Presentation of a Poststructuralist Educational System Model Based on Rhizomatic Philosophy: A Synthesis Research Approach

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A r t i c l e I n f o

A B S T R A C T

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Purpose: The present study aimed to provide a model of a poststructuralist educational system based on rhizomatic philosophy.

Methodology: This study is of a fundamental research type, and the research method was qualitative, specifically utilizing a synthesis research approach. The research environment included all published domestic articles (from 2010 to 2022) and international articles (from 2007 to 2023). Purposeful sampling was used in this study until data saturation was achieved, thus sampling continued until the necessary data for analysis were obtained (23 articles). Following the review of the selected article texts, data were obtained through a combined synthesis method based on interpretive and analytical approaches. Subsequently, concepts were categorized based on their similarities into central categories, and ultimately, core categories were identified by combining the central categories.

Findings: The findings revealed that a poststructuralist educational system based on rhizomatic philosophy includes three dimensions: reengineering planning, technological teaching, and curriculum reading.

Conclusion: Given that in rhizomatic thinking, hierarchy or other concepts that impose a structure are not possible, democratic structures should be established in determining the strategies and programs of the educational system to ensure the participation of all stakeholders and the utilization of all capabilities and resources.

Keywords: Educational system, poststructuralist, rhizomatic

1. Introduction

The educational system of any country is the center of its scientific innovation, and many countries see their progress and modernization as dependent on principled policies and modern planning in their educational system. Education can be a basis for transformation and development because the path to a country's growth, development, and perfection lies in investing in education. The prevalent teaching methods have created numerous problems in the teaching and learning domain, including an emphasis on superficial learning, memorization, and transmission of information instead of meaningful learning, neglecting knowledge construction, passive learners, a sole focus on textbooks as rigid and inflexible content, limited opportunities for expression, little attention to students' interests and needs, lack of suitable grounds for students' curiosity, and overall, neglect of techniques for applying creativity in student learning (Shakouri Monfared & Ardalani, 2020).

Poststructuralism is a contemporary and highly recent doctrine influenced by the growing trends of postmodernist thoughts. By emphasizing several characteristics and principles, it has left consequences in many social, cultural, political, and educational areas, including its impact on the educational system. The main assumption in this thought is that fixed, definite, and unchanging foundations can no longer be mentioned. Poststructuralists strive to dissect philosophical prejudices and deconstruct concepts such as unity of identity, hierarchy, and fixed foundations, replacing them with teachings of multiplicity and diversity (Sajadi et al., 2018; Sajadi, 2013; Sajjadi & Bagherinejad, 2012). Since poststructuralism supports critical views in confronting grand theories of human growth, institutions, and social structures, it not only provides thoughtful critique for educational goals, curriculum models, and management but also fosters the growth of experimental and interpretive research methods and encourages new educational methods. Two poststructuralist philosophers, Gilles Deleuze and Félix Guattari (1987), presented horizontal and divergent thinking, offering an epistemological perspective to solve educational and learning process problems (Deleuze, 1987). Learning, according to their ideas, provides a setting for learners to participate in challenging and exploratory environments, offering an opportunity to enhance their capacity to become efficient in work and learning. They advocate for diversity and heterogeneity in education, believing that teaching and learning can create pathways for new thinking beyond what is typically obtained from a standard curriculum (Charney, 2017). This learning process is known as the rhizomatic learning process, which is considered a revolutionary philosophy that reassesses any form of hierarchical thinking, history, or science (Colman, 2005).

Rhizomatic thinking is a type of thought based on differences and minor details. This thinking is not repetitive but is based on unexplored and unexperienced paths. It is limitless and lacks specific directionality, seeking to establish connections with everything without setting clear boundaries. This thought cannot be confined or restricted because it can grow and expand from other paths. It views subjects from various angles and envisions different applications for them. Generally, in this way of thinking, the traditional dominant and linear approach in education is disrupted (Walker, 2014). Rhizome and rhizomatic thinking broadly imply that humans do not follow a predictable, tree-like path and are constantly becoming and evolving. This thinking emphasizes differences and details, is unlimited, and seeks to establish relationships with everything. This thinking facilitates connection and diversity, providing endless possibilities for connections since any point of it can link to other points (Bissola et al., 2017; Movahedian et al., 2020; Tillmanns et al., 2014). By offering education based on rhizomatic thinking, students can grow optimally, their talents can develop and flourish, and they can have significant positive effects on sustainable development and growth as useful individuals in society. Rhizomatic education can create new opportunities for thinking, ideas, and perceptions, changing the roles of teachers, students, and teaching methods, encouraging students to pursue deep thinking and create new opinions and ideas. In such a situation, the learning flow becomes fluid, creating new opportunities that are attractive to both students and teachers (Mackness et al., 2016; Movahedian et al., 2020; Raminnia, 2015).

