



Disenchantment of Thought: A Review of Empirical Research in Education

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Abstract. Empirical research in education is a significant force for promoting educational knowledge production, serving educational practice, and fostering disciplinary independence. However, the current reverence for empirical research in academia tends toward mystification and ambiguity, causing it to increasingly deviate from the ontological value of pedagogy. To clarify its unique positioning, this article first discusses four basic characteristics of empirical research in education: its empirical nature, situationality, integration, and fuzziness. On this basis, the article "disenchants" the current "quantification" craze, revealing its limitations in methodology and axiology. Furthermore, the article proposes a path for the "re-enchantment" of empirical research in education, advocating for transcending the unilateral worship of technology and method. It suggests organically combining rational thinking, integrative thinking, and reflective thinking to allow empirical research in education to reshape its positioning through self-reflection and carry the requirements of the times for the development of the education discipline.

Keywords: Empirical research in education, Disenchantment, Chinese pedagogy, Autonomous knowledge system.

1 Introduction

Building a strong socialist education nation requires a localized knowledge system rooted in Chinese educational practice. Empirical research in education, with its scientific spirit, fits this call and has become a crucial force for knowledge production and disciplinary independence. However, the current promotion of empirical research often carries tendencies of mystification. Researchers frequently imitate the paradigms of external disciplines like sociology and psychology rather than innovatively combining theory and method based on education's specific characteristics. This "heteronomous" orientation weakens the explanatory power of research regarding practical problems.

If we do not re-examine the theoretical premises of empirical research from the standpoint of pedagogy, it will be difficult to construct an autonomous Chinese educational knowledge system. Only by reshaping its spirit through self-reflection can empirical research become a realistic force promoting educational theory and practice.

2 Basic Characteristics of Empirical Research in Education

In the historical process of social sciences following the natural sciences, empirical research secured a place in research paradigms to maintain disciplinary legitimacy. It adheres to an empiricist stance, asserting that knowledge originates from observable facts, and employs quantification and logical reasoning to ensure verifiability. By establishing a rational order, it views social phenomena as objects to be measured and predicted. However, as a discipline centered on "humans," education involves experiences imbued with value and culture. While inheriting rational logic, empirical research in education presents unique characteristics defined by the complexity of the educational context.

2.1 The Empirical Nature of Empirical Research in Education

The "paradigm revolution" in education is not only a shift in educational research methodology but also a paradigm innovation in "beliefs, values, technical means, etc." (Ouyang, 2001). Proponents argue that only observable sensory perceptions can serve as the foundation of theory. However, contemporary experience has evolved from natural sensory experience to "artificial experience" created through systematic observation and controlled conditions (Chen, 2007).

In empirical research, educational experience is no longer merely a naturally occurring phenomenon but an "artificial educational experience" constructed through scientific procedures. Researchers actively construct observable contexts, setting variables and controlling environments to ensure objectivity. This transformation from natural to artificial experience marks a dual shift in epistemology and methodology: experience is not passive reception but the result of scientific construction. This standardized experience is currently viewed as a primary driver for the scientification of pedagogy.

2.2 The Situational Nature of Empirical Research in Education

Empirical research derives its experience from the educational context—the specific field where teacher-student interactions and meaning generation occur. This context possesses a dual nature of universality and particularity.

On one hand, the context possesses universality, allowing researchers to simplify complex realities into variables. By exploring causal paths and mediating roles, researchers transform educational experience into measurable "scientific experience," providing empirical support for revealing educational laws (Xiao, 2000). On the other hand, the context possesses particularity. It is the site of meaning generation, pointing to the cultural, spiritual, and subjective experiences of subjects. Educational activities are deeply rooted in a specific life world influenced by socio-cultural traditions and individual histories. This uniqueness makes it impossible to completely control variables as in natural sciences. Researchers face a world containing both measurable

behaviors and unquantifiable meanings, requiring a balance between the universal and the special.

2.3 The integrative Nature of Empirical Research in Education

The integrative nature is reflected in both disciplinary attributes and methodology. First, as Tony Becher classified, pedagogy is an "applied soft discipline" with loose boundaries, relying on interdisciplinary knowledge production (Jiang, 2008). Psychology explains learning behaviors through cognitive mechanisms; brain science reveals neural bases; and sociology aids in understanding the interaction between educational systems and social structures. Second, methodology involves pluralistic borrowing. To achieve scientific rigor, education has introduced surveys from sociology, experimental tools from psychology, and econometric models from economics. These methods expand data collection and logical inference capabilities. This integration is an inherent requirement for the discipline's development, promoting the evolution of pedagogy from a speculative humanities discipline to a comprehensive social science.

2.4 The Fuzziness of Empirical Research in Education

Unlike natural science, where controlled conditions yield high certainty, empirical research in education often only supports probabilistic causal inference due to the complexity of the context and the indirectness of methods (Feng, 2012).

