**STEM Action Center Board Meeting Minutes**
January 8, 2014 • 3:00pm
Nelson Laboratories 6280 S. Redwood Rd., Salt Lake City

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| **Members Present:** | Robert Brems, Spencer Eccles, Gene Levinzon, Stan Lockhart, Martell Menlove, Jeffery Nelson, Mark Openshaw, Jeff Monson, Bert VanderHeiden |
| **Members Absent:** | Blair Carruth, Christine Kearl, Brad Rencher |
| **Staff:** | Vince Mikolay, Meredith Mannebach, Sue Redington, Mitchell Jorgensen, Carol George |
| **Visitors:** | Katie Pierce, Anne Bastien, Charlie Anderson, Diana Suddreth, Rick Gaisford |

## Welcome & Approval of Minutes

Jeff Nelson, STEM Action Center Board Chairman, took a roll call, called the meeting to order, welcomed the group and asked the board members to approve the minutes from the meeting.

### I. Approve Minutes

**MOTION: STAN LOCKHART MOVED TO APPROVE THE MINUTES, SECONDED BY GENE LEVINZON. THE MOTION WAS UNANAMOUSLY APPROVED.**

### II. Progress Report

#### i. Progress Plan Review

##### a) Pilot Update

Meredith Mannebach, STEM Action Center Program Manager, informs the board that the pilot project has come to an end and we are now in the phase of gathering data.

Sarah Brasiel, USU Researcher, discusses the testing that was done in public schools before winter break. She indicates that not all of the schools completed testing because of the large numbers of students although the data is still being gathered. Administrative data on prior student achievements was collected; however, there were some complications due to the fact that many of the students were previously enrolled in a variety of schools prior to their sixth grade year. Vince Mikolay, GOED Managing Director, expresses the importance of the data being gathered in order to present the performance of the pilot to the legislature. Sarah informs the board that the legislature showed an interest in teacher response to the pilot and that a survey was developed. There were 30 teachers surveyed in October, another 30 in December, about 30-40% total, and there are more surveys to be completed within the next few weeks. Vince explains the significance of the framework for the dashboard and the current lack of data is making it more difficult for the project to move forward.

**b) RFP**

Meredith Mannebach notes that the RFP is complete and contract award letters were sent before Christmas. The contracts are open, meaning they are up to teacher demand on actual dollars given to the contract. The providers are as follows: five for secondary math, seven for 6th-8th grade, four of which participated in the pilot. Links for more information on the providers will be given at a later time. Meredith then says that a luncheon will be organized to show gratitude for the teachers that participated in the pilot. The lunch will be hosted by Adobe and will be held on January 20th, Martin Luther King Jr. Day, in order to eliminate the need for teachers to find substitute teachers. Meredith then proposes that members of the STEM Board participate on a panel to speak of the importance of STEM in their industry focusing on math teachers that will be performing in the pilot. It is then suggested that we invite the providers so they can speak with the teachers and give them an opportunity to learn about the curriculum they may not know so that they can select for the grant.

It was asked what the appeal of the newer technologies was as opposed to the current ones in use. Vince answers by explaining that the teachers are choosing the new technology after using and comparing both the old and new models, they have hands-on experience with both. It was then asked if the teachers that were using the software were being evaluated. Meredith replied saying that half of the teachers had used the curriculum prior to and half had not creating a mixture of the two groups that were being evaluated. It was observed that the legislators that were responsible for starting the project, particularly Howard Stevenson, are very pleased with the current results and is encouraging the pilot to be reinforced.

Vince Mikolay discusses the current state of funding and what it is able to do for STEM given the current segments of students in grades 6th, 7th, 8th, and secondary schools grades 9-12. The form provided lists of each of the technologies, their cost per unit, and an even distribution across all of the students if all of them were to use one of the technologies. If 100 % of all the student population of the state of Utah were equally using all of the technologies that have been available there would be minor shortages. If there was a capture rate of 25%, the anticipated average, there will be no problems. The point of the chart is to illustrate that as it relates to the current spend available, 8.5 million, and given what is believed to be the right penetration there will be no difficulties providing the proper technologies to all eligible students. The next goal is to capture the interest of at least 25% of students and schools and getting them signed up; the schools that participated in the pilot will have first preference. Meredith informs the board that Mitchell Jorgensen, STEM Liaison, will conduct a survey for the schools that had initially signed up for the pilot but were unable to participate in order to discover what barriers kept them from joining. Spencer Eccles, Board Vice-Chair, references an article from the Wall Street Journal which says that more schools are implementing added technology but they don't have the connectivity that Utah has successfully established.