These dimensions and components in education will only succeed if, first, educators in this field are properly trained, and second, educational organizations are trained with suitable concepts of the poststructuralist educational system based on the rhizomatic approach and appropriate educational content. Therefore, the research intends to answer the question: What are the dimensions and components of the poststructuralist educational system based on the rhizomatic approach?

2. Methods and Materials

The research method is qualitative, specifically synthesis research. Synthesis research is a particular form of qualitative research review that involves constructing a whole from something beyond the implications of separate parts. The purpose of synthesis research is to produce new knowledge by clarifying relationships, tensions, and differences between reports of individual studies that have not been seen before. This method includes purposeful selection, review, analysis, and synthesis of first-hand research reports on a similar topic. This method involves coding articles and aligned studies. In this research, purposeful sampling was used until data saturation was reached, continuing sampling until the required data for analysis were obtained (23 articles), thus the number of selected articles depended on the data obtained. Data analysis was conducted through open concepts, axial categories, and core categories. After studying the text of the selected articles, data were obtained through a combined synthesis method based on interpretive and analytical approaches. Concepts were then categorized based on

similarities into central categories, and finally, core categories were identified by combining the central categories.

The research environment included all published domestic articles (from 2010 to 2022) and international articles (from 2007 to 2023). According to Table 1, 23 articles were reviewed and studied for synthesis research concerning the dimensions and components of the poststructuralist educational system based on the rhizomatic approach, covering the years 2010 to 2022 for Iranian articles and 2007 to 2023 for international articles.

3. Findings and Results

In response to the research question, "What are the dimensions and components of the poststructuralist educational system based on the rhizomatic approach?" Table 1 presents the open codes. Based on the findings from the articles, 67 open codes were extracted.

Table 1

Open Codes for the Poststructuralist Educational System Based on the Rhizomatic Approach

Number	Open Codes
1	Redefining students' talents (Code Article 1)
2	Redefining the classroom (Code Article 1)
3	Redefining teaching methods (Code Article 1)
4	Redefining learning activities (Code Article 1)
5	Redefining learning philosophy (Code Article 1)
6	Replacing new alternatives instead of traditional thinking (Code Article 4)
7	Reading dialogue instead of seeking truth (Code Article 3)
8	Thinking instead of relying on thoughts (Code Article 4)
9	Reconstructionism in programs (Code Article 4)
10	Reading away from dogmatism (Code Article 5)
11	Reconstructing the basis of educational program thinking (Code Article 19)
12	Reading order of in-text program concepts (Code Article 4)
13	Reading teaching methods (Code Article 2)
14	Reading creative learning (Code Article 2)
15	Reconstructing educational content to make it flexible (Code Article 3)
16	Reading students' interests (Code Article 5)
17	Creating a dynamic learning network (Code Article 5)
18	Attention to knowledge construction (Code Article 4)
19	Orientation toward electronic communication (Code Article 6)
20	Optimal electronic communication between teacher and learner (Code Article 7)
21	Establishing network communications with each other (Code Article 7)
22	Reading the teacher's role as a facilitator of learning (Code Article 10)
23	Criticism of rigid structures in education (Code Article 11)
24	Denying common understanding and universal knowledge (Code Article 12)
25	Rejecting model-based thinking (Code Article 12)
26	Skepticism (Code Article 12)
27	Reconstructing thinking in a horizontal way (Code Article 11)
28	Developing divergent thinking (Code Article 12)
29	Thinking based on differences (Code Article 8)
30	Thinking based on minor and small matters (Code Article 8)

