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# Models for School Board Policy Development: Rationalism, Empiricism and the New Science

*Steve Baldrige*\*

## I. INTRODUCTION

Reform of American public education has been occurring rapidly since the early 1980s. The first wave of reforms required schools to increase graduation requirements and expand the use of student testing.<sup>1</sup> Improvements in teacher preparation and evaluation came more slowly, as part of the second wave.<sup>2</sup> Reform in school administration lagged even farther behind in the third wave of reforms.<sup>3</sup> Yet the third wave has now gathered such force that preparation programs have been revised, school leadership has become more site-based and shared, and principals and other administrators are being evaluated formally in almost all states.<sup>4</sup> Still, little has been done to reform the role of school boards.

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1. See, THE NATIONAL COMMISSION ON EXCELLENCE IN EDUCATION, *A NATION AT RISK* (1983); Pat Ordozensky, *Educational Vital Signs: Main Events*, 173(10) AMERICAN SCHOOL BOARD JOURNAL A5 (Oct. 1986); Jacobson & Conway, (1990).

2. See, THE HOLMES GROUP, *TOMORROW'S TEACHERS* (1986); THE CARNEGIE FORUM, *TEACHERS FOR THE 21ST CENTURY* (1986).

3. THE NATIONAL COMMISSION ON EXCELLENCE IN EDUCATIONAL ADMINISTRATION, *LEADERS FOR AMERICA'S SCHOOLS* (1987).

4. C. Furtwengler, *State Requirements for the Evaluation of School Administrators*, (1994); R. Ginsberg & T. Thompson, *Dilemmas and Solutions Regarding Principal Evaluation*, 68(2) PEABODY J. OF EDUC. 58 (1992).

As "the clearly preferred agency to govern the schools in local communities,"<sup>5</sup> school boards are an entrenched part of the American public education system. This is because "representative and participatory government—epitomized by the local school board—is the best vehicle for the people to keep control of their public schools."<sup>6</sup> School boards exercise this control by developing policies and making decisions.

Among the cries for reform of American public schools appear several proposals that would alter the way school boards fulfill their policy-making function.<sup>7</sup> To analyze such proposals, it is fruitful to consider the issues school boards face and the theoretical foundations upon which their policy-making may be based. In this article, I will briefly describe rationalism and empiricism—the bases of Western jurisprudence, discuss school boards and the ways they develop policy, and then suggest a new approach which stems from modern scientific thought in quantum mechanics and fractal mathematics.

## II. PHILOSOPHICAL MODELS FOR POLICY DEVELOPMENT

Policy-making is the art of setting parameters for the actions of a group's members. Law is but one example. Its creation is a form of policy-making which governs the behavior of those within a legal system. The theories underlying legal systems provide a fascinating lens through which to consider the public school system, another policy-making social institution. But the applicability of theories used in legal systems depends on the systems' likeness to the public school system. This paper develops the theme that the school board policy-making role is similar to the role of judges in creating law in legal systems.

Fundamental to policy-making of any kind is the model policy-makers rely on to make sense of their experience—especially how they believe people go about deciding what actions they will take. The American public school system has been directly and indirectly influenced by countries with both

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5. INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., SCHOOL BOARDS: STRENGTHENING GRASS-ROOTS LEADERSHIP iii (1986).

6. *Id.*

7. See, e.g., INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., *supra* note 5; NEW YORK STATE SCHOOL BOARDS ASSOCIATION, ESSENTIAL LEADERSHIP: SCHOOL BOARDS IN NEW YORK STATE (1988); TWENTIETH CENTURY FUND, FACING THE CHALLENGE: THE REPORT OF THE TWENTIETH CENTURY FUND TASK FORCE ON SCHOOL GOVERNANCE (1992).

civil and common law traditions. Below, I describe the epistemologies, or philosophies of how people come to know things, which have served as the bases of the civil and common law traditions. I then explain the roles judges play in creating law in such systems. Comparisons are drawn between judges and school boards. Finally, school board policy development is considered under rationalist, empiricist and new science models.

### A. *Rationalism as a Model for Policy Development*

One approach to making sense of the world is to follow the example of philosophers like Plato and Descartes who sequestered themselves to contemplate and then write grand unifying theories of reality. This approach, called rationalism, might best be conceived of as a top-down approach. One set of coherent elemental truths determines all of the specific norms of behavior.

