MINUTES

MATH AND SCIENCE EDUCATION ADVISORY COMMITTEE

December 13, 2007
Room 514-S—Statehouse

Members Present

Senator Nick Jordan, Chairperson
Representative Kenny Wilk
Kenneth Clouse, President, Northwest Kansas Technical College
Dr. Michael Lane, President, Emporia State University
Ms. Janis Lariviere, Center for Science Education, University of Kansas
Dr. Edward Hammond, President, Fort Hays State University
Dan Jacobsen, President, AT&T, Topeka
Paul Weida, Vice President, Black and Veatch Corp., Overland Park
Mitch Counce, General Manager, Servi-Tech, Dodge City

Members Absent

Senator Laura Kelly
Senator Ruth Teichman
Representative Sheryl Spalding
Representative Shirley Palmer
Richard Taylor, Plumbers and Pipefitters Local Union 441, Wichita

Staff Present

Dale Dennis, Deputy Commissioner, Department of Education
Sharon Wenger, Kansas Legislative Research Department
Michele Alishahi, Kansas Legislative Research Department
Theresa Kiernan, Kansas Revisor of Statutes Office
Matt Todd, Office of the Revisor of Statutes
Rose Marie Glatt, Committee Assistant

Conferees

Joe T. Davis, CEO, Custom Engineering, Co-Chair Project Lead the Way
Kansas City Industry Council
Laura Loyacono, Regional Director, Project Lead the Way-Kansas City
Dr. Zulma Toro-Ramos, Dean, College of Engineering, Wichita State University
Ron Gaches, Executive Director, Kansas Society for Professional Engineers
John Yochelson, BEST (via telephone)

Morning Session

The meeting was called to order at 10:00 a.m. by Senator Jordan, Chairperson of the Committee. He welcomed everyone to the fourth meeting of the Advisory Committee on Math and Science Education. He advised the Committee that after several presentations in the morning, members would turn their attention to the final review of the data book and finalize the vision statement and Committee recommendations.

Mr. Joe T. Davis and Ms. Laura Loyacono gave a power point presentation of Project Lead the Way (PLTW) (Attachment 1).

Ms. Loyacono said that PLTW is a national program designed to create a pipeline of students prepared to pursue engineering- and technology-related careers. PLTW has been in operation for ten years, and through curriculum and professional development, it strives to achieve the goal to increase the number, quality, and diversity of engineers and technologists graduating from the educational system.

Mr. Davis said that the United States ranks sixth in worldwide engineering degrees by country, and added that some describe this situation as a national crisis. He explained that projections show that in the year 2020, the United States could have a shortage of 100,000 engineers. He said the future of education is not what it used to be because students are not what they used to be. He posed a traditional test question in use today compared to challenging questions that would prepare students for the skills needed in tomorrow's workplace.

Ms. Loyacono identified Kansas schools in which PLTW has been implemented as well as new schools that will be added in the 2008-09 sessions. She said teachers are trained on the PLTW classes before teaching and described the support and curriculum updates they received thereafter. The expense of the program is paid for by school districts aided by business partnerships.

She summarized that PLTW addresses workforce development needs and prepares more student for careers and college. PLTW improves overall student achievement, and business partnerships are a key to success. There was a short video clip on the success of students in the PLTW program by CBS.

Dr. Zulma Toro-Ramos addressed the problem and projected results of the lack of trained engineers in the United States. She described the current ethnic groups that receive engineering bachelor's degrees and what challenges engineering colleges face.

She summarized by saying that PLTW attracts students who are:

- Good in mathematics and science;
- Interested in being an engineer or technologist;
- Good in art and design;
- Interested in computers;
- An underachiever who might get "hooked" by a high-tech, hands-on class; and
- A struggling student who learns best by "doing."

Ms. Loyacono explained there needs to be statewide support through grants and business partnerships. She spoke of PLTW programs used in a variety of states that could be used as models to study multiple funding sources to meet the costs of PLTW. In conclusion, she said that infrastructure between school districts is imperative to the success of the program.

Ron Gaches, Executive Director, Kansas Society for Professional Engineers, spoke in support of PLTW programs. He said several of the states that have shown the greatest support for PLTW have provided state dollars to help schools start and maintain the program. The charge for the Committee is to develop a vision for education that includes a long-term commitment for math, science, and innovation, and he urged the Committee to give serious consideration to support its expansion in Kansas (Attachment 2).

