Article

The Teaching Reform of the Course Educational Psychology under New Liberal Arts: A Perspective from a Dual-Drive Model of Digital Technology Empowerment and Interdisciplinary Integration

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Abstract: In the context of China's New Liberal Arts (NLA) initiative, the traditional Educational Psychology (EP) course faces significant pedagogical challenges, particularly in aligning foundational knowledge transmission with the advanced cultivation of interdisciplinary competencies and digital literacy required in the modern era. To address these critical gaps, this study proposes an innovative dual-drive model that systematically integrates digital technology empowerment and interdisciplinary integration to guide comprehensive course reform. The proposed theoretical model emphasizes the establishment of competence-based course objectives, the incorporation of interdisciplinary knowledge within the core teaching content, the implementation of digitally enhanced teaching methods, and the deployment of a highly comprehensive "formative + summative" assessment system. To validate the effectiveness of this approach, an empirical evaluation was conducted, comparing an experimental group instructed using the dual-drive model with a control group following conventional teaching methods. The quantitative and qualitative results demonstrate statistically significant improvements in the experimental group's classroom performance, assignment quality, final examination results, and overall student competence. Furthermore, the findings strongly suggest that the dual-drive model effectively transforms EP teaching from a traditional knowledge-centered paradigm to a dynamic, capacity-oriented framework. Ultimately, this research provides a highly operational and scalable framework for innovating traditional academic courses under the NLA initiative, thereby successfully cultivating interdisciplinary talents equipped with profound humanistic literacy, rigorous scientific thinking, advanced digital skills, and exceptional innovative capabilities.

Keywords: new liberal arts; educational psychology; digital empowerment; teaching reform; interdisciplinary integration

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1. Introduction

The "Six Excellence and One Top-Notch" Plan 2.0 initiated by the Ministry of Education of PRC explicitly calls for "developing new engineering, new medical sciences, new agricultural sciences, and new liberal arts (NLA), thereby igniting a 'quality revolution' across higher education institutions nationwide." This plan not only charts the course for the construction and development of NLA, but also provides an action framework for curriculum system innovation and instructional reform in traditional disciplines. The construction of NLA aims to enhance the quality of talent cultivation in China's higher education, striving to create and highlight an influential "Chinese brand" in this field [1, 2]. Against this macro-level backdrop, the course Educational Psychology (EP), in responding to the developmental imperatives of NLA construction, needs to fundamentally address existing challenges by transforming course goals from mere

knowledge acquisition to comprehensive competence cultivation, shifting teaching content from single-disciplinary knowledge to interdisciplinary integration, reforming teaching models from reliance on individual comprehension to digitally assisted learning, and evolving assessment mechanisms from summative evaluation to whole-process evaluation. Through NLA construction, EP teaching can genuinely transition from "knowledge transmission" to "capacity building," effectively cultivating interdisciplinary talents of liberal arts who possess humanistic literacy, scientific thinking, digital skills, and innovative capabilities.

2. Literature Review

2.1. The Connotation and Development of NLA

The concept of NLA was first proposed in 2017 by Hiram College in the United States, primarily referring to comprehensive interdisciplinary learning in which students from different professional backgrounds transcend disciplinary barriers. The "Four New Constructions" initiative proposed by China in 2018 formally introduced the NLA. Relative to traditional liberal arts, the essence of NLA lies in its "newness"—it does not negate traditional disciplines but rather represents an innovative exploration of disciplinary development built upon traditional foundations, embodying both adaptation to China's national conditions and the preservation and innovation of excellent traditional Chinese culture. Traditional liberal arts encompass eight major disciplines: philosophy, economics, law, education, literature, history, management, and art. The core concept underlying NLA is to promote innovative development of traditional liberal arts through interdisciplinary integration. Specifically, NLA can be characterized as the "Five-fold Integration"—integrating humanities with sciences, humanities with social sciences, Chinese with Western perspectives, knowledge with practice, and ancient with contemporary wisdom. Therefore, as a new model and approach emerging at a certain stage of the development of liberal arts knowledge, NLA shapes the production and reproduction of liberal arts knowledge into the characteristics of highly integrated, informatized, and digitalized knowledge. Through NLA construction, students' sense of responsibility and innovative spirit are continuously enhanced, while the talent development becomes more diversified, comprehensive, intelligent, and internationalized, driven by new concepts, methods, and technologies [3].

