

Pedagogy: System Science as the Foundation for an Immature Science

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Abstract

Since the field of pedagogy first began, academics in the field have been preoccupied with questions regarding how scientifically sound it is. The many interpretations of what science is and how it should be used are the source of a dispute that has been going on for over two hundred years now regarding whether or not anything should be considered scientific. The progression of scientific knowledge is both historical and ongoing. The breadth and complexity of its changes are reflected in four intricate modifications that it undergoes: community structure, social interactions, the knowledge hierarchy, and contemporary system science. When seen through the lens of traditional science, the fact that teaching can be categorized as a science is self-evident. Pedagogy, on the other hand, possesses the characteristics of system science when viewed through the lens of current science. These characteristics include universality, nonlinearity, unpredictability, feedback, and self-organization.

The incorporation of system science into teaching will result in the formation of a comprehensive and intricate way of thinking. However, acknowledgment for system science is still in its early and fundamental stages. This is true regardless of whether theory or practice is being considered, as seen by the unsystematic examination of contents and techniques, low quality of research, and shallow level of application. Consequently, in this sense, pedagogy might be considered an underdeveloped scientific discipline.

Keywords: *Pedagogy, Curriculum, Education system, Globality, Immature Science.*

Introduction

Since Johann Herbart established "Pedagogics of Science" about two hundred years ago, scholars in the field of pedagogy have been debating whether or not pedagogy can be scientifically supported. As a result, there are now two schools: the scientific one, and the nonscientific one. The beliefs that are held by the science group are as follows: the purpose of the research contents of pedagogy is to establish a rationalistic, systematic, and hierarchical knowledge structure; therefore, it is considered scientific. Because positivism is a philosophical framework, its research methodology focuses on obtaining precise results by means of accurate proof. This method can be considered scientific since, on the basis of experimental evidence, it is conceptually similar to the physical method. [1]

The objective of this study's research is to derive normative principles from social history and the philosophy of life. It investigates human actions, which are considered to fall under the purview of the social sciences. Therefore, pedagogy can be considered a branch of science. Another school of thought that considers pedagogy to be unscientific contends that the object of study in the field of pedagogy is distinct from the object of study in the scientific community. In contrast to the quantified and objective findings of science, the purpose of pedagogy is to appease the human spirit and morals from the inside out. In addition to this, the study of

pedagogy cannot be conducted without the inclusion of social studies. Because it is so evident that it lacks any peculiarities, we cannot call it a science. In our schools, we are never taught how to be proud of one's own self, one's own people, one's own languages, and one's own heritage; we are never taught the importance of "good karma," as well as the importance of being honest, polite, sincere, punctual, helpful, disciplined, and culturally literate. We are also never taught how to make judgments based on common sense or the value of civic virtues in our lives.[2]

The varied conceptualizations of what "science" refers to are the root of the disagreement. The birth and progression of "science" has been marked by four distinct transformations: initially, "science" refers to information and the system of information; next, "science" refers to social activities; finally, "science" refers to community organization; the most recent period is "system science." Through these four transitions, science arrives at an understanding of activity at every level, from the individual to the societal, and from the stationary to the in motion.

The scientific nature of teaching will be evaluated with reference to the working definition of science. To begin, pedagogy can be considered a science when viewed through the lens of the definition that states "science is organized systematic knowledge." This is due to the fact that each component of pedagogy, including the history and evolution of topics including educational goals, curriculum, education and society, teaching, education and culture, the interaction between teachers and students, education and the economy, classroom management, etc. Metaphysics as well as practicality, theory of decoding and theory of comprehension, social theory and individual theory, and theory of substance and theory of persons are all opposed to one another in the discipline of pedagogy. With nearly two centuries of experience, pedagogy has amassed a wealth of knowledge, some of which is of relative integrity; as a result, pedagogy is deserving of the appellation "science." [3]

Second, pedagogy can be considered a science if one takes the view that "science is cognitive activities," as it includes not only the management of educational administration and the formulation of educational policy but also teaching, the creation and implementation of curriculum, the management of students, and the study of students. Because of this, it is appropriate to call education a science. According to the theory that "science is a social system," educational institutions are subsystems of the larger social structure. Education is a social science since it is an integral part of society. Pedagogy, as a branch of the social sciences, is consistent with the ideals and methods of science.

However, it cannot declare pedagogy a science because it only generally acknowledges pedagogy at the traditional level. In light of system science, we ought to reconsider the effectiveness of education.

As macro-education should be a multifaceted, open, and all-encompassing system, pedagogy is a system.

A vast system underlies educational science.

Education thus embodies every characteristic of the system.

1. Globality

An education system is whole when all of its subsystems work together to produce a full framework, bringing wholeness into action. The idea of the human being's overall development, for instance, is a group notion in the context of education. It shows up in the following ways: each character exhibits the unification of several traits like virtue, wit, PE, beauty, and technique (work), which together create a "system architecture". A national education system's "target architecture" also includes fostering the growth of everything civil in a comprehensive manner. Education is a system, it goes without saying, and it should provide students with a solid foundation in the humanities, social sciences, and natural sciences. It is given globality only for the purpose of mastering knowledge. [4]

2. Nonlinearity

The components of the inner educational system interact with one another and with one another, creating a new group effect that is considerably distinct from that of individual portion. Each element of the educational system can have a synergistic and coherent impact as a result of the interplay of nonlinearity, and they can also go through mutagenesis before establishing order through synergy, competency, adjustment, growth, as well as decline. Hierarchy, polycell, multifunction, and various objectives are just a few of the many types of components that make up the education system. All of these components are arranged in a pattern called a two-way or multidirectional structure rather than a simple linear link that observes causal association. Furthermore, the nonlinearity of the educational system demonstrates the ambiguity of both knowledge and recognition. Russell adopted the position "All human knowledge is ambiguous, vague, and incomplete."