31	Thinking based on unexplored and unexperienced paths (Code Article 8)
32	Thinking based on various aspects (Code Article 13)
33	Multiple understandings of concepts (Code Article 13)
34	Using information and communication technology in education (Code Article 17)
35	Using the web environment for education (Code Article 17)
36	Expanding information through information banks (Code Article 17)
37	Using technology in education (Code Article 17)
38	Creating new situations for thinking (Code Article 19)
39	Dominance of internet communication (Code Article 19)
40	Attention to students' needs (Code Article 14)
41	Students' freedom (Code Article 14)
42	Redefining the school (Code Article 20)
43	Redefining the teacher (Code Article 20)
44	Redefining the student (Code Article 20)
45	Redefining the textbook (Code Article 20)
46	Avoiding rote learning (Code Article 5)
47	Reading the meaning of teacher-student relationships (Code Article 21)
48	Reconstructing the functions of learning activities (Code Article 15)
49	Reconstructing the functions of learning methods (Code Article 15)
50	Reconstructing the functions of learning tools (Code Article 15)
51	Reconstructing the functions of educational evaluation (Code Article 15)
52	Using technology forums (Code Article 17)
53	Widespread use of digital technologies and tools (Code Article 15)
54	Rethinking the curriculum system (Code Article 23)
55	Rethinking educational events (Code Article 23)
56	Rethinking family-teacher participation in the classroom (Code Article 23)
57	Rethinking the educational system's role in social changes (Code Article 23)
58	Replacing new technologies instead of traditional methods (Code Article 22)
59	Criticism of ideologies (Code Article 11)
60	Multiple uses of concepts (Code Article 14)
61	Developing conceptualization skills (Code Article 14)
62	Developing data processing skills (Code Article 16)
63	Encouraging new educational methods (Code Article 16)
64	Growth of interpretive research methods (Code Article 16)
65	Blooming students' talents (Code Article 5)
66	Developing students' thinking (Code Article 5)
67	Avoiding rote learning (Code Article 19)

The poststructuralist educational system based on rhizomatic philosophy was identified with three dimensions: reengineering planning, technological education, and program reading. According to the findings in Table 2, the dimension of reengineering planning includes the central categories of redefining planning, reconstructing planning thinking, reconstructing planning functions, and rethinking planning.

Based on the findings in Table 2, the poststructuralist educational system based on rhizomatic philosophy in the dimension of technological education includes the central categories of utilizing educational technology and the dominance of educational technology.

The poststructuralist educational system based on rhizomatic philosophy in the dimension of program reading includes the central categories of reading program criticism, reading program mechanisms, and reading program stakeholders.

Table 2

Categorization of Concepts and Categories of the Poststructuralist Educational System Based on the Rhizomatic Approach in the Dimension of Reengineering Planning

Core Category	Sources	Category	Concepts
Reengineering planning	(Tillmanns et al., 2014)	Redefining planning	Redefining students' talents (Code Article 1), redefining the classroom (Code Article 1), redefining teaching methods (Code Article 1), redefining learning activities (Code Article 1 and 20), redefining learning philosophy (Code Article

