

NUMBER: 37-1990
STATUS: APPROVED
PLACE: ROCKVILLE, MARYLAND
DATE: SEPTEMBER 12, 1990
TEXT:

WHEREAS, On August 17, 1988, the United States Congress by joint resolution authorized the President to proclaim annually the 31-day period beginning September 15 and ending on October 15 as National Hispanic Heritage Month; and

WHEREAS, The purpose of this month is to commemorate the contribution of people of Hispanic descent to this country; and

WHEREAS, Hispanic American students and staff contribute to the success of the Montgomery County Public Schools through their participation in all aspects of education; and

WHEREAS, The growing Hispanic community has enriched our county in many ways; now therefore be it

RESOLVED, That on behalf of the superintendent and staff of the Montgomery County Public Schools, the Board of Education hereby declares the period of September 15 to October 15, 1990, to be observed as "Hispanic Heritage Month."

Re: REPORT ON THE OPENING OF SCHOOL

Dr. Vance reported that staff started working on the opening of school in mid-June, and he and the associate superintendents met as a team on a weekly basis throughout the summer to plan, assess, and monitor. Dr. Philip Rohr, associate superintendent, stated that this was a superior opening from a facilities point of view. Thanks to Mr. Wilder, Mr. Hawes, and Dr. Cary, they had completed 13 major projects. He also thanked Mr. Stafford, Mr. Stukes, Mr. Benson, and Ms. Calavetinos for their efforts in school services, transportation, plant operations, and supply management.

The four area associate superintendents all agreed that most of the credit for the smooth opening should go to the principals and staff. Mrs. Katheryn Gemberling, associate superintendent, said that her staff had put together a schedule for school visits. She was making her own visits around the SIMS project, and in every school she visited she found staff using the new network to check for information. Dr. Hiawatha Fountain, associate superintendent, thought that things had gone well. He extended special thanks to Mary Lee Phelps for her efforts in special education placements which kept her and her staff busy during the evenings and on weekends. Dr. Carl Smith, associate superintendent, recognized the efforts of Dr. James Shinn, director of personnel, and his staff because 288 teachers and 550 supporting services personnel had been hired for the opening of schools. In addition, 31 percent of the new teachers were minority including 11 percent Asian.

*Dr. Cronin joined the meeting at this point.

Mrs. Hobbs asked for a list of schools where the outdoor play areas were not useable as well as an estimate of when they would be available for student use. She also asked if there were signs in place to direct people to new schools or to schools that had been moved to holding facilities. In regard to enrollment data, Mrs. DiFonzo requested copies of their original projections prior to the reductions suggested by Council staff. Dr. Shoenberg expressed the Board's appreciation for the good work done by staff in opening school this year.

Re: RESOLUTION REGARDING POLICY
DECISIONS ON MATH AND SCIENCE

Dr. Shoenberg recalled that at the time Mr. Ewing introduced his motion they did not have too much time to discuss this. He wondered if Mr. Ewing had comments to make.

Mr. Ewing stated that he had provided the Board with a memo which discussed his motion in some detail. His intent was to focus not so much on the details as on the general intent of reviewing the question of whether or not they needed to expand the requirements for student knowledge and understanding of math and science. He had suggested a number of ways to address that issue. They were not the only ways, and at the national level there was a tremendous emphasis on upgrading the requirements for student graduation and the amount of knowledge students had in math and science.

It seemed to Mr. Ewing it was important for them to discuss various ways to approach this. Some school systems increased requirements and found themselves hard pressed to find qualified teachers. One suggestion he had was to increase the preparation of elementary school teachers to teach science and math effectively. He had also suggested some dates. For example, if they had difficulty assuring they could do this by 1993, they ought to address themselves to when they could do it.

Mr. Ewing said there was an issue in regard to what increased requirements might mean given the fact the public schools needed to educate all students. Some students pursuing vocational programs might find this sort of requirement difficult to met. This was an important issue and one of the reasons why they should not rush to make a decision. Dr. Pitt's memo had suggested a careful examination of that.

