

From Technological Embeddedness to Ecological Reconstruction: The Logic and Practical Pathways for Developing Smart Curricula in Public Administration Discipline

Guanghua Tian¹, Zhehao Xu², Mingqiang Lv³

¹ Department of Public Health and Health Management, Clinical College of Anhui Medical University, No. 1166 Wangjiang West Road, Shushan District, Hefei, Anhui, China

² Department of Pharmacy, Clinical College of Anhui Medical University, No. 1166 Wangjiang West Road, Shushan District, Hefei, Anhui, China

³ Student Affairs Office, Clinical College of Anhui Medical University, No. 1166 Wangjiang West Road, Shushan District, Hefei, Anhui, China

Abstract

The development of smart curricula represents a deepening practice of the educational digitalization strategy within the field of public administration and serves as a core lever for innovating talent cultivation models in the context of constructing the New Liberal Arts. Currently, the development of smart curricula in public administration faces structural dilemmas, including the superficial application of technology, fragmentation of teaching scenarios, insufficient digital literacy among faculty and students, and the closed nature of the curricular ecosystem. These dilemmas reflect deep-seated contradictions inherent in the stage of technological embeddedness that are difficult to overcome. Adopting an analytical perspective integrating technological empowerment and institutional synergy, this paper proposes that smart curriculum development must transition from technological embeddedness to ecological reconstruction. It constructs an integrated framework supported by three pillars: a smart curriculum system, a smart cultivation model, and a smart teaching ecosystem. Regarding practical pathways, this involves reconstructing curricular content logic through knowledge graphs, strengthening competency development via virtual simulation experiments, empowering personalized learning with generative artificial intelligence, and deepening the integration of industry and education guided by the goal of enhancing smart governance capabilities. This approach aims to achieve systemic synergy between technology and teaching, curriculum and ecology, and talent cultivation and societal needs. The underlying mission of developing smart curricula in public administration lies in cultivating talents capable of mastering digital intelligent technologies and responding to complex governance contexts. This necessitates transcending the limitations of technological instrumentalism and seeking a dynamic balance between technological rationality and public value.

Keywords

Smart Curriculum; Public Administration Discipline; Educational Digitalization; Technological Empowerment; Ecological Reconstruction.

1. Introduction

The digital wave is reshaping the form and logic of higher education at an unprecedented pace. From the proliferation of online open courses to the rise of virtual simulation experiments, from data-driven teaching decisions to personalized learning empowered by generative artificial

intelligence, technology has gradually permeated from being an external tool of education to becoming an internal constituent element. In this context, smart education has emerged as a new stage in the development of educational informatization. Its core essence lies in utilizing emerging technologies such as artificial intelligence, big data, and the Internet of Things to construct a ubiquitous, personalized, and intelligent teaching ecosystem, thereby systematically enhancing the quality of talent cultivation [1].

As a critical field for cultivating talents for national governance, public administration faces dual challenges brought about by digital transformation. On one hand, the vigorous development of emerging governance practices such as digital government, smart cities, and platform governance imposes new requirements on the data literacy, technological proficiency, and complex problem-solving abilities of public administration professionals. On the other hand, the instructional model of the discipline itself remains largely entrenched in the traditional paradigm of theoretical indoctrination coupled with case analysis, rendering it increasingly inadequate in addressing the demands of the contemporary era [2]. This tension makes the development of smart curricula in public administration not merely a matter of innovating teaching methods, but also concerns whether the paradigm of talent cultivation can resonate with the requirements of the times.

However, examining the current practices in developing smart curricula within public administration reveals a phenomenon warranting attention: technology application often remains at the superficial level of tool substitution, converting traditional lesson plans into PowerPoint presentations, moving offline classrooms to online platforms, and replacing paper assignments with electronic submissions. This pathway of technological embeddedness, while introducing technological elements, fails to touch upon deeper dimensions such as teaching philosophies, curriculum structures, teacher-student relationships, and evaluation methods, thus struggling to truly unleash the potential of technology-enabled education. As some scholars have noted, the role of AI in empowering education should permeate multiple aspects, including the innovation of educational philosophies and the transformation of teaching models, rather than merely serving as an ornament to existing models [2].

