

UNITED STATES DEPARTMENT OF EDUCATION

NATIONAL MATHEMATICS ADVISORY PANEL

Friday, December 14, 2007

The meeting of the National Mathematics Advisory Panel convened in Salon ABCD, BWI Airport Marriott, 1743 West Nursery Road, Baltimore, Maryland, 21240 at 2:00 p.m.

PANEL AND EX OFFICIO MEMBERS PRESENT:

LARRY R. FAULKNER	Chair
CAMILLA PERSSON BENBOW	Vice Chair
DEBORAH LOEWENBERG BALL	Member
DOUGLAS H. CLEMENTS	Member
SUSAN E. EMBRETSON	Member
FRANCIS "SKIP" FENNELL	Member
BERT FRISTEDT	Member
TOM LOVELESS	Member
VALERIE F. REYNA	Member
ROBERT S. SIEGLER	Member
SANDRA STOTSKY	Member
VERN WILLIAMS	Member
IRMA ARISPE	Ex Officio
DANIEL B. "DAN" BERCH	Ex Officio
JOAN FERRINI-MUNDY	Ex Officio

PANEL AND EX OFFICIO MEMBERS NOT PRESENT:

A. WADE BOYKIN	Member
DAVID GEARY	Member
RUSSELL GERSTEN	Member
LIPING MA	Member
WILFRIED SCHMID	Member
JAMES H. SIMONS	Member
HUNG-HSI WU	Member
RAY SIMON	Ex Officio
GROVER J. (RUSS) WHITEHURST	Ex Officio

STAFF PRESENT:

TYRRELL FLAWN	Executive Director
MARIAN BANFIELD	
HOLLY CLARK	
IDA EBLINGER KELLEY	
JIM YUN	

CALL TO ORDER

Chair Faulkner welcomed the group to the 11th and final scheduled working meeting of the Panel. He alerted the audience that there were signing services available, but they were not needed. He recognized Don Langenberg, chancellor of the University of Maryland system who chaired the National Reading Panel. Chair Faulkner invited Panel members to converse with Dr. Langenberg.

OPEN SESSION

NATIONAL MATHEMATICS ADVISORY PANEL: FINAL REPORT DISCUSSION

Chair Faulkner began with the Executive Summary's Background section. The first point for discussion there was the suggestion that the sentence that says, "Many see algebra as a central concern" be lengthened and amplified to include the phrase "both its authentic content and the content of skills necessary for study in the secondary grades."

Dr. Fennell stated that he prefers the use of the word "concern."

Dr. Siegler asked about the point that 90% of the world's engineers will reside and work in the nations of Asia within 5 years, and whether that was true. Chair Faulkner stated that they have a citation on it. Dr. Loveless also questioned this as engineering degrees in India, China, and the United States do not mean quite the same thing.

Dr. Fristedt stated that they are hoping with this Panel to change things from the current trends.

Chair Faulkner asked if there was general agreement with the Background section.

Dr. Stotsky added that it is foreshadowing what some of the two central issues are going to be in the report. That was why she thought that statement might be there, because what gets presented first is the Major Topics of Algebra and then the Critical Foundations that lead to them. It's a content issue.

Chair Faulkner then moved to the Background section in the body of the report. Dr. Stotsky asked whether the quote should be from someone whose name might have some resonance or someone in the field of mathematics who talks how important mathematics is for opportunities at the college level and various careers. Dr. Loveless agreed that a labor economist should make a quotation about labor markets and the importance of mathematics as an entry to labor markets. Alan Schoenfeld is an authority on a lot of things, but labor market analysis is not one of those things. Dr. Loveless suggested removing the quote. Dr. Fennell stated that who makes the quote isn't nearly as relevant as the wording, so he recommended substituting the quote and worrying less about who says it.

Chair Faulkner then moved to the principal messages in the Executive Summary.

