. Compared with the relatively mature metric systems in the natural sciences, however, HSS evaluation has long faced structural challenges—often summarized as “difficult to quantify, difficult to compare, and difficult to reach consensus.” On the one hand, HSS outputs are heterogeneous (journal articles, books, policy briefs, consultation reports, public communication, cultural products, and more), with long life cycles and strong externalities. On the other hand, disciplinary traditions, regional ecosystems, and institutional missions vary substantially, making it difficult for any single indicator to serve as a fair basis for ranking. In this context, without clear theoretical boundaries and a robust technical route, evaluation systems can easily fall into path dependence—such as privileging quantity, papers, or awards—thereby shaping incentives, resource allocation, and disciplinary ecology in undesirable ways.

The Development Report of Humanities and Social Sciences in Chinese Universities 2025 is a systematic response to these long-standing dilemmas. Its central contribution lies less in producing an “ultimate ranking”

than in proposing a reusable evaluation framework. The Report first addresses the foundational questions—why evaluate, what to evaluate, how to evaluate, and according to which standards—before turning to operational questions such as data provenance, preprocessing, aggregation, interpretation, and feedback. In so doing, it functions not only as an annual observation of HSS development but also as a practice-oriented methodological handbook. This review examines the Report along three main threads: its problem awareness, its indicator system, and its methodological workflow, and then discusses implications and potential areas for further refinement.

The Report is produced by a research team led by Professor Yu Liping. Professor Yu is affiliated with Zhejiang Gongshang University as a “Xihu Scholar” Distinguished Professor and doctoral supervisor. He serves as Director of the Institute for Academic Evaluation and Science & Technology Statistics, and also holds leadership roles in professional committees of the China Association for Science of Science and S&T Policy, including the Committee on Scientometrics and Informetrics and the Committee on Science & Technology Management and Evaluation. His long-term research focuses on academic evaluation and science and technology statistics, while also extending into interdisciplinary fields such as digital humanities and computational social science, with systematic scholarly accumulation and practical influence in foundational theories of science and technology evaluation and innovation economics. He has led five National Social Science Fund projects and nine provincial- or ministerial-level projects (including Ministry of Education HSS projects), authored ten academic monographs, and published 310 CSSCI-indexed journal articles as first author, alongside more than twenty SCI/SSCI-indexed papers. In addition, twenty of his papers have been reprinted in outlets such as Xinhua Digest and the Renmin University of China Reprinted Series. He has received one provincial second prize and two provincial third prizes, was selected for Zhejiang Province’s “New Century 151 Talent Project,” and has been recognized as an Outstanding Teacher in Zhejiang Province and a disciplinary leader under Jiangsu Province’s “Qinglan Project.” His work has also drawn media attention and interviews from *Nature*, the Times Higher Education World University Rankings, and major Chinese media outlets.

1. From Evaluation Dilemmas to a Systematic Response: Problem Awareness and Narrative Logic

(1) Global “contraction” in HSS and mounting evaluation pressures

Using international comparisons as context, the Report notes that some universities in developed countries have recently experienced reductions in HSS programs, tightened enrollments, and even departmental restructuring. These changes are associated with fiscal pressures and cost constraints, labor-market expectations, digital disruptions, and shifting disciplinary competition. For Chinese readers, such external signals underscore that HSS development is not naturally stable. In the absence of sustained institutional support and reasonable evaluation mechanisms, short-term resource allocation may intensify the marginalization risks facing HSS. Consequently, evaluation systems capable of articulating value, explaining differences, and supporting public communication become a shared need for both universities and policy makers.

(2) Dual tasks in China: capacity expansion and quality transition

In contrast to the global “contraction” narrative, the Report indicates that over the past decade China’s HSS

has expanded rapidly in both research personnel and institutional platforms, depicting an overall landscape of “expanding capacity while improving quality.” It reports that the number of social science researchers with intermediate professional titles or above has exceeded 513,000, key social science research institutions number about 3,640, the total volume of social science projects in the past five years surpasses 700,000, and accumulated high-quality outcomes exceed one million. More importantly, the central contradiction for evaluation has shifted: from “whether there is” to “how good it is,” from incremental growth to structural optimization, and from isolated highlights to systemic capacity. This shift calls for evaluation that goes beyond a small set of elite institutions or single output types, covers a broader range of institutions, and identifies genuine multidimensional gaps and bottlenecks.

(3) Organizing logic: an “evaluation–resource allocation–capacity building” loop

At the theoretical level, the Report frames university HSS evaluation through a systems-science lens, arguing that the evaluation system consists of evaluation purposes, evaluation objects, evaluation content, and evaluation standards—elements that interact and jointly shape methodological choices and indicator design. Accordingly, the Report emphasizes not only academic attributes but also managerial and public attributes of evaluation: results should support internal diagnosis and improvement within universities while also serving governmental decision-making and public information needs. In a “multi-goal, multi-actor, multi-constraint” context, the Report treats indicator construction and methodological selection as a coordinated “institution–method–data” project rather than a simple assemblage of indicators. It also diagnoses typical shortcomings in existing practices, including weak macro-level positioning, overemphasis on research outputs, insufficient comprehensiveness, fairness challenges arising from regional and institutional heterogeneity, and relatively weakened attention to social impact and socio-economic benefits. This diagnosis provides the point of departure for its subsequent design choices in indicator screening, standardization, and tiered presentation.

2. A Structured Representation of the Indicator System: Five Dimensions and Multilevel Indicators

(1) Clear specification of purpose, objects, and content

Regarding the question “what to evaluate,” the Report defines its evaluation objects as undergraduate institutions that host HSS-related disciplines, covering a large sample of universities nationwide. More substantively, it conceptualizes HSS development in universities as the concrete manifestation of core university functions in this domain, namely: academic staff, talent cultivation, scientific research, cultural inheritance and social service, and international exchange and collaboration. This conceptualization avoids reducing HSS development to “publishing papers” or “winning grants,” thereby providing a necessary foundation for multidimensional evaluation.

(2) Embedding political, academic, and social value standards

Rather than presenting evaluation as purely technical, the Report emphasizes that evaluation standards are essentially externalized value choices. It proposes a tripartite standard system: political standards, academic value standards, and social value standards. Political standards stress correct orientation and goal alignment, requiring HSS development to serve national and societal needs. Academic value standards emphasize value

relevance, scientific rigor, and innovation, requiring adherence to scholarly norms and breakthroughs in theory, methods, or practice. Social value standards highlight social influence, cultural inheritance, and service contributions, focusing on how research responds to real-world problems and generates public value. The juxtaposition of these standards acknowledges that HSS evaluation cannot be fully “devalued” or purely technocratic, and it implies that indicator selection must balance measurability with expressiveness.

(3) Establishing the “5-14-24” indicator framework

The Report articulates design principles such as goal orientation, comprehensiveness, scientific validity, comparability, operability, and the integration of stability with dynamism. It further proposes screening principles including cost-effectiveness, discriminative power, authority, comparability, and result orientation. Notably, comparability is repeatedly emphasized: indicator meanings, statistical calibers, and calculation methods should remain consistent to enable cross-university and cross-year comparison; meanwhile, “biased” indicators should be avoided to safeguard fairness.

On this basis, the Report constructs an indicator framework consisting of five first-level indicators, fourteen second-level indicators, and twenty-four third-level indicators, yielding a compact yet operational list:

Academic staff: emphasizing high-end talents and team building through indicators such as the number of national-level talents and national-level teaching teams.

Talent cultivation: focusing on curricula and textbooks, training levels, and teaching quality through indicators such as the number of National Textbook Awards, national first-class undergraduate courses, doctoral/master’s programs in first-level disciplines, and national-level teaching achievement awards.

Scientific research (the highest-weight component): disaggregated into research projects, publications, research bases, and research awards. Projects include those funded by the National Natural Science Foundation (Management Science Department), National Social Science Fund, and the Ministry of Education HSS programs; publication outputs are captured through equivalent counts of SCI (HSS)/SSCI, A&HCI, and CSSCI papers; research platforms and landmark outcomes are reflected via numbers of research bases and prestigious awards such as the Ministry of Education Outstanding Achievement Awards in HSS.

Cultural inheritance and social service: expressed through indicators such as the equivalent share of Chinese core journals and think tank construction (including the number of national high-end think tanks, university think tanks, CTTI top-100 university think tanks, and excellent think tank outcomes), reflecting policy advisory and governance contributions.

Internationalization: depicted through international exchange and cooperation as well as international impact, including indicators such as the number of joint educational institutions and programs, the share of internationally co-authored papers, normalized citation impact, and the proportion of highly cited papers—forming a “collaboration–output–impact” chain.

Overall, the framework strikes a balance between limiting the number of indicators (to avoid data inaccessibility and interpretive overload) and ensuring functional coverage of key domains of university HSS development, thereby enabling multidimensional interpretation.

3. An Engineering-Oriented Methodological System: Standardization, Weighting, and Composite Evaluation

(1) “Natural weight” bias and the choice of Sigmoid standardization

In multidimensional composite evaluation, the core challenge is often not whether indicators exist but how they enter a common scale and are weighted reasonably. The Report introduces the concept of “natural weights”: even when designed weights are equal, differences in indicator means and distributions may cause standardized indicators to be “naturally amplified” or “naturally attenuated,” thus distorting actual weights relative to designed weights. Using journal evaluation as an example, it shows that if total citations and impact factor are aggregated with equal weights but their means differ substantially, the indicator with the lower mean may contribute less in practice, producing a hidden bias derived from the distribution itself. To mitigate this issue, after comparing alternative methods, the Report adopts Sigmoid-function standardization. It first performs Z-score normalization on raw indicators and then maps them into the (0, 1) interval via the Sigmoid function. The method’s appeal lies in its weaker dependence on the original distribution form and its tendency to bring indicator means closer, thereby reducing “natural weight” effects due to mean differences. This choice signals the Report’s sensitivity to mathematical details and provides an operational remedy for a common pitfall in composite evaluation.

(2) Expert-based weighting and stability across years

The Report compares subjective and objective weighting methods. It argues that subjective weighting better reflects decision intentions and the perceived importance ordering of attributes, while objective weighting—despite its mathematical basis—may deviate from human judgment and vary with data, undermining cross-year comparability. Given the professional and practical nature of HSS evaluation and the need for temporal comparability, the Report adopts an expert-based evaluation method for determining indicator weights. Experts score the importance of third-level indicators on a four-point scale; these scores are converted into weights and then aggregated upward to obtain second-level and first-level weights. This approach makes value judgments explicit, stabilizes weights for longitudinal comparison, and facilitates interpretability for evaluated institutions.

The resulting first-level weights are: academic staff (0.11), talent cultivation (0.14), scientific research (0.51), cultural inheritance and social service (0.15), and internationalization (0.09). The dominance of scientific research (over half the total weight) indicates that the Report still treats research capacity and outputs as the main differentiator of university HSS performance, with meaningful supplementary roles assigned to talent cultivation and social service, and a more modest role to internationalization. While this aligns with prevailing evaluation practices emphasizing research, it also opens room for debate on whether HSS evaluation should further elevate social value weights.

(3) From linear weighting to correlation-sensitive aggregation via GWBM

The Report does not stop at traditional linear weighted summation. It explicitly recognizes complementarities, correlations, and preference relations among indicators. In practice, university HSS development often

exhibits chain-like coupling structures—such as “platform–projects–papers–awards” and “talent–teams–outputs.” Simple addition may ignore interactions among indicators. To better capture such interdependence, the Report introduces the Bonferroni Mean (BM) and its extensions, including the Generalized BM (GBM) and the Generalized Weighted Bonferroni Mean (GWB) operator, using GWB for information aggregation. By incorporating interaction terms in a weighted combination, GWB seeks a more robust representation between “averaging” and “extremes.”

From the standpoint of evaluation science, introducing GWB enhances the model’s expressive capacity for indicator associations and reflects the Report’s interdisciplinary integration of operations research and multi-attribute decision theory. At the same time, a potential cost of nonlinear aggregation is reduced interpretability: linear models allow more intuitive decomposition of contributions, whereas GWB requires clearer explanation of parameter settings and interaction mechanisms, ideally accompanied by sensitivity analyses to avoid “black-box” concerns. Nonetheless, the Report’s methodological stance—prioritizing robustness while acknowledging interdependence—usefully brings the association problem to the forefront and points to future improvements in explainability.

(4) End-to-end workflow: data collection, quality checks, and preprocessing

If the indicator system and aggregation operator determine “what to compute” and “how to compute,” data practices determine “whether computation is feasible” and “whether results are reliable.” The Report provides a relatively complete process design. The preparatory phase includes defining objects, objectives, and principles, forming an expert panel, building the indicator system, and selecting methods. The implementation phase includes data acquisition, preprocessing, expert weighting, and composite computation. The analysis phase includes writing the report, releasing results, and collecting feedback. This three-stage structure improves organizational feasibility and traceability.

Regarding data sources, the Report emphasizes the use of publicly available online data, integrating official channels such as university websites and government agencies related to education and research management, as well as funding and discipline platforms. It also incorporates databases such as InCites, Web of Science, Scopus, CNKI, and CSSCI. For data quality control, it proposes visualization screening, range checks, missing-value and duplicate-value checks, data source reliability checks, and historical comparisons—explicitly embedding a data-governance mindset into evaluation practice. For qualitative variables, it distinguishes “direct quantification” and “indirect quantification,” adopting the latter: enumerating possible values, recording each institution’s value, and then assigning numerical scores (e.g., by journal tier or award level). This enhances computational feasibility and comparability by reducing narrative subjectivity.

In presenting results, the Report adopts a tiered classification rather than a single precise ranking. Based on percentile positions of composite scores, universities are divided into four categories (A, B, C, D) and further into twelve grades, such as A+ (top 2%), A (2–5%), A– (5–10%), and so forth. Tiered presentation reduces the volatility and arbitrariness of fine-grained rank orders, improves the stability of interpretation, and aligns with a public-governance logic of “classification-based guidance and differentiated policy making.”

Implications

First, the Report is systematic. It begins with theory and practical dilemmas, develops an evaluation-element framework and indicator system, and then addresses standardization, weighting, and aggregation before moving to data acquisition, quality checks, preprocessing, and tiered publication—forming a closed “theory–method–data–application” loop and avoiding the reduction of HSS evaluation to a single metric contest.

Second, it is methodologically explicit. The Report provides formula-based and step-by-step descriptions of key technical components of composite evaluation. Its discussion of standardization methods, “natural weight” bias and Sigmoid processing, expert weighting and hierarchical aggregation, and the selection of aggregation operators helps readers understand not only “what is computed” but also “why it is computed this way.”