In recent years, scholars in China have conducted extensive and systematic explorations of curriculum reform in the context of NLA. At the theoretical level, researchers have engaged in in-depth discussions concerning the origins, background, conceptual characteristics, construction pathways, and paradigmatic changes of NLA, forming a relatively systematic cognitive framework. Specifically, some scholars elaborated on the pathways for NLA construction from such aspects as talent cultivation, academic research, social service, and liberal arts management. Others proposed concrete construction measures including conceptual reconstruction, structural restructuring, model reengineering, and platform building by grasping the characteristics and developmental directions of NLA. Another perspective posited that NLA construction bears the epochal missions of restoring humanistic spirit, revitalizing Chinese culture, promoting liberal arts integration, and rejuvenating liberal arts education from the perspectives of contemporary significance and Chinese value. At the practical level, various universities have rolled out specific construction plans for NLA in disciplinary development, exploring and accumulating rich experience in curriculum system restructuring, instructional reform implementation, and talent cultivation model innovation [4]. Notably, the slogan "recognizing change, responding to change, and seeking change" has been advocated for the future development of foreign language studies in light of NLA connotations, emphasizing the cultivation of internationally-oriented interdisciplinary talents characterized by "one mastery with multiple competencies" and "one specialty with multiple skills." Additionally, with respect to the cultivation of journalism and communication talents, journalism education under the

NLA framework must strive toward the goals of first-class undergraduate programs, disciplines, courses, faculty, quality assurance, and talents, thereby cultivating journalism professionals with international perspectives and Chinese characteristics.

Since the concept of NLA originated abroad, and its most important developmental feature is the integration of liberal arts and sciences to form "arts-sciences intersection," scholars abroad have also conducted research in this field and achieved some accomplishments. For instance, some researchers concentrated on designing a model for the NLA, highlighting the integration of traditional liberal arts with modern technologies and professional skills to foster interdisciplinary thinking and innovation. Others explored the globalization of liberal arts education in the twenty-first century, stressing the need to cultivate cross-cultural understanding, global awareness, and international competitiveness among students [5, 6]. Expanding the scope of liberal arts, some argued that entrepreneurship can be considered a new liberal art, framing it as an educational practice that develops creativity, critical thinking, and problem-solving skills. Another perspective examined whether design thinking represents a kind of NLA, highlighting its role as an interdisciplinary methodology that nurtures innovative thinking, collaboration, and the ability to tackle complex problems.

2.2. Studies on EP Teaching Reform under NLA

In the field of EP teaching reform, Chinese scholars have primarily focused on educational concepts, teaching models, curriculum-based ideological and political education, and case-based teaching. To be specific, some researchers, drawing on the OBE concept and constructive alliance teaching methods, have emphasized ability-oriented curriculum reform. However, research on EP teaching reform that integrates the NLA perspective remains relatively scant [5, 7]. For example, some studies have explored the development of psychology courses under the NLA background from the perspective of curriculum-based ideological and political education, focusing on the educational function of EP. Other research, in accordance with the developmental imperatives of NLA construction, has discussed the application of blended learning in psychology courses and achieved positive outcomes in areas such as learning effectiveness enhancement, ability improvement, and comprehensive competence development. Nevertheless, present research has superficially touched upon digital technology application and interdisciplinary integration, failing to integrate the two into a synergistic reform impetus. Moreover, there is a notable scarcity of systematic and operationally feasible reform plans, and the transition pathway between theory and practice remains unclear, warranting further exploration.