Dr. Fristedt asked if the Panel shouldn't make it "mathematics curricula," since the nation does not have a national curriculum, where it says, "streamline the mathematics curriculum in Grades preschool to 8." Dr. Stotsky suggested taking out "Grades preschool to 8," and saying, "streamline elementary and middle school mathematics curricula," then leave out that ending grade and not make it quite as definitive. Then she asked if the Panel

should say that the goal is to get to algebra, because they have just raised algebra as a central concern and it isn't mentioned in the principal messages. Chair Faulkner noted that there has been a lot of discussion on that point by email. Dr. Stotsky asked that the Panel tie it to the fact that they have said algebra is a central concern. Dr. Loveless added that it should say, "streamline the mathematics curricula leading to algebra." He did not think the "early grades" was needed.

Dr. Fennell stated that he doesn't think the Panel wants to say, "streamline the curriculum that leads to algebra," because then they are really after two different things. "Streamline the mathematics curriculum in Grades preschool through 8" says there is a burgeoning curriculum around this country and the Panel is suggesting that that be streamlined. And "emphasize a well-defined set of the most critical topics" says there is a subset of that larger mathematics that is more critical at these grade levels. To say then that these lead directly to algebra is a problem because some students are going to be ready at various stages. He feels they need to talk about preschool through 8, because the preschool side of this is the most expansive growing element of education in this country.

Dr. Benbow agreed that the Panel has carefully vetted this statement, and would hesitate to change it at this point in time for the very reasons Dr. Fennell mentioned.

Dr. Stotsky added that the Panel could say, "streamline the preschool to middle school mathematics curricula and emphasize a well-defined set of the most critical topics that lead to algebra." Chair Faulkner indicated that this phrase has had much in-depth discussion and that it was best to continue with the matter offline if there were further concerns.

Chair Faulkner then moved to the Principal Messages section in the body.

Dr. Fristedt stated that he has a continuing concern about the paragraph that states "instruction is at the heart of the matter." It tends to give the message that if there were enough research, that would tell the teacher what to do. Chair Faulkner stated that the main message they are trying to convey is that there are things that educational leaders and teachers can do. There are conclusions to reach, but there are also big swaths of activity where research doesn't tell the Panel very much. If the nation is systematic about developing knowledge and experience, our schools can do better, in a continuous improvement model, over a long term.

Dr. Stotsky added that that paragraph shifts the focus to pedagogy, because that's really what instruction more or less means. It doesn't say curriculum and instruction are at the heart of the matter, which would then give it a dual focus. This really talks more about the effect of teachers and their skills. It doesn't mention knowledge, which is more the focus of the rest of the paper.

Dr. Berch added that the Panel not necessarily make instruction the heart of the matter, but one of the crucial components. Then at the end, instead of saying the answers must be found on the basis of rigorous research, say something to the effect that rigorous research and demanding evaluations can contribute importantly to this. Chair Faulkner concluded that the Panel was, overall, satisfied with this section but that they would have to come back to this paragraph later.

Chair Faulkner then moved to the Panel sections and the appendices. There was agreement there. Wrapping up this discussion of introductory and supporting sections, he noted that they have some tasks left to do on the "essence bullets in the Principal Messages.

Chair Faulkner moved to Instructional Materials.

Dr. Siegler stated that it would be more accurate if the Panel said in the first sentence, “in an attempt to reach the preschool to 12 market with varied curriculum goals and expectations....” It is impossible to say what is far too many. Publishers, when they testified before the committee, all agreed that the variety of goals in different states contributed between 20 and 25 % to the 800 plus page length of the books. Dr. Arispe added that she likes the suggested addition of publishers. Dr. Fennell added that, on the “how much is too many” question, he doesn’t think the Panel needs to say this because his revision captures the thought. There are states with as few as 32 or so expectations in a given year, and there are states with more than 110. That is what the Panel means when it talks about lack of coherence. Dr. Fristedt stated that he likes Dr. Arispe’s suggestion, but whether states actually differ in the amount of material is a different story. Some states just break it down more finely.