Based on the foregoing assessment, this paper posits a core question: How can the development of smart curricula in public administration transition from the superficial practice of technological embeddedness to the systemic transformation of ecological reconstruction? What is the underlying logic? What are the feasible pathways? Addressing these questions, this paper first clarifies the conceptual connotations and theoretical foundations of smart curricula. It then analyzes the structural dilemmas faced in current development practices. Subsequently, it constructs an analytical framework for ecological reconstruction, explores practical pathways, and finally reflects on the underlying mission of smart curriculum development.

2. Defining the Concept and Theoretical Foundations of Smart Curriculum Development

2.1. The Conceptual Evolution and Core Characteristics of Smart Curricula

The concept of a smart curriculum is dynamically evolving. Its connotations have continuously deepened and expanded, from an initial focus on integrating digital resources, to emphasizing the application of intelligent technologies in a middle phase, and more recently to concentrating on the systemic reconstruction of the teaching ecosystem. Synthesizing existing research, this paper posits that a smart curriculum refers to a curricular form centered on student development, which comprehensively utilizes emerging technologies such as artificial intelligence, big data, and virtual simulation to achieve structured teaching content, personalized learning pathways, data-driven teaching decisions, and immediate evaluation

feedback. It is not a simple aggregation of technological elements, but an organic integration of technology, teaching, management, and culture.

Compared to traditional curricula, smart curricula exhibit four core characteristics. First, the knowledgeable organization of content. Traditional curricula present linear knowledge structures based on chapters as basic units. Smart curricula, leveraging knowledge graph technology, connect discrete knowledge points into a networked structure, revealing the inherent logic between concepts and providing students with possibilities for multi-path exploration. Second, the personalization of the learning process. By collecting learning behavior data and analyzing cognitive characteristics, smart curricula can dynamically adjust learning paths and push suitable resources, facilitating a shift from a one-size-fits-all approach to teaching students according to their aptitude [3]. Third, data-driven teaching decisions. Smart curriculum platforms can record the entire trajectory of teaching and learning behaviors, providing data support for teachers to improve their instruction, thereby promoting a shift in teaching decisions from experience-driven to data-driven. Fourth, immediate evaluation feedback. Traditional evaluation often lags behind the learning process. Smart curricula, leveraging intelligent assessment technologies, enable immediate diagnosis and feedback, helping students adjust their learning strategies promptly.

2.2. Theoretical Foundations Supporting Smart Curriculum Development

The development of smart curricula is not a purely technological project and requires robust theoretical support. From a theoretical perspective, several perspectives hold fundamental significance.

The theory of technological empowerment focuses on how technology alters organizational operational modes and enhances organizational effectiveness. In the field of education, technology empowerment is manifested through the permeation and optimization of all facets of teaching activities. This involves expanding the spatial and temporal boundaries of teaching, diversifying the forms of teaching resources, enhancing the effectiveness of teaching interactions, and refining the methods of teaching evaluation. However, the depth of technological empowerment depends on the degree of coupling between technology and teaching, rather than the advanced nature of the technology itself. This reminds us that smart curriculum development must return to the essence of teaching, guided by the need to solve teaching pain points and improve the quality of talent cultivation.

Constructivist learning theory emphasizes that knowledge is actively constructed by learners through interaction with their context, rather than passively received. The implication of this theory for smart curriculum development is that technology applications should create authentic, complex, and meaningful learning contexts for learners, provide opportunities for diverse interactions, and support collaborative knowledge construction. Elements of smart curricula, such as virtual simulation experiments, case-based situational simulations, and team project-based learning, are technological realizations of constructivist principles [4].

Ecosystem theory conceptualizes the curriculum as an ecological system composed of multiple interrelated elements, including teachers, students, content, technology, institutional structures, and culture. These elements are characterized by interdependent and mutually constraining relationships, and the optimization of systemic functions necessitates the synergistic evolution of all constituent parts [3]. From this perspective, the core objective of smart curriculum development is not merely the introduction of advanced technologies, but rather the reconstruction of the relationships among these elements to cultivate a self-organizing and continuously evolving curricular ecosystem. This theoretical framework provides direct support for the proposition of ecological reconstruction advanced in this paper. The SECI model is a foundational theory in the field of knowledge management, delineating the four phases of mutual transformation between tacit and explicit knowledge: Socialization (from

tacit to tacit), Externalization (from tacit to explicit), Combination (from explicit to explicit), and Internalization (from explicit to tacit). Some scholars have introduced the SECI model into the pedagogical reform of public administration curricula. By designing phased teaching activities, they have established a learning perception field, an explicit interaction field, a shared system field, and an applied practice field to facilitate the spiral knowledge conversion process for learners [5]. The implication of this theory for the development of smart curricula is that technological platforms should provide a supportive environment for each of the four stages of knowledge conversion, thereby assisting students in achieving deep learning through the processes of experience, articulation, integration, and application.