Mr. Ewing pointed out that Dr. Pitt had stated they had difficulty requiring teachers already on staff to take additional courses unless there was a deficiency that could be pinpointed. That was so, but at the same time it seemed to him that if the school system wished to upgrade the qualifications of its staff it ought to be able to do that. If that required an amendment to

the contract, they should consider this as well. If the Board had an objective it wanted to accomplish, it should not be defeated by present regulations. This was not to say that all obstacles could be easily overcome, but they should not regard an obstacle as reason to give up on an objective.

Mr. Ewing believed it was time for the Board to recognize that their math and science preparation, while of high quality, was not extensive enough for all students. The knowledge explosion had made it necessary for them to consider an expanded requirement. They should not talk about numbers of courses or numbers of years but rather what students were expected to learn and to be able to do. He had listed a few things, but it was not a complete list. He assumed that others would help to fill that in. At a minimum students ought to be able to master introductory algebra and should have some knowledge of statistics and probability. In addition, students should have at least biology and one additional course in science. He would argue that students needed to know what it was that science and math meant, why they were studied, what uses they had, and where one went with science and math knowledge in terms of their general uses.

Mr. Ewing hoped that the Board would discuss this in the light of the Board's discussions at its retreat and not feel that it needed to rush to decision.

Dr. Cronin was glad that this was now a discussion item because it was a piece of something they had to talk about in the broad scale of what they were doing with high school education. If they read the studies, they heard that students needed to read more and television ought to be banned. If they wanted more English skills, more social studies, more geography, more foreign language, and more math and science, they were talking about the restructuring of high school requirements. This discussion was a piece of that, and they had to look at what rigor they wanted to put in the requirements for math and science. They also had to consider vocational education and the effects of this on handicapped students. If they changed the graduation requirements, they had to look at the impact on these students. He also asked whether they had their teachers trained, especially elementary teachers who needed to prepare students for the middle level. They also had to look at whether they had science materials and teacher training in the elementary schools to start the hands-on science.

Dr. Cronin thought that Mr. Ewing's idea was laudable, but he was glad that this was a discussion item because it gave them an opportunity to lay out the foundation of the work they had to do. The issue of evaluation was important because if they continued to look at evaluation as a kind of punitive process, they would

never get people to admit they needed help in certain areas. They had to change an attitude about evaluation from punitive to self-analysis. A teacher might say that he or she needed help in teaching math or science. He thought that self-analysis should be part of the evaluation process which would lead to a plan for a teacher which MCPS would have to fund in order to be sure they had the training either within the system or at college.

Dr. Pitt called attention to the paper before the Board. He believed there were ways of getting teachers trained. The major issue at the elementary level was that they had generalists and now had a much more specialized curriculum. They were moving toward improving their elementary science curriculum, and they had talked about mathematics. He believed that if they had the curriculum, elementary teachers would ask for the training. The question was how they got this done and how much could they do. He still thought there needed to be some restructuring at the elementary level that allowed for more specialization.

Dr. Shoenberg asked staff to update the Board on the status of the changes in the mathematics program and what they had been doing over the summer to put teachers in a position to take advantage of the new science equipment and curricular changes.

Mrs. Katheryn Gemberling, associate superintendent, replied that during the year they made some adjustments in the delivery of the training. They had moved from bringing in one teacher to go back and train staff to a model in which they used released time in the school day for teams of teachers at grade levels. The teacher specialists had provided that training, and now there was concern about the expertise to deliver that training. This summer they did provide in-service offerings, but it was a voluntary situation.

Mrs. Gemberling said they had the math project, Project IMPACT, in three schools, and all teachers in these schools did have intensive training. Based on the feedback from the teachers and the principals, she was encouraged. They did have an on-site coordinator in place at each of those schools. She pointed out that the ramifications for that across the system were costly. In regard to elementary science, she said it was not just a content switch but rather a philosophical switch in terms of the presentation of their science program. This would require teacher training and an attitude adjustment.

