

STATE OF RHODE ISLAND  
AND  
PROVIDENCE PLANTATIONS

COMMISSIONER  
OF  
EDUCATION

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**Diane Martin**

v.

**Smithfield School Committee**

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**DECISION**

Held: In this case a parent is appealing the decision of the Smithfield school committee to adopt a new mathematics curriculum. The decision of the Smithfield school committee to adopt the *IMP* curriculum comports with the educational policy of the Board of Regents. The decision was made after careful study and appropriate collaborative deliberations. We therefore affirm it. While we must deny the petitioner's appeal we thank her for her participation and for her presentation of an alternate viewpoint.

DATE: March 22, 2002

## Travel of the Case

In this case a parent is objecting to the decision of the Smithfield school committee to adopt a new mathematics curriculum. She alleges that this new curriculum may not offer her son sufficient preparation in mathematics, and that his chances for college admission will, as a result, be diminished. She has voiced her objections to the Smithfield school committee but the committee, based upon its own consideration of the matter, and the advice of both the Smithfield superintendent, and the chairperson of the Smithfield mathematics department, voted to adopt the new curriculum. The petitioner is appealing from this decision. Jurisdiction is present under R.I.G.L. 16-39-1 and 16-39-2.

## Positions of the Parties

### THE PARENT'S POSITION

The petitioning parent submits that the Smithfield school committee has decided to replace its traditional sequence of mathematics courses (Algebra, Geometry, Algebra II) with the *Interactive Mathematics Program (IMP)*.<sup>1</sup> While the traditional sequence of courses may continue to exist for a time at the honors level, most students in Smithfield, including the petitioner's son, will now be enrolled in this new mathematics curriculum.

The petitioner is concerned that this new mathematics curriculum, which is based upon the *NCTM Standards*<sup>2</sup>, might not provide her son with the mathematics instruction he needs to be admitted to college or, if admitted, to succeed in college level mathematics. She argues that the school committee should have provided non-honor students the opportunity to pursue the traditional sequence of mathematics courses rather than restricting this option to honor students. She notes that other Rhode Island school committees make the traditional mathematics course sequence available to all students. She argues that Smithfield is therefore discriminating against her son by not making this option available to him. She contends that in other Rhode Island communities the *IMP* curriculum is only used in classes for students who will not be pursuing mathematics at an advanced level.

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<sup>1</sup> Testimony of Adel Cabral, Chairperson of Smithfield Mathematics Department. See: Exhibit A

<sup>2</sup> Explained in the next section.

## THE SCHOOL COMMITTEE'S POSITION

The Smithfield school committee submits that the mathematics department of the Smithfield public schools thoroughly researched the *IMP* curriculum and concluded that this curriculum provided an excellent instructional vehicle for students at all levels of mathematical ability.<sup>3</sup> The hope, and expectation, is that this curriculum will encourage more students to complete four years of high school mathematics and bring them to a high standard of mathematical proficiency.<sup>4</sup> Smithfield contends that it has researched the question of how colleges regard the *IMP* curriculum and that it has concluded that the *IMP* is well accepted by colleges and that it provides a more than adequate preparation for the SAT and for college mathematics.<sup>5</sup> Smithfield concedes that other school districts use the *IMP* curriculum for students in lower level mathematics courses, but it argues that this a result of adaptability of the curriculum to students at all levels of mathematical ability, rather than from any "watering down" of the mathematics encompassed by the curriculum.

Before we make formal findings of fact and state our conclusions of law it is important to give the reader the background to this dispute, so that the findings of fact and conclusions of law may be understood.

### **The *NCTM Standards* And the *IMP Curriculum* <sup>6</sup>**

We will not be so bold here as to attempt to sum up in a few lines the *NCTM Standards*, or the richness of the intellectual debate that has come to surround this document, and the curriculums, such as *IMP*, which are based upon it.<sup>7</sup> Still, some background information about the *NCTM Standards* and *IMP* curriculum, and their provenance, is necessary at this point.

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<sup>3</sup> Testimony of Adel Cabral, Chairperson of Smithfield Mathematics Department. See: Exhibit A

<sup>4</sup> Testimony of Adel Cabral, Chairperson of the Smithfield Mathematics Department.

<sup>5</sup> Exhibit E, Smithfield School Committee Agenda, December 3, 2001 and Testimony of Adel Cabral

<sup>6</sup> We are not making findings of fact here or even "taking notice of facts." Our purpose is simply to explain the issues at hand to the reader. In any event an "agency's experience, technical competence, and specialized knowledge may be utilized in the evaluation of...evidence." R.I.G.L.42-35-10

<sup>7</sup> For those interested in the issues presented a good starting point might be: Adding it Up: *Helping Children Learn Mathematics*, Kilpatrick, Swafford, and Findel, *Editors*. Center for Education, AMS, 2001.