Dr. Loveless stated that he was skeptical about the publishers’ explanation. One danger in singling that out is that it leaves out other explanations like the photographs and the use of stories in the textbooks. Dr. Siegler added that there were not just qualitative comments from the publishers, but also quantitative ones that looked at the length of the three state-specific books in a given year for Algebra I. They looked at the national edition and it was on the order of 220 pages difference, on average.

Chair Faulkner asked Drs. Fennell, Loveless and Siegler to work on this point. Dr. Loveless added that he thinks they need to also know what was going on 30 years ago. Dr. Siegler stated that the Panel received data from the four publishers that testified, which included late 60s or early 70s versions. They were, on average, about half as long.

Dr. Fristedt stated that the Panel should consider a particular topic like skill with the prime numbers. In Minnesota, prime numbers are not mentioned in the state standards until sixth grade. Minnesota was writing its standards primarily for assessment, not for when the teachers should begin teaching a given topic. He knows that some other states begin with prime numbers in fourth grade. But they are writing standards for a slightly different purpose. He feels that textbook writers should work on a smooth discussion from year-to-year without regard to state standards. Dr. Ferrini-Mundy stated that the Panel should say that textbooks have become unwieldy and not try to have a reason. Chair Faulkner decided to move on to the next point as it was related and more substantial.

Chair Faulkner moved to Item 30, and agreed that Item 29 needed to be reworded.

Dr. Fristedt believed that Item 30 should be deleted. He thought it’s a way for textbook publishers to place the blame elsewhere, rather than focusing on writing a well-organized book, while keeping standards in mind, but having a nice flow from year-to-year. Dr. Benbow disagreed and thinks the Panel absolutely needs to have state and school districts strive for much greater agreement on what is taught. Dr. Clements agreed, and from his admittedly informal interactions with various publishers, he finds that they are always saying they just can’t sell it until they put certain content in. It’s a question of their own financial interest.

Dr. Fennell agreed that blame should be shared. Textbook publishers, and those in charge of such decisions, either states or school districts, need to come together. Dr. Siegler suggested that Item 29 express the basic problem: that the books are unwieldy and way too long. Then Item 30 would go something like, “a number of changes could contribute in major ways to briefer, more coherent textbooks. Four publishers who testified before the committee stated that other sources also contribute in major ways to the excessive length of

current textbooks. Among the major contributors are too many photographs and inspirational stories....” Dr. Benbow asked about the issue in Item 30 that, “states and districts should strive for greater agreement regarding which topics will be emphasized and covered in particular grades,” and where that should go. Dr. Siegler stated that that would be the next sentence after, “A number of changes could contribute in major ways to briefer more coherent textbooks. Four publishers have testified that states and districts should strive for greater agreement.”

Chair Faulkner called for a vote on keeping Item 30, and it was agreed. He then moved to Item 31. Dr. Fennell asked about whether a potential revision of Item 29 would carry with it some of the coherence that Dr. Siegler’s revision talked about. He liked the absolute importance of the current Item 31 that deals with mathematical accuracy.

Chair Faulkner proposed that Item 31 stay as written. Dr. Fristedt made a motion to substitute the alternative. There was no second.

Dr. Fristedt stated that he would like to see added, “Taking account of the fact that home situations for students vary widely for many reasons, including level of mathematical knowledge, publishers must organize and present their material in a manner that does not rely on help with the actual mathematics at home.”

Chair Faulkner asked if there was a second and there was none. He then moved to the Instructional Materials section in the body.

Dr. Fristedt stated that the Panel does not want to give publishers the message they should start writing extra supplements. They want to give the message to cut down the length by cutting out things.

Dr. Fennell stated that he was concerned with including connections to social studies or science contexts in textbooks. He proposed a vote on the existing paragraph with that deletion. Dr. Fristedt stated that he would like it deleted because it is cumbersome. The Panel has a role to speak for math across the curriculum, and it is important to take advantage of the occasions when mathematics occurs naturally in the classroom. Dr. Siegler would favor deleting the last clause for the reasons Dr. Fennell stated, and also deleting the second to last clause. The directive to the publishers should be that they need to make these books shorter and more coherent, but the Panel does not want to micromanage the task.