In the meantime, international research on EP teaching tends to center on constituting a research landscape, spanning from historical foundations and theoretical construction to practical application, technological integration, and even interdisciplinary extension. For example, early studies laid the historical groundwork, emphasizing systematic study of learning processes and measurement of educational outcomes. Other research underscored the distinctive contributions of EP in linking theory to classroom practice, while some focused on applying psychological principles to enhance students' motivation, learning strategies, and instructional effectiveness. Comprehensive overviews of core EP concepts have also been provided, bridging theory and practice, while contemporary research has emphasized cognitive, metacognitive, and self-regulated learning. Modern perspectives have incorporated advances in technology and evidence-based instructional methods, and some studies have extended the field conceptually through educational semiotics, exploring the role of signs and symbols in learning. Collectively, these works portray EP as a dynamic discipline that informs both theoretical understanding and practical strategies for effective teaching and learning. However, these studies still pay insufficient attention to the systematic integration of digital technology application and interdisciplinary integration, leaving room for further deepening. What is more, the teaching reform experience abroad requires localization to China's educational context and national conditions and thus cannot serve as direct references.

Hence, based on these considerations, this study proposes a dual-drive model from the perspective of integrating digital technology application and interdisciplinary integration, aiming to provide an operational paradigmatic reference for the innovative development and reform of traditional EP courses within the NLA context [3, 8].

3. The Dual-Drive Model of Digital Technology Empowerment and Interdisciplinary Integration

Examining the traditional EP class from the perspective of NLA reveals several practical predicaments. First, there exists a serious theory-practice gap as the course content emphasizes systematic instruction of EP theories, yet students' ability to apply this knowledge to solve practical problems in authentic educational contexts remains inadequately developed, resulting in a pronounced "separation of learning and application" phenomenon. Second, the course content has long been confined to knowledge within the discipline of EP, lacking an integration with other disciplines, thus failing to meet the need of talent cultivation for enhancing students' integrative knowledge. Third, in the face of the momentum toward educational digitalization, the technology application in EP class remains relatively lagging, with digital technology use in EP instruction still at a superficial level, such as slide presentation, video display, and so on, failing to achieve a deep reconstruction of teaching methods and models through technological application. Finally, the evaluation of learning outcomes in EP has long relied on the feedback of final examination, with a greater emphasis on knowledge than on competence, and has not developed a comprehensive assessment from perspectives of multidimension and multi-subject evaluation. Therefore, EP course needs to actively seek changes, employing digital technology empowerment and interdisciplinary integration as the dual-drive forces for the course reform. The synergistic interplay of these two forces holds the potential to fundamentally transform the course ecology of EP and construct a more open, integrative, and holistic instructional system, thereby cultivating high-quality innovative talents better equipped to meet contemporary and future development needs.

The core of digital technology empowerment in course teaching reform lies in integrating digital technologies—represented by the Internet, big data, artificial intelligence, cloud computing, and so on—into the teaching process and systematically redesigning instructional design. As a product of interdisciplinary convergence that integrates multidisciplinary knowledge, the rise of digital technology signifies the entry of science and technology into a stage of high-quality development in the new era. At the technological level, digital technologies provide new tools and means for teaching, capable of reshaping instructional forms. At the educational level, their empowering role transcends mere tool application, driving deep-seated changes in instructional models to break through the limitations of traditional knowledge transmission and make course content more integrated and cutting-edge. Integrating digital technologies into the EP class not only achieves the organic integration of arts and sciences disciplines but also manifests the innovative development of traditional EP course in the NLA context.

Interdisciplinary integration refers to the process of crossing disciplinary boundaries to establish connections and integrate knowledge across different disciplines. It is manifested not only in the increasing breadth and depth of interdisciplinary intersections but also in the integration of cross-disciplinary thinking and systemic dialectical thinking. As an interdisciplinary field combining psychology and education, EP itself is a vivid illustration of the value and potential of interdisciplinary integration. In the context of NLA construction, EP can further enrich the knowledge connotation of the course, focus on cultivating students' abilities to integrate diverse thinking and solve educational problems from multiple perspectives, and effectively enhance students' capacity to apply composite knowledge in using theory to guide practice.