Vince Mikolay addresses the possible cost of the technology as the primary expense of the STEM Action Center and the focus on the process for future years to ensure that it is a sustainable program. It is estimated that this current year will have 100% funding but an approximation for next year needs to be established in order for schools to create budgets to determine whether or not they can afford the technology. The cost of the technology was

addressed and it was suggested that the prices be lowered in order to make it available to more schools. Vince says the request will be taken to procurement.

### ii. PD Pilot Update

Meredith begins by telling the board that the committee met and a plan was made for the PD Pilot. The providers are Discovery Education, School Improvement Network, and hand2mind and there are costs associated with using each provider. The school districts that will participate are: Davis, Ogden, Jordan, and Alpine. Each district provided two professional learning communities from 7th and 8th grade and they have met once in December, January, and will meet in February, with additional online components and in-class training. Teacher feedback has been recorded and Meredith states that the pilot is ready to be presented to the legislature on the importance of professional development. There will be comparisons with teachers who are only using the technology, teachers who are only getting the professional development through the pilot, and teachers who are using both with the overall goal to show that teachers using both the technology and the pilot had more success.

Spencer Eccles asks if it is being tested to see where the teachers stand. Sara responds by saying a pre-assessment was created based on the math programs that the teachers would be exposed to and they will be reassessed at the end of the pilot to see the changes of their understanding. There is a small amount of data from the classes that are currently using the technology product but because the sample size is so small the main focus will be on teacher change. Middle school teachers find the Utah core to be challenging because they are teaching material that they haven't been exposed to, particularly algebra in 7th and 8th grades. The focus on algebra in the professional development pilot will help to measure the weaknesses that the teachers have and help strengthen them so that they can effectively teach their students.

Vince Mikolay is curious if data will be collected from students who did not participate in the professional development pilot for a comparison. Sara informs the board that there is no way to measure the performance of students who are not participating, there has to be a common test for everyone and the decision was made to focus primarily on teacher knowledge. Sara continues to say that students will be evaluated based on the teachers who are and aren't teaching professional development which will hopefully make relationship connections. Vince speaks of the importance of having not only data from teacher performance but data on the impact it had on the students to present to the legislature. Sarah addresses this statement and says a test on the current math content was issued; however, districts could not require teachers to teach the content because they may have already taught the material in past months and won't return to the material until the next year. There are multiple factors which make it unrealistic to test teachers and students on the same content.

Spencer Eccles questions the limited size of the pilot and asks if it is a product of the budget. Meredith responds by saying the size is a result of a narrow timeline to create the pilot and also because of travel time required for the providers, not the budget. Spencer then asks Meredith if it would be possible to recruit more teachers. Vince answers Spencer by informing him that they can get more teachers but they wanted to ensure that the pilot was set up in order to present it in the current legislative session. More districts will be recruited following the legislative session.

Spencer requests that the lessons learned, the reasons for the smaller group, and the plan for further action to effectively test the teachers be presented clearly and simply in the session. Jeff Nelson, GOED Chairman, suggests showing the outcomes for the students in order to disprove the perceptions that professional development is an investment without an outcome. Vince notifies the board that the primary topics that will be presented are the justifications of program in the pilot and the teachers that participated. It was suggested to demonstrate the need for additional professional development without demonstrating the effect of the current small sample.

Spencer Eccles addresses Martell Menlove by asking if he has any additional suggestions for the pilot presentation. Martell understands the constraints of the research and is pleased with the outcome. There is a strong cry in districts for professional development particularly in the area of science. Martell believes that not only should we document the impact of the small sample but also the needs of the teachers.