This fuzziness manifests in two areas. First, in variable relationships, the complexity of educational contexts makes it difficult to isolate variables. Even with advanced methods like structural equation modeling, latent variables and endogeneity cannot be fully eliminated. Second, in data collection, methods like observations and questionnaires naturally carry biases, such as selection bias and simultaneity bias. While researchers use validity testing and mixed methods to mitigate these, they remain approximate corrections rather than precise rectifications. However, this fuzziness is not a weakness. It reserves space for humanistic reflection, allowing research to explore macro laws while understanding micro-level values and meanings. It is in this boundary that the uniqueness of educational research is manifested.

3 The Disenchantment of Empirical Research in Education

While empirical research has promoted the scientification of education, the reverence for it has exposed limitations when scientific rationality is viewed as the sole standard. In education, facts possess dynamic generativity, and evidence is often subjective "second-hand material". Without reflecting on the nature of these facts, research risks falling into a "quantification craze." This section aims to disenchant this trend by revealing potential crises in spirit, method, and practice.

3.1 The Generalization of Technical Rationality

Technical rationality, as defined by Herbert Marcuse, refers to a framework centered on efficiency and control, where reason becomes a tool. Marcuse argued that this rationality can lead to a "one-dimensional society" lacking critical thought (Marcuse, 1988). In educational research, this generalization is particularly prominent.

First, technical rationality drives the belief that only a scientific orientation maintains disciplinary legitimacy. Influenced by the monopoly of science, researchers view pedagogy as a discipline requiring verification by scientific means. This leads to a passive transformation where research problems are disciplined by the "scientific" paradigm rather than internal logical development. Second, there is an obsession with predictability. By simplifying contexts into calculable objects, researchers attempt the "mathematization of nature" (Wu, 2001). This reliance on technology replaces human reason. When problems persist, researchers often blame insufficient scientification rather than the limitations of the method itself. Consequently, "method supremacy" prevails, marginalizing theoretical reflection and value concern.

3.2 The Dilemma of Theoretical Creation

Positivism emphasizes the verifiability of experience and knowledge accumulation, rejecting theoretical thinking not proven by experience. Within this constraint, researchers are limited to empirical facts, making it difficult to generate original theories from an a priori perspective. Currently, many researchers merely mimic Western theoretical frameworks (e.g., embodied cognition) in verification studies. This "old wine in new bottles" approach creates path dependence and inhibits innovation.

History shows that foundational educational theories (e.g., Rousseau, Dewey) often carried a priori and utopian colors that modern scientific standards might reject. As Kant noted, "Although concepts and principles are not derived from experience, they can determine experience." Theory should reserve space for thinking beyond experience. If research blindly insists that only empirically proven knowledge is valid, it rebels against the discipline's foundation and stifles the creativity of thought.

3.3 The Alienation from Educational Practice

Empirical research faces a growing tension with practice. Although intended to guide practice, research often fails to respond to Chinese educational realities due to the nature of knowledge diffusion.

The "scientification" of research is often simplified to a reliance on numbers and models, leading to "abstract practice" detached from vital contexts. Researchers pursue "exquisite methods" and large-scale data, which may appear comprehensive but are drawn away from meaning. This widens the gap between theory and practice. Furthermore, this method worship alienates frontline teachers. The highly technical logic is often inaccessible to them, and the conclusions lack operable guidance. Teachers' professional voices are marginalized as they are forced to convert vivid experiences into

data to be recognized. This severs the link between research and experience, causing education to deviate from its people-oriented core.

4 The Path to Re-enchantment of Empirical Research in Education

"Disenchantment" alone is insufficient; without "re-enchantment," research may become a mechanical arrangement of facts. Re-enchantment does not deny scientific methods but seeks a value regression and rational integration, restoring the spiritual core of educational research.

4.1 Integrating Rational Thinking into Empirical Research in Education

Kant distinguished between theoretical reason (knowledge of the phenomenal world) and practical reason (moral and ideal concerns), arguing that practical reason takes precedence. However, modernization has elevated theoretical reason while marginalizing the practical.

Re-enchantment requires integrating complete rationality. Since education involves values and culture, practical reason must re-enter the research horizon. Researchers must reposition themselves not merely as scientists discovering laws, but as humanists holding a "heart of care and wisdom" (Liu, 2003). The essence of pedagogy is culturally involved and value-related (Shi, 2002). By combining knowledge judgment with educational reflection, research can explore the cultural logic and value dimensions behind education. This balance ensures research remains rigorous without losing its understanding and care for humans. Moreover, integrating rational thinking does not imply abandoning scientific methods or empirical evidence. Rather, it requires educational researchers to recognize that educational knowledge contains both factual and value dimensions. While theoretical reason helps researchers explain educational phenomena through evidence and logic, practical reason enables them to evaluate whether educational activities contribute to human development and social progress. Only when these two dimensions are considered together can empirical research move beyond technical calculation and become a meaningful intellectual activity that responds to the fundamental questions of education.