Third, it demonstrates strong operability. By controlling indicator numbers, emphasizing data availability, and specifying quality checks and preprocessing rules, the Report exhibits an engineering-oriented mindset. Most of the 24 third-level indicators are obtainable through public channels; tiered publication supports communication and policy use, lowering barriers to implementation.

Fourth, it has direct practical transferability. Government agencies can reference the framework for resource allocation and policy evaluation; universities can use it for internal diagnosis, benchmarking, and improvement. The governance logic of “evaluation for development” also provides insight for composite evaluations in other public domains.

Fifth, its interdisciplinary integration is noteworthy. The Report draws on systems science, management studies, scientometrics, multi-attribute decision theory, and data governance, seeking a workable technical expression amid the tensions among political, academic, and social value standards—reflecting a trend toward methodological synthesis in evaluation research.

Besides, the Report also leaves room for further deepening.

First, the indicator structure remains relatively research-output-centric, with heavy emphasis on grants and papers. It underrepresents long-term, accumulation-based HSS outputs (high-quality scholarly monographs, critical editions and translations, databases and reference works, public cultural products) and “slow variables” of influence (intellectual contributions, community-building, agenda-setting in public debates). Future editions could, while maintaining operability, explore measurable pathways for monograph evaluation, policy uptake of consultation outcomes, public communication, and social participation, and introduce more discipline-sensitive indicator combinations.

Second, the transparency and interpretability of weighting and nonlinear aggregation could be strengthened. Expert weighting enhances stability but introduces concerns about expert selection, scoring consistency, and preference heterogeneity. GWBM improves correlation expression but requires fuller disclosure of parameter settings and sensitivity. Future releases might include weight-sensitivity analyses, contribution decomposition, and clearer parameter documentation, and consider selectively opening computational procedures and code to enhance reproducibility and trust.

Third, heterogeneity and fairness deserve more granular treatment. Differences in institutional scale, regional development levels, disciplinary structures, and institutional missions may mean that the same indicator carries different implications across institutions. Comparisons based on absolute counts may amplify

scale advantages. Future versions could incorporate per-capita, intensity, and efficiency indicators; adopt grouped evaluation within comparable institutional types (research-intensive, teaching-oriented, local application-oriented); and provide clearer technical schemes for regional and disciplinary-structure adjustments.

Conclusion

The Development Report of Humanities and Social Sciences in Chinese Universities 2025 represents a meaningful step in China's transition from experience-based to system-based HSS evaluation. By translating university HSS development into a multidimensional and comparable structural portrait, and by constructing an executable evaluation chain through standardization, weighting, and aggregation, the Report offers new tools for policy makers optimizing resource allocation, for universities improving disciplinary development, and for the public understanding the value of HSS.

At the same time, the Report also reminds readers that evaluation is not merely a technical question but also a matter of values and governance. Only by maintaining appropriate orientation, respecting disciplinary logics, strengthening data governance, and improving transparency can evaluation systems truly function to “incentivize improvement” rather than “manufacture anxiety.” For education administrators, university HSS managers, and evaluation researchers, this Report merits careful reading and practical engagement.

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Taking Pivotal Nations as Anchors, Exploring Paths for Strategic Alignment—A Review of *China's Integration Strategies with Fulcrum Countries along the Belt and Road*

Xiang Chengru

Abstract: This paper reviews the monograph *China's Integration Strategies with Fulcrum Countries along the Belt and Road* by Qi Huaigao. It points out that the book accurately addresses the academic gaps in current research on the Belt and Road Initiative, namely the overgeneralization of macro-level studies and the isolation of single-country analyses, and constructs a scientific research system with “pivotal countries” as the core anchor. From five dimensions—the identification method of pivotal countries, research paradigm, academic innovation, content structure and practical value—the paper systematically analyzes the book's academic breakthroughs: the establishment of a pivotal country selection system integrating qualitative criteria with quantitative data, the adoption of a closed-loop analytical logic of “national context illustration-policy analysis-alignment practice-response to challenges”, and the realization of precise sample selection, in-depth research and objective reflection of reality. It also elaborates on the book's content design featuring the integration of “point-line-plane” and its practical enabling value in serving policy formulation, corporate practice and international communication. Meanwhile, this paper objectively examines the book's limitations in terms of data timeliness, research depth on potential pivotal countries and the dimensions of research perspectives, and proposes future research directions, including dynamically updating research

samples, deepening research on emerging node countries and adding diverse research perspectives. It is concluded that as a representative achievement in the development of Belt and Road research toward greater precision and refinement, the book provides a new paradigm for regional cooperation research and offers important academic support and practical reference for the high-quality development of the Belt and Road Initiative.

Keywords: The Belt and Road Initiative; pivotal countries; strategic alignment; country-specific studies; research paradigm

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标题: 以支点为锚, 探对接之径——评《中国与“一带一路”沿线支点国家发展战略对接研究》

摘要: 本文以祁怀高所著《中国与“一带一路”沿线支点国家发展战略对接研究》为评析对象, 指出该书精准瞄准当前“一带一路”研究领域宏观泛化、单一国别分析孤立的学术缺口, 以“支点国家”为核心锚点构建了科学的研究体系。文章从支点国识别方法、研究范式、学术创新、内容架构、现实价值五个维度, 系统分析了该书构建“定性标准+定量数据”的支点国筛选体系、采用“国情铺垫—政策解析—对接实践—挑战应对”的闭环分析逻辑、实现样本筛选精准化、研究深度纵深化、现实关照客观化的学术突破, 以及其“点—线—面”融合的内容设计与服务于政策制定、企业实践、国际传播的现实赋能价值。同时, 本文也客观审视了该书在数据时效性、潜在支点国研究深度、研究视角维度上的局限, 并提出了动态更新研究样本、深化新兴节点研究、补充多元研究视角的未来研究方向。最终指出, 该书作为“一带一路”研究向精准化、精细化进阶的代表性成果, 为区域合作研究提供了新范式, 也为“一带一路”高质量发展提供了重要的学术支撑与实践参考。

关键词: 一带一路; 支点国家; 战略对接; 国别研究; 研究范式

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Introduction

Since the Belt and Road Initiative was proposed, academic research on the topic has flourished. Two types of studies have dominated the field: One type conducts macro-level analyses by treating regions along the routes as an integrated whole, yet its excessively broad scope often leads to overgeneralized narratives. The other focuses deeply on bilateral relations with individual countries, but ignores the networked nature of the Belt and Road, resulting in a lack of systematic connections among research findings. Against this backdrop, *China's Integration Strategies with Fulcrum Countries along the Belt and Road* by Qi Huaigao precisely

targets this research gap. Taking “fulcrum countries” as its core anchor, the book identifies research samples through scientific selection methods and constructs its analytical framework via in-depth country-specific studies. It ultimately summarizes macro-level integration approaches that are both theoretically sound and practically applicable. In doing so, it advances research on Belt and Road strategic integration from vague macro-level discussion to targeted and implementable analysis, making it a representative work in the refined and precise development of this field.

The primary value of this work lies in solving the preliminary challenge of “how to scientifically identify fulcrum countries of the Belt and Road,” laying a solid sample foundation for subsequent research. Instead of relying on subjective judgments or single indicators to define fulcrum countries, the author has established a dual verification system combining “qualitative criteria and quantitative data.” Through this composite analytical method, the author ultimately identifies six core fulcrum countries, namely Kazakhstan, Indonesia, Pakistan, Poland, Greece and Australia, as well as four potential fulcrum countries, including Uzbekistan, Malaysia, Sri Lanka and Saudi Arabia. The sample covers key regions such as Central Asia, Southeast Asia, South Asia, Central and Eastern Europe, Southern Europe and Oceania, ensuring regional representativeness while highlighting the differentiated values of various fulcrum countries.

Research Paradigm: Rigorous and Well-Adapted Analytical Logic

A rigorous yet flexible research paradigm forms a crucial cornerstone of the book’s academic rigor. Rejecting vague theoretical deduction, the author constructs a closed-loop analytical logic for all fulcrum countries, namely national context overview, policy analysis, alignment practice and challenge response, ensuring that each country study is both in-depth and horizontally comparable. Strategic alignment hinges on a profound understanding of partner nations, so in analyzing each fulcrum country, the author first establishes a comprehensive cognitive framework based on the country’s fundamentals including geography, politics and economy. On this basis, the author conducts a penetrating analysis of each nation’s core development strategies, dissecting their strategic connotations and practical demands to identify precise points of convergence with the Belt and Road Initiative. For instance, Kazakhstan’s “Bright Road” new economic policy centers on infrastructure construction in transportation and energy, which aligns closely with the infrastructure connectivity goals of the Silk Road Economic Belt; Indonesia’s “Global Maritime Fulcrum” strategy focuses on maritime transportation and resource development, a key area of cooperation for the 21st Century Maritime Silk Road; and Pakistan’s “Vision 2025” aims at economic transformation, with the China-Pakistan Economic Corridor serving as the core vehicle for bilateral strategic alignment. These strategic convergences are ultimately translated into concrete cooperative practices, and through real-world cases such as the China-Kazakhstan rail-water intermodal transport, the Jakarta-Bandung High-Speed Railway, the Gwadar Port and the Piraeus Port, the author transforms “strategic alignment” from an abstract conceptual collision into tangible and implementable outcomes. Notably, the author does not shy away from conflicts and challenges in cooperation; instead, adopting a problem-oriented approach, the author directly addresses the unique obstacles

in bilateral cooperation, putting forward prudent project evaluation and security guarantees with the support of local military forces for Pakistan's debt risks and cross-border security issues, emphasizing the search for common interests for Indonesia's great power balancing strategy and overlapping maritime claims in the South China Sea, suggesting the improvement of cooperation effectiveness and exploration of trilateral cooperation to resolve differences for Poland's trade deficit with China and EU concerns, and advocating the settlement of strategic misgivings through practical cooperation for Australia's divergences over the "Indo-Pacific Strategy". This research attitude of not avoiding contradictions and not indulging in empty rhetoric makes the book's analysis not only constructive but also academically critical.

Under the unified research paradigm, the author also flexibly adjusts the analytical focus according to the characteristics of different fulcrum countries, ensuring that the research is both systematic and respectful of national differences. For landlocked countries such as Kazakhstan and Pakistan, the analysis focuses on land infrastructure construction, energy and industrial capacity cooperation; for Indonesia, an archipelagic country, it centers on the upgrading of maritime ports, marine fisheries and oil and gas resource development; for Central and Eastern European countries including Poland and Greece, it emphasizes exploring the synergy between their strategies and the EU's connectivity initiatives, as well as their value in building Eurasian logistics hubs; for Australia, a developed country, it focuses on analyzing economic and trade complementarity and the balance of strategic differences against the backdrop of the Indo-Pacific Strategy. This research design of "unified framework and country-specific analysis" frees the national case studies in the book from the overgeneralization of "one-size-fits-all," truly achieving targeted alignment and specific analysis, and also laying a solid foundation for the "point-line-plane" content structure of the entire book.

Academic Innovation: Breaking Through Tradition for Research Advancement

Supported by a rigorous research paradigm, this book further breaks through the traditional limitations of Belt and Road studies. With targeted research questions and scientific methods, it enriches and expands the research framework in this field. In contrast to the shortcomings of existing studies, which are either overly generalized or isolated in their analysis, this book achieves innovations in three dimensions—sample selection, research depth, and practical focus—by taking fulcrum countries as its core anchor. It not only provides a new methodology for node-focused research on the Belt and Road, but also promotes the shift toward more precise analysis of strategic alignment.

In terms of sample selection, this book breaks through the subjectivity bias of traditional studies. Among the more than 60 countries along the Belt and Road, defining "fulcrum countries" is the primary research challenge. Most existing studies rely on subjective judgments or single indicators, resulting in unpersuasive samples. This book innovatively proposes a composite screening system of "4 qualitative criteria and 4 categories of quantitative data." The qualitative dimension clarifies four core logics: the selected countries must be middle powers with regional influence and willingness to cooperate with external partners, excluding strategically independent major powers and weak countries unable to exert radiating effects; they must possess

substantial economic potential and broad cooperation space with China, aligning with the Belt and Road's core connotation of economic cooperation; they must have no fundamental conflicts with China in strategic interests to lay a solid political and security foundation for cooperation; at the same time, sub-regional representativeness must be considered, with only 1-2 fulcrum countries selected from each major sub-region along the routes to achieve a "point-driven area" radiating effect. For the quantitative dimension, four types of measurable indicators are introduced: gross domestic product (including nominal GDP at market exchange rates and GDP at purchasing power parity), population size, military expenditure, and bilateral economic and trade data (2018 bilateral trade volume and direct investment stock as of 2018).¹ Through multi-dimensional cross-validation, the book accurately identifies six core fulcrum countries (Kazakhstan, Indonesia, Pakistan, Poland, Greece, Australia) and four potential fulcrum countries, avoiding both the ambiguity of "pan-regional discussions" and the one-sidedness of "single-indicator-determined results." Academically, this screening system provides a replicable scientific method for defining "fulcrum countries," improves the academic discourse on "fulcrum country identification criteria," and offers an important reference for related research in this field.

In terms of research depth, this book has achieved a shift from a "pan-regional approach" to "in-depth research on key nodes." Traditional studies on regional cooperation often treat countries along the Belt and Road as a homogeneous whole, with analyses largely confined to macro-level topics such as trade complementarity and policy coordination, and lack in-depth examination of specific node countries. By contrast, this book takes fulcrum countries as its entry point and carries out penetrating country-specific studies. For example, it conducts an in-depth analysis of the synergies between Poland's Responsible Development Strategy and the EU's connectivity strategy; dissects the pivotal role of the Port of Piraeus in the China-Europe Land-Sea Express Route; and explores the tensions and potential in China-Australia economic and trade cooperation against the backdrop of the Indo-Pacific Strategy. Such targeted and in-depth research not only highlights the unique value of fulcrum countries in the Belt and Road network, but also grounds the analysis of strategic alignment from grand narratives into context-specific analysis, thus enriching and strengthening dedicated in-depth research on fulcrum countries.