3. A Realistic Examination of Smart Curriculum Development in Public Administration

3.1. Current State of Development: Diverse Explorations and Preliminary Outcomes

In recent years, the development of smart curricula in public administration has progressed through explorations across multiple dimensions, yielding some noteworthy practical patterns. Regarding the digitalization of course content, several universities have introduced virtual simulation technology into public administration experimental teaching. The Public Administration Comprehensive Laboratory at Yunnan University of Chinese Medicine is equipped with multiple teaching software platforms, including interactive teaching for public relations scenarios, interactive teaching for public policy scenarios, and a sandbox for public management program design and decision-making drills, providing students with an immersive professional environment [4]. Surveys indicate that students participating in virtual simulation training generally perceive the training as effective, significantly enhancing their teamwork abilities, decision-making skills, and capacity to integrate theory with practice [4]. In terms of teaching model innovation, some universities have attempted to deeply integrate smart teaching tools like Rain Classroom with specialized courses. Using the Municipal Studies course as an example, instructors utilize smart teaching platforms to achieve real-time classroom interaction, track learning behaviors, and provide precise feedback. Simultaneously, leveraging the Zhexun Technology public management training platform, they integrate theoretical instruction with practical training in the same classroom, exploring a teaching model that synergizes theory and practice [6].

Regarding the optimization of the curriculum system, digital empowerment has become a key pathway for transforming talent cultivation models in public administration. Researchers have proposed that curriculum reform should be the core driver for the digital transformation of the discipline, suggesting that most courses should incorporate digital content or be framed within a digital context to optimize the curriculum system design, thereby meeting the new demands of public governance in the digital age [7]. The public administration discipline at Beijing University of Chemical Technology, following the logic of "enlightening with wisdom, guiding with wisdom, empowering with wisdom," has constructed a framework for an intelligent teaching model supported by three modules: a smart curriculum system, a smart cultivation model, and a smart teaching ecosystem [3].

3.2. Analysis of Dilemmas: Deep-Seated Barriers to Technological Embeddedness

Despite diverse explorations, the development of smart curricula in public administration still faces deep-seated dilemmas. These intertwined dilemmas reveal the limitations of the technological embeddedness model.

The superficial application of technology is a prominent issue. Some smart curriculum development efforts stop at technological embellishment, such as digitizing traditional teaching materials, moving classrooms to live streaming platforms, or introducing automated grading for objective questions in evaluations. While these applications improve efficiency in certain aspects, they do not alter the internal logic of teaching: knowledge is still transmitted unidirectionally by the teacher, learning remains a standardized process, and evaluation still focuses on knowledge memorization. Technology is relegated to a tool for accelerating traditional teaching models, rather than a driving force for transforming the teaching paradigm. This superficial application fails to address deep-seated pain points such as outdated case study content, rigid teaching methods, vague teaching objectives, and ineffective practical teaching components [2].

The fragmentation of teaching scenarios similarly constrains the educational function of smart curricula. Smart curriculum development is often advanced on a per-course basis, lacking an overarching design at the disciplinary level. Consequently, a situation emerges where Public Policy Analysis introduces virtual simulation experiments, E-Government builds an online training platform, and Organizational Behavior adopts smart classroom tools, but these teaching scenarios remain isolated from each other, data cannot be exchanged, and resources are difficult to share. Students navigate through multiple smart silos, struggling to form a systematic competency structure or a coherent learning experience. Behind this fragmentation lies a lack of systemic thinking: smart curriculum development is narrowly conceived as the informatization transformation of individual courses, rather than a systemic reconstruction of the talent cultivation model.

Insufficient digital literacy among faculty and students is a critical bottleneck constraining the effectiveness of smart curricula. From the faculty perspective, some teachers' understanding of smart teaching tools remains at the operational level, lacking the design capability to deeply integrate technology with disciplinary teaching. Coupled with the significant time and effort investment required for smart curriculum development, which is not effectively incentivized by existing evaluation systems, this results in teachers being unwilling, unable, or ineffective in using these tools [1]. From the student perspective, issues such as weak self-directed learning abilities, insufficient information discernment capacity, and low engagement in online learning are also prominent [1]. The shortcomings in digital literacy among both faculty and students mean that smart curricula possess the name of "smart" but lack its substance.