Based on the above analysis, digital technology and interdisciplinary integration are not parallel lines but rather constitute a dynamic system for course teaching reform that can mutually reinforce and synergistically drive change (see Figure 1).

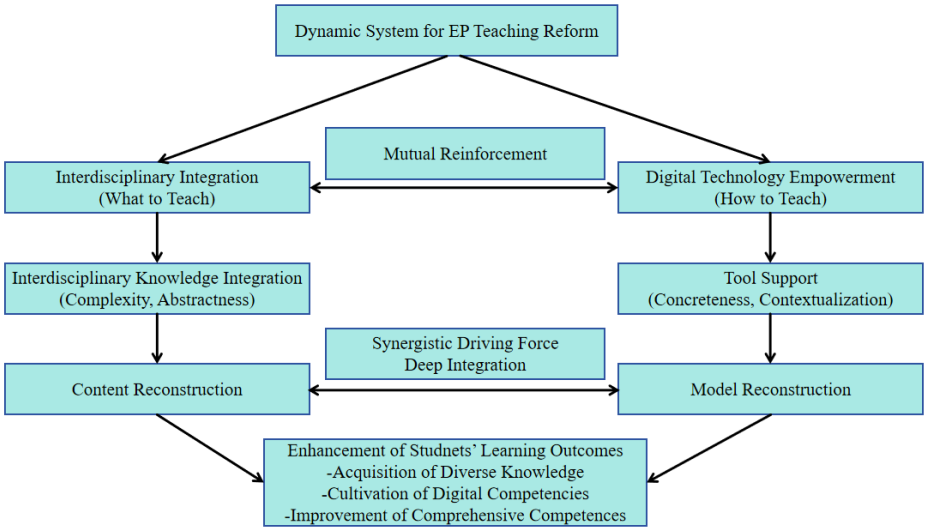

Figure 1. The Dual-Drive Model of Digital Technology Empowerment and Interdisciplinary Integration

On the one hand, the knowledge integration brought by interdisciplinary integration increases the complexity and abstraction of course content, while the tool support provided by digital technologies can reduce learning difficulty through visualization, personalization, contextualization, and other means, making the integration and presentation of interdisciplinary knowledge more convenient and efficient, thus enhancing students' learning outcomes [9, 10]. On the other hand, interdisciplinary integration focuses on "what to teach," while digital technology emphasizes "how to teach." Their deep integration enables students to achieve comprehensive competence enhancement through the process of acquiring diverse knowledge and exercising digital abilities.

4. Reform Pathways and Effectiveness Analysis of EP under NLA

4.1. Reform Pathways

4.1.1. Shifting Course Objectives Towards Competence-Based Orientation

Traditional EP class has long suffered from the prominent problems of overemphasizing theoretical knowledge transmission while neglecting practical ability cultivation. To address this dilemma, the dual-drive model should shift course objectives from a knowledge-based to a competence-based orientation, transforming "separation of learning and application" into "learning for application." In the knowledge objective system, the interdisciplinary perspective should be integrated, adding interdisciplinary cognitive objectives and focusing on cultivating students' interdisciplinary integrative thinking to effectively solve complex problems in authentic educational settings through comprehensive application of EP expertise and interdisciplinary knowledge. In the ability objective system, with digital technology empowerment at its core, the emphasis ought to be placed on cultivating students' digital technology application abilities and innovation capabilities. Specifically, students should leverage digital technologies such as artificial intelligence to independently complete problem diagnosis and the design and implementation of personalized solutions for authentic educational scenario cases, thereby achieving a leap in capability from theoretical understanding to practical application. In the affective objective system, grounded in the fundamental task of "fostering virtue and nurturing talents," the unique value of humanities and social sciences in NLA construction should be fully leveraged. Thus, the emphasis needs to be placed on elevating students' spiritual and cultural horizons, guiding them to establish values centered on scientific truth-seeking and the unity of knowledge and action, and cultivating profound educational sentiments and humanistic spirit, thus aligning

knowledge accumulation with value growth [11, 12]. Through the deepening of course objectives, the dual-drive model is expected to provide a solid support for cultivating interdisciplinary talents who possess professional competence, digital innovation capabilities, and humanistic sentiments within the context of NLA construction.