In terms of practical relevance, this book constructs an objective narrative that balances opportunities and challenges. Some Belt and Road studies tend to focus only on a positive narrative of opportunities while avoiding contradictions and risks in cooperation, resulting in a lack of practical orientation. Adhering to the principle of critical objectivity, this book not only fully demonstrates the opportunities and achievements of strategic alignment but also confronts deep-seated contradictions and potential risks. For example, in analyzing China-Indonesia cooperation, it affirms the infrastructure-driven effect of the Jakarta-Bandung High-Speed Railway while pointing out practical obstacles such as land acquisition and corruption issues. In examining the China-Pakistan Economic Corridor, it recognizes its contribution to Pakistan's economic

¹ Qi, H. G. (2019, pp. 9-10). *China's integration strategies with fulcrum countries along the Belt and Road*. World Affairs Press.

transformation while addressing problems of high debt and domestic political constraints. In exploring China-Australia cooperation, it emphasizes the complementarity in mineral and agricultural trade while noting strategic divergences brought about by the Indo-Pacific Strategy. This objective narrative logic makes the research closer to real cooperation scenarios, avoids the one-sidedness of blind optimism, provides academic support for practical problem-solving, and effectively enriches the perspective of critical realistic analysis in Belt and Road studies.

Content Structure: A Systematic Design Integrating Points, Lines and Planes

With a systematic “point-line-plane” structure, this book integrates separate analyses of the six core fulcrum countries and four potential fulcrum countries into a logically rigorous and clearly layered whole. Moving from in-depth country-specific studies in individual chapters to logical elevation across the book and further to an interdisciplinary perspective, this framework ensures both depth and breadth of research, and achieves an organic unity of empirical details and macro-level strategy.

At the “point” level, the book balances the depth and breadth of in-depth country studies. Chapters 1 to 6 focus on the six core fulcrum countries, with each chapter forming an independent and complete analytical unit that delivers targeted examinations based on each country’s uniqueness. The chapter on Pakistan centers on project upgrading of the China-Pakistan Economic Corridor, cross-border security cooperation and livelihood improvement; the chapter on Poland focuses on the development of China-Europe Railway Express hubs, analyzing the synergy and divergences between the Belt and Road Initiative and the EU’s connectivity strategy; the chapter on Greece revolves around the operational performance of the Port of Piraeus, exploring its pivotal role and regional radiation effects in the China-Europe Land-Sea Express Route; and the chapter on Australia provides an in-depth analysis of China-Australia economic and trade complementarities in mineral and agricultural products, as well as strategic divergences and cooperation pathways under the framework of the Indo-Pacific Strategy. This country-specific in-depth approach ensures thorough research on each core fulcrum country and avoids the overgeneralization of a one-size-fits-all analysis. Chapter 7 examines the four potential fulcrum countries. Building on the research of core fulcrum countries, it summarizes their common characteristics and analyzes their emerging value and alignment potential in the Belt and Road network, which not only expands the scope of the study but also reflects attention to the dynamic evolution of the fulcrum country network under the Belt and Road Initiative.

At the “line” level, the book achieves a logical elevation from individual country analysis to a macro framework. The whole book follows a clear progressive logic: the introduction completes the screening of fulcrum countries and the establishment of the research framework; Chapters 1 to 7 provide empirical analysis at the country level through in-depth research on core fulcrum countries and expanded research on potential fulcrum countries; the conclusion integrates and elevates the scattered country-specific findings, extracting a five-dimensional macro framework that includes turning fulcrum countries into connectivity hubs, promoting institutional alignment, defusing external resistance, coordinating with neighboring diplomacy, and linking

partnership networks.¹ This logical progression from points to lines and from national cases to the overall picture endows the book with both solid empirical foundations and systematic theoretical height, avoiding the isolation of single-country studies.

At the “plane” level, the book presents a comprehensive research perspective integrating multiple disciplines. Instead of being confined to a single disciplinary lens, its content structure synthesizes theories and methods from international relations, regional economics, geopolitics, public policy, and other fields. For instance, in analyzing Kazakhstan, it not only addresses international relations issues such as the “great power game between Russia, the United States, and China” but also covers regional economic matters like “energy and industrial capacity cooperation”; in examining Greece, it explores the context of “EU geopolitics” while focusing on public policy practices such as “port operation optimization”; in studying Australia, it involves geopolitical structure issues under the “Indo-Pacific Strategy” as well as economic analysis of complementarity in mineral trade. This interdisciplinary perspective enables the research to not only interpret the macro geopolitical background of strategic alignment but also analyze practical challenges in specific projects. The proposed solutions take into account political, economic, social, and other dimensions, making the research more comprehensive and persuasive.

Practical Value: Applied Research for Practical Empowerment

The ultimate significance of academic research lies in responding to real-world needs and solving practical problems. This book not only achieves paradigm upgrading and academic innovation at the theoretical level, but also builds a bridge between academic research and practical needs. Whether providing targeted policy references for government departments, action guidance for enterprises going global, or academic discourse support for international communication, the research findings of this book can directly serve the practical needs of high-quality development of the Belt and Road Initiative, truly embodying the principle of conducting research for application.

For government departments, this book provides targeted, country-specific references for policy-making. When advancing Belt and Road cooperation with individual countries, governments often face the challenge of insufficiently targeted policies. Through in-depth analysis of each fulcrum country’s national conditions, policies, alignment practices and challenges, the policy proposals put forward in the book are grounded in solid empirical research and consistent with each country’s actual situation. For example, regarding cross-border security issues in Pakistan, it suggests exploring a multi-stakeholder security guarantee mechanism; concerning Poland’s alignment with EU policies, it proposes seeking synergies between the Belt and Road Initiative and the EU’s connectivity strategy; for port upgrading in Greece, it recommends deepening the linkage effects of the China-Europe Land-Sea Express Route; and toward China-Australia strategic divergences, it advocates mitigating differences through practical cooperation. These proposals can directly

¹ Qi, H. G. (2019, p. 160). *China’s integration strategies with fulcrum countries along the Belt and Road*. World Affairs Press.

offer academic support for the Ministry of Foreign Affairs, the Ministry of Commerce and other agencies in formulating country-specific cooperation policies and improving cooperation mechanisms, thus avoiding one-size-fits-all and blind decision-making.

For enterprises, this book offers clear operational guidance and risk warnings. When enterprises go global to participate in Belt and Road cooperation, they often face problems such as insufficient market understanding and inaccurate risk prediction. In terms of cooperation opportunities, the book identifies key sectors for different fulcrum countries, including supporting projects under the China-Pakistan Economic Corridor in Pakistan, logistics hubs for the China-Europe Railway Express in Poland, port operations in Greece, and mineral and agricultural trade cooperation with Australia. For risk prevention, it systematically sorts out potential risks in each country, such as security risks in Pakistan, risks from EU policy changes in Poland, and strategic divergence risks in Australia. It also proposes solutions including establishing risk early warning mechanisms, strengthening corporate social responsibility, and responding to policy shifts through compliant operations. This integrated presentation of opportunities, risks and countermeasures helps enterprises accurately assess market potential, avoid operational risks, and improve the effectiveness and sustainability of their global expansion.

For international communication, this book provides scholarly and data-based discourse support. In international communication of the Belt and Road Initiative, an important task is to respond to doubts raised by some countries and tell the story of mutually beneficial cooperation. Based on solid empirical data and case analysis, the book objectively demonstrates the compatibility between the Belt and Road Initiative and the domestic strategies of fulcrum countries: the China-Pakistan Economic Corridor helps Pakistan improve infrastructure and people's livelihoods; the China-Greece Port of Piraeus project elevates Greece's status as a logistics hub and boosts employment; expanded China-Poland China-Europe Railway Express services facilitate smoother Eurasian trade; and China-Australia mineral trade supports the economic development of both sides. These empirical findings can effectively refute false narratives such as the "debt trap" and "geopolitical expansion" claims, and help enhance international recognition of the Belt and Road Initiative.

Limitations and Prospects: Objective Review and Future Directions

No academic research can be perfect, and this book is no exception. While affirming its academic contributions and practical value, we must also objectively recognize its limitations in timeliness, research depth, and dimensional perspectives. These limitations precisely point the way for follow-up research. Through dynamically updating the sample, deepening research on potential fulcrum countries, and incorporating diverse perspectives, future studies on Belt and Road fulcrum countries can further enhance accuracy and comprehensiveness, providing more solid academic support for the sustainable advancement of the Initiative.

In terms of timeliness, some of the book's data and cases date back to around 2018. However, Belt and Road cooperation and the international landscape have changed significantly in recent years. For example, the Russia-Ukraine conflict has reshaped the geopolitical landscape of Central Asia; the China-Pakistan Economic

Corridor has entered an upgrading phase; Poland's hub role in the China-Europe Railway Express has been further strengthened; the radiation effect of the Port of Piraeus in Greece continues to expand; and Australia's policy toward China has seen new adjustments. The book's static sample analysis and partial data are somewhat lagging behind the dynamic evolution of real-world practices.

In terms of research depth, Chapter 7 provides an integrated analysis of the four potential fulcrum countries, which may be limited in length and depth compared with the separate, chapter-length studies of the core fulcrum countries. For instance, the alignment potential between Saudi Arabia's Vision 2030 and the Belt and Road Initiative, the operational performance of Hambantota Port in Sri Lanka, and Uzbekistan's value as a Central Asian hub all deserve in-depth examination. An integrated analysis may not fully reveal their distinctive characteristics.

In terms of perspective, the existing analysis mostly adopts the official bilateral perspective between China and the fulcrum countries. It lacks analysis of the attitudes and influences of third-party countries, and seldom addresses the perceptions and feedback of local people in fulcrum countries toward Chinese-funded projects, such as employment impacts, living standards improvement, and cultural adaptation. Such limitations in perspective may lead to an incomplete analysis of the social foundations and external environment of strategic alignment.

To address these limitations, future research can be advanced in three ways: First, dynamically update samples and data. Combined with changes in the international landscape in recent years, the latest progress of cooperation projects should be supplemented to enhance the timeliness and practical relevance of the research. Second, deepen research on potential fulcrum countries and emerging nodes. Conduct separate in-depth chapter studies on key potential fulcrum countries such as Saudi Arabia, and expand the geographical coverage by focusing on emerging node countries in Africa and Latin America. Third, supplement third-party perspectives and public dimensions. Include analysis of the attitudes of third-party countries, and incorporate public perception data from fulcrum countries through questionnaires, field interviews and other methods. This will make the research closer to the core goal of "people-to-people bonds" and improve its comprehensiveness and humanistic orientation.

Conclusion: The Milestone Significance of Targeted Research

China's Integration Strategies with Fulcrum Countries along the Belt and Road takes "fulcrum countries" as its core breakthrough and establishes a research paradigm of "scientific sample screening–in-depth country studies–extraction of a macro framework". It identifies six core fulcrum countries: Kazakhstan, Indonesia, Pakistan, Poland, Greece, and Australia. This not only fills the academic gap in specialized research on fulcrum countries within Belt and Road studies, but also achieves an organic integration of academic rigor and practical applicability. Adopting a consistent analytical logic of "national conditions–policies–alignment–challenges" across all chapters, the book conducts targeted analyses of each fulcrum country and ultimately extracts a five-dimensional macro framework, providing solid academic support for the targeted advancement of Belt and

Road cooperation. Although there remains room for expansion in terms of timeliness and the depth of research on potential fulcrum countries, this book still stands as a landmark achievement in the shift toward more targeted and refined Belt and Road research.

From an academic perspective, this book offers a new paradigm of “node-focused in-depth research” for regional cooperation studies. Its “qualitative and quantitative” sample screening method and interdisciplinary analytical perspective provide important references for subsequent similar studies. From a practical perspective, the book’s policy recommendations and risk warnings offer direct guidance for government departments in formulating country-specific policies and for enterprises in participating in overseas cooperation, truly achieving a deep integration of academic research and practical needs. Against the backdrop of the Belt and Road Initiative entering a stage of high-quality development, the research findings of this book not only help deepen the understanding of the strategic value of fulcrum countries, but also provide solid academic support for the targeted and sustainable advancement of the Belt and Road Initiative, thus carrying important theoretical and practical significance.

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The Implications of Foucault's Ethical Turn for Literary Criticism: A Review of *From Morality to Ethics: On Foucault's "Ethical Turn"*

Zhu Jingwen, Zhang Tian

Abstract: Taking Zeng Chi's *From Morality to Ethics: On Foucault's "Ethical Turn"* as the subject, this review aims to assess the theoretical value of the philosophical monograph for literary criticism, particularly in the study of narrative and subjectivity. The review points out that by systematizing Foucault's "ethical turn", Zeng clearly distinguishes between "code-oriented morality" and "ethics-oriented morality," and extracts the practical binary model of "confession" versus "parrhesia". This theoretical framework provides literary analysis with a refined tool, enabling it to move beyond simplistic attributions to either psychological or social-deterministic factors. Instead, it delves into the complex, dynamic process between "being passively constituted" and "actively shaping oneself" in discourse and practice. By analysis of classic texts such as *The Great Gatsby*, "To Room Nineteen" and "The Dead", this article demonstrates how the framework can effectively interpret discourse discipline, subjective formation, and their intricate interplay within characters' self-narration. It argues that Zeng's interpretation transforms Foucault's thought into a critical methodology which is capable of deepening character analysis and narrative studies.

Keywords: Foucault; Ethical Turn; Ethical Literary Criticism; Subjectivity

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标题：福柯伦理转向的文学批评启示——评《从道德到伦理：论福柯的伦理转向》

摘要：本文以曾持《从道德到伦理：论福柯的伦理转向》为评论对象，旨在评估这部哲学专著对文学批评，特别是叙事与主体性研究的理论价值。书评指出，曾持通过系统梳理福柯的“伦理转向”，清晰区分了“规范导向的道德”与“伦理导向的道德”，并提炼出“坦白”与“坦言”这一组的实践对立模型。这一理论框架为文学分析提供了精密工具，使其能够超越对人物心理或社会决定论的简单归因，转而深入考察人物在话语与实践中“被动构成”与“主动塑造”之间的复杂动态过程。本文结合《了不起的盖茨比》、《到十九号房间去》、《死者》等经典文本进行例证分析，展示了该框架如何有效解读人物自我叙事中的话语规训、主体塑造及其矛盾交织，论证了曾持的阐释如何将福柯的思想转化为一套能够深化人物分析与叙事研究的批评方法论。

关键词：福柯；伦理转向；文学伦理学批评；主体性

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1. Introduction

The issue of subjectivity is a focus in the study of contemporary literary criticism. From the deep exploration of individual identity in post-colonial and diaspora literature to the dissolution of the concept of “self” in science and AI-themed fiction, the literary subject appears to hover between the binary opposition of construction and deconstruction. The traditional approaches, such as psychoanalytic and socio-historical criticism, seem insufficient to explain the fragmented, individualized and highly dynamic self-formation in postmodern narratives. How should readers interpret the literary characters who do not passively submit to social disciplines but actively construct and shape their own inner world? And how to analyze complex literary texts in which subjects engage in self-deconstruction and reconstruction through narrative actions, such as diaries and confessions?