4.2 Integrating Integrative Thinking into Empirical Research in Education

To prevent the fragmentation of the educational knowledge system caused by isolated empirical studies, research must adopt integrative thinking. The goal is to construct an autonomous knowledge system that systematically reflects Chinese practice (Li & He, 2025).

Traditional pedagogy focuses on abstract concepts and "reasoning," while empirical research focuses on operational definitions and variables. This divergence leads to

fragmentation. Integrative thinking requires researchers to place specific questions within the overall disciplinary framework. Research should answer not only "what is the educational fact" but also "what does the fact mean." This approach strengthens disciplinary consciousness, linking results to theoretical traditions and preventing research from becoming rootless technical exercises.

In addition, integrative thinking is particularly important for the construction of an autonomous Chinese educational knowledge system. Educational realities in China are shaped by unique historical traditions, cultural values, and policy environments. If empirical research merely accumulates fragmented findings without connecting them to broader theoretical discussions, it will be difficult to generate educational concepts and explanatory frameworks with local significance. Therefore, researchers should consciously transform empirical findings into theoretical resources, promoting dialogue between individual studies and the overall development of educational theory. In this way, empirical research can contribute not only to knowledge accumulation but also to knowledge integration and innovation.

4.3 Integrating Reflective Thinking into Empirical Research in Education

Empirical research must reclaim its reflective spirit. Unlike natural science, where failure serves to refine accuracy, "failure" in educational research often reveals the complexity and openness of life activities. "Meaning does not exist in experience. On the contrary, only experience that has undergone reflective understanding is meaningful." (Grumet, 1992). Researchers should not view data errors merely as methodological defects but as reflections of educational reality. Recognizing the vitality of teacher-student interactions and the agency of subjects allows research to move from methodological "refinement" to "deepening" at the level of meaning.

Furthermore, reflective thinking encourages researchers to critically examine the assumptions embedded in their own research processes. The selection of research topics, the construction of variables, and the interpretation of findings are never completely neutral activities. They are influenced by researchers' theoretical perspectives and value commitments. Through continuous self-examination, educational researchers can become more aware of these influences and avoid reducing educational phenomena to merely technical problems. Such reflection enables empirical research to preserve sensitivity to the complexity of educational life and strengthens its capacity to generate meaningful educational understanding.

5 Conclusion

The "disenchantment" of empirical research in education signifies not a denial of its scientific attributes but a pursuit of "re-enchantment" at a higher level. To address the imperative of building a strong education nation, research must move beyond the mechanical measurement of empirical facts to embrace the ontological and cultural essence of education. Through the synthesis of rational, integrative, and reflective

thinking, empirical research can transcend the limitations of technical rationality, fostering a dynamic equilibrium between scientific rigor and humanistic concern. Ultimately, this approach enables empirical research to ground itself deeply in Chinese educational practice, uncovering the profound significance of educational phenomena and offering robust theoretical support for the development of an autonomous Chinese educational knowledge system. At the same time, the future development of empirical research in education should not be confined to methodological innovation alone. More importantly, it should continuously strengthen its dialogue with educational philosophy, educational history, and educational practice, thereby enriching its theoretical foundations and cultural consciousness. In the context of accelerating educational transformation and technological change, empirical research must remain attentive to emerging educational realities while preserving its critical and reflective spirit. Only by maintaining this balance between scientific inquiry and educational value can empirical research continue to contribute to the renewal of educational theory and the sustainable development of educational practice in China.

The discussion in this article suggests that the significance of empirical research lies not merely in producing measurable evidence, but in providing a bridge between educational reality and educational understanding. As educational problems become increasingly complex and interdisciplinary, the mission of empirical research should extend beyond explanation and prediction toward interpretation and enlightenment. Through the continuous integration of rational, integrative, and reflective thinking, empirical research in education can better respond to the practical demands of the new era and contribute to the construction of a more autonomous, confident, and influential Chinese educational discourse system.