In 1989 the *National Council of Teachers of Mathematics (NCTM)* issued a document called the *Curriculum and Evaluations Standards for School Mathematics (NCTM Standards)*.<sup>8</sup> This document was revised in 2000 so as to reflect more input from various sources, especially from various scientific and mathematical societies. The revision changed some language to dispel the notion that the *Standards*, by allowing for some use of calculators, and by stressing experiential learning, were giving short shrift to computational skills and deductive reasoning (i.e. the basics). The *NCTM Standards* are based on six principles:

**Equity.** Excellence in mathematics education requires equity---high expectations and strong support for all students

**Curriculum.** A curriculum is more than a collection of activities: it must be coherent, focused on important mathematics, and well articulated across the grades.

**Teaching.** Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn well.

**Learning.** Students must learn mathematics with understanding actively building new knowledge from experience and prior knowledge.

**Assessment.** Assessment should support the learning of important mathematics and furnish useful information to both teachers and students.

**Technology.** Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning.<sup>9</sup>

The *NCTM Standards*, and its associated principles, came to be endorsed by the *National Science Foundation*, which in turn awarded grants to encourage the development of curriculums to match the *Standards*. One of the curriculums developed through this process for use at the high school level was the *Interactive Mathematics Program (IMP)*.<sup>10</sup> The United States Department of Education found this four-year curriculum to be an "exemplary" program of instruction.

For practical purposes the *IMP* curriculum covers much the same ground that is covered in the more traditional sequence of courses, while adding some material relating to statistics and probability. While the *IMP* curriculum, of course, prepares students to study calculus it, in accordance

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<sup>8</sup> The Rhode Island *Mathematics Framework K-12 (Mathematical Power for ALL Students)* issued by the Board of Regents in 1995 references at numerous points the *NCTM Standards*.

<sup>9</sup> *NCTM Principles and Standards for School Mathematics*, Chapter 2.

<sup>10</sup> *A Brief History of American K-12 Mathematics Education*, by David Klein.

with the *NCTM Standards*, does not assume that all students will study this subject.<sup>11</sup>

The *NCTM Standards* and the *IMP Curriculum* have not been without their critics. Some scholars have argued that an exactly rigorous analytical abstract approach is fundamental to the nature of mathematics and that this sort of approach should therefore be used in the teaching of the subject.<sup>12</sup> These scholars stress the need for drill in the fundamental operations of mathematics as a precondition to being able to appreciate and understand higher mathematics. They express concern that experiential learning endorsed by the *NCTM Standards*, may short-change students by allowing them to skirt hard individual concentration. They also believe that the *IMP* curriculum lacks a full measure of "precision, rigor, and mathematical closure."<sup>13</sup>

The issue became of greater prominence when David Klein, a mathematician from California, along with a group of fellow research mathematicians, published an *Open Letter* in the *Washington Post* challenging the U.S. Department of Education's decision to designate the *IMP* curriculum, along with four other curriculums, as being exemplary.<sup>14</sup>

In a rebuttal letter the Secretary of Education wrote that he did not accept the assertion of the *Post Open Letter* that "both the panel [the *Expert Panel* that had found the five curriculums to be exemplary] and the criteria it used were outside of the existing mathematics education mainstream." However, the Secretary of Education also wrote that he did "agree that additional representation of research mathematicians knowledgeable about K-12 mathematics education would strengthen panel deliberations."<sup>15</sup>

The incoming president of the *American Mathematical Society* responded to the *Post Open Letter* with an open E-mail stating that he found:

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<sup>11</sup> Testimony of Adel Cabral, Chairperson of the Smithfield Mathematics Department.

<sup>12</sup> They would disagree with mathematician Morris Kline who wrote long before the *NCTM Standards*: "Before one can appreciate a precise formulation of a concept or theorem, he must know what idea is being formulated and what exceptions or pitfalls the wording is trying to avoid. Hence he must be able to call upon a wealth of experience acquired before tackling the rigorous formulation. Furthermore, having students master a polished deductive organization does not teach them how to think and how to do mathematics, for thinking and doing are not deductive processes. How can discovery take place when students are asked to work with ideas that are already overlaid with sophistication and refinement? Morris Kline, *Calculus, an Intuitive and Physical Approach*, Dover Publications, Mineola, N.Y. 2<sup>nd</sup> ed., 1967, page viii.