The “ethical turn” in the late thought of Micheal Foucault, which includes his concepts like “technologies of self”, “care of the self” and “parrhesia” (frank speech), provides a new theoretical framework for addressing the above questions. In his later work, Foucault no longer regarded the subject merely as a passive product of power-knowledge networks, but turned to examine how individuals construct themselves into ethical subjects through a series of spiritual practices. This transformation means that it expands from a critique of how subjects are constituted by power to an ethical exploration of how subjects actively constitute themselves. It offers a distinctive theoretical approach for understanding subjectivity in literature.

However, Foucault's ethical thought is scattered across his later works, interviews and lectures at the Institut de France. They are presented in an obscure manner and with multiple interpretations, posing significant challenges for interdisciplinary applications. In this situation, the monograph *From Morality to Ethics: On Foucault's "Ethical Turn"* (China Social Science Press, 2025) by scholar Zeng Chi is a timely and important work in Chinese. The book not only systematically clarifies the internal logic of Foucault's "ethical turn" and clearly distinguishes between key concepts such as "morality" and "ethics", "know yourself" and "care of the self", "confession" and "parrhesia", but also strives to transform Foucault's philosophical reflections into a coherent and logically structured discourse framework.

As a book review, this article does not aim to examine Foucault's ethical turn within the history of philosophy, nor does it seek to provide a philosophical comparison or verification of Zeng's interpretation. As a researcher in literary studies, the author focuses on what kind of new "ethical perspective" and operable theoretical tools Zeng's work provides to the practice of literary criticism. More specifically, this article will focus on the book's elucidations of Foucault's concepts, such as "technologies of the self", "parrhesia", the truth-subject relationship. And to explore how they can provide interdisciplinary insights for analyzing self-narration and the process of subject formation in the literary text. Through a close reading of this monograph, the aim is to assess whether it successfully builds a bridge that translates Foucault's dynamic late ethical thought into a critical-theoretical tool for interpreting the complex inner worlds of subjects in literary texts.

2. From Code-oriented Morality to Ethic-oriented Morality

Generally, Foucault's thought is divided into three periods: archaeology, genealogy of power, and ethics. The "ethical turn" occurs in the last period. Zhang Xu (2015, p. 90) points out that it "marks Foucault's shift from exploring the issue of 'genealogy of life power' to the issue of 'ethical genealogy' which explores the relationship between the subject and the truth." In the monograph *From Morality to Ethics: On Foucault's "Ethical Turn"*, Zeng compares Foucault's power study and ethical study through the lens of "subjectivation" form as the entry point, explaining the trajectory of "ethical turn". This book concludes two parts: "genealogy of modern ethics" and "ethics of caring the self". The first part explains how to view genealogy of power as genealogy of moral, reveals the operating path of morality in modern society, and analyzes the role of "confession" as a means of power suppression and guidance in the self-construction of the subject. The second part discusses two ways of self-construction: knowing yourself and the care of the self, explores the four elements of Foucault's ethical framework, and explains "parrhesia" as an active ethical practice for shaping the self.

In the first part of the book, Zeng first clarifies how to regard Foucault's genealogy of power as a genealogy of morality in both broad and narrow senses, providing a new perspective to understand related issues. Then he discusses the origin and the operating process of morality by explaining "moral monster",

“moral treatment”, and “moralization of society”. From this perspective, morality does not originate from the inner conscience of individuals, but is a set of external and compulsory social disciplinary systems. This system defines what is normal and abnormal by the modern knowledge systems like medicine, law and education. The task of individuals is to compare and match their behaviors, desires and thoughts with the external standard. Once they deviate, they will be tagged as “monster” and “abnormal”. In “moral treatment”, the “confession” technique plays an important role. Zeng (2025, p. 83) points out that the “confession” described by Foucault is not a simple self-expression, but “a ritual of revealing oneself within power relations”. Under the gaze of the authority like judges, doctors and priests, individuals are compelled and induced to tell the “truth” about themselves. However, this kind of “telling the truth” does not lead to freedom but is the result of the operation of power. Through the moral discipline and “confession” technique, individuals internalize the external norms as their self-conscience and are shaped into subordinates of power ultimately. This kind of “code-oriented morality” situates subjects in a passive position of being examined and defined.

In the second part of the book, Zeng (2025, p. 110) indicates that “it is precisely in his continued focus on the practice of ‘confession’ that Foucault recognizes the necessity for a further inquiry of the subject”, and then proceeds to explore the possibility of another formation of the subject: how the subject actively constitutes the self. Zeng further discusses the truth, the subject and the self-relationship, and indicates two ways of constructing the self-relationship: “know yourself” and “care of the self”. In Foucault’s sense, “know yourself” is a part within the overall activity of the “care of the self” (Zeng, 2025, p. 134). Knowing yourself is a prerequisite for the care of the self. “Care of the self” refers more specifically to the practice of “spirituality”, which means individuals consciously control their body, soul and thought by their own power such as change, correction purification, in order to achieve a positive transformation of the self. To concretize the above abstract concepts, Zeng provides a detailed analysis of the four elements of Foucault’s ethical framework, including ethical substance, ethical obligation, ethical work and telos. It particularly highlights the importance of “ethical work”, namely “self-practice” or “technologies of the self” for “it is through ethical work that subject undergoes genuine transformation and gradually constitutes itself as an ethical subject” (Zeng, 2025, p. 160). The four elements of ethical structure show that the ethics-oriented morality is concerned with how one becomes an ethical subject through practice. Within ethical work, the practice of “parrhesia” (or “frank speech”) is an effective means of self-formation.

The most interdisciplinary insight of this book is the opposition model of “confession” and “parrhesia”. These are two models of “telling the truth”, each corresponding to a different moral orientation. “Confession” is a self-disclosure that is forced or induced in front of an authority figure such as judges, doctors and priests. Its purpose is to inscribe the subject into the archive of knowledge-power and to attain salvation through the recognition of the authority. It is a process of objectification. By contrast, “parrhesia” is the courage to speak the truth. The subject voluntarily binds himself to truth and undertakes the associated risks, such as offending

the powerful or damaging relationships. It is a process of subjectivation and a practice of the aesthetics of existence. This distinction is helpful for literary criticism to make a precise determination: whether a character's self-narration serves to reinforce social discipline or to practice a free and aesthetic ethical practice. Zeng (2025, p. 190) points out that in the modern society where power is ubiquitous, Foucault's ethics consists in reconstructing a relationship to the self by means of the ethics-oriented morality, arming the subject to resist the network of power.

3. The Assistance and Implication for Literary Studies

Zeng's systematic interpretation of Foucault's thought, especially the distinction of "code-oriented morality" and "ethics-oriented morality", and the comparison of "confession" and "parrhesia", provides a productive analytical path for literary criticism. It enables literary criticism to go beyond the simple dichotomy between a character's inner motives and social determination in traditional literary analysis, and to focus on the dynamic process through which the characters negotiate and shape themselves in relation to the self, others, and social norms within concrete practices and discourses. This framework is suitable for analyzing the narrations that presents issues like the predicaments of modernity, self-awareness and existential anxiety. It can illuminate the complex pathways in the construction of characters' subjectivity.

3.1 Analysis of "Confession": The Disciplined Self-Narrative

According to the code-oriented moral pathway explicated by Zeng, numerous internal monologues, diaries, confessions, and even conversational formulas in literary works can be interpreted as a kind of "confession" practice. In the process, characters do not freely express the authentic self, rather they unconsciously mobilize and even internalize some external authoritative discourses such as class, gender and money discourses, therefore, shaping themselves into intelligible objects that conform to specific norms. This perspective can penetrate the surface of the narrative and reveal the power structure as well as the disciplinary logic behind characters' self-narrative.

F. Scott Fitzgerald's work, *The Great Gatsby* is an example of "confession". Ranging from his "old money" mimicry in self-presentation to his obsession with hosting extravagant and sumptuous parties, Jay Gatsby's elaborate construction of his self-narrative is a grand-scale "confession" which shows the social norms of American upper class. He obsessively appropriates and performs this discourse, hoping to gain the approval of Daisy and the upper class she represents, to "confess" himself as a qualified subject who is worthy of acceptance. However, as Foucault reveals, this act of "confession" reinforces the norms and class that Gatsby yearns for, and leaves the confessant permanently situated in the position of the other (subject to being watched and defined). What's more, as the narrator in the novel, Nick produces a memoir steeped in melancholy and moral judgment. This memoir is also a form of "confession": he attempts to sort out a personal narrative that conformed to the moral order of the middle class in the chaotic era, so as to justify his involvement and alienation. His narrative continuously internalizes and reinforces specific social norms.

In George Orwell's "Shooting an Elephant", the narrator, who is a British colonial officer stationed in Burma, is ordered by his superiors to hunt down an elephant. His inner struggle monologue during and after the hunting is a highly typical "confession". Though he is reluctant to shoot the elephant, situated at a lower position within the colonial apparatus, he feels that he is being watched by countless yellow faces and is compelled to perform the role of sahib. He has no choice but to act. After the shooting, his reflection and analysis of his own acts are deeply embedded in the discourse of colonial power-knowledge. His "confession" is not a pursuit of truth. Instead, under the immense pressure of "code-oriented morality", it is an attempt to justify his act of shooting the elephant with a rationale that makes sense within imperial logic. This precisely exposes how the colonial regime internally shapes and distorts individual self-perception.

3.2 Identifying "Parrhesia": Self-Practice as Ethical Self-Formation

In the meantime, Zeng's elaboration of Foucault's ethics-oriented morality and "parrhesia" offers a key to identifying the practices of self-formation that are more resistant and creative in literature. "Parrhesia" refers to the situation where characters are at risk, but they still choose to speak and act bravely according to the truths they possess, so as to define and construct the self. Such practice is often intertwined with "technologies of the self", and presents as a process of questioning, detaching from, and reconstructing of the established mode of existence.

Doris Lessing's "To Room Nineteen" depicts this process. The protagonist, Susan, began her self-exploration with discomfort with the "code-oriented" role of a perfect middle-class housewife. Her "parrhesia" is not a vehement declaration; however, it consists of a series of silent, internal "technologies of the self": from her failed attempts to secure an independent space in the home, to her final choice of occupying a room alone in a cheap hotel, where she enjoys a tranquil and free moment. This room serves as the physical space for her "spiritual exercise". The solitary contemplation she engages in here is a spiritual exploration of the question "Who am I". By temporarily setting aside her family responsibilities and obligations, she engages in a pure "spiritual exercise". Her goal is not to gain social approval, but to safeguard an inner, authentic self that cannot be defined by any external norms. Eventually, at the moment when her husband discovers this independent space, she chooses an extreme and tragic "parrhesia": to possess the peaceful space forever at the cost of her life, so as to maintain the absoluteness of her own boundaries.

3.3 Capturing Contradictions: Interpreting the Complex Subject

The advantage of Foucault's framework expounded by Zeng also lies in its capacity to capture the complex state in which a character's subjectivity is at once passively constituted and actively creative. The depth of many literary figures resides in the contradictions and oscillations.

In James Joyce's short story "The Dead", Gabriel's transformation is an excellent example. At the dance party, he consistently plays the role that conforms to the social norms of the middle class. His words and actions constitute a refined "confession" before the traditional authority. However, the inner storm that he

experiences alone in the hotel after knowing the story of his wife's past love marks a crucial turning point. His subsequent reflections on himself, his marriage, his cultural identity and his entire life are filled with a painful quality of "parrhesia". He strips off his social mask and confronts his own emotional mediocrity, arrogance and a sense of spiritual death. In this moment, he applies "technologies of the self" (profound reflection and imagination) to interrogate the "ethical substance" (the true state of his existence). Although the snow in the end of the story is a symbol of death, it also stands for the protagonist's nascent consciousness to some extent (Lyu, 2008, p. 123). Therefore, this process of awakening consciousness is an incomplete ethical practice that attempts to care for the self.

Applying this framework to science fiction narratives further highlights its contemporary interpretive power. In Ian McEwan's *Machines Like Me*, the existence of the robot Adam challenges traditional concepts of the subject. The settings and tests that Charlie and Miranda apply to Adam can be seen as an extreme, technologized form of "code-oriented" formation. However, some of Adam's choices exceed the program and are fraught with ethical dilemmas, especially ethical choices involving jealousy, protection and sacrifice. These complex choices raise a new question: is it ethical for a non-human entity governed by algorithms to be able to independently carry out "ethical practice"? Though different from actual human existence, Adam's actions which cannot be explained by simple program, are a silent "parrhesia" towards the established "code-oriented morality". This complex narrative involving a humanoid robot compels scholars to confront ethical issues in the age of artificial intelligence. Foucault's ethics offers a new perspective for the criticism of science fiction.

In summary, Zeng's work interprets Foucault's philosophical ideas, helping literary researchers to analyze how characters are disciplined by social discourse and engage in "self-confession"; to identify how characters undertake subject formation through "parrhesia"; and to examine the struggles and contradictions of characters caught between norms and ethics. Applying this theoretical framework to specific literary texts enables literary criticism to move beyond the simple definition of what characters are, but instead to delve into the dynamic process of how they become the self, enriching the perspective and depth of literary criticism.

4. Conclusion

With its clear structure and profound explanation, Zeng Chi's work successfully transforms Foucault's complex thought trajectory into a set of operational theoretical tools for analysis. By clearly distinguishing between "code-oriented morality" and "ethics-oriented morality", as well as establishing "confession" and "parrhesia" as a pair of contrasting models of practice, the book provides a dialectical and dynamic perspective for understanding the constitution of subjectivity. It reveals that the individual is not only an object shaped by power discourse, but also an ethical subject who actively constitutes the self through "technologies of the self" and the practice of "spirituality".

This theoretical framework provides a new research perspective to literary studies. It enables a deep exploration of the narrative structure and a meticulous analysis of the complex interactions between how characters are constituted passively and how they constitute themselves actively. From analyzing the social discourse discipline behind Gatsby's "confession", to interpreting Susan's resolute practice of "parrhesia", to grasping the interwoven obedience and awakening of Gabriel's consciousness, this framework demonstrates formidable interpretive power. It not only provides new perspectives for rereading classic texts, but also lays a certain foundation for understanding important issues in contemporary literature, such as subjectivity and the ethics of technology. Therefore, this book is not only an important contribution to Foucault studies, but also a valuable reference for literary critics engaged in exploring the relationship between narrative and subjectivity.