References

1. Ouyang, K. (2001). *Philosophy of Humanities and Social Sciences*. Wuhan University Press, Wuhan. <https://search.worldcat.org/zh-cn/title/1462564465>.
2. Chen, J. (2007). *The Great Ideas of the West*. Huaxia Publishing House, Beijing. <https://www.hxph.com.cn/allBooks/2893.jhtml>.
3. Xiao, C. (2000). *Characteristics of the Educational Context*. <https://kns.cnki.net/reader/flowpdf?invoice=RILbIqJSuLwzYIO2G15bCTNYQH-gELmUcyRCt2AUD6xAusakB08jRu906ixK6dQIH0JxhdQ5j4KqZyxZnPEfOXW6dRbuRbaTd7q2u5zHwoZdICiGasyRRpyayKHfR9BefWGzmb0KVkRI-aJU8c7roqfYHBYog%2BabzGQedCoVATc44%3D&platform=NZKPT&sourcetype=nxgp&product=CJFQ&filename=ZXXG200002017&tablename=cjfd2000&type=JOURNAL&scope=trial&cflag=overlay&dflag=pdf&pages=&language=CHS&trial=&nonce=60C00CE9D2D14A1ABE546D61D5E51E44>.
4. Jiang, H. (2008). An analysis of Tony Becher's disciplinary classification and its value. *Journal of Higher Education*, (5). https://kns.cnki.net/kcms2/article/abstract?v=tjV0JOK-NcjAJhFHB7hFCaSQsGapE1kgt0rmAQenOdyY3YNXwkcjU5axkPOT-qKITrjEmDBxZjihbM1aYHasY3owJ3koFD4YsyuE8QwMqCYKmnz-YT-tch0DuNcN16Ma-M9jWxVZAA4cB4OzrFFBdCWYWG_x2GIwiYKI6nsuJfPyRW6LbyEW130Rg==&uniplatform=NZKPT&language=CHS.

5. Feng, X. (2012). Empirical Research on Education: Positivism and Ex-Post Explanation. *Educational Research*, 33(4), 18–22. https://kns.cnki.net/kcms2/article/abstract?v=tjV0JOkNcjA193CUdd1JCbQLavdKbwqZNtoK8fjXR4NKT-mbqJy6BSFReLhxVHK8rnAemD1bTEDW_02V1_ntIzVyaOsQHqnwnnLa83UL_rb2_puXjGW5by8lx1BBPockI1rWiSb2-ymEIFC9e7Qc0zUGxCNR7p7Mu-aaCAS2Vsd6Gl8zwwqelg==&uniplatform=NZKPT&language=CHS.
6. Marcuse, H. (1988). *One-dimensional man* (X. Zuo et al., Trans.). Changsha, China: Hunan People's Publishing House. <https://search.worldcat.org/zh-cn/title/191921690>.
7. Kang, S., Yao, M., & Xu, X. (2023). The Diffusion Model of Educational Scientific Knowledge and Its Limits: Focusing on the American Educational Research Association (1902–1922). *Journal of Educational Studies*, 19(1), 195–208. <https://doi.org/10.14082/j.cnki.1673-1298.2023.01.017>.
8. Wu, G. (2001). Science and humanities. *Social Sciences in China*, (4), 4–15. https://kns.cnki.net/kcms2/article/abstract?v=tjV0JOkNcjA7GLuN4ju7iXNlinYTJH-FUPmkTlxIYzIRl4GYQyFib8hH6_LcnA0Yf6f8MSwWl0cji259pGfUjDSxkpkZ-SpZoT_RW-bReRdLIA_f0QIKHNSaD8CI_MI1IXb_dttKTrND59QHT8GsKaHJuzeeJSik3ccctx09HgMiBaCsXSR4AwNg==&uniplatform=NZKPT&language=CHS.
9. Liu, T. (2003). From “Persuasion” to “Enlightenment”: Two Paradigms of Educational Research. *Journal of Hebei Normal University (Educational Science Edition)*, (3), 37–41. <https://doi.org/10.16783/j.cnki.nwnus.2003.05.004>.
10. Shi, Z. (2002). On the Cultural Character of Pedagogy. *Educational Research*, (3), 19–23. https://kns.cnki.net/kcms2/article/abstract?v=tjV0JOkNcjCv5S-SBwNlvYI5JjXlgmP6h61iPlj0W2j7moBSeky3R-v1xHQ2TEVxIXgigPWs4Ek-SNpto2W6zXSiiqfW1Is-KyFlvH6F13H8A06S5CMqC8k_YQNYjJUCI3_HkdZ_jb0Y_Eqj8CsVOF-heW4E3zDpttm4E225FMCiprmfxHqQYvJw==&uniplatform=NZKPT&language=CHS.
11. Li, H., & He, X. (2025). Problem Representation and Realization Path of Constructing the Autonomous Knowledge System of Chinese Pedagogy. *Contemporary Educational Science*, (3), 3–13. <https://doi.org/10.3969/j.issn.1672-2221.2025.03.001>.
12. Grumet, M. R. (1992). Existential and Phenomenological Foundations of Autobiographical Methods. In: Pinar, W. F., & Reynolds, W. M. (eds.) *Understanding Curriculum as Phenomenological and Deconstructed Text*, p. 32. Teachers College Press, New York. <https://search.worldcat.org/zh-cn/title/24218883>.

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