Chair Faulkner called for a vote on deleting the last clause, and it was agreed.

Dr. Siegler moved to delete the second-to-last clause. Dr. Fristedt moved that the item in the right-hand column be substituted for the last paragraph, keeping open the option of editing. Chair Faulkner noted that there was no second.

Dr. Fennell added that while photographs and inspiring mathematical stories have, in fact, probably contributed to the size of books, he would maintain that books have become bloated by an attempt to provide other kinds of activities. The fact is students need review and it's often in the book. School districts and/or states expect it to be in the book. Some students need enrichment activities. Dr. Loveless stated that the Panel is not demanding that publishers move all this stuff into supplemental materials. The Panel is just giving suggestions on ways that publishers may want to reduce the size of books, which the Panel is indeed demanding. Dr. Siegler withdrew the motion.

Chair Faulkner then moved to the Research Policies and Mechanisms items in the Executive Summary.

Dr. Stotsky asked if more research was needed, without mentioning other things, like time on task and classroom grouping. Dr. Ball agreed that it is not clear why particular

things are on the list and not other things. The text does not say anything about teacher education, which is a big issue elsewhere in the report. Rather than lobbying for other things to be included, she asked if the Panel should avoid specifying anything at all. She was a little bit worried about the Panel's committing itself too strongly in the methodological domain, when there are huge changes happening right now about the way randomized clinical trials will be done. The Panel should say something about this, but should not get too specific about the nature of what can and cannot be studied.

Dr. Reyna added that what is listed relates directly to the charge of the Panel. The idea would be that the content area advice would come from the separate task groups, not from this section. These are three broad categories and are not intended to stipulate a whole long list of things that might be studied or to provide constraints on that. Dr. Loveless commented that teacher education definitely should be added. Dr. Siegler stated that it might address the problem if they just said, "ways to enhance teacher effectiveness including improved teacher education that are directly..." Dr. Ball asked if people would accept that as the umbrella term, including the different kinds of teachers' education. Dr. Berch asked about addressing the Assessment Task Group, and whether the Panel would need to cover that separately or include it in one of the others.

Dr. Benbow stated that if the Panel added teacher education, it would be leaving out assessment. She feels that they don't need that sentence. They need the bullet, but they don't have to be specific. Dr. Reyna added that she has no objection to adding assessment and she agrees that some level of specificity here is important. She would like to add teacher education and assessment.

Chair Faulkner called a vote on keeping what's there and adding specificity to the teacher education example, which was agreed to. Dr. Benbow moved that they add assessment to the list. Dr. Embretson asked that the Panel say that there is a need for research on item and test design features that improve the mathematical content of the test. That motion was agreed upon.

Chair Faulkner moved to Item 37. Dr. Embretson added that randomized designs are not necessarily practical for some sorts of issues that need to be studied; therefore, she recommended that they add in a clause about methodologically rigorous quasi-experimental procedures that are currently available. Dr. Reyna added that the intent was not to exclude any other design; there was simply a lack of those kinds of designs. She would add the "quasi-experimental designs" without stipulating exactly when and where it has to be used, because this is just an executive summary.

Dr. Ferrini-Mundy agreed on, "a continuum of research should be funded from smaller scale experiments," but she wondered if they should add something like, "exploratory studies or smaller-scale descriptive studies." They should replace "experiments" with "studies."

Dr. Reyna added that they didn't include "smaller scale," because that's the problem. The Panel had access to a lot of really small-scale studies from which they couldn't generalize. This is not a statement on what's acceptable research. This is about what the community needs more of, and so the Research group wanted to underline that there was a continuum and hopefully an inclusive one. The Panel could add "innovative studies," for example, that would be part of that continuum in the middle. Dr. Ball stated that the Panel might be trying to put too much in this section as she thought Item 37 was primarily responsive to the fact that the Panel did have this difficulty, particularly in the

Teacher Task Group area. She proposed deleting the last sentence.

