



External Evaluation Brief

STEM Education Dinner Symposium October 24, 2013-- Evaluation Brief

By:
Bret Feranchak
Logos Consulting Group, LLC

November, 2013

Questions or Comments?

If you have any questions or comments about this report or related work, please contact Bret Feranchak (773-719-5420, bferanchak@logosevaluation.com).



Table of Contents

Table of Figures 3

Executive Summary..... 4

Introduction 5

Background..... 5

Survey Administration..... 5

Analysis Approach 6

 Quantitative Data6

 Qualitative Data6

Respondents’ Role and Organizational Affiliation 6

Attendee Satisfaction 10

Other Comments 16

Reflection Questions..... 20

Appendix A: Event Survey Instrumentation—October 24, 2013 21



Table of Figures

Figure 1: Role for the Event survey respondents (N= 150).....	7
Figure 2: Grade Level of Responding Teachers and Principals (n = 105).....	9
Figure 3: Attendees' Reactions to the Event	11
Figure 4: Actions Attendees Plan to Take	15



Executive Summary

1. Overall, attendees were very pleased with the event with over 80% of survey respondents agreeing or strongly agreeing with positive statements about the event. Respondents would however like to have more audience interaction. Please see the [Attendee Satisfaction section](#) of the survey for more details.
2. 150 individuals completed the event survey—more than twice the total of the first event. The largest group (57.3%) of respondents were classroom teachers. This is a large shift from the first C-STEMEC event survey where 40.3% of the respondents were university staff and only 26.9% indicated being classroom teachers. There were approximately twice as many principals (12.7% compared to 6%) and slightly more (1-2%) policy and central office roles represented at this C-STEMEC event than at the previous breakfast event. If the organizers want to attract individuals in other roles, such as those in more active policy-making positions, they might want to consider their dissemination channels and marketing approaches. See the [Respondents' Role and Organizational Affiliation section](#) of the brief for more details.
3. While attendees were very positive about the event, they did offer several suggestions for improving the event and these were classified into two broad categories, namely:
 - (a) **Event Format**—numerous respondents indicated their approval of the event format, noting they were treated as professionals and it allowed an opportunity to network with other individuals who are passionate about STEM teaching. However, many suggested that they wished there would have been more time for additional interaction both between the panelists as well as with the audience and would like to “dig deeper” into the topics addressed. One respondent thought that the organizers might want to consider the use of hand held technologies, such as clickers, to increase audience involvement and interactivity. Some noted it was difficult to read the slides from the very back of the room.
 - (b) **Event Content**—the vast majority of respondents had very positive feelings about the content of the presentations and several particularly noted the presentation by Dr. Wendy Jackson. Many others noted that they thought the policy recommendations were practical and should be implemented, though a few indicated that they didn't think the recommendations were particularly novel or new. Other raised issues as to how to pay for the recommended changes. Several survey respondents requested more explicit, detailed, tangible suggestions of either sites that are putting some (or all) of the recommendations into practice well or examples of what the recommendations would look like in actual classrooms, schools, and districts. They felt that without concrete examples the recommendations were too vague.

Issues that program planners might wish to consider are summarized in the [Reflection Questions section](#) at the end of this evaluation brief.



Introduction

Background

The Chicago STEM (Science, Technology, Engineering, and Mathematics) Education Consortium (“C-STEMEC”) is a consortia of four Chicago-based university-based mathematics and science education centers: the Center for Elementary Mathematics and Science Education at the University of Chicago, the Loyola Center for Science and Mathematics Education at Loyola University, the Learning Sciences Research Institute at the University of Illinois at Chicago, and the STEM Center at DePaul University.