The closed nature of the curricular ecosystem represents a deeper structural dilemma. Smart curriculum development is largely confined within campus boundaries, with inadequate mechanisms for connecting with government practices, societal developments, and technological frontiers. The applied nature of the public administration discipline dictates that curricula must maintain close interaction with governance practices. However, in reality, curriculum content updates lag behind practical changes, curriculum evaluation is confined to internal academic cycles, and curriculum resources depend on internal supply. Some researchers have proposed the concept of university-government integration, emphasizing the use of artificial intelligence to drive the integration of universities and governments, facilitating participation in case-based practical experiences [2], a positive response to the dilemma of closure.

3.3. Tracing the Problems: The Deep Logic Behind Superficial Dilemmas

The dilemmas mentioned above are not isolated technical or managerial issues but reflect the profound limitations of the technological embeddedness model in smart curriculum development. This model implicitly rests on three assumptions: technology is an external tool for improving teaching; technology application is a linear, cumulative process; and

technological effectiveness depends primarily on the technology itself. However, genuine educational transformation is far more complex than this model suggests.

Technology is never a neutral tool; it embodies specific presuppositions and value orientations. When smart curriculum development remains at the stage of technological embeddedness, it tacitly accepts the logics of efficiency prioritization, standardization, and quantifiability carried by technology. These logics may conflict with the value rationality, contextual sensitivity, and public spirit pursued by the public administration discipline. This constitutes a deeper value dilemma underlying the superficial application of technology.

Smart curriculum development is essentially a systemic transformation involving multiple dimensions, including curriculum objectives, content organization, teaching methods, evaluation systems, teacher-student relationships, and management institutions. Any change in a single dimension, if unsupported by synergistic changes in other dimensions, will struggle to produce lasting effects. Issues like the fragmentation of teaching scenarios and the closure of the curricular ecosystem are precisely manifestations of the absence of systemic transformation thinking.

Faculty and students, as the main agents of teaching activities, have their cognitive models, behavioral habits, and value identifications profoundly influence the effectiveness of technology application. Simply providing technological platforms, without focusing on how faculty and students understand, accept, and creatively utilize technology, may lead to the dilemma of an "absent subject" in smart curriculum development. The issue of digital literacy among faculty and students reflects an insufficient focus on the human dimension.

Consequently, escaping these dilemmas necessitates transcending the superficial logic of technological embeddedness and moving towards the systemic thinking of ecological reconstruction.

4. From Technological Embeddedness to Ecological Reconstruction: An Integrated Analytical Framework

4.1. The Core Essence of Ecological Reconstruction

Based on the above analysis, this paper proposes that the development of smart curricula in public administration should transition from technological embeddedness to ecological reconstruction. Ecological reconstruction refers to viewing smart curriculum development as a holistic restructuring of the curricular ecosystem. Through synergistic changes across three dimensions, the curriculum system, the cultivation model, and the teaching ecosystem, it aims to achieve deep integration between technology and teaching, curriculum and ecology, and talent cultivation and societal needs. It is not an additive introduction of technological elements, but a transformative restructuring of relationships among systemic elements.

The core essence of ecological reconstruction is manifested in three aspects. First, relational thinking replaces elemental thinking. The focus of smart curriculum development is not on which technological elements to introduce, but on reconstructing the relationships between elements: how technology supports changes in learning methods, how data optimizes teaching decisions, how platforms facilitate teacher-student interaction, and how curricula connect with practical needs. Second, process thinking replaces outcome thinking. Smart curriculum development is not a one-time project but a process of continuous evolution. Technological iteration, faculty development, student growth, and curriculum optimization form a mutually reinforcing cycle. Third, ecological thinking replaces engineering thinking. A smart curriculum cannot be built according to a blueprint; it emerges and grows within a specific institutional environment, cultural atmosphere, and the practices of its main agents. The core task for

developers is to cultivate soil conducive to growth, rather than mechanically assembling components.

4.2. Framework Construction: Three-Dimensional Synergy of Curriculum System, Cultivation Model, and Teaching Ecosystem

Based on these principles and drawing upon existing research findings, this paper constructs an integrated analytical framework for the development of smart curricula in public administration. This framework comprises three modules, the smart curriculum system, the smart cultivation model, and the smart teaching ecosystem, which mutually support and co-evolve.