Stan Lockhart believes that there is a unique opportunity with the legislature this year to achieve more in this area. The Education Taskforce has three priorities: improve reading skills by 4th grade, continue digital learning, and professional development. The current partnership that STEM has with USOE and the continued communication with legislature creates more possibility for funding for professional development.

### iii. STEM Competition Grants

Sue Redington discusses the Fairs, Camps and Competitions Grant. There were 123 applications received and a total amount of $140,000 was rewarded to applicants. There are 57 schools being represented including a few home school groups. The plan to open another grant solicitation will be on January 15th to allow more opportunities for students to apply. Of the 123 applications, 89 applicants were from grades 9-12, 26 applicants from grades 6-8, and 7 applicants from 3rd- 5th grade. The average amount rewarded to individual applicants was $372.00, and $1700.00 for teams. Scholarship opportunities are still being developed and should come into effect soon. Spencer notifies the board that the grant component is a program established by STEM that is driven by policy and the board controls policy. Spencer then requests a soft survey of the impact of the funding from the program for the students. Sue reported that a lot of schools were able to start new programs that had not been in place because of the STEM grants.

## III. Working Group Reports

### i. Fundraising

Stan Lockhart reports that the total amount raised is about $150,000 for the STEM Action Center. The STEM Media Campaign has received about $200,000, there are commitments for approximately $1.8 Million and three dozen companies that have committed but have not yet donated. The original $2.5 Million campaign for eighteen months has increased to a $5 million campaign over eighteen months. There are well over 100 companies that have participated and contributed to STEM efforts. In addition to the money there is a renewed commitment in the future of the workforce.

### ii. Professional Development

Superintendent Martell Menlove says the main issue that has been addressed for professional development is the kind of certification, licensure, or endorsement that is needed to not only help teachers acquire the skills that they need but also incentivize participation. There needs to be an endorsement for science from the State Office of Education that is similar to someone having a minor in a particular area that is equivalent to 18-24 semester hours of work. Currently there is an elementary math endorsement that has contributed to math instruction in elementary education and this confirmed the need for a science endorsement. The content for the endorsement is still being determined. There is a large possibility for a need for a STEM endorsement in elementary schools. Most teachers in junior and high schools are individually endorsed in specific science and technology areas. The goal is to integrate math and science into more subjects in junior and high school. An example that was provided was a home economics teacher instructing her students to create a quilt using geometry principles. There were school districts that recognized an endorsement requires 18 semester hours, but there is no financial incentive to go any further. Stan Lockhart feels that it is possible to pitch secondary endorsements that has a similar model to the elementary schools so that a plan is set if the legislature plans to do something statewide.

### iii. Marketing and Media

Steve Lindsley, Comcast representative, notifies the board of the January 29th STEM media and campaign awareness launch. He expects every media outlet in the state to be present for the launch. Stan Lockhart notes that there will be three dozen companies and other organizations on stage for the STEM launch, and at least 700 people invited to the event. The goal is to change the hearts and minds of teachers, parents, and children and inspire them to enroll in STEM education by taking away barriers and misconceptions. Steve guarantees to match $1 million worth of media and advertising over an eighteen month period.

Bert VanderHeiden asks what the link to the STEM Action Center will be and how it will be presented at the campaign on the 29th. He then suggests that a link to STEM be set up because of the attention that the media campaign is receiving. Stan Lockhart says he does not want STEM to be too presumptuous and wants to partner to the extent that Governor Herbert will allow. Stan hopes to make the STEM Action Center the key part that takes place with Governor Herbert leading it but is unaware if state government can be involved with the media campaign. Bert believes that companies will be motivated to get involved with mentorships and the coalition will grow because of the connections to the STEM Initiative and the STEM Action Center.

Mitchell Jorgensen feels that regardless of the formality, from a local media and news perspective, part of the news hook would be to show what is happening with the STEM Action Center because it could coincide with current happenings in the media.