<sup>13</sup> H. Wu, *Review of the Interactive Mathematics Program (IMP)*, [wu@math.berkeley.edu](mailto:wu@math.berkeley.edu), March 25, 2000. [Petitioners Exhibit 8 for identification]

<sup>14</sup> Appendix 1, Attached.

<sup>15</sup> Appendix 2, Attached.

...the implication symbolized by the list of signers of the [Post] *Open Letter* to be not only wrong, but dangerous and damaging. Ironically, it does a great deal to make serious professional collaboration impossible."<sup>16</sup>

This debate about the *NCTM Standards* is still continuing today.

### **Findings of Fact**

1. The introduction of the *IMP* curriculum was carefully considered by the Smithfield school committee, the Smithfield superintendent and the chair of the Smithfield mathematics department, in consultation with all other Smithfield mathematics teachers<sup>17</sup>. Outside help with the decision was also obtained.<sup>18</sup> Parents had a chance to voice their concerns, and the school committee considered these concerns.<sup>19</sup> In the end the school committee, in a valid vote, decided to adopt the *IMP* Curriculum.<sup>20</sup>
2. The *IMP* curriculum, which is based on the *NCTM Standards* is compatible with the *Rhode Island Mathematics Framework* which itself relies, to a degree, on the *NCTM Standards*.<sup>21</sup>
3. The evidence submitted indicates that the *IMP* curriculum does not impede college admission, though its contents may need explanation to admission officers who are not familiar with it.<sup>22</sup>
4. The *IMP* curriculum is congruent with Rhode Island's *Mathematics Framework K-12 (Mathematical Power for ALL Students)*<sup>23</sup>

### **Conclusions of Law---Establishment of Curriculum**

In academic matters, when scholars disagree, but a choice still must be made, who makes the decision? In Rhode Island the decision is made by a popularly elected school committee. Rhode Island school committees, under

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<sup>16</sup> Appendix 2, Attached.

<sup>17</sup> Exhibits C, D, E, F and G.

<sup>18</sup> Testimony of Adel Cabral. See: Exhibit A; Exhibit E. School Committee Agenda, December 3, 2001.

<sup>19</sup> Exhibits C, D, E, F and G.

<sup>20</sup> Exhibits C, D, E, F and G.

<sup>21</sup> The Rhode Island *Mathematics Framework K-12 (Mathematical Power for ALL Students)* Testimony of Adel Cabral. See: Exhibit E. School Committee Agenda, December 3, 2001.

<sup>22</sup> Testimony of Adel Cabral. See: Exhibit F, School Profile;

<sup>23</sup> Testimony of Adel Cabral. See: Exhibit E. School Committee Agenda, December 3, 2001.

the direction of the department of education, have the authority to establish the curriculum to be followed in their respective schools:

**16-2-16. Rules and regulations – Curriculum.** – The school committee shall make and cause to be put up in each schoolhouse rules and regulations for the attendance and classification of the pupils, for the introduction and use of textbooks and works of reference, and for the instruction, government, and discipline of the public schools, and shall prescribe the studies to be pursued therein, under the direction of the department of elementary and secondary education

The school committee's superintendent of schools has the duty: "To recommend policies governing curriculum, courses of instruction, textbooks, and transportation of students."<sup>24</sup> In establishing the school district's curriculum the school committee must: "Accept and encourage a variety of opinions from and communications with all parts of the community."<sup>25</sup> It must also: "Act on legislative and policy making matters only after examining pertinent facts and considering the superintendent's recommendations."<sup>26</sup> Of course the committee must: "Recognize that the first and greatest concern must be the educational welfare of the students attending the public schools."<sup>27</sup>

Of course the school committees authority is not quite plenary in this important sphere. The Rhode Island Board of Regents for Elementary and Secondary Education also has a voice in the development of the course of studies since it has authority to:

To approve the basic subjects and courses of study to be taught, and the instructional standards required to be maintained in the public elementary and secondary schools of the state.<sup>28</sup>

The Commissioner of Education, who reports to the board of regents, is required:

To recommend the basic subjects and courses of study to be taught and instructional standards to be maintained in the public elementary and secondary schools in the state.<sup>29</sup>

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<sup>24</sup> R.I.G.L.16-2-11(3)

<sup>25</sup> R.I.G.L.16-2-9.1

<sup>26</sup> R.I.G.L.16-2-9.1

<sup>27</sup> R.I.G.L.16-2-9.1

<sup>28</sup> R.I.G.L.16-60-4(9) (I)

<sup>29</sup> R.I.G.L. 16-60-6(9)(I) See: R.I.G.L. 16-1-5(4)

Still, as can be seen, in Rhode Island, much discretion concerning curriculum has been left to the sound judgement of local school committees. In making curriculum decisions at the local level parental advice has always been an important consideration in Rhode Island. For example the Rhode Island School Manual for 1881, while recognizing the authority of the school committee to establish the local curriculum, observed that:

[S]till the committee should be ever ready to heed all reasonable requests of parents and guardians for such deviations therefrom, as the best interests of their children seem to require. What shall be adopted? How far the schools shall go? Is wholly within the province of the committee, who will doubtless seek to be governed in the matter by the dominant sentiment of their constituents.