Discussion followed, and included costs of classes, annual licensing fees, percentage of students that participate in PLTW, marketing approach for PLTW to districts and businesses using job fairs, breakfast with an engineer, and career nights.

The Chairperson thanked the conferees for their presentation, and turned the Committee's attention to a conference call with John Yochelson.

The second draft of the data book, *The Talent Imperative – Building Kansas' Capacity in Mathematics, Engineering, Technology, and Science* and a memorandum that listed the key changes suggested at the last meeting was distributed to the Committee for review (Attachment 3). It was agreed that Committee members would ask questions or make comments, with responses from Mr. Yochelson. Questions submitted by Representative Sheryl Spalding also were included (Attachment 4). Key points or changes follow:

- Page 8 – The second column that represents the share of global patents filed in the U.S. is misleading, as the same patent is filed in several countries. It was agreed to eliminate that column.

- Page 12 – A definition for the various bachelor's degrees will be listed under the chart.

- Page 24 – There was a question on why education was omitted from the list. It was agreed that education would be added, with an asterisk noting it was a Committee decision to add the category, supplied by data from Deputy Commissioner Dale Dennis, Kansas Department of Education.

- Page 28 – The interpretation of the sentence, "But 296 local school districts, varying widely in size, enrollment, and resources, have the last word on matters of governance, curriculum and teacher hiring" was questioned. A suggestion was made to eliminate the first word, "But."

- Page 15 – It was suggested that the chart should be divided into two in order to clarify the importance of the data presented. Mr. Yochelson agreed to return to the Department of Labor for that data. Committee members suggested that he should contact Stan Ahlerich, Kansas, Inc. for updated data and advised Mr. Yochelson that Senator Jordan and Representative Wilk also would contact Mr. Ahlerich for his input.

- Page 37 – The chart is confusing because it compares cities, states, and countries. After discussion, it was agreed to leave the chart in, but add an asterisk with an explanation.

- Page 40 – The chart was to show that there are many states that have higher standards than Kansas and reflects there are 30 states ahead of Kansas. Mr. Yochelson will review the chart to see if he can document the data in a clearer way.

- Page 43 – The disparity in figures since all states do not administer the ACT test was discussed. No changes were recommended.

- Page 45 – Discussion of the AP exam importance followed. No changes were recommended.

- Page 48 – The use of the word "complacent" was discussed. The following sentence was suggested: "Parents in Kansas recognize the importance of METS, but they do not have an understanding that there are insufficient numbers of students."

- Page 61 – It will be noted that the shortfall of qualified math and science teachers (750) over the next five years is an estimate projected by the Department of Education.

- Page 67 – The following information provided by the Board of Regents will replace the current data. Eighteen percent of the entering classes in all postsecondary education were advised to take developmental math. In 2006-07, 14 percent enrolled in one section of developmental math. Dawn Russell, Kansas Board of Regents, confirmed the data.

- Page 76 – It was noted that the names of Representative Spalding and Paul Weida were misspelled.

The document will be produced in a similar format as Missouri's book, with a January 10 distribution date. In response to a request that the Governor be sent a draft copy of the completed document, staff advised that Mr. Yochelson already had sent updates to Jeremy Anderson at the Governor's Office. The Chairperson and Co-Chairperson thanked John Yochelson, Margo Quiriconi, and staff for their diligent work.

Mr. Yochelson requested that when the data book is introduced to the Legislature, if he has enough lead time, he would attend the event representing the Ewing Marion Kauffman Foundation. The Chairperson agreed to advise him of the date.

All agreed to work through lunch to facilitate early departure commitments.

Attention was turned to a review of specific recommendations made by Committee members representing businesses (Attachment 5).

Paul Weida said he knows there is money available from business to facilitate the various programs they had heard about during the meetings, however, there needs to be a coordinated approach to make Kansas a world-class state through its educational programs. The dilemma all businesses face is that, although they are involved in multiple programs, they do not know what they are getting, and there are requests each day to be involved in more programs.

He offered the following recommendations from a business perspective:

- The Committee should recommend an oversight board or organization which would select the most successful programs for Kansas. That organization or board would have the communication, implementation, and performance responsibility.

- Develop incentives for businesses and associations to contribute to qualified programs, such as Project Lead the Way.

- Develop incentives for small businesses to provide man-hour support to work in the most successful programs.

- Rekindle interest and educate businesses regarding the tax incentive programs for hiring teachers during the summer.