The smart curriculum system forms the foundational layer of ecological reconstruction. It addresses the question of what to teach, requiring a shift from a knowledge-based to a competency-based orientation, and from disciplinary logic to integrated logic. Specifically, the smart curriculum system should exhibit three characteristics: first, being cutting-edge, by promptly incorporating emerging topics such as digital governance, AI governance, and platform economy regulation into the curriculum content; second, being integrative, by breaking down traditional sub-disciplinary boundaries and integrating relevant knowledge around the cultivation of governance capabilities; third, being hierarchical, by designing curriculum modules according to the gradient of foundational knowledge, core competencies, and advanced explorations, catering to the differentiated development needs of students [3]. The smart cultivation model forms the implementation layer of ecological reconstruction. It addresses the question of how to teach, requiring a shift from unidirectional transmission to multi-dimensional interaction, and from standardized production to personalized cultivation. Specific pathways include: strengthening contextual experience through case-based teaching, utilizing AI to drive case collection, scenario construction, and the teaching process [2]; enhancing competency training through virtual simulation experiments, improving decision-making abilities and the effectiveness of theory-practice translation in immersive environments [4]; reinforcing knowledge application through project-based learning, guiding students to solve real governance problems; and meeting differentiated needs through personalized learning paths, leveraging intelligent recommendation technologies to achieve teaching students according to their aptitude.

The smart teaching ecosystem forms the safeguarding layer of ecological reconstruction. It addresses the question of in what environment teaching occurs, requiring a shift from closed campuses to open networks, and from institutional constraints to cultural guidance. The smart teaching ecosystem comprises four subsystems: the technological support system (platforms, tools, resources), the institutional support system (evaluation mechanisms, incentive mechanisms, guarantee mechanisms), the cultural support system (innovative atmosphere, collaborative culture, fault-tolerance mechanisms), and the external support system (government partnerships, industry connections, societal participation). These four systems work synergistically to provide sustained momentum and a favorable environment for smart curriculum development [3].

The curriculum system, cultivation model, and teaching ecosystem are not in a linear, sequential relationship. They are mutually nested and dynamically shape each other. Changes in the curriculum system require the cultivation model to be realized; innovation in the cultivation model needs the teaching ecosystem for support; and optimization of the teaching ecosystem, in turn, creates conditions for the iteration of the curriculum system. The core task of smart curriculum development is precisely to facilitate the synergistic evolution of these three, forming a self-reinforcing virtuous cycle.

5. Practical Pathways for Developing Smart Curricula in Public Administration

5.1. Reconstructing Curricular Content Logic with Knowledge Graphs

Smart curriculum development must first address the issue of how content is organized. Traditional curricula, structured linearly around chapters, facilitate systematic instruction but hinder students' ability to construct internal connections between knowledge points and are ill-suited for non-linear, personalized learning needs.

Knowledge graph technology offers new possibilities for organizing course content. By deconstructing course knowledge into interconnected knowledge points and revealing the logical relationships between concepts, it forms a visualized knowledge network. In a smart curriculum, knowledge graphs can serve multiple functions: as a learning map, helping students build a holistic understanding and grasp the intrinsic connections within knowledge; as a navigation tool, supporting students in choosing learning paths according to their needs, enabling personalized learning; and as a diagnostic basis, by analyzing students' learning trajectories on the knowledge graph to accurately identify knowledge weaknesses.

The construction of knowledge graphs for the public administration discipline should follow a competency-oriented principle. First, clarify the core competency structure students should possess, based on talent cultivation goals. Second, translate competency requirements into a knowledge system, identifying the key knowledge points underpinning each competency. Third, map the logical relationships (such as inclusion, progression, causation, coordination) between knowledge points to build the knowledge graph. Finally, link the knowledge graph with learning resources, activities, and assessment tasks to form an operational learning navigation system. This process requires the synergistic participation of subject matter experts, educational technology specialists, and data scientists to ensure the scientific, pedagogical, and technical integrity of the graph.

5.2. Strengthening Competency Development with Virtual Simulation Experiments

The applied nature of the public administration discipline dictates that competency development must connect with authentic governance contexts. However, constrained by time and space limitations and the scarcity of practical opportunities, students often lack sufficient exposure to real-world scenarios. Virtual simulation technology provides an effective pathway to address this challenge.