Dr. Reyna stated that the reason for including these two things is that they were particular matters that the Research Group thought needed more emphasis. They want to say that there is a need for the entire continuum, from the very basic mechanism-driven research to the field-studied and applied. Dr. Clements added that what this was supposed to be about was the coherent programs that moved through a continuum such as this. Dr. Reyna added that this is a placeholder for more detail in the body of the report. Dr. Ball stated that it is confusing to have it here. It would be more effective if it were shorter.

Chair Faulkner called for a vote on deleting the last sentence of Item 37. This was agreed upon.

Chair Faulkner then moved to Item 38.

Dr. Berch agreed that it should be in there. He asked how they could call for more rigorous research, but not ensure that the people who will be doing it are better trained. Chair Faulkner stated that the discussion needed to be about whether to issue a directive concerning what should be done in particular graduate programs. Dr. Berch stated that they should soften it by saying, "should consider." Dr. Siegler stated that one of the things that the Panel might want to accomplish in this recommendation is to have, not only people in positions of educational leadership and academicians, but also to have teachers who are intelligent consumers of research. He does not think it's unreasonable to urge schools of education to train teachers to be intelligent consumers of research.

Dr. Ball stated that she is concerned that no task group looked into this. The Panel does not know what schools of education do. The recommendation may be right, but it is odd to bring up something that the Panel did not study.

Dr. Reyna stated that softening the language is entirely appropriate in terms of offering advice. As for the review of graduate programs, that is something that in fact she has done in the past. The Panel would not be making any specific statement about this. They would mainly be making inferences based on what they have had an opportunity to review. They could change the word "increased." Dr. Ball stated that it would help, because that wouldn't imply that they somehow know something about the current state of education, and it would go a little more closely to their concern for the quality of research. She would suggest that they modify slightly what they say about analysis.

Dr. Stotsky asked if the Panel could clarify what it is asking of those who are in graduate programs who are going to be doing research, those who are going to be in educational leadership positions to carry out programs or ideas that might be based on research, and teachers who need to consume research. Most teachers have a lack of understanding of what kinds of criteria are brought to bear on any research. Dr. Clements recommended that they say, "Leaders of graduate programs in education or related fields should ensure attention to research design, analysis, and interpretation for those entering..." Dr. Stotsky asked if they could add something about standards of evidence, directly. Dr. Clements said the word "interpretation" should cover it. Dr. Fennell added that the issue of standards of evidence gets deeper than they need.

Chair Faulkner called for a vote on Dr. Clements's motion to substitute this language, which they agreed upon.

Chair Faulkner moved to Items 39, 40, and 41.

Dr. Ball asked if they could add quantitative research methods or research methods to Item 40, which was agreed to by the Panel.

Dr. Ferrini-Mundy asked if the Panel meant to say preschool through Grade 12 schools in Item 41. This was agreed to. Dr. Stotsky asked if they should include higher education or schools of education, as well. Dr. Benbow stated that there is a huge problem for researchers to get access to schools and classrooms, and they really need help to conduct research.

Chair Faulkner moved to Item 42.

Dr. Siegler stated that the last sentence makes a lot of sense, but he does not see Institutional Review Boards as the problem. The group agreed that they were, so Dr. Siegler withdrew his point.

Chair Faulkner moved to the body section on Research.

Dr. Loveless asked if they could strike the “post-Sputnik era” comment. Dr. Reyna stated that by email she gave some background with concrete examples and some citations documenting the post-Sputnik era. The Research Group is not making the claim that there was agreement about the educational research produced in that era. The claim was about collaborations spawned. She gave concrete examples of mathematicians and educators whose careers were altered by this kind of government support.

Chair Faulkner stated that the impression is drawn because the phrase says “successful model of the post-Sputnik-era in educational research.” The post-Sputnik-era in educational research also produced new math, which no one in the field of policy thinks was exactly successful, because there was a huge rebellion against it. He would like it struck. Dr. Reyna stated that there would be less ambiguity if they inserted, “successful models of collaboration.”

Dr. Loveless added that the point is still made if they put a period after mathematics education, and the Panel does not hold up a particular model because it’s going to confuse people and make them think that they are endorsing the products of that era.