Dr. Thomas Rowan, coordinator of elementary mathematics, stated that training during the school day or a financial incentive were two ways to get around the inability to require teachers to take a particular course. Last year, the area-based teacher specialists did training with grade level teams, and this did a lot to turn around the problem of the math revisions. He felt

that the impact of that training during the school day was tremendous because teachers were freed up for a short period of time during the school day and received information from experts who concentrated on their grade level. The summer training for Project IMPACT and the modules for the revised math program was a financial benefit. They paid \$50 for six hours of training for the modules. Project IMPACT involved all of the kindergarten and first grade teachers at the three schools. The elementary math teacher training project which they had been doing for the last five years was much more intensive and extensive. This was more attractive because it paid \$50 a day for two weeks. In these two programs they added a couple of professional part-time contract days where the teachers did things to follow up on their training which further enriched the money side of it.

Dr. Shoenberg asked for a description of IMPACT. Dr. Rowan replied that it was the National Science Foundation grant to improve the achievement of minority students. They were focusing on Rolling Terrace, New Hampshire Estates, and Takoma Park elementary schools. Dr. Pitt asked if the teachers were able to absorb what they wanted them to. Dr. Rowan replied that many teachers came very reluctantly because it was during the summer. By the end of the program, every teacher praised the training in terms of the math and the teaching ideas. He pointed out that the program was particularly effective because teachers were working with children as part of their training.

Dr. Cronin asked about the cost per school for the training. Dr. Rowan replied that the cost per teacher was \$2,600 for 22 days. At most there were 11 teachers from one school. If they added in the cost of the instructor, it would be about \$50,000 to \$60,000 per school. Dr. Cronin pointed out that if they focused on IMPACT it would take \$500,000 to do 10 schools per year. He wondered if they would have the staff to deliver something like that. Dr. Rowan replied that this was a cooperative project with the University of Maryland with an extensive evaluation component built into the project. If the evaluation were favorable, he thought they would have the staff to do this. Dr. Pitt thought the most critical area was the primary level in terms of where to start, especially with minority youngsters. They would want to look at putting significant money into this if it were successful. Mrs. Gemberling added that one advantage was they could use teachers with particular expertise to do this training because it was a summer program.

Dr. Gerald Consuegra, coordinator of elementary science, stated that they were working to revise the elementary science program. They were developing it in terms of a major philosophical shift. They were moving away from a content approach to a more process oriented approach where children were involved with experiences and materials. This year the operating budget provided for those

materials. They had released the funds directly to the areas for distribution to the schools, and they had reserved substantial amounts of that to implement components of the program.

Dr. Consuegra said that this summer they worked on developing the curriculum framework. That material was being reviewed and would be going to the Council on Instruction for ultimate presentation to the Board. In regard to teacher training, he said they needed opportunities to help teachers understand the differences in the program. Last year they did implement some field test units and did training for 10 schools with about 50 teachers involved. Not only did they help teachers learn to use the materials, they took time to discuss the changes going on in elementary science. In addition, the teachers were given content information related to the unit they would be teaching. He felt that the field test went very well, and they had very positive feedback from the DEA study. He thought this would be an effective way to help teachers make that shift in emphasis. He said that Priority 1 training occurred again this summer, and they had some Eisenhower money to do teacher training by content experts.

Dr. Pitt reported that three years ago he had asked a group of experts to look at the MCPS science program. The Board had asked about having an organized way to train teachers, and there was money in the budget for materials and training.

Dr. Shoenberg commented that the several training programs described were set up of necessity on the assumption they had to get the training to every classroom teacher. They were still thinking in terms of the self-contained classroom. If they were going to make these changes, he wondered how much longer they could continue to think that way at the elementary level. They could not deliver in a reasonable amount of time the training needed to make the changes if they were going to continue to think in terms of the self-contained classroom model with every teacher teaching all subjects. While they could train all teachers to teach math and science, only a small percentage had an interest in math and science. The teachers would know what they were taught and nothing more. They would not be able to put that into some larger gestalt. They would not be able to take what they had learned and add to that.

Dr. Shoenberg pointed out that at the central office level they were organized in terms of subject matter and at the area office in terms of level of education, elementary and secondary. That left them with someone thinking centrally about each subject matter, but no one thinking centrally about the levels of education and what they ought to be. He asked who was really thinking about what they ought to be doing about elementary education and secondary education.