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Inner Asia and China from a World-Historical Perspective: A Review of Cai Weijie's *From Marco Polo to George Macartney: The Eurasian World from the Thirteenth Century Onward*

Sun Rong, Chen Guanzheng

Abstract: Cai Weijie's *From Marco Polo to George Macartney: The Eurasian World from the Thirteenth Century Onward* is an academic collection consisting primarily of book reviews, which systematically introduces cutting-edge scholarship in the field of international Inner Asian historiography over the past three decades. Adopting the “Fourfold Crossing” approach (i.e., cross-regional, cross-chronological, cross-civilizational, and cross-linguistic), this book traces the historical trajectory of Eurasia from the Mongol period onward. Through critical examinations of representative works by scholars such as Peter B. Golden, Sugiyama Masaaki, Timothy May, and Mark C. Elliott, the author engages with core issues including the historical significance of the Mongol Empire, the continuities characterizing the post-Mongol period, the multifaceted nature of the Qing Dynasty as an Inner Asian empire, and methodological critiques of the “Sinicization” paradigm. This book not only serves as a vital portal for Chinese readers to access international Inner Asian studies but also provides a crucial framework of reference for understanding the fundamental question of “What is China”, while demonstrating a model of rational dialogue in addressing academic controversies. Although, as a collection of reviews, it presents certain limitations such as occasional content repetition and relatively limited coverage of Ming history, the volume overall combines scholarly depth with accessibility, offering substantial reference value for researchers in the fields of Inner Asian history, Mongol-Yuan history, Qing Dynasty history, and Eurasian world history.

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标题: 世界史视野下的内亚与中国——评蔡伟杰《从马可波罗到马戛尔尼：十三世纪以降的欧亚世界》

摘要: 蔡伟杰所著《从马可波罗到马戛尔尼：十三世纪以降的欧亚世界》是一部以书评为构成的学术文集，系统性地引介了近三十年来国际内亚史学界的前沿研究成果。该书以“四重跨越”，即“跨地域、跨断代、跨文明、跨语言”为视角，勾勒了自蒙古时代以来欧亚大陆的历史演进脉络。通过评析彼得·高登（Peter B. Golden）、杉山正明、梅天穆（Timothy May）、欧立德（Mark C. Elliott）等学者的代表性著作，作者围绕蒙古帝国的历史定位、后蒙古时代的历史延续性、清朝作为内亚帝国的多元性质，以及“汉化”范式所引发的方法论反思等一系列核心议题展开探讨。该书不仅为中文读者提供了了解国际内亚学研究的重要窗口，也为理解“何为中国”这一根本性问题提供了关键的参照框架，并在处理学术争议时展现出理性对话的典范姿态。尽管作为书评合集，本书存在部分内容重复、对明代历史关注相对有限等可商榷之处，但总体而言，该书兼具学术深度与可读性，对于内亚史、蒙元史、清史以及欧亚世界史领域之研究者具有重要的参考价值。

关键词: 内亚史；蒙古时代；新清史；欧亚世界

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1. Introduction

In contemporary historical research, how to transcend the dual narrative frameworks of “Central Plains-centered” and “Western-centered” and re-understand the relationship between China and the world has become a focus of academic attention. The publication of Cai Weijie’s new book, *From Marco Polo to George Macartney: The Eurasian World from the Thirteenth Century Onward* (Publisher: Guangdong People’s Publishing House, Publication Year: 2025), comes at the right time to provide important intellectual resources for this academic issue. As an academic collection mainly consisting of book reviews, this book not only systematically introduces the cutting-edge achievements of the international Inner Asian historical research community in the past decade or so, but also sketches out the historical picture of the Eurasian continent since

the Mongol era from a cross-regional, cross-period, cross-civilization, and cross-language perspective, demonstrating the author's profound academic foundation and broad global vision.

2. Academic Mission: A Bridge of Knowledge Spanning East and West

The publication of the Traditional Chinese version of "*From Marco Polo to Macartney: Inner Asia and China since the Mongol Era*" in 2020, followed by the release of the Simplified Chinese version in 2025, involved not only revisions to the original content but also the addition of five new works. These enhancements have rendered the book's structure more coherent and its thematic focus more pronounced. The alteration of the subtitle in the Simplified Chinese version to "*The Eurasian World from the Thirteenth Century Onward*" is particularly significant, indicating the author's intent to transcend the somewhat dualistic framework of "Inner Asia and China" and instead emphasize the integrity and interactive dynamics of the Eurasian continent.

Professor Luo Xin of the Department of History at Peking University offers an apt evaluation: "In terms of the author's knowledge preparation, academic vision, and the depth of thought on various topics, it is hard to find a more suitable candidate than Cai Weijie in the Chinese academic circle. Although the collected articles were originally written as book reviews, special topic introductions, and academic reviews, due to the author's own academic conditions, these articles all possess a high professional level, far surpassing general popular science articles and serving as a rare source of consultation for professional researchers." This statement accurately summarizes the academic value of this book, it is both an introductory guide for general readers and an important source for professional researchers to obtain information on the latest international academic frontiers.

3. Structure and Main Themes: The Internal Logic among the Three Parts

The book is divided into three parts, with a total of twenty-four articles included. The overall structure is clear and the logical hierarchy is rigorous. The First Part, titled "Inland Eurasia, East Asia, Nomads, and the Silk Road in World History", focuses on defining core concepts and constructing theoretical frameworks; the Second Part, "Pioneers and Legacy of the Mongol Era", examines the Mongol Empire's role in world history and its profound impact; while the Third Part, "The Post-Mongol Era and Ming-Qing China", explores the continuation and evolution of Inner Asian historical legacies during the Ming and Qing dynasties following the collapse of the Yuan Dynasty.

3.1 Reconstructing World History from an Inner Asian Perspective

The five articles included in the First Part, although seemingly independent, are all centered around a core issue: how to re-understand and write world history from an Inner Asian perspective. The first article, a review of Peter B. Golden's (2011) *Central Asia in World History*, clearly points out the profound impact of the westward migration of nomadic peoples after the collapse of the Xiongnu Empire on the historical pattern of Eurasia. The subsequent review of Denis Sinor's (2021) edited *Cambridge Early Asian History* systematically

summarizes the academic accumulation of Inner Asian history research before the rise of the Mongols. Notably, when selecting the objects of review, the author also introduced the research results of Japanese scholars such as Lin Junxiong and Sugiyama Masaaki. These studies attempt to transcend the traditional historical perspective that takes settled agricultural civilizations as the standard and instead reconstruct historical narratives from the perspective of the nomadic subjects themselves.

The most notable section in the First Part is the fifth article, titled “Two Interpretations of the Silk Road’s History”. This article presents a comparative review of two works: Liu Xinru’s *The Silk Road in World History* (2010) and James A. Millward’s *The Silk Road: A Very Short Introduction* (2013). The former argues that the Silk Road declined with the end of the Mongol era, while the latter emphasizes that it remained prosperous despite its ups and downs. This method of comparative reading not only showcases the diversity of academic viewpoints on the same topic, but also reveals the decisive influence of the perspective on historical cognition. From different professional perspectives, one can observe completely different historical pictures. This open academic attitude runs through the entire book and constitutes a significant feature of Cai Weijie’s book review writing.

3.2 Multidimensional Exploration of the Mongolian Era

The Second Part can be regarded as the core of the entire book. It includes eight articles, delving deeply into the historical status of the Mongol Empire from multiple perspectives. The works reviewed cover a wide range: from Sugiyama Masaaki’s macroscopic overview of the historical trends from the An Lushan Rebellion to the Mongolian era, to Gulati (G. D. Gulati) examining the Mongol conquest in Central Asia from an Indian perspective; from the “Genghis Khan Great Exchange” theory proposal by Timothy May, to Okada Hidehiro’s assertion that the Mongol Empire “invented” world history; then from Hans Ulrich Vogel’s re-examination of the academic controversy over whether Marco Polo personally visited China, to Sugiyama Masaaki’s tracing of the long-term historical legacy of the Mongol Empire, all demonstrating the author’s comprehensive grasp of the research field of Mongol Yuan history.

Among the articles in this Part, the one that particularly deserves attention is the eleventh one, “Pearl Earrings from Moghut”, which reviews Thomas Allsen’s (2023) book *The Steppe and the Sea: Pearls in the Mongol Empire*. The author takes the pearl, as a micro-object, as the entry point to examine its symbolic meaning in the political culture of the Mongol Empire and its circulation mechanism as a luxury item across Eurasia. This “looking at the big picture through small details” research approach is highly consistent with the methodological orientation advocated by Cai Weijie, which is to “grasp the macro history through micro-level interactions”. In the book review, the author keenly pointed out that this research still has room for discussion in the gender dimension, such as the connection between pearls and Mongol noblewomen and their role in the marriage dowry system. This criticism not only demonstrates the author’s academic insight but also showcases the constructive nature that a book review should possess as an academic genre.

Regarding the question of whether Marco Polo ever actually visited China, the book also conducts a multi-dimensional discussion. British sinologist Frances Wood published the book *Did Marco Polo Go to*

China? in 1996, raising several doubts: Marco Polo never mentioned customs that should have caught the attention of foreigners, such as foot-binding, tea drinking, and the Great Wall; his name was not found in any Chinese-language documents; and he might have exaggerated his participation in the Siege of Xiangyang (Wood, 1996). Peter Jackson, in his article “Marco Polo and His ‘Travels’”, systematically refuted these doubts and focused on discussing the text nature, writing purpose, content composition, and to what extent it reflects the author’s personal experiences of the *The Travels of Marco Polo* (Jackson, 1998).

And German scholar Hans Ulrich Vogel (2013) provided new evidence from the perspectives of monetary, salt, and tax systems in the history of institutions. The book begins with an introduction that clarifies the structure of the entire work and meticulously reviews the existing literature. Cai Weijie agrees with the mainstream views of Western academia in his book review, namely that Marco Polo did indeed reach China. At the same time, he also points out that more archaeological and documentary evidence is still needed to advance the research on this issue.

3.3 Research on the Internal and External Policies of the Ming and Qing Dynasties

The nine articles included in the Third Part focus on the Ming and Qing China in the post-Mongol era, covering from the evolution process described by Kanda Nobuo et al. in *The Splendor of the Forbidden City: A Complete History of the Ming and Qing Dynasties* from “from a small China to a large China”, to the research by Millward et al. (2004) that examines the characteristics of the Qing Dynasty in Inner Asia through the example of Chengde; from the in-depth analysis of the Eight Banners System and Manchu Identity (Elliott, 2001), to the re-examination of the issue of Manchu Sinicization (Huang, 2011), and then extending to the investigation of the transformation of the information channels and governance mechanisms of the Qing Dynasty (Mosca, 2013). This series of book reviews jointly focus on a core topic: how to understand the Qing Dynasty as a non-Han ethnic ruling empire in the Inner Asian region, and the internal and external policies it formulated.

Among them, the book review of Mark C. Elliott (2014) *Biography of Emperor Qianlong* provides us with another perspective for examining the relationship between Emperor Qianlong and the Macartney Embassy. As the first biography of Emperor Qianlong in the Western academic circle, this work focuses on exploring the governance advantages and limitations brought about by his identity background and personal experiences. While affirming his achievements in governance, it also offers sympathetic understanding for his mistakes. The book points out that Emperor Qianlong actually knew the geographical situation of the West and had some understanding of European countries such as France, Russia, and their internal forces. His indifferent attitude towards the Macartney Embassy was actually intentional; the reason being that at that time, the Qing Dynasty was in a state of peace and prosperity, and the emperor was old and lacked energy, as well as lacking the urgent need to deeply understand the West. Ultimately, this biography summarizes the five major contradictions faced during Emperor Qianlong’s reign: population growth and environmental pressure, corruption of the bureaucratic system, the Manchu tendency in governance, the destruction of some cultural traditions, and the sacrifice of human lives and cultural diversity in some degree to maintain national unity.

Furthermore, Cai Weijie, in his dual capacity as a researcher and an observer, conducted a comparative analysis based on multiple Qing history works and related writings about Emperor Qianlong. He then explored the development of “New Qing History” in North America and the academic debates it triggered in the Chinese context. He pointed out that New Qing History attempts to correct the previous stereotype of the Qing Dynasty as a closed and backward feudal state, instead placing it on an equal footing with the European and Asian empires for examination. This approach forms a certain tension with the mainstream historical views in modern China. Regarding the acceptance of such historical interpretations in the academic community in China, the author advocates for “continuous observation and cautious thinking”. This rational attitude is particularly valuable in the midst of the noisy academic disputes.

4. The Academic Value of the Core Arguments

Upon reviewing the entire book, we can observe several interrelated core arguments put forward by Cai Weijie. These arguments not only summarize the works being evaluated but also constitute the author’s own academic stance.

Firstly, the historical significance of the Mongol Empire as a watershed in world history. Through the evaluation of scholars such as Sugiyama Masaaki and Okada Hidehiro, the author emphasizes that the Mongol Empire played a pioneering role in integrating the Eurasian continent. The two major historical narrative traditions (the Western tradition represented by Herodotus and the Eastern tradition represented by Sima Qian) achieved a true integration for the first time through the “grassland route”. This attempt to reclassify world history from a central Eurasian perspective has the potential to challenge existing paradigms.

Secondly, the continuity of history in the post-Mongol era. After the collapse of the Mongol Empire, its political legacy did not dissipate but was inherited by subsequent regimes. In Central Asia, the Timurid Empire and its successors, the Mughal Empire, continued the line of the Chagatai Khanate; in Eastern Europe, after the rise of the Grand Duchy of Moscow, Ivan IV claimed to be a successor of the Genghis Khan family and established the Russian Empire; in East Asia, the Qing Dynasty not only inherited the legitimacy of the Northern Yuan Dynasty but also incorporated the governance experience of the Mongol Empire into its own ruling practices. This perspective of continuity breaks the traditional narrative based on the rise and fall of dynasties and reveals a deeper historical structure.