4.1.2. Highlighting Interdisciplinary Integration in Teaching Content

NLA possesses a distinctly interdisciplinary character, and this cross-disciplinary integration injects new structural inspiration and innovative vitality into the knowledge content of EP. Based on the deepened course objectives and within the dual-drive model, the teaching content should transcend existing disciplinary boundaries, transitioning from closure to openness and integration, and restructure the knowledge framework. For example, when teaching abstract EP theories, scientific knowledge can be integrated into classroom instruction through case studies. This approach not only enhances the engagement of knowledge presentation and concretizes abstract concepts but also fosters scientific thinking and literacy among liberal arts students, encouraging their curiosity to explore domains beyond the liberal arts. Additionally, interdisciplinary integration allows for the organic incorporation of ideological and political education into EP instruction, achieving the unity of knowledge transmission and value guidance through elements such as patriotic sentiment, professional ethics for educators, and cultural confidence. Furthermore, leveraging digital technologies enables rapid searching and integration of knowledge information. Artificial intelligence can provide learners with diverse educational cases, facilitating the progressive construction of learning content from foundational logic upward, helping students develop comprehensive cognitive frameworks and deepening their learning experience. Under the synergistic effect of the dual-drive model, digital technology empowerment reduces the technical barriers to interdisciplinary integration, while interdisciplinary integration supplies high-quality disciplinary content for digital technology applications. Together, these elements not only optimize the quality of teaching content in EP but also advance the qualitative development of EP courses in alignment with NLA principles.

4.1.3. Integrating Digital Empowerment into Teaching Model

Digital technology empowerment offers new possibilities for teaching model innovation. The blended learning model integrating online and offline modalities can transform simple teacher-student interactions into human-machine collaborative learning scenarios, effectively enhancing students' learning efficiency. Real-time data collection and feedback not only make instant collaboration among learning groups more convenient and efficient but also enable remote collaboration, breaking through the spatiotemporal boundaries of learning. By leveraging digital technology empowerment, teaching models should actively promote the implementation of personalized learning and differentiated instruction, enabling the educational philosophy of "teaching according to aptitude" to be truly realized. Interdisciplinary integration imposes intrinsic requirements for interdisciplinary integrative thinking. Instructional models should facilitate knowledge transfer among students from multiple perspectives, establishing knowledge connections across different disciplines and connecting the original "isolated islands of knowledge" into "mountain ranges of knowledge". Based on interdisciplinary integration, problem-based teaching methods can be employed to stimulate students' comprehensive inquiry and analysis of EP theories and contexts, while leveraging digital technologies to guide students in effective collaborative learning [13, 14]. Driven by the dual-drive model, the flipped class can be efficiently implemented. Students can independently watch EP micro-lectures before class using digital technologies, complete corresponding knowledge learning, and manage their learning pace. Classroom time is then focused on in-depth teacher-student discussions and problem-solving of contextualized educational cases, with students guided to collaboratively produce systematic learning outcomes using interdisciplinary knowledge. Furthermore, through digital technology empowerment, the course knowledge system can be visualized to help students establish systematic cognitive frameworks. AI teaching assistants can provide

students with round-the-clock intelligent question-answering services, which not only benefits the enhancement of students' digital literacy but also effectively promotes their transition from passive receptive learner to active constructive learner. Through the systematic implementation of the dual-drive model, the teaching model of the EP course is expected to achieve a fundamental transformation from "teaching-centered" to "learning-centered" paradigm, consolidating learners' dominant position and stimulating their creativity within the context of NLA construction.