Chair Faulkner stated that if the language is retained, the Panel would need a reference. Dr. Loveless recommended that the Panel put a period after the word “education” and delete everything after that. Dr. Reyna added that there are some wonderful models of collaboration that produced lasting commitment to things like elementary school mathematics.

Chair Faulkner called for a vote on adding to the text on collaborative interdisciplinary research teams the citation on the collaborative models of that era. This would put a period after math education, and it was agreed upon.

Dr. Arispe asked about Item 42, where it says that Institutional Review Board procedures should be streamlined. The common rule does define minimal risk and has a process called expedited review. She asked if it would be worthwhile to suggest the use of expedited review for minimal risk research, rather than streamlining procedures, which is a bigger task. Dr. Benbow stated that the Panel shouldn’t add that because it’s also the interpretation of how the Institutional Review Board functions, and it isn’t just the use of the expedited review.

Dr. Embretson stated that Items 36 and 37 are not in recommendation form. Chair Faulkner stated that all items in the Executive Summary are not recommendations. Some of them are findings. Dr. Embretson stated that what is in the body is not consistent with what is in the Executive Summary.

Chair Faulkner then moved to Teachers. There was a question about whether the public would understand what “value-added measures” means. Dr. Ball stated that they

might not. Dr. Stotsky stated that in educational circles today, value-added measures is a very common topic in every school system across the country. It's possible that people outside of education would not be familiar with it. It is the only method for evaluating teacher effectiveness that has been replicated in research. Chair Faulkner stated that they could put the definition in parentheses. Dr. Clements added they could change the phrase "value-added measures" because it's actually not correct. It also would lead one to believe that if one had the right test or measure, then one would have the value-added measure. Dr. Ball added that it is correct because it's a measure of analysis.

Chair Faulkner then moved to Item 17.

Dr. Stotsky asked that this be broken up into two recommendations, and that the first part deal with the issues of both the courses teachers take and certification. These are things that happen before someone goes into teaching, whereas a measure of their knowledge is a totally different kind of thing.

Dr. Ball stated that there may be some way of splitting it, but it's a little difficult because it is summarizing the big question that the Task Group had, which is how mathematical knowledge relates to student achievement. It's not the case that the direct measures are measures of practicing teachers' knowledge. The Task Group carefully considered two proxy methods, certification and coursework attainment. The third approach they uncovered in their review of research involved measures of teachers' mathematical knowledge that are closer to the knowledge they use in practice.

Chair Faulkner asked Dr. Ball to work on that section.

Dr. Stotsky asked about the whole question of recruiting knowledgeable teachers. Dr. Ball stated that the third section of the Teachers Task Group report is about recruitment and retention using salary schemes. The Task Group is not reporting on recruiting secondary teachers because this is not the focus of the Panel's work. The Task Group did not uncover any proven strategies for this. They are adding to the knowledge base that it matters and what they do know at this point.

Dr. Reyna noted that Item 18 includes the statement, "The nation has a high need for better informed and better prepared teachers in mathematics, thus the Panel recommends..." So there is an explicit acknowledgement in the Executive Summary of the need mentioned.

Dr. Berch recommended a motion about the extent to which they should be saying anything about recruitment of secondary teachers. That seems to be the fundamental issue, and the distinction is between the Panel not focusing on it or that they didn't have any evidence. Dr. Stotsky made the motion that they add, "Schools must develop or draw on a variety of carefully evaluated methods to attract and prepare mathematically knowledgeable teachers." The Panel members know that teachers' knowledge of mathematics is related to students' achievement. They could say this recommendation is based on the finding that teachers' knowledge of mathematics is related to student achievement.

Dr. Reyna asked if they could say "schools and other teacher education programs." Schools aren't the only institutions that would be recruiting and preparing teachers. Dr. Ball added that it should say, "schools and teacher education programs" and then just insert "and teacher education programs" into Dr. Stotsky's paragraph.