In legal theory, this approach is taken by civil law systems<sup>8</sup> which lay the weight of developing laws on legislative bodies. Thus, assemblies, councils, parliaments, etc., are expected to create and then maintain internally consistent bodies of law. The purpose of local courts is simply to enforce statutes.<sup>9</sup> Judges are drawn from law school graduating classes, often through exams considered less rigorous than those taken to practice law as an attorney.<sup>10</sup> In civil law systems, judges are considered minor bureaucrats whose work is "narrow, mechanical, and uncreative."<sup>11</sup>

Under this policy-making model, it is expected that a few unifying concepts will govern the entire system. In practice, however, most countries taking this approach have constitutions

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8. Craig M. Lawson, *The Family Affinities of Common-Law and Civil-Law Legal Systems*, 6 HASTINGS INT'L & COMPARATIVE L. REV. 85, 103, 123 (1982).

9. Suggesting to a civil law judge that he or she exercise discretion in interpreting statutes may be taken as an accusation of bias, favoritism, or even bribery. Personal Interview with Swiss Federal Court Justice, Geneva, Switzerland (Jul. 6, 1990).

10. *Id.*

11. JOHN H. MERRYMAN, *THE CIVIL LAW TRADITION—AN INTRODUCTION TO THE LEGAL SYSTEMS OF WESTERN EUROPE AND LATIN AMERICA* 39 (2d ed. 1985); *see also*, Craig M. Lawson, *The Family Affinities of Common-Law and Civil-Law Legal Systems*, 6 HASTINGS INT'L & COMPARATIVE L. REV. 85, 127 (1982) ("Socially these judges are bureaucrats, functionaries of the state. The status of the civil-law judge contrasts strikingly with the powerful position held by the common-law judge.").

that run into dozens of sections, and statutes that proliferate to the point of incomprehensibility.<sup>12</sup>

### *B. Empiricism as a Model for Policy Development*

A second approach to making sense of the world is to follow the example of philosophers like Aristotle and Hume who examined, categorized, and recorded objects of their experience. They then wrote about their findings and what they concluded from these findings. Regularities led to trends, trends to notions, and notions to partial theories. While many who follow this approach, called empiricism, believe in a universal, objective reality, they are conservative in their estimation of the human capacity to perceive it.

In legal theory, this empiricist approach<sup>13</sup> has guided the development of common law systems such as those of Great Britain and pre-World War I Japan. These systems lay the weight of developing laws in the hands of judges. Precedents rather than statutes guide the judges' decisions. As cases accumulate on a topic, trends turn to notions, and finally, theories emerge to make sense of the way decisions are made.<sup>14</sup> Understandably, judges are selected from those thought to be the wisest in their communities.

### *C. School Board Policy Development*

The two approaches to epistemology described above and the resulting roles of judges in the creation of laws in civil-law and common-law legal systems shed light on the work of school boards. If people are of the rationalist persuasion, they likely argue that school boards should spend more time contemplating core values and beliefs, thinking this will lead to coherent educational policy. They may also argue for more federal or state regulation, and district policy manuals at the local level. The job of school board members, in this view, is little more than taking actions dictated by higher levels of authority and thus requires little experience. In contrast, those of the empiricist persuasion likely approve of school boards making myriads of discrete decisions which, over time, illuminate values and beliefs

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12. Craig M. Lawson, *The Family Affinities of Common-Law and Civil-Law Legal Systems*, 6 HASTINGS INT'L & COMPARATIVE L. REV. 85, 119-20 (1982).

13. *Id.* at 123.

14. *Id.* at 119-20.

of a community and its local board. In their minds, a community's wisest members should be encouraged to serve on the school board and the board should be given discretion to make the majority of policies that govern the local system.

### III. WHO SERVES ON SCHOOL BOARDS

Becoming acquainted with America's school boards is a necessary step to understanding whether their role in policy-making is more akin to judges in civil- or common-law systems. Therefore, this section reviews the demographic information from a national study of school board members and summarizes what typical school board members are like.