Thirdly, the multi-faceted nature of the Qing Dynasty as an Inner Asian empire. By reviewing the new research on Qing history, the author reveals the complex nature of Qing rule: the emperor exhibited different personas in different contexts—acting as a Confucian sage toward the Han people, as the successor to Genghis Khan toward the Mongols, and as a revered monk toward Tibetan Buddhist followers. Chengde, the Qing Dynasty’s “capital of inland Asia”, featured architecture blending Han, Tibetan, and Mongolian styles; Emperor Qianlong constructed the Confucian Temple to project an image of a sage. These details collectively demonstrate that the secret to the Qing Dynasty’s maintenance of a vast empire lay in its flexible and pluralistic governance strategy.

Fourth, a methodological reflection on the “Sinicization” paradigm. Traditional historiography often explains the reasons for the successful governance of China by non-Han regimes through the concept of “Sinicization”. However, this explanatory framework obscures the multi-dimensional aspects of history. Cai Weijie, by reviewing and evaluating the research of multiple scholars, pointed out that the authority basis of the Qing Dynasty’s rule included both the political legitimacy of Confucianism and a unique ethnic sovereignty, namely the Eight Banners System as a mechanism for ethnic isolation and integration, which, while maintaining the identity of the Manchus, ensured the rule of a minority of Manchus over the majority of Han people. This analysis does not simply deny “Sinicization”, but reveals its complexity and avoids the simplistic binary opposition.

5. The Methodological Implications of the “Four Crossings” Approach

Kong Lingwei (2020) ¹ proposed a “Threefold Crossings” interpretive framework, which is highly enlightening. He believes that the academic dialogue between Mongol Yuan history and Qing history should be based on a cross-regional, cross-chronological, and cross-civilizational perspective. Building upon this foundation, this paper expands the framework into the “Fourfold Crossings”, namely, “cross-regional, cross-chronological, cross-civilizational, and cross-linguistic”, provides an effective approach to understanding the methodological significance of Cai Weijie’s works.

Cross-regional means that the exchanges between the Central Plains and Inner Asia during the Yuan and Qing periods should not only be regarded as part of Chinese history, but also as an integral part of world history. Cai Weijie’s tracing of the four major khanates of the Mongol Empire and their subsequent regimes, as well as his attention to the interaction between Russia, India, the Middle East and the Yuan-Qing dynasties, all reflect this broad regional perspective. Cross-chronological means reflecting on the one-dimensional chronological history writing centered on “the orthodox Chinese heartland”, and focusing on the internal continuity of the diverse cultural communities in Inner Asia. From the Mongol Empire to the post-Mongol era, from the Yuan Dynasty to the Ming Dynasty and the Qing Dynasty, history is not a simple succession of dynasties, but encompasses deeper continuity. The sketching of the evolution of “from small China to large China”, the indication of the continuation of the martial spirit in the early Ming Dynasty from the Yuan Dynasty, all demonstrate this cross-chronological thinking. Cross-civilizational means treating the diverse roles of different civilizations on the historical stage equally, avoiding the one-sided emphasis on the superiority of a single civilization. The re-evaluation of nomadic civilizations, the revelation of the bias of “evaluating the history of nomadic peoples based on the standards of settled agricultural civilization”, all reflect this equal view of civilizations. Cross-linguistic, transcending the limitations of a single language and systematically analyzing materials from multilingual sources, including Japanese, Mongolian, English, and

¹ Kong Lingwei (2020, September 16). “Kong Lingwei’s Commentary on ‘From Marco Polo to Macartney’: Threefold Crossings in Mongol Yuan History and Qing History”, https://www.thepaper.cn/newsDetail_forward_9187486 (Last visit time: April 25th, 2026)

Indian languages, enables us to achieve a deeper understanding of the complexity and diversity inherent in Inner Asian history. This approach enables a more comprehensive grasp of historical developments and effectively avoids biases and one-sided perceptions stemming from geographical constraints.

6. Conclusion

Marco Polo and George Macartney, two Western envoys to China separated by five centuries, their journeys to China and the historical controversies they sparked serve as two pivotal focal points for understanding the evolution of Eurasian history since the 13th century. The former witnessed the prosperity of exchanges between the east and the west under the rule of the Mongol Empire, while the latter experienced the crises and transformations implied during the heyday of the Qing Dynasty. Cai Weijie's work, titled "From Marco Polo to George Macartney", not only bridges a temporal dimension but also shifts the perspective of observation, guiding readers to re-examine the multifaceted nature of China's history through a holistic global historical lens.

6.1 Academic Significance

First, this book provides Chinese readers with a crucial window into the cutting-edge of international Inner Asian studies. The works reviewed encompass the latest achievements of Japan's "East Asian History" tradition, representative research from the American "New Qing History" school, and significant publications by European scholars, a comprehensive overview that remains rare in domestic academic circles. Second, the book offers a pivotal framework for understanding the fundamental question of "what is China". Chinese civilization manifests rich and diverse images from different cultural perspectives (Zhou, 2025). Through a systematic examination of recent advances in Inner Asian history, Cai Weijie reveals the complex dynamics of the Yuan and Qing dynasties on this issue, these regimes inherited the orthodoxy of the Central Plains while exhibiting characteristics of an Inner Asian empire; they upheld the concept of a "unified empire" yet demonstrated features of a "limited state" in their actual governance. This complexity reminds us that any oversimplified interpretation may obscure the rich layers of historical reality.

Third, the book exemplifies rational dialogue in addressing academic controversies. On contentious issues such as whether Marco Polo visited China, the author maintains the objective stance expected of a researcher, presenting well-grounded theoretical arguments through extensive textual analysis. Such a neutral and cautious scholarly approach is particularly commendable in today's academic landscape.

However, as a collection of book reviews, this work also has aspects that warrant further refinement. Firstly, since the articles were originally published in different media sources, some content is repetitive; although the author apologizes for this in the preface, further consolidation and editing during compilation would make the book's structure more concise. Secondly, some reviews focus primarily on content summaries, while the critical analysis of the works' methodological assumptions and theoretical frameworks could be enhanced. Thirdly, the discussion of Ming dynasty history is relatively limited, failing to fully develop a

coherent narrative spanning the Yuan, Ming, and Qing dynasties. These issues should likely be identified as areas for future research.

6.2 Practical Significance

As globalization faces challenges and inter-civilizational dialogue has become increasingly vital, the publication of this book demonstrates that China has never been isolated from the global system. The activities of the Inner Asian nomadic peoples profoundly connected East Asia with the Eurasian continent, and the historical legacy of the Mongol Empire and its subsequent regimes continues to shape the contemporary world order. Understanding such historical connections is not only the academic mission of historians but also a crucial pathway to comprehending our current circumstances.

As the author notes, the Mongol Empire “combined the Eastern and Western historical and cultural traditions through the ‘Path of the Steppes’”, and the Central Eurasian perspective “has the potential to become a paradigm for future world historiography”. Cai Weijie’s work represents a solid effort toward achieving this paradigm. For readers engaged in research on Inner Asian history, Mongol-Yuan history, Qing history, or broader Eurasian history, this work combining academic rigor with readability, undoubtedly holds significant reference value.

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Echoes of Ideas Across Mountains and Seas:

A Review of Zhang Xiping's *A History of Mutual Learning between Chinese and Western Civilizations*

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Abstract: In his work *A History of Mutual Learning between Chinese and Western Civilizations*, Professor Zhang Xiping adopts a global historical perspective to examine the two-way interaction between Chinese and Western civilizations from 1500 to 1800, depicting the rich practices of Western learning spreading eastward and Chinese learning spreading westward during this period. The eastward transmission of Western learning introduced Western religion, logic, science and technology, and art into China, promoting the innovation of traditional Confucianism and the rise of the trend of practical learning. Centered on Confucian classics, the westward transmission of Chinese learning exerted a profound influence on the ideological orientation and institutional construction of the European Enlightenment. In addition, Chinese knowledge in medicine, geography and other fields laid a foundation for the development of Western sinology. Based on solid historical materials, the book adopts rigorous empirical research and theoretical interpretation as its research methods, breaking through the traditional perspectives of one-way transmission and the clash of civilizations. It reveals the essence of mutual learning among civilizations: equality and mutual respect constitute the premise of inter-civilizational dialogue, value compatibility is the key to inter-civilizational communication, and pluralistic coexistence is the inevitable trend of civilizational development. Although this period of equal mutual learning between Chinese and Western civilizations was relatively short in the

long course of history, it provides a paradigm for upholding the contemporary vision of civilizations featuring equality, mutual learning, dialogue and inclusiveness, and offers important enlightenment and practical significance for overcoming current civilizational estrangement and advancing the common development of human civilization.

Keywords: Eastward Transmission of Western Learning; Westward Spread of Chinese Learning; Mutual Learning among Civilizations

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标题: 跨越山海的思想回响——评张西平的《中西文明互鉴史》

摘要: 张西平教授在其著作《中西文明互鉴史》中以全球史视野梳理了 1500-1800 年间中西文明双向互动的历史图景, 呈现了这一时期西学东渐与中学西传的丰富实践。西学东渐为中国带来了西方的宗教、逻辑、科技与艺术, 推动了传统儒学的革新与实学思潮的兴起。中学西传则以儒家经典为核心, 深刻影响了欧洲启蒙运动的思想走向与制度建构, 中国的医学、地理等知识也为西方汉学发展奠定了基础。著作立足详实史料, 以扎实的实证考据与理论阐释为研究方法, 突破单向传播与文明冲突论的传统视角, 揭示出文明互鉴的核心要义, 即平等尊重是文明对话的前提, 价值契合是文明传播的关键, 多元共生是文明发展的必然。这段中西文明平等互鉴的历史, 虽然在整个时间长河中维系时间不长, 但却为当代坚守平等、互鉴、对话、包容的文明观提供了典范, 为破解当下文明隔阂、推动人类文明共同发展带来重要启示与现实意义。

关键词: 西学东渐; 中学西用; 文明互鉴

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Civilizations are enriched by exchanges and diversified through mutual learning. The collision and integration of different civilizations constitute an important force driving the progress of human society. The period from 1500 to 1800 was a highly iconic phase of exchange in the developmental processes of Chinese and Western civilizations. During this era, free from capitalist plunder and power politics, the two civilizations engaged in equal and cross-continental interactions. The eastward transmission of Western learning injected new vitality into traditional Chinese thought and science and technology, while the westward spread of Chinese culture profoundly shaped the ideological trajectory of the European Enlightenment, forming a precious chapter in the history of intercivilizational learning.

For a long time, studies on the history of Sino-Western civilizational exchanges have often been trapped in a narrative of one-way transmission or fallen into oppositional frameworks influenced by the clash of civilizations thesis, failing to present the true nature of their interactive relationship. Professor Zhang Xiping's *A History of Mutual Learning between Chinese and Western Civilizations* breaks through the limitations of existing research from a global historical perspective. Based on extensive and reliable multilingual primary sources, through solid empirical research and in-depth theoretical analysis, the book sorts out typical cases of the eastward transmission of Western learning and the westward spread of Chinese culture, outlines the genuine pattern of two-way interaction between Chinese and Western civilizations during this period, and reveals the essence of civilizational mutual learning.

Taking *A History of Mutual Learning between Chinese and Western Civilizations* as the research subject, this paper explores the process of Sino-Western civilizational interaction presented in the book, interprets its condensed ideas of civilizational mutual learning, and excavates the practical enlightenment this history offers for overcoming contemporary civilizational barriers and upholding an equal, inclusive new vision of civilization. It aims to explore a universally applicable way for human civilizations to coexist and develop together by connecting past and present.

1. Outlining Cross-Continental Two-Way Interaction

In the history of mutual learning between Chinese and Western civilizations, the interactions from 1500 to 1800 represent an exceptionally precious period. Hu Shi described cultural exchanges between China and Europe during this time as “a model of love at first sight” (Zhang Xiping, 2024, p. 437). This was an era of friendly interaction based on genuine equality. Professor Zhang Xiping argues that “in studying the history of Sino-Western cultural exchanges, we need an objective and fair perspective and a broad humanistic spirit conducive to the development of global culture” (Lu Sihong & Jin Daoyuan, 2023, p. 80). In *A History of Mutual Learning between Chinese and Western Civilizations*, the author narrates the history of the eastward transmission of Western learning and the westward spread of Chinese culture from the perspective of human civilization, demonstrating the process of mutual exploration and nourishment between the two great civilizations and providing a valuable model for understanding the nature of intercivilizational learning.

1.1 The Eastward Transmission of Western Learning

The wave of Western learning spreading eastward during the Ming-Qing transition left an indelible mark on the development of Chinese culture. Missionaries who came to China served as pioneers, building bridges of cultural communication between China and Europe. Their exchanges extended far beyond the propagation of Christian scriptures, covering astronomy, calendar studies, mathematics, geography, logic, medicine, painting, and many other fields, all becoming important carriers of Sino-Western cultural interaction.

After Portugal occupied Malacca, it attempted to conquer China by military force but failed in three battles against the Ming Dynasty. Thereafter, a 300-year period of equal exchange with China began. During these three centuries, Christianity was introduced to China three times. Among the missionaries, Matteo Ricci and others proactively adopted the adaptive strategy of “accommodating Confucianism and transforming

Buddhism,” appropriately handling the relationship between Christianity and indigenous Chinese culture, creating favorable conditions for a spiritual encounter between Chinese and Western cultures.

After adopting appropriate communication strategies, missionaries urgently needed to translate Christian scriptures. The translation of the Bible showed a continuous lineage: Emmanuel Diaz Junior first produced an annotated translation *Direct Explanation of the Bible*, which directly influenced later translators such as Jean Basset. Basset’s version in turn became a model for Robert Morrison and Joshua Marshman. Notably, Jean-Paul Gobi was the first Jesuit missionary in China to complete a full Chinese translation of the Bible. In his translation practice, he clearly proposed the vernacular principle centered on “rendering into colloquial language,” pioneering the use of vernacular Chinese in Bible translation. This represented a major advancement in Jesuit translation endeavors in China and provided a reference for the subsequent localized dissemination of Christian scriptures.

In their missionary work, missionaries keenly perceived the profound differences in modes of thinking between Chinese and Western cultures: traditional Chinese thinking lacked systematic logical support, whereas Western culture possessed strict logical rules. Aristotle’s logic thus became a representative work introduced to China. *Exploration of Logic* (Mingli Tan), a collaborative work by Francisco Furtado and Li Zhizao, and *Study of Ultimate Reason* (Qiongli Xue), translated by the Belgian missionary Ferdinand Verbiest, introduced the deductive system of Western logic to China, which “injected a breath of fresh air into the Chinese intellectual scene amid the decline of Yangming’s Neo-Confucianism” (Zhang Xiping, 2024, p. 3). Scholars of the Ming-Qing period such as Fang Yizhi and Dai Zhen actively absorbed these ideas. Fang Yizhi and his three sons “formed an important thread in the interaction between Confucian classics and science in the early Qing Dynasty” (Zhang Xiping, 2024, p. 197). Dai Zhen’s “greatest contribution was introducing the method of rigorous logical deduction based on axioms into the study of Chinese philosophy” (Zhang Xiping, 2024, p. 202), as best exemplified in his work *Correcting the Meanings of Terms in Mencius*.