Dr. Fennell asked if there was anywhere in the Teachers' report that deals with secondary teachers, so that the motion at hand would not be substantiated in the report. Dr. Ball stated that it just says mathematically knowledgeable teachers. The rest of it is fine if

the word secondary isn't in there.

Chair Faulkner stated that the motion is to incorporate language to the effect that "schools and teacher education programs must develop or draw on a variety of carefully evaluated methods to attract and prepare mathematically knowledgeable teachers. This recommendation is based on the finding that teachers' knowledge of mathematics is related to student achievement..." The motion was agreed upon.

Chair Faulkner then moved to Item 18.

Dr. Ball asked if the Panel should split this one, too, because there are a couple of things going on. One is the finding that the Task Group didn't find evidence about different forms of teacher education, and then second is a recommendation about the need to focus on teacher education and develop knowledge about it. Dr. Siegler asked how this was different than the last point. Dr. Ball stated that in this point, Dr. Stotsky wanted a strong statement emphasizing this lack of recruitment and preparation. This point is really just about training.

Dr. Ball stated that she would work on cutting this up. Dr. Stotsky asked if they are saying anything about strengthening alternative pathways. Dr. Ball stated that the Task Group is talking about initial teacher education programs and alternative pathways. Those words are missing. Dr. Stotsky also asked about induction studies. Dr. Ball stated that they didn't find studies relating any of these programs to student achievement. It's not a different finding. The Task Group didn't find studies that met their criteria.

Chair Faulkner then moved to Item 19.

Dr. Fennell stated that this item on specialists has been vetted pretty carefully. He thinks the Panel needs to make such a recommendation because, for people who are currently working with specific responsibility for elementary math, this is a reality, in many if not most states in this country. He also thinks that they have been very careful about the coach model, and how ill defined that happens to be. Dr. Siegler stated that he disagrees, and that there are a number of places in the report where the Panel address important issues and say they have no relevant research to either favor or oppose the program. A very short item saying exactly that would be appropriate here. The fact is they have no basis for encouraging people to do this. There is no evidence.

Dr. Berch read from the Standards of Evidence, that "The body of research in which each significant conclusion and recommendation in the report is based was characterized as strong, suggestive, or weak, according to the quality, quantity, and generalizability of the collective evidence across studies. This information guided the wording of the Final Report with regard to the confidence with which conclusions and recommendations are presented." So to stick with that, they need to make a major disclaimer to the effect that they have little basis.

Dr. Ball stated that they are repeating ground from the first Baltimore meeting, but the reason for this claim is logical, not empirical. It's a very carefully worded item that was worked over by quite a few people that says, "the country needs teachers who are more mathematically knowledgeable; the scale of that need is enormous." It does not have a system to deliver them. One reasonable way to think about that is to reduce the number of people who have to know it that well, and allow them to teach more children. And then they connect the dots between saying teachers have to know math, and invest in fewer people or have that required of fewer people. It's simply a logic question and they actually do have quite a few things in the report that are not based on empirical work. Most of Conceptual Knowledge and Skills for instance is not based on empirical work.

Chair Faulkner read from the Principal Messages, where the Panel says “a small number of questions have been deemed to have such currency as to require a comment from the Panel, even if the scientific evidence was not sufficient to justify research-based findings. In those instances, the Panel has spoken on the basis of collective professional judgment, but it is also endeavored to minimize both the number and the scope of such comments.”

Dr. Loveless stated that it reads like an endorsement and there is no basis on which the Panel can do that. He would support rewording it to say that more needs to be known about this idea. Elementary schools in particular may have to do a lot of reorganization to implement this. Dr. Berch asked if the Task Group is saying that they didn't have the research or if it's a logical issue. Dr. Ball stated that what is outside the scope of the logic argument is organizational change, which is slightly related to something Dr. Siegler has said a number of times. It wouldn't be related to the direct relationship of having students have mathematically knowledgeable teachers. The Panel already knows that having a more mathematically knowledgeable teacher will more likely produce better achievement.