School board members are most commonly White men. A 1985 study found that about two-thirds of school board members are male and one-third are female.<sup>15</sup> Also, ninety-three percent are White, three percent are Black, and one percent are Hispanic. Out of every one thousand school board members, only eight are Native American and three are Asian.<sup>16</sup>

At 41.9%, nearly half of all school board members are from 41 to 50 years old. 16.6% are from 36 to 40 years old, while 23.6% are from 51 to 60 years old.<sup>17</sup> Seventy-one percent of them have college degrees and another fourteen percent attended college.<sup>18</sup>

School board members' incomes vary widely, but most earn from twenty to sixty thousand dollars per year. 13.5% make between twenty and thirty thousand dollars per year, 20.5% earn between thirty and forty thousand, 18.7% earn between forty and fifty thousand, and 14% earn between fifty and sixty thousand dollars per year.<sup>19</sup> Just 30% receive compensation for serving on their school board.<sup>20</sup>

The vast majority of school boards are elected, e.g., 95%, and are almost equally divided between sizes of five, seven or nine members.<sup>21</sup> Terms are usually for three or four years, and four-

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15. INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., *supra* note 5, at 5 (1986).

16. *Id.* at 9.

17. *Id.* at 5.

18. *Id.* at 8.

19. *Id.* at 5.

20. *Id.* at 9.

21. *Id.*

fifths of school board members stay on the board from four to eight years.<sup>22</sup>

It appears that school boards are not themselves reflections of their communities, but rather are drawn from the most traditionally respected group—middle-aged white male college graduates with substantial incomes, thus being more similar to decision makers in common law than civil law systems. Consistent with their personal likeness to common-law judges, their concerns demonstrate greater frustration with people's actions which are not within their scope of influence than for those inside of it. When asked about their chief concerns, school board members most frequently mentioned the following: Lack of financial support, 54.6%; Declining enrollment, 33.7%; Collective bargaining, 29.3%; Parents' lack of interest, 27.5%; and Management/leadership, 25.7%.<sup>23</sup>

#### IV. THE ROLE OF SCHOOL BOARD MEMBERS IN DEVELOPING POLICY

Although the statistics paint a traditional, and apparently stable, portrait of America's local school boards and their members, a shift in ideology seems to be occurring. Many of those who have joined school boards in the last decade reject the reigning sense that school board members are trustees of the whole school system, an idea popularized through the efforts of a coalition of university presidents and business leaders during the educational reforms of the 1890s and early 1900s.<sup>24</sup> These recent members advocate the interests of single sub-communities or classes of students—such as those who are disabled, poor, or of ethnic minorities.<sup>25</sup> Their stance as advocates for the down-trodden is reminiscent of participants in the civil rights movement of the 1960s and 70s who sought to change the status quo by demanding a redistribution of group benefits.

While the emerging advocacy perspective has made the simple mechanics of meetings and school board functions more difficult,<sup>26</sup> it has also been more effective in reforming schools

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22. *Id.*

23. *Id.* at 4.

24. *Id.* at 17.

25. *Id.*

26. NEW YORK STATE SCHOOL BOARDS ASSOCIATION, ESSENTIAL LEADERSHIP: SCHOOL BOARDS IN NEW YORK STATE 18 (1988).

and correcting inequities than the trusteeship perspective.<sup>27</sup> Those holding the newer perspective are, however, also more prone to micromanagement.<sup>28</sup>

The parallels between judges and school board members on this point relate to judicial activism. Although possible in civil law systems, judicial activism is more likely to find expression in common-law systems where judge-made law is more widespread and influential. In addition, judges in civil-law systems more frequently face obstacles to expressing individual opinions, one example being the prohibition of dissenting written opinions when a case is heard by a panel of judges. Again, despite conflicting feelings about social change, most legal scholars could agree that the judicial activism of the 1960s, 70s and 80s in the United States produced more rapid change in the law than periods of greater restraint.

Despite the internal conflicts of school boards, “[u]rban, suburban, rural and small town boards alike find more commonalities than differences among the challenges to their effectiveness.”<sup>29</sup> Common themes include:

public apathy; lack of public understanding of the role of boards; poor relationships with state policymakers; need for board strategies to evaluate board effectiveness; lack of time and operating structures to focus on education; problems in becoming a board rather than a collection of individuals; improving teaching in the framework of collective bargaining; the amount of time boards invest in their work versus satisfaction with accomplishments and ability to determine their own priorities.<sup>30</sup>

The theme of working cooperatively within state and federal legal parameters to accomplish local educational goals links tightly with what school board members reported as their most—and least—pressing issues for policy development. The most frequently mentioned very important issues were: student high school completion 56%, changes in insurance companies’ policies for public bodies 56%, inservice staff training needs 55%, state student testing programs 34%, and the impact of court decisions 34%. The most frequently mentioned issues of little

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27. INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., *supra* note 5, at 17 (1986).