Virtual simulation training can transcend the limitations of traditional theoretical teaching models, providing immersive professional environments and facilitating the transformation of theoretical knowledge into professional competencies [4]. In the field of public administration, virtual simulation experiments can encompass various types, including public policy formulation simulations. These simulations allow students to assume the role of decision-makers within policy contexts and experience the entire process of policy agenda setting, program planning, legitimization, implementation, and evaluation; public crisis management simulations, constructing crisis scenarios such as public health emergencies or natural disasters to train students' emergency decision-making and cross-departmental coordination skills; public service design simulations, guiding students to apply service design concepts to optimize public service processes and improve citizen experience; and public sector performance management simulations, enabling students to design performance indicator systems and conduct performance assessments and feedback within simulated organizations. Empirical research indicates that the teaching effectiveness of virtual simulation training is influenced by multiple factors. Students' intrinsic recognition of the training's value, the quality of course assignment design, and the effectiveness of team interaction all have significant

positive impacts on training outcomes [4]. The implication for smart curriculum development is that the value of virtual simulation experiments lies not in the sophistication of the technology itself, but in its ability to activate students' deep engagement and meaningful learning. Experiment design should closely align with the competency framework for public administration talent cultivation, avoiding a technology-first approach that deviates from competency development goals. A complete learning loop should be constructed, encompassing pre-experiment (background study of scenarios), in-experiment (operation and collaboration), and post-experiment (debriefing and reflection) phases, facilitating a spiral ascent from virtual operation to practical understanding [4].

5.3. Empowering Personalized Learning with Generative Artificial Intelligence

The leapfrog development of generative artificial intelligence offers unprecedented technological possibilities for personalized learning. In the development of smart curricula for public administration, generative AI can play an empowering role in multiple scenarios.

Intelligent Generation of Learning Resources. Based on students' learning progress, knowledge mastery, and developmental needs, generative AI can automatically generate adapted learning materials: providing foundational cases and simplified explanations for beginners, offering cutting-edge literature and complex situational analyses for advanced learners, recommending classic works for theory-oriented students, and pushing policy cases and decision simulations for practice-oriented students. Intelligently generated resources not only save teachers' preparation time but, more importantly, achieve a dynamic match between learning content and student needs.

Intelligent Tutoring for the Learning Process. In traditional instruction, when encountering difficulties, learners often must wait for classroom Q&A sessions or instructor office hours, where the delay in feedback adversely affects learning outcomes. Generative AI can provide immediate tutoring, answering student questions, offering problem-solving ideas, and guiding deeper thinking. For example, when studying a public policy course, students can dialogue with an intelligent assistant regarding the application of a particular policy analysis framework, gradually deepening their understanding through questioning, challenging, and reflecting. The intelligent assistant can also record the tutoring process, analyze common student difficulties, and provide references for teachers to improve their instruction.

Intelligent Feedback in Learning Evaluation. Generative AI can provide preliminary evaluations of student submissions, offering not just scores or grades but, more importantly, specific suggestions for improvement, guiding students towards reflection and refinement. In public management case analysis, the intelligent assistant can point out whether the student's choice of analytical framework was appropriate, whether the evidence provided was sufficient, whether the proposed countermeasures were feasible, and recommend related cases for comparative study. This immediate, specific, and constructive feedback helps students continuously improve through learning by doing.

It is crucial to emphasize that the introduction of generative AI is not intended to replace teachers, but to liberate them from repetitive tasks, allowing them to invest more energy in creative teaching activities and personalized student guidance. The synergy between teachers and intelligent assistants constitutes a new type of human-computer collaborative teaching relationship within the smart curriculum.

5.4. Deepening the Integration of Industry and Education Guided by the Goal of Enhancing Smart Governance Capabilities

The ultimate goal of developing smart curricula in public administration is to cultivate professionals capable of meeting the governance demands of the digital age. This implies that curriculum development cannot remain confined within campus boundaries; it must maintain

close interaction with governance practices, using practical needs to guide curricular direction and leveraging curricular outcomes to feed back into practical development.