There is no direct correlation between a student's effort and their academic performance or between their likelihood of success in the future and their level of education. These are two examples of nonlinearity in education equilibrium condition at three (randomness). The advance of many aspects of the educational system is uneven, and there is a variation in the energy potential of their influence on it. The process of popularising education, the quick development of science and technology, including changes in the labour force requirements in the business and society all contribute to a new demand for training materials in higher education. Production services now favor intelligent, higher-quality labor. The curriculum's technological substance should be advanced in the meantime.

In addition, internal reform in education can alter the subject matter, such as lengthening the time spent in school. The aforementioned alterations have the potential to disorder an ordered structure. After the transitional stage, the system reaches a crucial value and starts to trend toward order. 4Self-organization. The complex educational system has a structure, purpose, and processes that direct educational resources in a particular environment along a preset course. For example, there are curriculum systems that include a wide range of subjects and logical rigour, school systems that have a clear framework and a variety of types, and exam-focused education systems that involve all stakeholders. The ability of the educational system to transform matter, energy, or information into self-organization that can endure while pursuing growth. In this approach, the self-organization function can improve the structure and operation of the educational system while also forming applicable educational standards and order. 5Feedback. There is a ton of feedback in the educational system. For instance, studying is a process where the learner takes in knowledge, produces it, and determines through feedback and review if the information is accurate or inaccurate. If a study course solely involves intake and output of knowledge without any feedback or evaluation, it is not a complete course. Information should also be evaluated right away. In conclusion, the educational system shares all the characteristics with the scientific system. The World Organization of System and Cybernetics (WOSC) established the Education System Society (ESS) as a subordinate organization in 1990 to further the pertinent advancement of "education and system science." [5]

The tier of theory's lack of systematic organization

In terms of instructional substance, it lacks organization. The research on pedagogy is not systematic because, in the first place, school education is still given priority in current pedagogy studies, while society and family education are ignored. Second, curriculum materials place a great weight on the learning of knowledge while ignoring the study of emotion, action, and willpower; they also place a high value on students' academic performance but speak little about their character and lack chapters on saving and life guidance. Additionally, the curricula ignore women's rights in gender education while tacitly endorsing a culture that is controlled by men. Additionally, schools at several levels, including preschool, elementary, and higher education, are briefly mentioned. In particular, the study on special education and adult education is not included. All of them demonstrate how pedagogy research is not systematic because system science applied to it is not thorough.

The methodology and procedure are not systematic. Only philosophy, psychology, sociology, and other related fields are included in the previous pedagogy. Additionally, the current system science research is focused on using mechanical notions to describe educational phenomena and neglects to consider how system science might be utilized to transform educational activities. The explanation is that Indian academics are direct in their methods, therefore they frequently adapt basic deduction naturally to pedagogy research. As a result, we frequently remain in the applied "primary state" that emerges when a new cross-sectional science is developed, unable to fundamentally reconsider the issues with educational research's paradigms and the real benefits of system science. Many researchers merely play the "carpenter" part when it comes to implementing system science, and when they do so, the system science doesn't truly result in any changes at all. Additionally, a significant portion of pertinent research is focused primarily on "teaching," "educational management," and "educational technology," and it continues to use analytical thinking and separate thinking that are more prevalent in traditional social science and natural science. System science emphasizes "integrity" and "relation," although these concepts are lacking. There is "panlogistic educational engineering" and "educational theory without engineering," according to all the requirements, in educational research. There is a genuine educational engineering issue that has to be resolved, but the pertinent theory is insufficient to fill the position. The lack of theory is a reflection of the inadequate scientific educational system.[6]

The practice's lack of organization

Indians have had a long-standing reputation of being a highly educated people, dating back thousands of years. In the beginning, education was restricted to the priestly class, with traditional components like as religion, logic, and so on being taught to students.

Although there has been a lot of research on how system science might be applied to educational practice, the theoretical researchers still stand out from the crowd. Practitioners of general education still hold the same opinions. The traditional ideas of positivism, which are employed by both social science and natural science, are still being utilised. For instance, in the education viewpoints, the teachers hold that they separate knowledge as well as feed it to the students.[7]

The relationship between the teacher and pupils is primarily one of "I and it," and the relationship between "I and you" is perfect in terms of grades as a result of this "synthesis" into "decomposing." The discipline-centred course system, that divides the inner oneness of the objective world, creates an unintelligible tangram in the curriculum view. According to the students, the student body has been reduced to a solitary entity and is still completely under the supervision of the teachers. They are seen as a collection of disorderly and unruly "mobs." As a result, the reform lacks a comprehensive and relational consciousness. The emphasis on order continues in educational practice, wants and preinstalls in Dynamic Creation. People are seeking practical outcomes and lack process concepts and the significance of education.[8]

In conclusion, pedagogy is armed with the broadest definitions of what constitutes a science in a field. By the standards of conventional "science," it is indeed a science. However, the science standards that were once employed to confirm that education was indeed scientific have altered. For instance, the many objectives of educational research, as well as the emergence of bidirectional or multidirectional ideas, result in changes to the meaning and characteristics of knowledge and object truth. This viewpoint sees teaching as a young science. With the system science researching pedagogy, it is clear to move from the "simplicity" of a solitary island to the "complexity" of a sea. It offers us a fresh viewpoint, fresh approach, and fresh attitude on the world. System science is solely included in this kind of pedagogical research. It serves as pedagogy's goal.

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