28. *Id.*

29. *Id.* at 12.

30. *Id.*

importance were: adult basic education 57%, demands of special interest groups 50%, programs/strategies for persons who have dropped out of school 47%, extended school day 42%, and public pre-school education 41%.<sup>31</sup>

School boards function, essentially, as the directors of the local public educational system. A 1988 study of their activities divides their work into the following six categories:

1. Formulate policies reflecting broad principles that will guide . . . the district;
2. Determine the goals of . . . the school district;
3. Select the superintendent and employ school personnel upon the superintendent's recommendation;
4. Appraise the performance of the executives to whom responsibilities have been delegated;
5. Inform the people of the district about the schools; and
6. Evaluate the activities of the district regarding previously established goals.<sup>32</sup>

Still, the same report concedes that "practical, day-to-day matters, 'brush fires,' however mundane, still require board attention."<sup>33</sup> Their time and attention are devoted more to addressing particular tasks than to formulating unified, rationalizing theories. An empiricist would argue that it is precisely in addressing the discrete situations, e.g., "a lawsuit, local pressure group, stalled contract, scandal, local disaster, new state mandate, defeated budget,"<sup>34</sup> that school boards produce the trends and notions which should precede policy statements.

Formal policy development, as demonstrated in voted written statements, is deterred by more than just "brush fires." Following are some examples of other deterrents to policy development:

1. Demands and restrictions of state legislation, court rulings, and union contracts;
2. The surfacing of value and goal conflicts among board members which can lead to lengthy, acrimonious discussions;
3. A deference for expert opinion, especially in curricular matters, and an insecurity about their own judgments;

31. *Id.* at 34.

32. TWENTIETH CENTURY FUND, *FACING THE CHALLENGE: THE REPORT OF THE TWENTIETH CENTURY FUND TASK FORCE ON SCHOOL GOVERNANCE* 14 (1992).

33. *Id.*

34. *Id.* at 13.

4. Board turnover that results in many members spending a significant percentage of their time on the board simply learning the ropes;
5. Lack of a "collective memory," or sense of the district's history—largely due to turnover;
6. Local constituents' usual refusal to demand a long-term view from the board.<sup>35</sup>

In all of these obstacles, the role of board members in educational policy-making resembles the role of judges in the development of law. Precedents and legislation restrict both judges and board members. Both courts and boards struggle to find ways of achieving consensus, maintaining continuity, and focusing on timely resolution of group conflicts.

It appears that school board members hold a social status and a pragmatic, particularistic approach to decision making that resembles the duties of judges in common law systems. Their responsibilities and concerns also expand beyond policy-making to goal setting, personnel selection, evaluation, and public relations. However, the accumulation of state and federal educational policy mandates being passed and proposed would force them to become more like judges in civil law systems by significantly restricting their discretion and the scope of their duties.<sup>36</sup>

The conflicting conceptions of school board members' role in educational policy-making has created such institutional stress among members and toward other state and federal institutions that much of the recent literature on school board functioning focuses on conflict management.<sup>37</sup> Apparently, those who shape the role of school board members in the American educational

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35. *Id.* at 15.

36. *See, e.g.*, INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., *supra* note 5); NEW YORK STATE SCHOOL BOARDS ASSOCIATION, *ESSENTIAL LEADERSHIP: SCHOOL BOARDS IN NEW YORK STATE* (1988); TWENTIETH CENTURY FUND, *FACING THE CHALLENGE: THE REPORT OF THE TWENTIETH CENTURY FUND TASK FORCE ON SCHOOL GOVERNANCE* (1992).

37. *See, e.g.*, Robert Beebe and Albert Broadway, *If You Heed These Safety Tips, You'll Forge Stronger Policies for Your School Board and Keep Heated Criticism Below the Flash Point*, 171(3) *AMERICAN SCHOOL BOARD* 42 (Mar. 1984); John C. Daresh and Marsha A. Playko, *Induction Programs: Meeting the Needs of Beginning Administrators*, 76(546) *NASSP JOURNAL* 532 (Oct. 1992); Mary Erard and Betty Blaisdell, *How to Handle Blazing Issues Without Blistering Your Board*, 173(7) *AMERICAN SCHOOL BOARD JOURNAL* 17 (Jul. 1986); Joy J. Rogers, *How to Resolve a Conflict Between Board Unity and Personal Integrity*, 175(4) *AMERICAN SCHOOL BOARD JOURNAL* 45 (Apr. 1988).

system do not agree on whether rationalism or empiricism should guide their decisions. Indeed, theoretical concerns have not been a usual element of the debate about educational reform.