- Make it simpler for retirees from businesses such as Black and Veatch to become STEM teachers. There was a suggestion that perhaps during the last six months of employment before retirement, employees could be prepared to work in the classroom.

Mitch Counce said, being from western Kansas, he knows how difficult it is to bring teachers to the rural areas of the state, and the only choice they have is to make better teachers of their current educators. With money available, they could educate teachers in rural communities on technological opportunities with local businesses within reasonable distances rather than having students travel to metropolitan areas.

Dan Jacobsen said that AT&T is on the verge of changing its focus on all AT&T Foundation grants to helping secondary education prepare students to better succeed in the business world. Based on the large sums of dollars for mass media campaigns in the past for AT&T, Mr. Jacobsen voiced concern over the effectiveness of a mass-marketing campaign to educate parents on a math and science education crisis. Discussion followed regarding the multitude of methods that could make up the entire communication strategy.

Mr. Jacobsen said that it was difficult to understand how math and science teachers, who have taken the most difficult classes to obtain their degrees, as well as teaching the most rigorous subjects, receive such low compensation; and it is no wonder they leave for higher paying careers in industry. Increased salaries are necessary to attract qualified people.

Due to time constraints of the Committee, the Chairperson returned to the topic of the mission statement. Janis Lariviere called attention to the suggested verbiage from Representative Spalding (Attachment 6). She suggested a revision and after further discussion, additions, and changes, all agreed to the following mission statement:

> "Kansas will build on its success in education to foster innovation and build capacity in mathematics, engineering, technology and the sciences (METS) so that Kansas can compete in and become a leader in the global community."

Discussion returned to Committee recommendations on a multi-year education program and the following are key points made by the Committee:

- Referring to his previous four solution strategies, Dr. Hammond suggested that a fifth strategy be added that states the only way Kansas will succeed is on an integrated, statewide basis through the efforts of a statewide coordinating group.

- The creation of an oversight organization is a first-year priority. That organization would be charged with:

- Determining best practices;
- Developing the marketing strategy;
- Developing the program implementation process; and
- Development of performance analysis.

- There should be two aspects to a statewide coordinating group, an oversight group and regional groups, due to the diversity of regions. Best practices could be developed based on common needs and issues. The make-up of the group needs equal representation from business and industry and education.

- The creation of a statewide agenda or goal requires measurable benchmarks, such as, "Kansas will be in the top 20 percent with the U.S. by 2015." The Committee told staff to ask John Yochelson for suggestions regarding the best benchmark for determining the success of the program.

- Leadership by the Governor and legislators is paramount to assure that all Kansans understand the critical nature of the education challenges as well as the programs that will provide solutions.

- Chairperson Jordan suggested that the Advisory Committee meet again in January to review the final data booklet and recommendations, as well as determine the best legislative process for creation of a new entity.

- The entity should have a five-year sunset, which allows for review of the objectives.

- A challenge will be getting the key players, already involved in education funding sources, to participate on a statewide basis.

- The Committee requested staff to inquire of John Yochelson and Margo Quiriconi about other states that already have leadership entities such as the one envisioned by the Committee.

- The Committee should publicly support higher salaries and compensation benefits for teachers. The average salary for mathematics is $40,466 and $46,325 with benefits. Science teachers receive a little less than that figure.

- The Committee should support and introduce legislation to allow retirees to return to teaching without disadvantaging themselves in their district.

- Recommend loan forgiveness or teacher service programs for teachers.

- Teacher job sharing is determined by local districts and could be expanded across the state.

- Each strategy and objective recommended by the Committee should reference the appropriate page in the data book that provides the rationale behind the strategy.

- If Dr. Hammond would electronically forward his memorandum on recommendations for math and science education in Kansas, both Janis Lariviere and Michael Lane agreed to embed their suggestions into his work product.

- Staff agreed to present options of model language related to creation of an oversight entity to consider at the next meeting. Senator Jordan said there was a new proposal coming from Kansas, Inc. that would have elements pertaining to linkage of resources and customized training that might be tied to this organization.

- The Committee discussed implementation of a reward or certificate system to acknowledge efforts in continuing education as well as sharing their talents in the classroom.

Dr. Hammond made a motion to approve the December 13, 2007, minutes. Dr. Lane seconded the motion. The motion carried.

The meeting was adjourned at 1:45 p.m. The next meeting will be scheduled for January 8, 9, or 10, 2008.

Prepared by Rose Marie Glatt
Edited by Sharon Wenger

Approved by the Committee on:

January 9, 2008
(Date)