Rhode Island, "where people think otherwise", has never been a place where "expert opinion" has been unquestioningly followed---and this goes for the development of school curriculum. Parents, should, and indeed, must, have a voice in such matters.<sup>30</sup>

### **Conclusions of Law--** **The Commissioner's Standard of Review**

The authority of the commissioner to review decisions of school committees is contained in two statutes:

**16-39-1. Appeal of matters of dispute to commissioner.** – Parties having any matter of dispute between them arising under any law relating to schools or education may appeal to the commissioner of elementary and secondary education who, after notice to the parties interested of the time and place of hearing, shall examine and decide the appeal without cost to the parties involved.

**16-39-2. Appeal of school committee actions to commissioner.** – Any person aggrieved by any decision or doings of any school committee or in any other matter arising under any law relating to schools or education may appeal to the commissioner of elementary and secondary education who, after notice to the parties interested of the time and place of hearing, shall examine and decide the appeal without cost to the parties involved.

These statutes are the lineal descendents of the original statute that established the jurisdiction of the Rhode Island commissioner of education in the Barnard Act of 1845. This statute said:

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<sup>30</sup> R.I.G.L. 16-2-9.1

§ 26. Any person conceiving himself aggrieved in consequence of any decision made by any school district meeting, or by the trustees of any district, or the committee of any town, or by a county inspector, or concerning any other matter arising under this act, may appeal to the commissioner of public schools, who is hereby authorized and required to examine and decide the same: and the decision of said commissioner, when approved by any judge of the supreme court, shall be final and conclusive.

The comments contained in the proposed Barnard Act of 1845 clarify the purpose of this legislation:

Remarks. The liberty of appeal here given in the incipient states of any controversy arising among the inhabitants, teachers and officers of any district or town, to a tribunal which ought to be abundantly competent to decide finally all matters growing out of the operation of laws relating to public schools, without cost or delay to the parties, will harmonize many conflicting interests and differences of opinion before they have ripened into bitter neighborhood feuds, and protracted and expensive litigation.

This feature is taken from the New York school system, where it has been productive of very beneficial results, and been the means of dispensing equal, exact, cheap and speedy justice, by the adjustment of various differences incident to the work of a system comprehending so great a diversity of interests.<sup>31</sup>

One of the first Rhode Island cases to construe this law held, in a decision written by Chief Justice Ames, that it made the commissioner a *visitor* in school matters with authority to operate a *forum domesticum* to resolve disputes *sine strepitu*.<sup>32</sup> New Jersey, just as Rhode Island did, copied its statute relating to the jurisdiction of the commissioner of education from New York. In construing this New Jersey analogue the Supreme Court of New Jersey held that its commissioner of education has "fundamental and indispensable jurisdiction over all disputes and controversies arising under the school laws"<sup>33</sup> The commissioner of education, under R.I.G.L.16-39-1 and

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<sup>31</sup> Journal of the Rhode Island Institute of Instruction for 1845--6, edited by Henry Barnard, Commissioner of Public Schools, Providence 1846, page 113, et seq. (VIII, Draft of an Act Respecting public schools, with remarks explanatory of its provisions.) The Rhode Island Supreme Court has held that in construing a statute that has been taken from another state, decisions of that state are entitled to great weight. *Fleet National Bank v. Clark*, 714 A.2d 1172 (R.I.,1998)

<sup>32</sup> *Appeal of Emor Smith*. 1 R.I. 590 (1857).

<sup>33</sup> *Hinfey v. Matawan Regional Board of Education*, 391 A.2d 899 (1978)

R.I.G.L. 16-39-2, exercises *visitatorial*<sup>34</sup> or, in more modern language, supervisory authority of Rhode Island public education.

As a result of all this the Rhode Island commissioner of education has authority to review the discretionary decisions of school committees.<sup>35</sup> While the Commissioner must accord great weight to the decisions of local school committees it is also true that the “tribunal” of the Commissioner “is a court of policy as well as of law.”<sup>36</sup> This is not surprising. Rhode Island’s statute on the appellate authority of the Commissioner was, as has just been pointed out, copied from New York legislation.<sup>37</sup> Similar legislation exists in New Jersey. The Courts of these states have held that their laws grant broad review authority in educational matters to their respective commissioners of education.<sup>38</sup> In fact, the Rhode Island Supreme Court has held that the commissioner exercises *de novo* review authority.<sup>39</sup> This means that the commissioner completely rehears any matter that has been appealed.