#### V. THE ROLE OF SUPERINTENDENTS IN DEVELOPING POLICY

The school board is joined in its policy-making role by a district superintendent whose role in educational policy-making also resembles that of a judge. A 1983 study of Canadian district "Chief Executive Officers" (CEOs), who function as American superintendents do, describes this person as pivotal.<sup>38</sup> Drawing from a pool of thirty-five CEOs, the authors listed eight policy development practices in which they engage:

1. Listening to individuals and groups;
2. Following policy where it exists;
3. Conducting investigations where policy does not exist;
4. Practicing "preventative maintenance;"
5. Performing a "screening function;"
6. Following "due process" in the conduct of investigations;
7. Maintaining rational, cool leadership behaviour;
8. Becoming an influencer and using resources to influence decisions on salient issues.<sup>39</sup>

Investigations legitimate policy development by allowing for time and consultation. "An investigation strategy can be as simple as self-study by the CEO on an issue or as elaborate as the creation of a Task Force to report and make recommendations to the board."<sup>40</sup> Other options include appointing a subordinate to study the issue or forming a school board subcommittee.<sup>41</sup> The amount of consensus in the community as well as the complexity of the issue usually determines the time taken to make a decision.<sup>42</sup> Investigations clarify where policies are inadequate much like trials clarify where laws are inadequate. In the time requirements, group participation, and drafting of district policies, school boards and superintendents follow policy-making procedures similar to those used in creating laws.

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38. G. B. ISHERWOOD ET AL., ADMINISTRATIVE EFFECTIVENESS IN A POLITICAL ENVIRONMENT 25 (1983).

39. *Id.*

40. *Id.* at 27.

41. *Id.* at 25.

42. *Id.* at 27.

Preventive maintenance is the name given to the various ways in which the superintendent organizes communication between the various participants in the educational process. Maintaining the various dialogues avoids misunderstandings and helps the superintendent help the board to foresee and to adapt to difficult questions. “‘Surprise’ is removed by the [superintendent] as he acts as a communication funnel to and from the board.”<sup>43</sup>

The screening function is intertwined with preventive maintenance. This means that the superintendent “keeps issues from the school board (and the board from issues) until the board is prepared to treat them.”<sup>44</sup> If the superintendent is in tune with both the board and the community, and seeks to serve them, then he or she can help immeasurably in creating a sense of trust.

The term “due process” as used in the report denotes the practices, guided by written or unwritten policy, of the superintendent in dealing with issues. “Due process implies a series of steps, for example, the formation of task forces or use of board committees, along with a time line to insure that information is gathered and influencers are given voice.”<sup>45</sup> The report further states that the effective superintendent’s role is to define the due process strategy for the board on issues.<sup>46</sup> Following this due process creates the sense that thoughtfulness guides even the most difficult of controversies.

The role of superintendents shares several clear parallels to that of judges. They assemble and examine evidence before deciding whether policies should be created or revised. They serve as the district’s scout in looking ahead to what actions are desirable or undesirable. They initially determine the “standing” of issues for consideration by the policy-making board and guide the review of issues through “due process” to promote group acceptance of policy determinations once they are made.

In their contextual sensitivity and discretion, superintendents more closely resemble common-law judges than civil-law judges because civil-law judges are expected to allow legislative councils to change inequitable policies. However, one could draw

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43. *Id.* at 28.

44. *Id.* (parenthetical in original).

45. *Id.*

46. *Id.*

different parallels if likening school boards to civil-law legislatures and superintendents to judges in a civil-law system, but that is a discussion best saved for another day.

## VI. COMMINGLED POLICY ROLES

An approach to policy-making by boards and superintendents that is more likely than the hierarchical relationship found in civil-law systems is for the board and superintendent to defer to each other in various policy areas. In research published in 1992, school board presidents gave their opinions on the domains of curriculum, personnel and finance. Seventy-six percent saw curriculum as being in the domain of the superintendent, thus calling for board deference to his or her judgment.<sup>47</sup> Fifty-five percent saw personnel as being in the domain of the board, thus calling for superintendent deference to its judgment.<sup>48</sup> Finance was a shared domain—47% thought it was the superintendent's domain and 34% thought it was in the board's domain.<sup>49</sup> Use of shared decision making, like that of delegating functions to the superintendent, requires trust between the board and superintendent.