Furthermore, profound influences emerged in art, science, and technology. Missionaries including Giovanni Gherardini, Matteo Ripa, Giuseppe Castiglione, Jean Denis Attiret, and Jean-Paul Gobi integrated Western painting styles with Chinese artistic traditions, creating a unique aesthetic form. Matteo Ricci’s *Meaning of the Heaven and Earth* introduced Western astronomical knowledge, while the *Chongzhen Calendar* was the first comprehensive adoption of Western calendrical systems. His translation of *Elements of Geometry* with Xu Guangqi, which included definitions, axioms, and propositions, introduced a new deductive reasoning method to China. His *Universal Geography* enabled the Chinese to intuitively understand the geographical worldview of Europeans, breaking through traditional Chinese cosmology. The dissemination of such scientific and technological knowledge was not a simple one-way import, but aligned with the practical learning trend of the Ming-Qing period, laying groundwork for the spirit of “practical governance and application.”

1.2 The Westward Spread of Chinese Culture

Alongside the eastward transmission of Western learning, the westward spread of Chinese culture flourished. Chinese culture, too, through translation and dissemination by missionaries, profoundly influenced the

European Enlightenment and social development. To meet practical missionary needs, the Spanish missionary Juan Cobo translated the popular moral text *Mirror of the Mind* (Mingxin Baojian) literally in the Philippines and published four versions. Later research confirmed that the Italian missionary Michele Ruggieri produced a Latin translation of *Mirror of the Mind*, entitled *Collection of Famous Sayings from Various Masters*, which remained unpublished. Their joint efforts opened the prelude to the westward transmission of Confucian classics.

The westward spread of Confucian classics formed the core of Chinese culture's transmission to Europe. In 1687, Philippe Couplet compiled *Confucius Sinarum Philosophus* (The Chinese Philosopher Confucius), published in Paris, which included translations of *The Great Learning*, *The Doctrine of the Mean*, and *The Analects*. This marked the first relatively complete introduction of Confucian thought into European academic circles. Although the work emerged amid the Chinese Rites Controversy and aimed to justify Matteo Ricci's accommodationist missionary strategy, it unexpectedly sparked widespread European intellectual interest in Confucianism. Confucian ideas—emphasizing natural reason, the political ideal of governing through virtue, and the moral principle of “Do not do to others what you do not want done to yourself”—highly coincided with the European Enlightenment's call to oppose theology and promote reason, becoming a ideological weapon for Enlightenment thinkers to criticize feudal theocracy. The absorption and admiration of Confucian culture by Enlightenment thinkers became the most influential achievement of the westward spread of Chinese culture. Examples include the founding of the Physiocratic school by François Quesnay, the father of modern Western economics; Gottfried Wilhelm Leibniz's research on *The Book of Changes*; Voltaire's praise of traditional Chinese ethics; and Montesquieu's commendation of rule by virtue.

Beyond Confucian thought, Chinese medicine, botany, and geography also spread widely across Europe. Published in 1735, *Description of the Chinese Empire* was one of the three great works of early Western Sinology. It systematically translated and introduced traditional Chinese medical classics such as *The Yellow Emperor's Internal Classic* and *Compendium of Materia Medica*. Although Jean-Baptiste Du Halde's evaluation of Chinese medicine carried Western cultural biases, he acknowledged it as a unique system refined through thousands of years of practice.

The book's introduction of Chinese medical theories of yin-yang and five phases, pulse diagnosis, and medicinal properties allowed European scholars to comprehensively understand traditional Chinese medicine for the first time, exerting a significant impact on European natural history and medical circles. Michael Boym's works *Flora Sinensis* and *Clavis Medica* became essential sources for Europeans to learn about Chinese plants and medicine, directly stimulating the rise of professional Western Sinology. Professional sinologists such as Jean-Pierre Abel Rémusat established new paradigms of Western Sinology based on these missionary studies. Michele Ruggieri's *Atlas of China* provided the first detailed Western account of China's administrative structure, social conditions, and regional products, correcting earlier vague European perceptions of China and becoming important historical materials for studying early European views of China.

2. Solid Historical Support and Scholarly Argumentation

The depiction of cross-continental Sino-Western civilizational interactions in this book rests on solid,

systematic, multilingual primary documents—everything is evidence-based and verifiable. This is the most prominent feature and greatest strength of the work. To gain an in-depth and meticulous understanding of Sino-Western civilizational exchanges during this period, the author devoted an unimaginable amount of time, conducting extensive research in Germany, France, Portugal, Italy, and elsewhere. His tireless work can be found in major collections including the Berlin State Library, the Manuscripts Division of the Bibliothèque nationale de France, the Vatican Library, the Arquivo da Ajuda in Portugal, the former Collegio di Cinese in Naples, and the Herzog August Bibliothek in Wolfenbüttel (Yao Junling, 2023, p. 57). To read multilingual original documents, the author continued to study German, French, Latin, and other foreign languages well into middle age, overcoming linguistic barriers. This dedication and perseverance in scholarship fully embody a scholar's sincerity and responsibility, earning sincere admiration.

To restore this precious episode of Sino-Western interaction, the author abandoned empty speculation and invested enormous effort, combining empirical textual research with theoretical interpretation. Through extensive archival work and detailed argumentation, he presents a nuanced picture of Sino-Western cultural exchange. Take the introduction of Western logic to China as an example. When tracing the transmission and translation of two core works—*Exploration of Logic* and *Study of Ultimate Reason*—the author compares Aristotle's original logical texts with the concepts of "five kinds" and "ten categories" in *Exploration of Logic*, clearly showing how Western logical concepts were transformed within the context of classical Chinese. He further compares corresponding terms in Latin, English, classical Chinese, and modern Chinese to clarify the evolution of terminology. In addition, he maps the chapter correspondences between the Latin base text *Commentary on the Whole Dialectic* and *Exploration of Logic*, clarifying their inheritance and differences, and compiles detailed tables summarizing the fascicle arrangement, translation sources, and original base texts of the fourteen surviving volumes of *Study of Ultimate Reason*. In many places, footnotes occupy more than half the page to fully elucidate related content. This single example reveals the book's immense workload, exhaustive annotations, and rigorous textual research—and it is only one among countless such cases throughout the work.

It is precisely the author's rigorous and pragmatic scholarly attitude and the resulting solid historical foundation that culminated in this book, enabling him to examine this period from a global historical perspective. "Studying Chinese history must place it within the context of world history to explore the characteristics and patterns of the development and evolution of Chinese history and culture through civilizational mutual learning" (Zhang Xiping, 2024, p. 151). Only in this way can one transcend internal limitations, objectively restore this historical period, uncover the value of Chinese culture, absorb nutrients from Western culture, and continue this legendary story of cross-continental civilizational exchange and mutual learning.

3. Echoing the Ideals of Civilizational Mutual Learning

Three hundred years of two-way Sino-Western civilizational exchange during the Ming-Qing transition left not only rich historical traces but also profound ideological echoes. Through meticulous textual research and in-depth analysis in *A History of Mutual Learning between Chinese and Western Civilizations*, Professor Zhang Xiping reveals that civilizational mutual learning is not merely the transmission of knowledge, but a

spiritual collision, dialogue, and integration among different civilizations. Its ideological core challenges the thesis of the clash of civilizations and provides a harmonious path for the development of distinct civilizations.

The fruitful achievements of Sino-Western exchanges from 1500 to 1800 stemmed crucially from the formation of an equal framework of civilizational dialogue. Therefore, equality and respect are prerequisites for civilizational mutual learning. The practice of Jesuit missionary Matteo Ricci serves as an exemplary model. Rejecting a mentality of cultural hegemony, he proactively studied Confucian classics and proposed the adaptive strategy of “honoring earlier Confucianism while criticizing later Confucianism.” Although his characterization of Confucianism was limited by his Christian perspective, he pioneered equal dialogue between Chinese and Western cultures.

By regarding Confucianism as philosophy rather than religion and respecting Chinese rituals of ancestor and Confucius worship, Ricci’s attitude of harmony without uniformity embodies the essence of civilizational mutual learning. In contrast, Portugal’s colonial conquest of Malacca during the same period—based on power politics, cultural expansion, and violent plunder—stands in sharp contrast to equal Sino-Western exchange, indirectly confirming that equality and respect are foundational to civilizational coexistence. This idea found further resonance in the European Enlightenment. Thinkers such as Voltaire and Quesnay set aside Eurocentric prejudices and proactively absorbed reasonable elements from Confucianism, proving that genuine mutual learning can only occur when different civilizations respect one another on an equal footing.

The profound mutual influence between Chinese and Western civilizations across continents was rooted in overlapping value pursuits in their respective cultures and ideas. Western logic and science were accepted by Chinese scholar-officials largely because their practical spirit aligned closely with the pragmatic intellectual trend of the Ming-Qing period. Similarly, Confucian thought profoundly influenced the European Enlightenment because its emphasis on natural reason and rule by virtue matched Europe’s contemporary need to break the shackles of theocracy and pursue secular rationality. The practices of Leibniz, Quesnay, and others demonstrate that the vitality of civilizational transmission lies in value compatibility. Such demand-oriented mutual learning reveals that every civilization possesses an intrinsic value core, and effective communication and integration can only be achieved by identifying points of convergence.

History eloquently proves that the diversity of civilizations is not a source of conflict, but a driving force for mutual learning. Only pluralistic coexistence offers a sustainable way forward.

Chinese and Western civilizations emerged from distinct backgrounds and possess markedly different characteristics: Chinese civilization emphasizes harmony between heaven and humanity and an ethics-centered worldview, while Western civilization stresses rational logic and scientific exploration. Yet these differences did not lead to civilizational isolation; instead, they fostered complementary coexistence. Western logical thinking and scientific methods compensated for the tendency of traditional Chinese thought to emphasize intuition over empirical verification. Chinese ethical wisdom and principles of governance provided new perspectives for Europe to break through theocratic authoritarianism. This practice of pluralistic coexistence directly refutes Huntington’s clash of civilizations thesis and fully proves that different civilizations can harmoniously coexist while preserving their unique identities. Just as the spread of Confucius Sinarum Philosophus in Europe shows, Confucian thought did not replace European traditions, but became a

vital force in their intellectual renewal. This model of “each beauty beautifying the other, beauty in shared beauty” represents the ideal form of civilizational mutual learning.

Professor Zhang Xiping’s discussion in *A History of Mutual Learning between Chinese and Western Civilizations* allows us to rediscover this underappreciated historical period. “Revisiting this history is intended to bring us back to the cultural narratives of China and Europe and to the fundamental principles of civilizational mutual learning” (Zhang Xiping, 2024, p. 438). By drawing wisdom from history, we can discover a timeless way for civilizations to coexist. Matteo Ricci’s “Confucian accommodation” policy teaches us that cross-cultural communication requires respect for the other’s cultural traditions and proactive adaptation to achieve intellectual resonance. The selective absorption of Confucian thought by Enlightenment thinkers shows that civilizational mutual learning is not blind imitation, but creative transformation and innovative development. Against the backdrop of today’s backlash against globalization and deepening civilizational divisions, this ideological resonance is particularly precious. It inspires both China and the West to move beyond Eurocentrism. China should shift from an apprentice-like stance to an equal participant in civilizational dialogue, enhancing cultural self-confidence. The West should abandon its sense of superiority and recognize the global significance of other civilizations. In this way, the two civilizations can return to the path of mutual learning, uphold a new vision of civilization, and achieve pluralistic coexistence, integration, and mutual enrichment. Therefore, Professor Zhang Xiping’s effort to revisit this history carries profound significance. It helps us stand in the present world, uphold a civilizational vision of equality, mutual learning, dialogue, and inclusiveness, promote understanding among civilizations through exchange, build consensus through mutual learning, pursue common development, and jointly write a new chapter of prosperity and progress for human civilization.

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Deconstructing the Mood of the Era, Seeking a Spiritual Haven: A Review of Wang Tianfu's *The Anxious Society: The Restless Modern Soul*

Liu Jia, Liu Maosheng

Abstract: In the contemporary social context, terms such as “involution,” “lying flat,” “mental internal friction,” and “a sense of ease” have long transcended the realm of internet buzzwords and become precise annotations of modern existential conditions. People seem to be trapped in a collective psychological quagmire: they feel powerless when striving forward, yet are overwhelmed by anxiety when they stop. *Anxious Society: The Nowhere-to-Place Modern Mind* (2026), authored by Professor Wang Tianfu, emerges from this historical moment as a sociological work marked by strong realist concern and profound theoretical insight. The core contribution of the book lies in its crucial shift in perspective—it detaches “anxiety” from the realm of individual psychological distress and reanchors it as a structural symptom embedded in society. This work is not only a “social diagnostic” of emotion but also a “survival guide” that illuminates how modern individuals may achieve inner coherence amid pervasive uncertainty.

Keywords: anxious society; Wang Tianfu; meritocracy; social structure; inner coherence

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标题：解构时代情绪，探寻心灵归途——评王天夫《焦虑社会：无处安放的现代心灵》

摘要：在当下的社会语境中，“内卷”“躺平”“精神内耗”“松弛感”等词汇早已超越了网络流行语的范畴，成为描绘现代人生存状态的精准注脚。人们似乎陷入了一种集体的精神泥沼，前行时感到力不从心，停下时又伴随着巨大的恐慌。王天夫教授所著的《焦虑社会：无处安放的现代心灵》（2026），正是在这一时代背景下诞生的一部具有强烈现实关怀与深厚理论穿透力的社会学著作。本书的核心价值在于完成了一场关键的视角转换——将“焦虑”从个体心理困境中抽离，重新锚定为深植于社会结构的时代症候。这不仅是一部探讨情绪的“社会诊断书”，更是一部指引现代人如何在充满不确定性的世界中实现心灵自洽的“生存指南”。

关键词：焦虑社会；王天夫；优绩主义；社会结构；心灵自洽

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For a long time, understandings of anxiety have largely been confined to the domain of psychology, where it is typically attributed to individual-level deficiencies such as an inadequate mindset, low stress tolerance, or poor emotional regulation. When individuals experience anxiety, they are often met with one-dimensional advice—“adjust your mindset,” “relax,” or “work harder.” Those who suffer from anxiety, in turn, tend to fall into cycles of self-negation and self-reproach, believing that their distress stems from a lack of personal excellence or resilience. This fully individualized and subjectivized interpretation of anxiety not only fails to alleviate widespread anxious affect, but also obscures its deeper social roots, effectively shifting the psychological burden of social transformation onto individuals alone.