Dr. Pitt believed they did have to change the structure of the elementary school. It would be a hard process because a lot of people did not agree with this. He had had preliminary discussions with Mrs. Gemberling and others, and he thought they should get a group together to look at the structure of the elementary school. They did have the beginning of early childhood education. He believed that the structure wasn't as critical at the upper elementary grades because there already was some restructuring there. He asked people to look at the primary grades for restructuring, and he thought there might be some change in how they looked at this operationally.

Dr. Cronin pointed out that principals did have the authority to regroup teachers. Dr. Pitt agreed but thought it had to go further than that. They really needed to talk about the philosophical issues there. This was a major issue here and around the country, the issue of not losing the whole child. Dr. Shoenberg did not want to see the logistical problems drive the school system, but the logistical problems called attention to the questionable practices within the school system.

It seemed to Mr. Ewing there was an issue that Dr. Pitt had spoken about today and earlier. The question was the extent to which in the short term they decided the urgency of providing adequate instruction to students required that they have specialists do that even in the earliest grades in the elementary school. This had advantages, but it also had some serious drawbacks.

Mr. Ewing saw something happening with art and music instruction that might happen with math and science. For example, someone might come in and teach the children math and science, and the teacher would take the opportunity to grade papers or leave the room. The consequence would be that the child did not get an integrated understanding of what he or she was learning. The dilemma was whether they focused on the child's learning mode which they would hope would be a more integrated one or did they focus on providing more advanced instruction through specialists. He was in favor of having classroom teachers with an adequate understanding of math and science so that they could integrate what was given in the form of instruction even if they did have specialists coming in to provide some of it. If the teachers did not understand what the specialists were saying, they could not use that in integrating the rest of their instruction to the students. It was important for them to come to grips with that issue because in order to train everyone it would be extraordinarily expensive and time-consuming.

Mr. Ewing said a statement was made that they were moving away from content to process in science instruction. He thought this

would strike terror in lots of parental hearts unless they understood what this meant.

Dr. Consuegra explained that the current science curriculum was organized around some basic content ideas with the idea that they would bring out the science processes. Teachers focused on the content objectives and did far less hands-on science. The idea was to have a curriculum organized around basic science processes and have curricular units that were content oriented and would be used to support those processes so that children would get the content. He emphasized that they were not going to drop the content. Mr. Ewing asked whether the concept was similar to what MCCPTA was using in Hands-on Science. Dr. Consuegra replied that to a certain extent it was because this was the direction that was being described in all the national research and in recommendations from various agencies. They would have a more modular approach built around themes where topics would be studied more in depth.

Mrs. Gemberling said they would have a life science, physical science, and earth science at each grade level with strands and topics. In terms of the issue of the content specialists in the central office and the generalists in the field, she said they had been discussing this internally and some initial meetings had been held. They were looking at two issues. One was the need for them to coordinate across a grade level and have the various subjects strengthen and re-enforce each other. They also needed to tie this into what was coming from the state mandate in terms of outcomes at particular grade levels. In terms of the programs that they were piloting, they were working with DEA to look at the results of what they were doing. If they expected teachers to have any kind of cross content instruction going on, their best way of getting that to happen was to look at the some cross content assessment. The elementary coordinators were working from that point of view rather than being isolated in CRT development so that they would be able to tie the two together. This would assure that they were not testing one way, instructing in another, and training in another.

Dr. Cronin commented that they often pretended there were no wheels unless they were invented by MCPS. He asked how much of their thinking was now into, "We don't have to do it here but rather we must do the national searches and bring in already tested and developed modules or curricula." Mrs. Gemberling replied that this was exactly what they had been doing. The science units consisted of those developed by MCPS and those which had been commercially purchased. The same thing was true with the mathematics. The secondary people were also looking at units developed elsewhere in math and biology. Staff was looking at existing units that could be adapted for MCPS.