The fact of the matter is that most reports that discuss policy-making end up talking about trust. No management approach can be used as an isolated technique. When surveyed as to what was the key to working together, board members and superintendents both cite "openness in communication" and "trust/confidence/support."<sup>50</sup> Despite the many products of policy development—whether statements about AIDS, business-school partnerships, censorship, child/sexual abuse, community participation in board policy-making, computer education, custodial cost control, discipline, evaluation of boards or teachers, grade promotion, grading, multicultural nonsexist education, school closings, sexuality and pregnancy, student records, or substance abuse (all found in a recent ERIC<sup>51</sup> database search of school board policy)—the core of educational policy develop-

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47. Kenneth R. Greene, *Models of School Board Policy-Making*, 28(2) EDUCATIONAL ADMINISTRATION QUARTERLY 220, 233 (May 1992).

48. *Id.*

49. *Id.*

50. INSTITUTE FOR EDUCATIONAL LEADERSHIP, *supra* note 5, at 31 (1986).

51. ERIC is the most widely used educational research database and contains references to materials found in education journals and unpublished manuscripts submitted to it.

ment is consistently appropriate action by school system employees as defined by the school board, and ultimately the legislators and voters.

Without trust, policy development is impossible, not just ineffective. Employees' actions will not be consistently appropriate because people will not act out of the purposes that may, nonetheless, be written and promulgated. Trust needs to spread beyond the particular district, too. "If reforms are legislated without local input or commitment, the reform effort will remain on paper only, largely symbolic and lifeless."<sup>52</sup>

At the heart of analyses of school board policy-making reforms should be the question of what changes would be most conducive to building trust in the educational system. Rationalism provides a sense of stability, self-consistency and foresight that is appropriate for an orderly social and political context. Empiricism is more appropriate for contentious social and political contexts because it provides flexibility, variety and experimentation.

In the United States, school boards serve as a crucial link between the thousands of local districts and those state and national political office holders who wish to be educational leaders and policy-makers. Given this context, the New York State School Boards Association got it right when they stated:

It will not be enough for state officials and reformers to acknowledge the board's key role. They also will have to begin providing the flexibility needed for local leadership, recognizing the diversity of local needs and goals. They will have to acknowledge that boards, as the group legally accountable for local education, must have a meaningful opportunity to influence every planned reform; without board commitment, such reforms can never be effectively carried out.<sup>53</sup>

While superintendents can, in many instances, improve the way they help school boards address and resolve policy questions, they cannot replace the crucial role of local school boards in bridging the gap between local, and state and federal priorities. Unfortunately, proposals for improving the way school boards carry out their policy-making function have remained largely

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52. NEW YORK STATE SCHOOL BOARDS ASSOCIATION, *ESSENTIAL LEADERSHIP: SCHOOL BOARDS IN NEW YORK STATE* 30 (1988).

53. *Id.*

enmeshed in conflict between rationalist and empiricist views of their work.

## VII. QUANTUM MECHANICS AS A MODEL FOR POLICY DEVELOPMENT

The advent of quantum mechanics thinking in organizational theory creates some thought-provoking models for school board policy-making which provide an opportunity to move beyond the conflict between rationalism and empiricism. This is because the new science has also been grappling with conceptualizing actions that appear to be guided by stability *and* flexibility, self-consistency *and* variety, foresight *and* experimentation. As examples, this article will discuss fractals and various aspects of quantum mechanics. The applicability of innovative scientific conceptualizations is evident in at least three areas: core beliefs, consultative policy development, and evaluations.

### A. Core Beliefs

One of the new developments in mathematics is the discovery of fractals. Fractals are plots of mathematical equations that, when successively applied to themselves, result in random, but patterned, solutions. These repetitions are called iterations. Because of their randomness, the starting point is never connected with an end point. Because of their patternedness, they create incredibly detailed designs which can be endlessly magnified to show the continuously evolving pattern. Margaret Wheatley, in *Leadership and the New Science* describes them:

Fractals are . . . complex by virtue of their infinite detail and unique mathematical properties (no two fractals are the same), yet they're simple because they can be generated through successive applications of simple iterations. . . It's a new brand of reductionism . . . utterly unlike the old reductionism, which sees complexity as built up out of simple forms, as an intricate building is made out of a few simple shapes or bricks. *Here the simple iteration in effect liberates the complexity hidden within it, giving access to creative potential.* The equation isn't the plot of a shape as it is in Euclid. Rather, the equation provides the starting point for evolving feedback.<sup>54</sup>

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54. MARGARET J. WHEATLEY, LEADERSHIP AND THE NEW SCIENCE: LEARNING FROM AN ORDERLY UNIVERSE 114 (1993) (emphasis added).