In sum, the Commissioner’s authority to review the decisions of school committees in educational matters is broader than the scope of review that would be used by a court.<sup>40</sup> It should be remembered that education is a state rather than a local function.<sup>41</sup> It is therefore appropriate that, while local control is the norm, there is also a mechanism to ensure that the State’s overall interest in public education is respected.<sup>42</sup> Still, in most cases, the

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<sup>34</sup> In reference to the jurisdiction of the commissioner the Rhode Island Supreme Court has said: " The summary jurisdiction of visitors of academic bodies...[was], at the adoption of the constitution, as well known in this state and in all other countries of the common law, as the equity, admiralty, and probate jurisdictions.... All these special jurisdictions have for ages, each in its appropriate sphere and in its distinctive method, administered justice side by side with the common law courts...." *Crandall v. James*, 6 R.I. 144 (1859) ["Summary", in this context, means a non-jury trial. (See: Blacks Law Dictionary)] It is interesting to note that the attorneys in *Crandel v. James*, were prominent school reformers of the times. In fact, one of these attorneys was E.R. Potter, Rhode Island's second commissioner of education (and perhaps a co-drafter of the 1845 Barnard School Act).

<sup>35</sup> *Appeal of Cottrell*, 10 R.I.615 (1873)

<sup>36</sup> Carroll, Public Education in Rhode Island, p.172. See: *Lusignan v. E.P. School Committee*, Commissioner of Education, June 17, 1999.

<sup>37</sup> In construing a statute copied from another state, great weight should be assigned to that states interpretation of its law. *Fleet National Bank v. Clark*, 714 A.2d 1172 (1998)

<sup>38</sup> See: *Board of Education of City of New York v. Allen*, 6 N.Y2d 127 (1969) and *In Re Masiello*, 138 A.2d 393 (N.J. 1958)

<sup>39</sup> *Jacob v. Board of Regents*, 117 R.I. 164 (1976); *Slattery v. School Comm.*, 116 R.I. 252, 354 A.2d 741 (1976); *Altman v. Schol Comm.*, 115 R.I. 399, 347 A.2d 37 (1975).

<sup>40</sup> “The jurisdiction of the school commissioner under the public school act, by way of appeal...is, looking to subject, nature, and manner of its exercise, rather a visitatorial power, than that of an ordinary legal tribunal...”*Appeal of Emor Smith*, 4 R.I.590 (1857)

<sup>41</sup> Article XII of the Rhode Island Constitution. See: *City of Pawtucket v. Sundlun*, 662 A.2d 40 (R.I.1995)

<sup>42</sup> *Donna F. v. Burrillville School Committee*, Commissioner of Education, January 10, 2000

commissioner will give deference to a local academic decision as long as this decision is not contrary to significant statewide academic policy.<sup>43</sup>

### Discussion

The school committee, and appropriate school staff, carefully weighed the decision to implement the *IMP* curriculum. The voice of objecting parents was heard and considered. Alternative curriculum policies were examined and, after appropriate deliberation, the *IMP* curriculum was adopted in accordance with the Smithfield school committee's authority under R.I.G.L. 16-2-11 to establish, under the direction of the department of education, the course of studies to be pursued in the schools under the committee's jurisdiction. While our scope of review here is *de novo* it is also true that a Rhode Island commissioner of education "would seldom reverse a decision of a committee unless he was satisfied that the public good or justice to individuals required it."<sup>44</sup>

### Conclusion

The decision of the Smithfield school committee to adopt the *IMP* curriculum comports with the educational policy of the Board of Regents. The decision was made after careful study and appropriate collaborative deliberations. We therefore affirm it. While we must deny the petitioner's appeal we thank her for her participation and for her presentation of an alternate viewpoint.

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Forrest L. Avila, Hearing Officer

APPROVED:

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Peter McWalters, Commissioner

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March 22, 2002

Date

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<sup>43</sup> *Lusignan v. E.P. School Committee, supra.*

<sup>44</sup> *Appeal of Cottrell*, 10 R.I. 615 (1874) The author of this opinion was E.R. Potter, who was a close associate of Henry Barnard and Rhode Islands second commissioner of public education The two pronged standard of review laid out by Potter which encompasses "individual justice" and "public good" is therefore entitled to considerable weight.