			1), rethinking the school (Code Article 20), rethinking the teacher (Code Article 20), rethinking the student (Code Article 20), rethinking the textbook (Code Article 20)
	(Bissola et al., 2017; Sajadi et al., 2018)	Reconstructing planning thinking	Reconstructionism in programs (Code Article 4), reconstructing thinking in a horizontal way (Code Article 11), developing divergent thinking (Code Article 12), thinking based on differences (Code Article 8), thinking based on minor and small matters (Code Article 8), thinking based on unexplored and unexperienced paths (Code Article 8), thinking based on various aspects (Code Article 13), reconstructing the basis of educational program thinking (Code Article 19), creating new situations for thinking (Code Article 19)
	(Caldwell et al., 2023)	Reconstructing planning functions	Reconstructing the functions of learning activities (Code Article 15), reconstructing the functions of learning methods (Code Article 15), reconstructing the functions of learning tools (Code Article 15), reconstructing the functions of educational evaluation (Code Article 15)
	(Chan, 2010; Movahedian et al., 2020)	Rethinking planning	Thinking instead of relying on thoughts (Code Article 4), replacing new alternatives instead of traditional thinking (Code Article 4), reconstructing educational content to make it flexible (Code Article 3), rethinking the curriculum system (Code Article 23), rethinking educational events (Code Article 23), rethinking family-teacher participation in the classroom (Code Article 23), rethinking the educational system's role in social changes (Code Article 23)
Technological education	(Hordvik et al., 2020; Mackness et al., 2016; Tari et al., 2020)	Utilizing educational technology	Optimal electronic communication between teacher and learner (Code Article 7), establishing network communications with each other (Code Article 7), using information and communication technology in education (Code Article 17), using the web environment for education (Code Article 17), using technology in education (Code Article 17), using technology forums (Code Article 18)
	(Abdolahyar et al., 2019; Bissola et al., 2017; Caldwell et al., 2023; Cormier, 2008; Hordvik et al., 2020; Jahani et al., 2020)	Dominance of educational technology	Orientation toward electronic communication (Code Article 6), creating a dynamic learning network (Code Article 5), searching for learning in virtual space (Code Article 17), expanding information through information banks (Code Article 17), expanding information through electronic media (Code Article 17), dominance of internet communication (Code Article 19), widespread use of digital technologies and tools (Code Article 15), replacing new technologies instead of traditional methods (Code Article 22)
Program reading	(Movahedian et al., 2020; Salahshour & Haqwirdi, 2015)	Reading program criticism	Reading dialogue instead of seeking truth (Code Article 3), reading away from dogmatism (Code Article 4), reading order of in-text program concepts (Code Article 4), criticism of ideologies (Code Article 11), denying common understanding and universal knowledge (Code Article 12), rejecting model-based thinking (Code Article 12), skepticism (Code Article 12), multiple understandings of concepts (Code Article 13), multiple uses of concepts (Code Article 14)
	(Raminnia, 2015; Shakouri Monfared & Ardalani, 2020)	Reading program mechanisms	Reading teaching methods (Code Article 2), reading creative learning (Code Article 2), attention to knowledge construction (Code Article 4), reading the teacher as a participant in the change process (Code Article 9), reading the teacher's role as a facilitator of learning (Code Article 10), criticism of rigid structures in education (Code Article 11), developing conceptualization skills (Code Article 14), developing data processing skills (Code Article 16), reading the meaning of teacher-student relationships (Code Article 21), encouraging new educational methods (Code Article 16), growth of interpretive research methods (Code Article 16)
	(Bissola et al., 2017; Jahani et al., 2020)	Reading program stakeholders	Reading students' interests (Code Article 5), blooming students' talents (Code Article 5), avoiding memorization (Code Article 5), developing students' thinking (Code Article 5), attention to students' needs (Code Article 14), students' freedom (Code Article 14), avoiding rote learning (Code Article 19)

According to the findings from the research, the model of the poststructuralist educational system based on the rhizomatic approach is depicted as follows:

Figure 1

Final Model of The Study
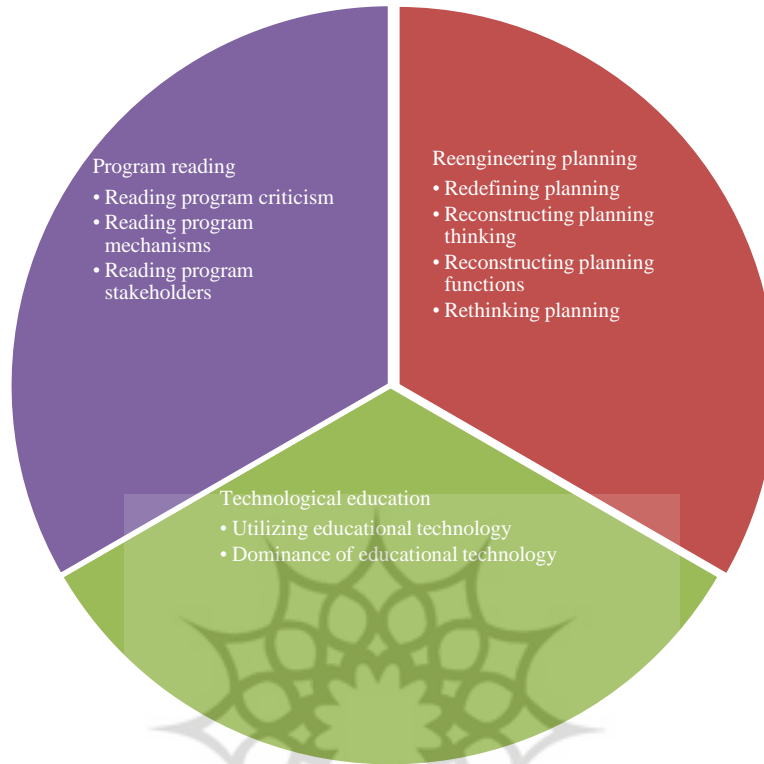
4. Discussion and Conclusion