Dr. Fennell stated that Drs. Whitehurst and Gersten both talked about the importance of the Panel sharing promising ideas and good questions to be considered as appropriate. He feels the point about organizational change is a good question. This is already being done in schools around the country. The Panel needs to make sure that while this makes sense, there is also a charge that appropriate people begin to collect the necessary data that shows whether children who have such teachers do better and whether the practice impacts achievement in mathematics. If the Panel does not do this, it will send a message that would be unfortunate.

Dr. Reyna stated that the Panel should explicitly acknowledge the claims that are not based on empirical research. Some of the Panel may be concerned that simply by encouraging this approach, we will cause readers to take it in exactly the same way as with other recommendations that have the evidence behind them.

Dr. Siegler stated that many people are wedded to the view that it's a good thing for young children to have one teacher all day long. They think that this makes the children more secure and builds more of a personal relationship. They also think that it's okay in middle school and high school to have multiple teachers and rotations among them. The use of specialists is a very good point to research seriously, but to encourage people to adopt it goes much further than the Panel should be comfortable with.

Dr. Loveless stated that the Panel needs more evaluation evidence on what happens with this model. If there were a correlation for instance between good teachers in mathematics and good teachers of reading in elementary classrooms, they would be removing good reading instructors from the teaching of reading and there would be a consequence of that. He would be willing to support a research recommendation, but nothing that encourages a practice.

Dr. Fennell stated that the wording says this should be explored.

Chair Faulkner asked that a group reword this point. Dr. Berch stated that they can make a general statement about the “collective judgment” of the Panel, but it is clear there is a difference of opinions and judgments because they don't have a sound evidence base.

Dr. Loveless asked if the item would be cast primarily as a call for research and evaluation of this idea, or as a promising idea that schools and districts should explore, which he takes as an endorsement. He thinks that those are two different things and they are

essentially irreconcilable. Dr. Stotsky asked if the Panel could say, “Schools should be encouraged to explore and fully evaluate the use of...” “or have research done...” something that puts research into the first sentence. Dr. Fennell stated that that does not address his concern. He would rather have the first sentence say that the Panel does not know whether this practice is good or bad, and what is needed is to have more research evaluating this intervention to find that out.

Dr. Fennell called for a vote on a revised statement that would have research leading the statement.

Dr. Fristedt stated that the revision should include some of the judgmental aspects of it, why it might be good and why it might be bad. Dr. Siegler stated that that information should be in the body of the report.

Dr. Stotsky asked what “supporting teachers’ effectiveness” means. Dr. Ball replied that it is too compressed, because the performance-based pay schemes are about effectiveness. The skill-based and location-based pay are about recruitment and retention.

The session adjourned at 6:25 p.m.

I certify the accuracy of these minutes.

Chair Signature _____ Date _____

Vice Chair Signature _____ Date _____

ADDENDUM: PUBLIC PARTICIPANTS

First Name	Last Name	Organization
Judy Ann	Brown	Words and Numbers, Inc.
Elizabeth	Carson	NYC HOLD National
Cathie	Dillender	Pearson
G. Stanley	Doore	East County Citizens Advisory Board Member
Alice	Gill	American Federation of Teachers
Cheryl	Jaffe	Northrop Grumman Electronic Systems
Henry S.	Kepner, Jr.	University of Wisconsin- Milwaukee
Dr. Genevieve M.	Knight	Knight and Associates
Ken	Krehbiel	National Council of Teachers of Mathematics
Lisa	Lavelle	DC FAME, Maret School
Michele M.M.	Mazzocco, Ph.D.	Johns Hopkins University
Leah Casey	Quinn, Ph.D.	Montgomery County Public Schools
Judith	Reed, Ph.D.	National Council of Teachers of Mathematics
Robert A.	Richards	Sadlier-Oxford, division of William Sadlier, Inc.
Melanie A.	Ryan, MEd.	JUST MATH
Jacqueline	Smith	National Council of Teachers of Mathematics
Larry	Snowwhite	Houghton Mifflin Company
Gerald E.	Sroufe	American Educational Research Association
Janie	Zimmer	National Council of Supervisors of Mathematics