In its second year of existence, C-STEMEC has a focus on developing the policy and support infrastructure of the consortium to better support research-based, content-rich reforms in K-12 science, mathematics, engineering, and technology education throughout the northern Illinois area. It intends to accomplish this through several strands of work including the development of four short policy papers related to critical issues in mathematics and science education. In order to increase the potential uptake of these recommendations, the project intends to host four events in connection with the release of each policy brief (one at each C-STEMEC center). The second of these events was a dinner event with an expert panel to highlight relevant issues and respond to questions and concerns of audience related to the Next Generation Science Standards. The panel presented three policy papers from C-STEMEC—*Implementing the Next Generation Science Standards: Hallmarks of a Fully Realized School System*, *Putting it All Together: Supporting K-12 STEM Education in Illinois*, and *Getting Serious About Implementing The Common Core State Standards for Mathematics: An Implementation Guide for Schools and Districts in Illinois*, which was reprised from the first C-STEMEC policy event. The event was hosted in conjunction with the Illinois Science Teachers Association and coincided with their annual meeting.

Logos Consulting Group, LLC ("Logos") is the external evaluator for the Year 2 C-STEMEC project which includes this Policy Dinner symposium. It designed and collected satisfaction data from attendees by means of an event survey. This report summarizes the findings from these data for the second policy forum hosted by C-STEMEC.

Survey Administration

The surveys were administered through the inclusion of a paper-pencil version in the event information packet that participants received upon check-in at the event. It focused on issues of satisfaction attendees experienced at the event as well as future actions respondents might take in regards to the policy topics discussed at the event. Respondents were free to complete the survey at any time throughout the event and the surveys were collected by event staff members. A copy of the survey is included in [Appendix A](#) at the end of this report.



Analysis Approach

Complete surveys were returned by 150 event attendees¹. Based on final records from the event there were 211 total attendees (out of 351 pre-event registrations). In addition, there were 11 attendees who were affiliated with the event in some formal way (*e.g.*, presenters, C-STEMEC organizing committee members or staff, evaluator, etc.), resulting in a response rate of 71% of attendees and 43% of the total number of registrants. Surveys were entered into an on-line template and the resulting data was then analyzed for this brief by the Logos Consulting Group, LLC.

Quantitative Data

All responses to the quantitative survey items were analyzed. Percentages were calculated based on the number of respondents. In some cases, these sum to more than 100% as respondents could choose more than one answer. The denominator is generally between 118 and 150, except for the open-ended final question which had 58 responses.

Qualitative Data

All of the responses for the qualitative question were analyzed. Responses were coded into similar reporting categories and are paraphrased from the original response. Errors of spelling and grammar may have been corrected so as not to detract from the content.

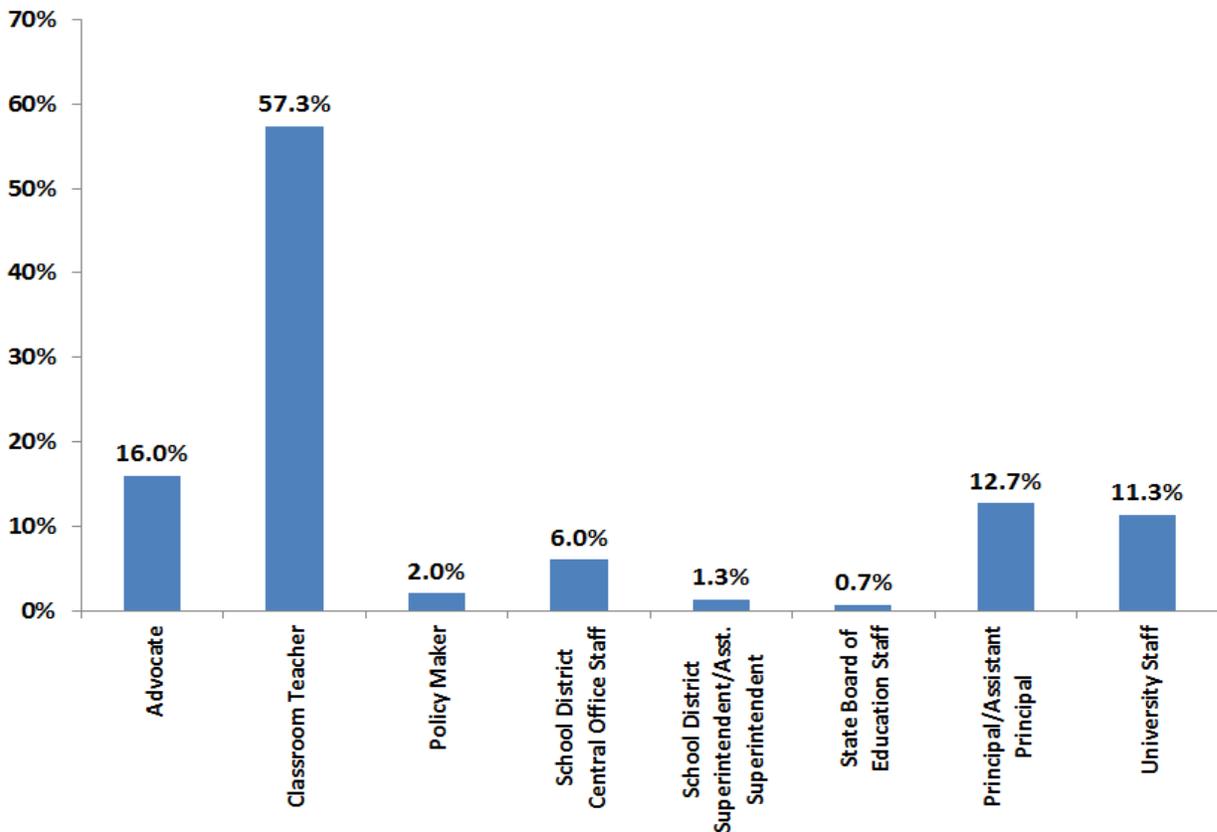
Respondents' Role and Organizational Affiliation