Ms. Joy Odom, coordinator of secondary mathematics, reported that with the national reports people across the country were beginning to revise math and science. At the mid level in MCPS, they were getting bits and pieces and trying to pull them together. While they had some wonderful things, this process was very costly because the materials had to be purchased for all students. Previously, they were using texts that were not quite up to standard and purchasing materials to supplement. This year there were textbooks suitable for MCPS. Staff chose to go with a student workbook reflecting those things that Montgomery County had that could not be found in textbooks. Those included the Maryland Functional Math material, computer technology, calculators, and the interdisciplinary projects.

Ms. Odom thought that Mr. Ewing had brought out some very good points in mathematics. Math was changing, and the question was should Montgomery County change first or should it wait for other school systems to change. This year most MCPS high schools were instituting change in math, and people were enthusiastic.

Dr. Cronin asked if the same people were doing the training and the writing. Ms. Odom replied that for mid level math, the trainers and the writers were the same people. They were very focused on moving toward technology, and the development of the workbook helped focus their efforts. They were not asking teachers to change everything overnight, but they were asking them to change little by little, year by year. They were emphasizing projects now at the mid level which was something they had not done in recent years.

Dr. Wayne Moyer, director of secondary science, stated that they had identified their major concern as instructional methods rather than the content itself. They could pick up the content because it formed a network from topic to topic. It was not so much what they taught but how they taught it. They also knew that a child learned from his or her own practical experience. An objective in instruction was to help the child construct his or her version of knowledge by providing experiments they could do or data they must manipulate. These experiences enabled students to construct their own version of the world and compare it to that which had been accepted as the scientific view.

Dr. Moyer explained that they were working to develop issue-centered modules with the goal of having all the science context taught in the context of issues related to the life of the child. For example, they had developed a unit on bacteriology. The issue was food poisoning which led them to discuss what caused food poisoning, how bacteria caused disease, how bacteria grew, how could they isolate bacteria from the environment, what were the properties of bacteria, and what could be done to control bacterial growth where it was not wanted or to encourage it when

they did want it. This was a seventh grade unit and would lead into the tenth grade where they were developing a unit on bio-technology. Here the issue was bio-ethics. For example, Virginia had proposed collecting DNA fingerprints on all of its convicted felons. The issue was should the state be gathering these DNA fingerprints on its citizens. Students would discuss what DNA fingerprints were, how they worked, and what was their reliability. Students would study whether bacteria should be modified and released into the environment. Another example was whether they should insert genes into humans to correct for defects. The bio-technology unit would be using the training provided by the Howard Hughes Medical Institute. A group of teachers had participated in a week-long workshop this summer, and there would be a follow-up session in October. Eventually all biology teachers would be trained.

Dr. Moyer indicated that they were also working on similar units in laboratory science. They were developing an earth science events-centered curriculum, and they were working on a proposal for this to the National Science Foundation. They already had a curriculum on chemistry in the community for the tenth grade which was being used in several schools.

Dr. Shoenberg reported that he had been informed there would be a state committee on high school graduation requirements with a two-month reporting deadline.

Dr. James Shinn, director of the Department of Personnel, stated that the committee on elementary certification had reported out, and their proposals would be in the Maryland Register in September. They were proposing increasing math requirements from six to nine hours, and three of those had to be in number systems, number theory, or rational numbers, three in finite mathematics, and three in pre-calculus or calculus. They had also recommended that the current 12 hours science requirement be made 10, and the 10 include biological, physical, and one laboratory science.

Dr. Cronin recalled that there had been proposals to bring people without teaching degrees into the classroom, and he wondered whether this voided that kind of a direction. Dr. Shinn replied that the resident teacher program to bring non-education majors into education had been modified to apply only to secondary teachers.

Dr. Shoenberg stated that the high school graduation requirements committee might give them a better idea of how they ought to respond to some of the information before the Board. He noted that Mr. Ewing had suggested that all high school students "shall complete mathematics courses including..." and there was a list. He asked whether those items should be included substantially in

some courses or that there should be courses in each of those topics or a mixture. Mr. Ewing that it was the former. Dr. Shoenberg asked whether this was true also of the science, and Mr. Ewing replied that it was. Dr. Shoenberg asked how they were doing with changing the content of science and math to have more integration.