Deepening the integration of industry and education can be pursued across multiple dimensions. At the curriculum content level, collaborate with government departments, enterprises, and institutions to transform real governance problems into course cases and training projects, allowing students to tackle real-world issues hands-on. The concept of university-government integration proposed by some researchers emphasizes using AI to drive university-government collaboration and participation in case-based practical experiences [2]. At the faculty level, engage experienced government managers and digital governance experts as adjunct faculty or practice mentors to offer practical lectures and guide student training. At the platform and resource level, jointly establish laboratories, practice bases, and data platforms to achieve resource sharing and complementarity. At the talent cultivation level, dynamically adjust training programs based on the talent needs of government departments, establishing various cooperation models such as targeted training and customized programs. The profound value of industry-education integration lies in bridging the gap between learning and application, allowing students to understand the logic of smart governance in authentic contexts and to hone their smart governance capabilities through problem-solving. When students can use digital technologies to optimize public service processes, use data analysis to support policy decisions, and use systemic thinking to address complex governance challenges, the goals of smart curriculum development are truly realized.

6. Conclusion

The development of smart curricula in public administration, on the surface a technology-driven pedagogical transformation, fundamentally represents a response of talent cultivation goals to the demands of the times. Digital technologies are profoundly reshaping the structures, processes, and methods of government governance. Emerging governance practices such as smart cities, digital government, and platform governance impose entirely new requirements on the knowledge structures, competency profiles, and value orientations of public administration professionals. The ability to cultivate talents who understand both public administration and digital technology, possess both rational analytical skills and a spirit of humanistic care, and can both grasp governance principles and navigate complex situations directly impacts the effectiveness of modernizing the national governance system and governance capacity.

Viewed from this perspective, the underlying mission of smart curriculum development becomes clear. It is not about cloaking traditional curricula in a technological garb, but about reconstructing the relationship between the curriculum and its era. It is not about reinforcing existing teaching models with technological means, but about exploring a new paradigm of talent cultivation that aligns with the digital age. It is not about pursuing technological sophistication, but about seeking alignment between talent cultivation and governance needs. This requires smart curriculum development to transcend the limitations of technological instrumentalism and seek a dynamic balance between technological rationality and public value. It must skillfully use technology to enhance governance efficiency while remaining vigilant against technological alienation eroding public spirit. It must cultivate students' ability to harness data while also nurturing their commitment to serving the public. It must respond to the logic of efficiency optimization while upholding the bottom line of fairness and justice.

Transitioning from technological embeddedness to ecological reconstruction signifies not only a paradigm shift in smart curriculum development but also a conscious response to the underlying mission outlined above. When the curriculum system, cultivation model, and teaching ecosystem achieve synergistic evolution, when technology and teaching, curriculum

and ecology, and talent cultivation and societal needs achieve deep integration, the public administration discipline can truly cultivate outstanding talents capable of mastering digital intelligent technologies, responding to complex governance contexts, and leading the future of public affairs governance. This is both the value orientation of smart curriculum development and the contemporary responsibility of the public administration discipline.

References

- [1] Liu, S. Q. (2024). Research on the teaching reform of public administration in colleges and universities under the background of wisdom education. *Shanxi Youth*, (10), 78-80.
- [2] Huang, J. H., & Ye, S. (2025). "Four-Dimensional Integration" Model of AI-Driven Public Administration Case Teaching. *China Education of Light Industry*, 28(05), 60-67.
- [3] Zhang, F., Yao, S. Y., & Zhou, Y. L. (2025). Exploration of intelligent teaching mode of higher education based on artificial intelligence-taking public administration as an example. *Survey of Education*, 14(12),15-18.
- [4] Qian, Q. Y. H., & Bai, Y. (2025). The application of virtual simulation technology in the teaching reform of public administration courses —— Based on the survey of 289 undergraduates majoring in public administration. *Digital Economy*, (Z2), 14-16.
- [5] Lei, Y., Chen, Y. C., & Zhang, D. P. (2020). Reform and Practice of E-Government Teaching Mode Based on SECI Model. *Journal of Nanchang Hangkong University (Social Sciences)*, 22(01),111-119.
- [6] Liu, F., Mi, Q., Aria Abibula. & Jia, J. J. (2024). Research on the teaching mode of integration of theory and practice in public administration courses —— Taking municipal science as an example. *Survey of Education*, 13(22), 83-87.
- [7] Wang, H.J. (2025). Exploring Practical Pathways for Digitally Empowered Talent Cultivation Models in Public Administration. *Journal of Jining Normal University*, 47(04), 100-103.