“Their beauty and variety emerge as a result of two contradictory processes: total freedom for the equations to evolve as they will, with no moment-to-moment prediction possible; yet a pre-determined final shape described by the initial parameters.”<sup>55</sup>

Likening school board policy development to fractals, the school board would contemplate and describe fundamental principles that are expected to govern all the actions of district employees, much as they would under the rationalist model. Then, rather than lockstepping individuality with reductionist rules, the board would allow people to make decisions based on those governing principles. This means that there are no issues untouched by policy, but it also means that actions are not *determined* by rules and regulations promulgated by people who are not in the situation.<sup>56</sup> Thus, the system’s sensitivity to local conditions resonates more with the empiricist than with the rationalist model.

All of the detailed rules and regulations masquerading as policies would be either simplified or eliminated once school boards faced the fact that their sheer number and length, like the messages sent through a line of children in that familiar game of “telephone,” do not lead to the shared understanding and consistent practice that is their purpose for existence.<sup>57</sup> This realization comes as a consequence of seeing that information is as dynamic as a fractal, rather than as static as a rationalistic proof.

To effectuate this change, Nelson and Crum suggest a regular program of policy review with emphasis on consolidation and deletion of older statements. Newly adopted policies should contain “sunset provisions” which terminate their validity after a stated duration unless they are renewed after review.<sup>58</sup> In addition, school boards should examine their time use in terms of what will affect the classroom experience.<sup>59</sup> Once school boards make it their practice to clarify and repeat to all who will listen the fundamental principles they expect will govern the district, they may find less need to micromanage.

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55. *Id.* at 80.

56. PETER M. SENGE, *THE FIFTH DISCIPLINE* 132 (1992).

57. MARGARET J. WHEATLEY, *supra* note 54, at 102.

58. Jay L. Nelson and Lewis R. Crum, *The Power and Challenges of Local School Boards*, 19(10) *AMERICAN EDUCATION* 10, 13 (Dec. 1983).

59. *Id.*

### B. Consultative Policy Development

The discussion of core beliefs links closely with the need for consultative policy development. First, Peter Senge observed in his book *The Fifth Discipline* that "an organization's vision grows as a by-product of individual visions, a by-product of ongoing conversations."<sup>60</sup> If formal policy statements are to become real, then there must be extensive communication between those who proclaim them and those who are to act on them. In law, a distinction is made by calling norms *de jure* (according to law) or *de facto* (in fact). The better the consultation, the closer these two become to each other.

Acceptance of the perspective described in the section above regarding core beliefs creates the imperative to enter broad dialogue. The potential within the educational system to narrow the disparity between policy statements and actual conduct can only be tapped through relationships of trust and confidence that come from participants knowing those with whom they are working.<sup>61</sup> This is especially important when considering the relationship of the school board with the superintendent and other school administrators.<sup>62</sup> Additionally, "each board really needs opportunities to engage in thoughtful discussion about the human relations aspects of a board's internal functioning, as well as opportunities to build and sustain improved skills in these aspects."<sup>63</sup>

This idea of consultation is bound up in the quantum mechanics idea of fields. "In a field view of organizations, clarity about values or vision is important, but it's only half the task. Creating the field through the dissemination of those ideas is essential."<sup>64</sup> To the quantum physicist, experience is understood as "patterns of active relationship."<sup>65</sup> American school board members could fruitfully change their perspective to see education as patterns of active relationship, too. The rewards of taking up a field view of the school board's policy role would include the feedback of new ideas from those included in

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60. PETER M. SENGE, *THE FIFTH DISCIPLINE* 212 (1992).

61. *Id.* at 38.

62. Jay L. Nelson and Lewis R. Crum, *The Power and Challenges of Local School Boards*, 19(10) *AMERICAN EDUCATION* 10, 13 (Dec. 1983).