Ms. Odom replied that four years ago in statistics and probability they started an alternative semester course at the high school level. They now had almost that entire course into their mid level course throughout the curriculum. In terms of symbolic logic, some of that was in the mid level along with the geometry. They were still looking at the mathematical modeling aspect at the high school level. Last year they brought in consultants to train them on discrete mathematics and mathematical modeling. This year they would be presenting a new program of studies for algebra to calculus to the Council on Instruction.

Dr. Shoenberg asked whether they were still thinking of a sequence of algebra through calculus which was titled in a fairly traditional way. Ms. Odom replied that they had continued to use the same titles with the exception of geometry which was under consideration. They were also looking at a different course for seniors for an introduction to calculus and discrete mathematics.

Dr. Pitt asked whether these courses would be for all young people, most young people, or a very few young people. Ms. Odom replied that they had a double period of algebra in seven schools for ninth grade students. Dr. Pitt asked whether the goal would be to have this for every ninth grade student. Ms. Odom indicated that they were looking at their introduction to algebra. It used to be that in ninth grade a student was either in honors geometry, algebra 1, introduction to algebra, or a general math course. Their consultant on minority student education had suggested that a lot of students in the introduction to algebra could be successful in algebra had they been in the course with help. Seven high schools were attempting to have a regular algebra 1 course and a second period of tutorial help. At the same time they were looking at a program from the University of Chicago which was an algebra to calculus sequence that began algebra in the eighth grade for all students.

Mr. William Clark, director of the Department of Academic Skills, stated that the question about integration was an interesting one. If they looked at the topics in Mr. Ewing's resolution, a lot of the topics had been integrated into the math curriculum starting in the elementary school. The issues-based units described by Dr. Moyer would lend themselves to integrating some mathematics with science. However, he did not believe that the total integration of math and science would happen for a while.

He thought they had to look at what they wanted students in high school to learn about various aspects of mathematics and then see whether these would be courses or integrated within other math courses. He hoped they would move toward a goal of having all students studying algebra 1 in ninth grade.

Dr. Shoenberg said the discussion suggested there were ways in which these items ought to be recast to clarify them and to bring them into a little closer conformity with the actual environment they were working in. He asked staff to consult with Mr. Ewing to recast these in a way that made sense in terms of staff goals and Mr. Ewing's goals. He thought they should wait to see what the high school graduation recommendations were from the state.

Mr. Ewing agreed although while they would be bound by state requirements they were not required to be bound to only what they required. He thought that the issues were not necessarily completely dependent on what the state did. He did not see an absolute necessity to wait until that was finished. In fact, there were some advantages to their being clearer about their own objectives prior to the completion of any state studies.

Dr. Cronin commented that the intellectual content of what Mr. Ewing was proposing could proceed, but the state might take away some of the flexibility about requirements. Dr. Shoenberg added that clearly the math/science requirements did not operate in a void and had an impact on lots of other things. They ought to be in a process of doing something similar in other fields and try to assess the impact on some of the non-required courses. He agreed with Dr. Cronin that they needed to be clear about their intellectual goals, but they needed to look at the terms in which the state cast their requirements. He asked staff to take this and their discussion and see what good ways there would be of stating these goals in terms of their environment. He suggested this occur in a reasonable period of time perhaps within a couple of months. He thanked staff members for their very productive discussion.

Re: EXECUTIVE SESSION

The Board met in executive session from 11:55 a.m. to 1:40 p.m. to discuss security issues, calendar, negotiations, personnel matters, and appeals. *Mr. Goldensohn joined the meeting during executive session.

Re: PUBLIC COMMENTS

The following individuals appeared before the Board:

1. Toby Siegel, Diamond ES Level 4 Parents
2. Barbara Ruppert

that African-Americans in Montgomery County were above the national average both in education and income. If MCPS was not above other counties, he would be the first one to suggest taking their budget away from them.

Mrs. Praisner was glad that Mr. Nix had ended with the point about budget. As they looked at the recommendations and next steps, she did not want them to have the assumption that all of these things had large dollars associated with them. They did not necessarily. For example, with the new policy on parental involvement, there were expectations, communication, and time as a major element but not necessarily new money or new dollars. She did not want people to get the impressmfnKEYBOARD()15 NESTFORM(J)