The role of these respondents is shown in Figure 1 below. Please note that percentages do not add to 100% as respondents could select more than one choice (and approximately 28 respondents did so). As can be seen from Figure 1, the largest group (57.3%) of respondents were classroom teachers. This is a large shift from the respondents to the first C-STEMEC event survey where 40.3% of the respondents were university staff and only 26.9% indicated being classroom teachers. There were approximately twice as many principals (12.7% compared to 6%) and slightly more (1-2%) policy and central office roles represented at this C-STEMEC event than at the previous breakfast event. Figure 2 provides a grade level breakdown of these classroom teachers ($n = 86$) as well as attending principals ($n = 19$). It is interesting that the highest proportion (approximately 41.5%) of the responding classroom teachers and principals represent middle grade levels (6-8), the same as at the first C-STEMEC event. Of course some (18) individuals reported representing multiple grade ranges. Overall, the distribution of respondents' role might be due to the event's alignment with the Illinois Science Teacher Association meeting, rather than the level of interest of different stakeholder groups in the event's topics. If the organizers want to attract individuals in other roles, such as those in more active policy-making positions, they might want to consider their dissemination channels and marketing approaches. Additionally, the event venue seems to

¹ This is over twice as many respondents as the first event (67) and thus not surprisingly a lower survey response rate.

influence the attendees as the first event was held at a university location (majority of respondents were university staff) while the second was at a convention center hosting the Illinois Science Teacher Association meeting (majority of respondents were classroom teachers).

Figure 1: Role for the Event survey respondents (N= 150)



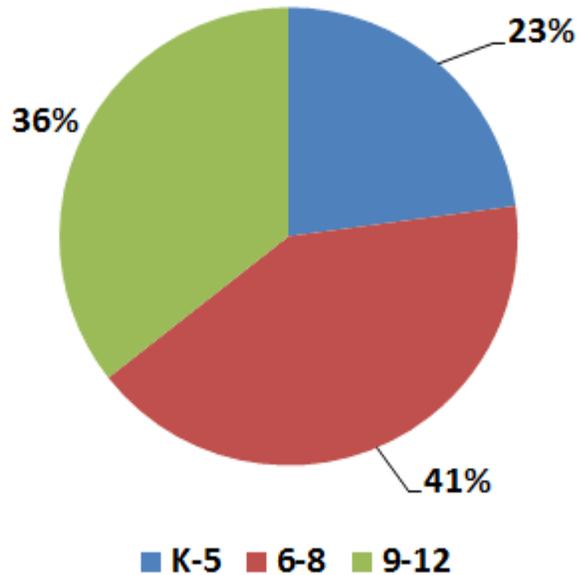
For the 29 respondents (~19.3% of respondents) who indicated their role as “Other”, there were a variety of roles documented, but many are in some way affiliated with a university-based STEM project though they might not consider themselves university staff (one of the survey categories) or they’re in STEM support roles in schools or districts. Several work for science organizations such as museums or national labs, while others were school board members. The full list of responses included the following:

- Technology Coordinator
- Educational Consultant
- Retired, but still volunteering to teach science at my former school
- Department Chair--high school



- Informal Science Administrator--museum
- Dept. Chair (middle school)
- Science/Math Coordinator
- Curriculum Director
- Data Coordinator/administrator
- School STEM project manager
- Analytical Chemist
- Science and Career Tech Ed Dept. Chair
- Dept. of Math and Science
- Regional Office of Education
- Gifted Science
- Math/Science Coach
- Regional Office STEM Coordinator
- STEM consultant
- School Board President
- Professional Development and Research
- STEM coordinator at a school
- Science coordinator
- Regional Office of Ed/Argonne Lab
- School Board member
- 2-year college instructor
- Administrator for environmental education for several county districts
- Foundation staff
- Parent

Figure 2: Grade Level of Responding Teachers and Principals (n = 105)



Respondents who indicated they were university staff were asked what their area of focus or department was. The majority (~88%) of these 18 respondents indicated they were involved in STEM or STEM education in some capacity, often working with K-12 or pre-service teachers. The complete list of all of these university staff responses is included here:

- Alternative Certification Program--Math/Science
- Teacher Prep
- Education
- Outreach to CPS
- physics/math and science pre-service
- Science Communication
- Elementary science
- Interprofessional Projects
- Early Childhood Mathematics
- STEM professional development
- Middle school MSTQE
- Science and math learning center
- Science and math education
- STEM Education research
- Teacher Prep
- Biology



Attendee Satisfaction

The event included welcomes from several individuals representing C-STEMEC (Michael Lach) and the Illinois Science Teachers Association (Paul Ritter), the co-conveners of the event, as well as a representative of the local congressman's office. Also a brief welcome was provided to attendees by a representative (Gudelia Lopez) of the Chicago Community Trust, the major funder of the event.

Following these brief welcomes the event included presentations by a panel of three individuals representing C-STEMEC, who each summarized a policy paper which they wrote or co-wrote. Both before and after these presentations there were brief interactions with members of the audiences to provide comments and/or questions.