## IV. Technology Presentation

Rick Gaisford, Utah State Office of Education staff member, begins by addressing the standards that were place by the State Board of Education for technology and what needs to be in place to

be able to move STEM forward. There are three key areas: access to technology, professional learning, and technical support systems and all of the areas have to be progressing at the same time. Currently there are 612,000 students in the state and only 242,000 computers available creating a 3:1 ratio, the goal is to reduce it to 1:1. There are currently 27% of schools in Utah that have reached the 1:1 ratio, 47% of schools are at 2:1 or 3:1 ratio and the remaining 26% have a ratio of 4:1 or more. The programs that are currently being discussed will have greater difficulty reaching schools with these ratios. Standards are established in schools but it is up to the schools to decide how they will achieve those criteria.

There are challenges regarding the funding for technology programs because it is inconsistent. In order to reach the goal of the 1:1 ratio there has to be reliable funding. Rick shared that it will cost $50,000 per building to provide an adequate wireless network. Currently 80% of the schools do not have the capacity for a wireless network to be able to meet the needs of 1:1 computing creating an additional $42 million to maintain networks.

Schools have worked hard to reach the 1:1 ratio primarily through the Smart School Program which is run through the Governor's Office of Economic Development and the State Office of Education. The program admitted three schools in the first year which reached the 1:1 ratio and seven schools will be added this year. Rick provided two articles which address the importance of developing broadband and the future demands that children will bring to schools.

## V. Discussion and Other Business

### i. First Lego League

Anne Bastien, First Lego League Program Manager for Lassonde Entrepreneur Institute, begins by announcing that Utah has 276 teams currently competing in the First Lego League Competition. Half of the teams competed on Saturday, January 4th at various schools and recreation centers and the remaining teams will compete on Saturday, January 11th. The advancing teams will be moving on to the University of Utah state championship on January 25th. The winners from that will then move on to global competitions. Anne proceeds to play a film to provide further information on the First Lego League. The primary goal is to make science and technology as fun as a sporting event. It is a program where kids come together with volunteer coaches and work independently in their homes, schools, and neighborhoods building robots to solve open-ended problems. Each year the Lego League chooses a theme and kids work to create an innovation to solve a problem within the theme. It is a wonderful way for middle school students to become great inventors, innovators, and open-ended problem solvers. Anne tells the board about the future challenges to meet the continued growth of the formation of competing teams.

Carol George, State Science Advisor, states that they would like to grow the program overall and work with the Utah Office of Tourism to get Utah branded to give to the kids who make it to the national finals. Carol sees it as very beneficial to the students because of the top engineering companies and universities that are located in Utah.

Bert VanderHeiden asks if there should be a formal discussion regarding grants for not only the individual, but also to agencies that are interested in putting on a competition. Spencer Eccles

says there are limitations in the budget but it should be investigated further. Vince Mikolay suggests that that staff goes back and look at statutorily what they can do and come back with a recommendation based on the proposal based on statute and the landscape of Utah.

Spencer Eccles believes that the board should get to the point where they can act as a hub of coordination. There will be a lot of momentum with industry and different sectors where STEM can be the hub where things are coming in and we can get the word out. This should be addressed with the legislature and the media campaign.

Meredith Mannebach reports that the STEM Action Center has had conversations with the national STEM organization, STEMX, and will continue our conversations with them about possibly hosting a national STEM summit in Utah (hopefully in August of 2014). It would be a great economic development opportunity and a great opportunity to showcase what is being done in STEM in Utah.

**MOTION: JEFF NELSON MOTIONS TO MOVE TO A CLOSED MEETING TO DISCUSS PERSONNEL MATTERS. THE MOTION IS SECONDED BY BERT VANDERHEIDEN. THE MOTION WAS UNANIMOUSLY APPROVED.**

## VI. CLOSED SESSION

**MOTION: JEFF NELSON MOVED TO APPROVE THE HIRING OF TAMI GOETZ AS A MEMBER OF THE STEM ACTION CENTER TEAM. HER NAME IS TO BE PUT FORWARD TO THE SENATE FOR APPROVAL AND CONFIRMATION AS THE EXECUTIVE DIRECTOR OF THE STEM ACTION CENTER. THIS MOTION IS PENDING STAFF REVIEW OF THE LANGUAGE SET FORTH IN HB139 AND REVIEW OF THE BUDGET REGARDING THE EXECUTIVE DIRECTOR SALARY. MOTION WAS SECONDED BY STAN LOCKHART AND UNANIMOUSLY APPROVED.**