The purpose of the present study was to identify the dimensions and components of a poststructuralist educational system based on rhizomatic philosophy. Poststructuralism, as a continuation of structuralist thought, follows the logic of relativism, rationality, and anti-metaphysical perspectives and has permeated various fields. Education is one of the areas influenced by this movement. Studies in this regard indicate that poststructuralist education pursues goals such as multiculturalism, decentralization, attention to differences, and critical pedagogy. The results showed that the dimensions and components of a poststructuralist educational system with a rhizomatic approach include three dimensions: reengineering planning, technological education, and program reading, which should be considered in the educational system to achieve them.

The reengineering planning dimension includes the categories of redefining planning, reconstructing planning thinking, reconstructing planning functions, and rethinking planning (Bissola et al., 2017; Caldwell et al., 2023; Chan, 2010; Movahedian et al., 2020; Sajjadi & Bagherinejad, 2012; Salahshour & Haqwirdi, 2015).

In the dimension of technological education, the categories include utilizing educational technology and the dominance of educational technology (Abdolahyar et al., 2019; Caldwell et al., 2023; Cormier, 2008; Hordvik et al., 2020; Jahani et al., 2020; Mackness et al., 2016; Tari et al., 2020).

In the dimension of program reading, the categories include reading program criticism, reading program mechanisms, and reading program stakeholders (Bissola et al., 2017; Mackness et al., 2016; Movahedian et al., 2020; Raminnia, 2015; Sajjadi & Bagherinejad, 2012; Salahshour & Haqwirdi, 2015; Shakouri Monfared & Ardalani, 2020).

The dynamic and rapid nature of rhizomatic thinking, its flexibility, lack of specific rules and formulas, multiplicity and fluidity, the non-definitive nature of knowledge, the meaninglessness of world unity, novelty, and divergence, instability of thought, skepticism, and questioning the creation of knowledge and belief production are principles

of this way of thinking (Sajjadi & Bagherinejad, 2012). This model, proposed by Deleuze, seeks to introduce a new perspective on knowledge (Salahshour & Haqwirdi, 2015). Deleuze, in contrast to Cartesian tree thinking (the tree of knowledge metaphor), emphasizes rhizomatic thinking and challenges all knowledge systems based on the tree-like conception of knowledge. According to him, the act of philosophy should be based on organizing internal concepts. Therefore, thinking becomes a continuous flow of thought reconstruction, leading to dynamism and movement in a horizontal and rhizomatic relationship without any definitive point as its culmination or completion. The rhizome has numerous network connections, making it impossible to speak of beginnings and endings, up and down, surface and depth, hierarchy, or other concepts that impose a structure and topology upon it. Deleuze sees existence and its components as always in a state of "becoming" (Movahedian et al., 2020).

Based on the research findings, the following suggestions are provided to enhance the poststructuralist educational system based on the rhizomatic approach:

Considering the non-linear nature of rhizomatic thinking, it is suggested that educational systems be managed in a decentralized manner, allowing for the possibility of re-reading programs based on situational needs.

The speed of technological changes has challenged the traditional concept of education. Instead of book-centered or teacher-centered educational planning, the rhizomatic model of education is proposed. In this model, the learning experience is a social process with flexible and variable goals based on social and technological advancements.

Given that in rhizomatic thinking, hierarchy or other concepts that impose a structure are not possible, democratic structures should be established in determining the strategies and programs of the educational system to ensure the participation of all stakeholders and the utilization of all capabilities and resources.

Authors' Contributions

The first author was responsible for conducting the interview and collecting data, and the other authors were responsible for analyzing the data and writing the article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Declaration of Interest

The authors report no conflict of interest.

Ethics Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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