4.1.4. Focusing on "Formative + Summative" Evaluation

In conjunction with teaching model reform, teaching assessment should move away from relying solely on final examination scores as the primary evaluation criterion. Instead, it should place a greater emphasis on evaluating students' interdisciplinary integration abilities and digital technology application skills. The core of assessment lies in determining whether students can combine these dimensions to address real-world educational challenges and apply creative thinking to design personalized solutions [15, 16]. Additionally, from the perspective of NLA construction, teaching evaluation should incorporate students' humanistic literacy into the framework, focusing on the depth of their educational sentiments and value orientations. Regarding assessment orientation, there should be a shift from prioritizing summative evaluation to balancing formative and summative approaches. By utilizing the data collection and analysis capabilities of digital technologies, dynamic monitoring of students' entire learning process can be achieved, along with timely constructive feedback on their performance to foster sustained motivation for improvement. In terms of assessment participants, digital technology enables a transition from teachers being the sole evaluators to a multi-subject participatory assessment model. Teachers should guide students in using digital tools, such as AI, for self-assessment and peer assessment, transforming the evaluation process into an opportunity for students to reflect on their learning and enhance self-awareness. This dual-drive model shifts teaching assessment from a knowledge-based focus to one centered on competence and literacy, genuinely advancing educational evaluation toward an NLA paradigm characterized by "an integration of technology and humanities" and "an equal emphasis on abilities and competences."

4.2. Effectiveness Analysis

To examine the practical application effectiveness of the dual-drive model in EP course teaching, this study selected one class as the experimental group with the dual-drive model implemented and another class adopting conventional teaching methods as the control group. By comparing the results of formative evaluation (including classroom performance and assignments) and summative evaluation (including final examination scores and overall final grades) between the two groups, the following experiment results were obtained (see Table 1).

Table 1. Results between Experimental Group and Control Group

Dimension	Indicator	Experimental Group (N=31)	Control Group (N=30)	Difference Comparison
Classroom Performance	Mean	75.74	57.4	18.34
Assignments	Mean	90.69	85.03	5.66
Final Examination	Mean	84.55	78.17	6.38
	Excellent Rate(≥90)	25.8%	10%	15.8%
	Mean	85.68	77.50	8.18

Overall Final Scores	Excellent Rate (≥90)	25.8%	13.33%	12.47%

Note: N indicates class size; the difference comparison represents the experimental group value minus the control group value.

As shown in Table 1, the following results were observed. First, in terms of overall performance, the experimental class significantly outperformed the control class after applying the dual-drive model. The formative evaluation results indicate that the dual-drive model played a positive role in stimulating students' classroom participation and improving their assignment quality. Regarding the final examination excellence rate, the dual-drive model demonstrated a significant effect in promoting students' knowledge mastery. With respect to the overall final grade excellence rate, the dual-drive model contributed to facilitating higher-level breakthroughs in students' learning. These findings preliminarily validate the effectiveness of the dual-drive model. In other words, the findings in this study not only provide an operational practical pathway for the innovative reform of EP courses in the context of NLA but also offer empirical evidence for subsequent in-depth exploration of optimization strategies for this model.

5. Conclusion

The construction of NLA not only provides a significant opportunity for the teaching reform of EP but also imposes higher developmental requirements on this course. The dual-drive model of digital technology empowerment and interdisciplinary integration proposed in this study aims to address the practical challenges of traditional teaching and suggests several concrete reform pathways in four key areas: reforming course objectives, teaching content, teaching models, and teaching assessment. However, no course reform is achieved overnight, and the implementation of the dual-drive model also faces challenges, such as the digital literacy of teachers and their ability to collaborate across disciplines. With the rapid advancement of artificial intelligence technology, EP teaching reform will encounter even more opportunities. Guided by the dual forces of digital technology and interdisciplinary integration, the EP course will continue to evolve to better fulfill its mission of cultivating interdisciplinary talents for the modern era.

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