In *Anxious Society*, Professor Wang Tianfu’s most significant theoretical breakthrough lies in dismantling the misconception that “anxiety is merely an individual problem,” thereby effecting a fundamental shift in analytical perspective. He elevates anxiety from a matter of psychological distress to a structural, collective, and institutionalized social issue that emerges inevitably in the course of modern social development. The author explicitly contends that we are living in an “anxious society,” in which anxiety is no longer a condition peculiar to certain groups, but a pervasive collective mood that permeates all corners of society and constitutes the psychological norm for the majority. It is, in this sense, an inevitable byproduct of modernity at a particular stage of development and of rapid social transformation. By moving beyond the conventional confines of psychological inquiry and reexamining anxiety through a macro-sociological lens, the book redefines its essential nature, establishes a robust theoretical foundation for subsequent analysis, and provides readers with a new cognitive framework through which to understand their own anxious experiences.

At the outset, the author draws on a wide array of empirical materials to present a panoramic depiction of the “anxious society”. Adolescents lie awake at night under the pressure of educational advancement; young

adults find themselves caught between the demands of postgraduate entrance examinations, civil service recruitment, and an increasingly competitive labor market; middle-aged individuals confront the dual pressures of career insecurity and familial responsibility; and the elderly struggle with health-related anxieties and intergenerational estrangement. From white-collar workers in major metropolitan centers to migrant laborers in small towns, from highly educated elites to the general populace, individuals across the social spectrum are enveloped in varying forms of anxiety, collectively trapped in a psychological state characterized by an inability to pause and a persistent sense of unease. Rather than merely cataloguing these phenomena, the author synthesizes them to delineate the defining features of the “anxious society”: the pervasiveness, diffuseness, transmissibility, and structural embeddedness of anxiety. He thus advances a central claim that individual anxiety is the product of multiple external forces, including social structures, institutional arrangements, cultural norms, and technological developments, and that personal psychological distress is, in essence, a manifestation at the mental level of broader social contradictions.

This conceptual innovation endows the work with a depth that transcends that of conventional social commentary. It moves beyond simple emotional resonance to offer a rational critique of contemporary conditions; it does not merely instruct readers on techniques of individual emotional regulation, but instead encourages them to perceive, through their own affective experiences, the underlying logic of social operation. In doing so, it enables a more objective understanding of anxiety and fosters the possibility of a rational reconciliation with it. For those deeply immersed in anxiety, this shift in perspective can be profoundly liberating: it reframes anxiety not as a personal failing, but as a socially conditioned experience, thereby relieving individuals of unwarranted self-blame and clearing the psychological ground for the subsequent search for inner equilibrium.

1. The Academic Positioning of the “Anxious Society”

Building on the foregoing problematization, a further question arises: what constitutes the book’s most fundamental academic contribution? In my view, the answer lies in the proposal and systematic construction of the concept of the “anxious society” (Wang, 2026, pp. 1-15). This concept is not a mere substitution for existing terminology; rather, it embodies a clear theoretical ambition and strong diagnostic power.

First, the notion of an “anxious society” is distinct from the psychological concept of an “anxiety syndrome.” The latter focuses on dysfunctions and abnormalities internal to the individual, whereas the former concerns the overall state of social operation. When increasing numbers of people within a society experience anxiety—when anxiety is no longer tied to specific personality traits or life events but instead becomes a diffuse, quasi-normal psychological condition—the issue transcends the individual level and points toward the social structure itself. It is precisely this critical distinction that Wang Tianfu captures, shifting the analytical focus from “who is anxious” to “why society produces anxiety” (Wang, 2026, pp. 5-12).

Second, the author systematically identifies four defining features of the anxious society (4-18). The first is pervasiveness: anxiety is no longer confined to particular classes, professions, or age groups, but cuts across social stratification and becomes a shared emotional baseline. The second is diffuseness: anxiety lacks a clearly identifiable object or source; it may attach itself to work, education, health, or interpersonal relations, yet cannot be reduced to any single domain. The third is transmissibility: anxiety circulates rapidly through social networks—transmitted from parents to children, from superiors to subordinates, and from media to audiences—forming a self-reinforcing cycle. The fourth is structurality: anxiety is not an accidental psychological fluctuation, but an inevitable product of the interplay among social institutions, cultural values, and technological logics, exhibiting a high degree of systemic stability.

Third, the concept of the “anxious society” enters into a productive dialogue with existing sociological theories. It extends Ulrich Beck’s notion of the “risk society,” as both attend to uncertainty and crisis in the process of modernity; yet it shifts the analytical focus from external, objective risks to internal, subjective emotional experiences (Beck, 2018, p. 19-25). At the same time, it resonates with Hartmut Rosa’s theory of “social acceleration,” which posits that the continuous speeding up of social change deprives individuals of stable frames of reference, thereby generating persistent anxiety (Rosa, 2015, p. 21-30). Wang’s contribution lies not in merely introducing or reiterating Western theories, but in integrating these intellectual resources with the concrete experience of Chinese society, thus advancing an analytically grounded framework with strong local explanatory power.

In sum, the “anxious society” is not only the central concept of the book, but also an analytical category with significant potential for broader academic dialogue. It offers a compelling entry point for understanding contemporary social mentalities in China and provides a solid theoretical foundation for subsequent analyses of causes, cases, and possible resolutions.

2. The Roots of Anxiety

Having established the academic positioning of the “anxious society,” the author proceeds to a more fundamental question: if anxiety has become a pervasive social emotion, what are its underlying causes? Rather than reducing the answer to a single factor, *Anxious Society* offers a multi-layered analysis spanning structural, institutional, and cultural dimensions, thereby revealing the complex mechanisms through which anxiety is produced.

First, structural pressures constitute the foundation in which anxiety proliferates. Amid rapid social transformation, social stratification has intensified and upward mobility channels have narrowed, while competition in key domains has escalated, such as education, employment, and housing. (Wang, 2026, pp. 26-35). The coexistence of “unequal opportunities” and “heightened competition” places individuals in a persistent state of instability and insecurity. Unable to clearly situate themselves or form reliable expectations

about the future, individuals become trapped in ongoing cycles of comparison and pursuit, giving rise to generalized anxiety.

Second, changes in institutional logics further amplify this sense of unease. Evaluation systems oriented toward performance and efficiency, while facilitating social development to some extent, also subject individuals to continuous measurement and selection. Whether in educational ranking systems or workplace performance appraisals, individuals are incorporated into highly quantified regimes of evaluation. Under such conditions, human value is increasingly reduced to comparable and replaceable metrics; any instance of “falling behind” may entail the loss of opportunities or even downward mobility. Anxiety thus becomes an inescapable accompaniment. This aligns with broader sociological findings that institutional pressures shape emotional experience (Hao & Gu, 2026, p. 62).

Third, cultural value orientations also contribute to the diffusion of anxiety. Contemporary definitions of “success” have become increasingly homogenized, privileging wealth, status, and efficiency, while marginalizing diverse life trajectories. In the context of advanced information technologies, social media further intensifies mechanisms of comparison, exposing individuals to others’ “success narratives” and fostering continuous self-surveillance and self-negation (Wang, 2026, pp. 35-45).

Taken together, anxiety does not originate in individual psychological fragility; rather, it is embedded within social structures and institutional logics, emerging from the intersection of multiple forces in the process of modernity. In this sense, individual emotional distress constitutes a micro-level manifestation of broader social contradictions.

3. The Disturbed Mind

If the foregoing analysis reveals the structural roots of anxiety, the subsequent case studies demonstrate how these macro-level forces unfold within lived experience. This integration of macro-theoretical analysis with micro-level experience exemplifies the distinctive appeal of sociological inquiry: it enables us to perceive the operation of large-scale structures within concrete, tangible life contexts.

In the book, Wang examines the anxious experiences of multiple social groups, each highly representative (Wang, 2026, pp. 50-90):

1. Delivery workers trapped in algorithmic control

Drawing on relevant studies, Wang reveals how food delivery platforms manage and control workers through algorithmic systems. Delivery times are calculated down to the minute or even the second, and every action is monitored. Algorithms continuously optimize routes and time estimates based on historical data, meaning that today’s performance becomes tomorrow’s benchmark—the faster one works, the higher the expectations set by the system. This constitutes an endless mechanism of “self-intensification.” Workers cannot afford to pause: delays result in penalties, negative reviews, and reduced order allocation. Their anxiety is not psychological in origin, but an inevitable outcome of algorithmic design.

2. Educational anxiety among “Haidian Mothers”

Against the backdrop of scarce high-quality educational resources and intense competition, middle-class mothers are drawn into a silent yet relentless struggle. From early childhood, every aspect of a child’s life is meticulously planned—English, mathematics Olympiad training, piano, programming, sports—nothing can be neglected. Mothers invest not only financial resources and time, but also extensive emotional labor: researching policies, gathering information, contacting teachers, and supervising study. Wang argues that this seemingly “overprotective” parenting style is, in fact, the penetration of anxiety mechanisms into the family sphere. Mothers are not simply acting in the best interest of their children; they are driven by the fear that their children may not be “good enough.”

3. The precarious survival of young academics

Wang encapsulates the competitive ecology of Chinese academia with the phrase “publish or perish.” Young faculty members are required to produce a sufficient number of publications and secure research funding within six to eight years, or face dismissal. While modeled on the tenure-track system in the United States, this regime operates under conditions that significantly intensify its pressures: long publication cycles, fierce competition for grants, heavy teaching loads, and additional life pressures such as housing, childcare, and eldercare. As Wang’s cited data suggest, mental health issues among university faculty have become a serious and growing concern.

4. Grassroots workers under “Nanny-Style Governance”

Perhaps most striking is Wang’s analysis of what he terms “nanny-style governance.” In grassroots community administration, layers of accountability pressure compel frontline workers to assume an all-encompassing role. They must respond to every resident demand—from plumbing repairs to mediating disputes, from organizing activities to handling inspections. This model of “unlimited responsibility” imposes an overwhelming burden: tasks are endless, fragmented, and trivial, rendering completion impossible. Their anxiety stems directly from institutional design—a system that seeks to manage everything despite limited capacity inevitably pushes its executors into chronic stress.

These seemingly disparate groups, in fact, share a common condition: all are embedded within an inescapable mechanism of anxiety production. The seemingly opposing choices of “involution” and “lying flat” are, in Wang’s account, merely two sides of the same coin. “Involution” entails relentless competition in pursuit of success, whereas “lying flat” signifies withdrawal from a game perceived as endless. Yet both accept the same premise: that the game exists and its rules are valid. The former seeks victory within the rules; the latter opts out, but neither fundamentally questions the legitimacy of the rules themselves. This is precisely the power of the anxiety mechanism: it captures all participants within its logic, regardless of their stance.

4. Pathways Beyond Anxiety

Having diagnosed the mechanisms that generate anxiety, a crucial question emerges: within the context of an

“anxious society,” is it possible for individuals and society to find a way forward? Rather than offering simplistic solutions, *Anxious Society* outlines a multidimensional pathway. (Wang, 2026, pp. 95-130)

At the societal level, alleviating anxiety depends on structural and institutional adjustments, including improving social security systems, expanding channels for social mobility, and mitigating excessive competition. However, such transformations are inherently long-term and complex.

At the individual level, Wang first critiques popular yet superficial prescriptions like “just think positively,” “don’t be anxious”. He argues that they merely reproduce a logic of blame by shifting responsibility back onto individuals. He then proposes several directions:

First, “cognitive upgrading”. Wang argues that genuine relief begins with an accurate understanding of the problem. When one comes to realize that anxiety is not a personal failure but a symptom of the times; when one recognizes that one is not an isolated “abnormality” but one among countless ordinary individuals experiencing similar conditions; and when one understands how the mechanisms of anxiety operate, whose interests they serve, and why they are so difficult to resist—such clarity in itself constitutes a form of liberation. Under these conditions, individuals are no longer passively led by invisible forces; instead, they are able, at the very least, to assert: “I am not escaping—I am making a choice.”

Second, the cultivation of “self-coherence” (zhiqia). This is a key concept proposed by Wang Tianfu. It refers to a lucid and proactive mode of self-settlement: after recognizing the uncontrollability of external conditions, individuals maintain their own rhythm, establish their own evaluative standards, and seek forms of life experience that are not subject to quantification, assessment, or comparison.

Third, “limited resistance.” Wang does not assume that individuals can fundamentally transform social structures, yet he equally rejects the notion that individuals are entirely powerless. Instead, he proposes a series of strategies of “limited resistance.” For example, in the workplace, this includes setting boundaries and learning to say “no”. It is not a refusal to work, but a refusal to undertake meaningless or excessive tasks.

Although modest, these strategies are significant: they carve out spaces of autonomy and, when collectively adopted, may exert countervailing pressure on the broader system.

In the concluding section, the author also reflects on emotional care in the age of artificial intelligence, raising the open question of whether future technologies might serve as tools for psychological relief. It is an issue that invites further sociological inquiry.

Conclusion

Overall, *Anxious Society: The Nowhere-to-Place Modern Mind* achieves a crucial shift from individual psychological explanations to structural analysis by situating anxiety within a sociological framework. It provides a powerful tool for understanding the emotional condition of contemporary society and encourages readers to reassess the relationship between personal experience and social environment.

More importantly, the value of this book lies not in offering ready-made solutions, but in reframing the problem itself. Once anxiety is recognized not as an individual failing but as a product of structural conditions, individuals may begin to free themselves from excessive self-blame and confront their emotions more rationally.

In a highly uncertain modern world, anxiety may not be entirely eliminated. Yet, as the book suggests, understanding anxiety already constitutes a form of resistance. Only by recognizing its social roots can we begin to rearticulate a space for the self between structure and agency.

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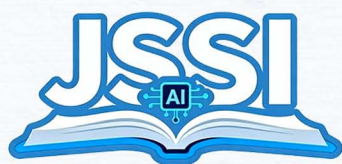
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