63. INSTITUTE FOR EDUCATIONAL LEADERSHIP, INC., *supra* note 5, at 48.

64. MARGARET J. WHEATLEY, *supra* note 54, at 55.

65. *Id.* at 32.

consultation. Nelson and Crum saw this potential and advised that, "New, innovative ways should be sought to involve parents, industrial leaders, business leaders, and other citizens of the community in the planning, development and implementation of the school program."<sup>66</sup> As steps are taken to create such linkages, the structures of thought and attitudes of those consulted will be absorbed gradually into the school board's underlying set of assumptions about the nature of policy-making and its role in guiding the organizational life of the school district.<sup>67</sup>

### C. *Evaluations*

Of course, the constant flow of information calls for more attention to relationships, but it need not require more formal information gathering. Linkages, rather than reports are the key. Besides, the same model that creates the need for communication also sends a warning to evaluators.

In quantum mechanics, the definition of phenomena is possible only through relations with other phenomena. A point is high only in relation to another point that is defined as being below it. By saying this, quantum mechanics heralds the end of attempted objectivity. Objectivity is logically impossible. Good evaluators are not objective, they are well connected with what they wish to understand.

By implication, the attempt to measure something is an interaction with it, and by definition, it will respond. As Fred Wolf put it, "knowing is disrupting."<sup>68</sup> Physicists have noted that when they go to measure sub-atomic activity, what they are looking for affects what they see. In measuring some aspects, the phenomena act like positions, particles, or mass; in measuring other aspects, they act like momentum, waves, or energy.<sup>69</sup> "A quantum wave function builds and builds in possibilities until

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66. Jay L. Nelson and Lewis R. Crum, *The Power and Challenges of Local School Boards*, 19(10) AMERICAN EDUCATION 10, 13 (Dec. 1983).

67. *Accord*, Craig M. Lawson, *The Family Affinities of Common-Law and Civil-Law Legal Systems*, 6 HASTINGS INT'L & COMPARATIVE L. REV. 85, 89 (1982) (citing the proposition in the context of incrementally changing legal conceptions).

68. MARGARET J. WHEATLEY, *supra* note 54, at 62.

69. *Id.* at 32; *see also* FRITJOF CAPRA, *THE TAO OF PHYSICS* 140 (1984) ("In atomic physics, for example, we are now used to applying both the particle and the wave concept in our description of matter. We have learned how to play with the two pictures, switching from one to the other and back, in order to cope with the atomic reality.").

the moment of measurement, when its future collapses into only one aspect. Which aspect of that wave function comes forth is largely determined by *what* we decide to measure.<sup>70</sup>

In the discussion of school board policy development, we must then recognize that what is evaluated in making decisions changes what is found. For example, if decisions regarding classroom assignments depend upon the time students spend on tasks that need certain equipment, then the time on such tasks will change to suit the criteria. If the wealth of a district is gauged by tax revenues, tax revenues will change in response to this measurement. Ultimately, it really may be more instructive to spend time at a principal's school, on the phone with her or in round table discussions, than to ask for three page forms in duplicate. Boards will find what they are looking for, and shared experience provides better relations than written information.

The invitation is to become like Gary Zukav's Wu Li Masters who flow with their circumstances.<sup>71</sup> "But for us—as we sit in our offices, structured into rigid relationships, besieged with stacks of data that accumulate daily, armed with our complex formulae of interpretation—we have a long way to go before we can move onto that dance floor" of interactions rather than things.<sup>72</sup>

#### VIII. CONCLUSION

School boards are an entrenched part of the American public education system. But they are not static. As the perspectives of school board members change in relationship to their communities and reform-minded critics, so, too, will the self-concept and practice of school boards. In the center of their identity and of proffered reforms lies the power of school boards to set the policies—and bring life to them—that will form the character of local education. The models of rationalism and empiricism have been a part of this dialogue all along, but few have made them visible. This article has clarified this, then considered school boards' likeness to judges in the rationalistic civil-law system and the empiricist common-law system. Finally, it has suggested a new model to replace rationalism and empiricism based on

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70. *Id.* at 62.

71. Gary Zukav, *THE DANCING WU LI MASTERS*, 317 (1979); MARGARET J. WHEATLEY, *supra* note 54, at 68.

72. Margaret J. Whetley, *Supra* note 54, at 68.

insights from quantum mechanics and fractals. The new science model could be fruitfully applied to, at least, the clarification of core beliefs of a district, consultative policy development, and evaluation.