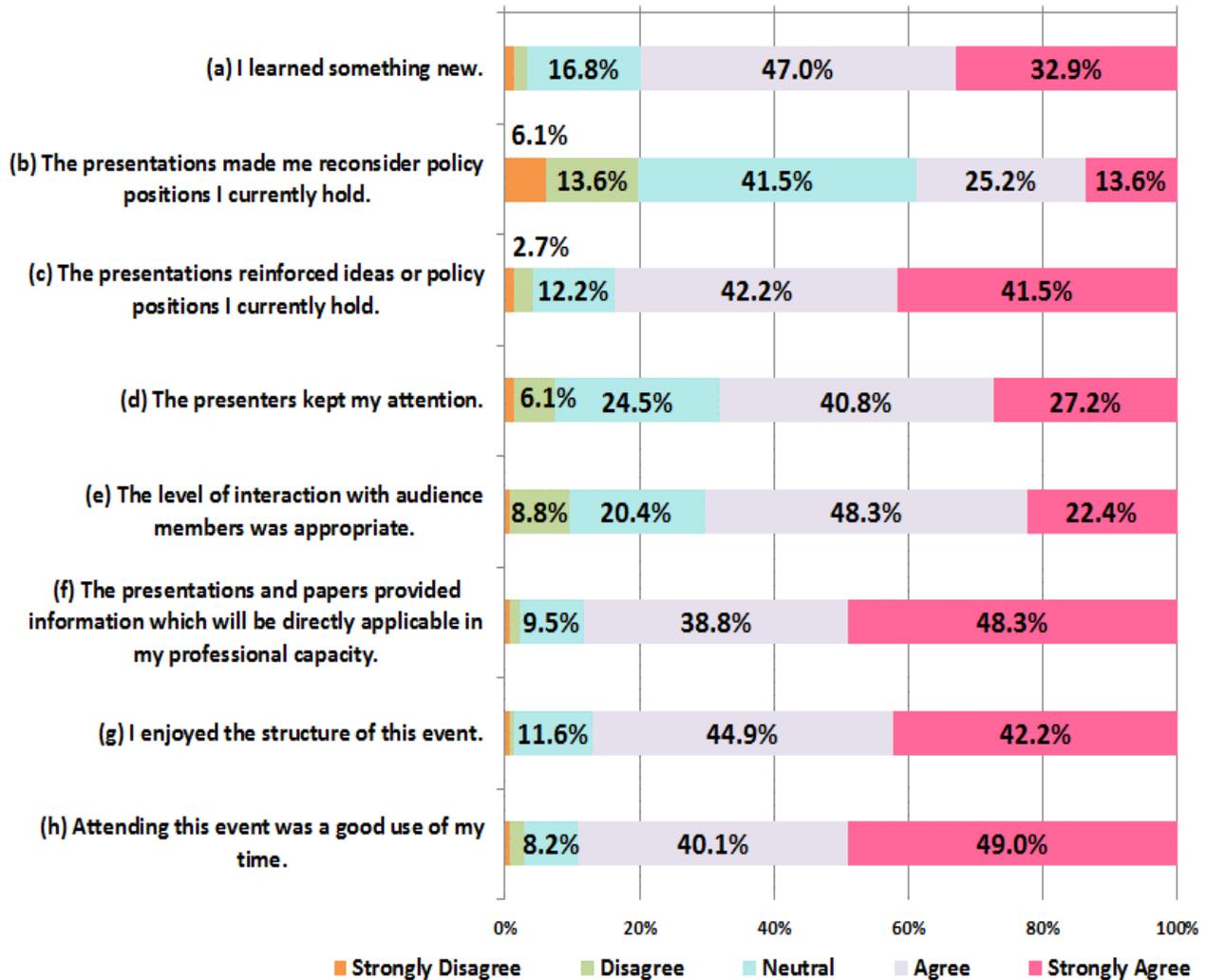
The three papers presented included the following:

- 1) *Putting it All Together: Supporting K-12 STEM Education in Illinois* by C-STEMEC and presented by Rachel Shefner, Associate Director, Center for Math and Science Education at Loyola University;
- 2) *Getting Serious About Implementing the Common Core State Standards for Mathematics* by C-STEMEC and presented by Martin Gartzman, Executive Director of the Center for Elementary Mathematics and Science Education at the University of Chicago;
- 3) *Implementing the Next Generation Science Standards: Hallmarks of a Fully Realized School System* by Wendy Jackson, et al., presented by Wendy Jackson, Project Director, DePaul University STEM Center.

A more detailed description of the content of each of these sessions, the biographies of the various C-STEMEC partners, and full copies of the presented papers are available on the C-STEMEC web site at <http://www.cstemec.org/>.

After the presentations, attendees were asked to rate their level of agreement with six statements related to the event on a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The results are summarized in Figure 3 below. Please note that for ease of reading, data labels for response categories with less than 2% are excluded from the chart.

Figure 3: Attendees' Reactions to the Event



Overall the event received many favorable ratings with the “The presentations and papers provided information which will be directly applicable in my professional capacity” and “Attending this event was a good use of my time” items receiving the highest average ratings (4.34 and 4.35, respectively). Furthermore, the “level of interaction with audience members was appropriate” and “I enjoyed the structure of this event” items received fairly positive responses (3.82 and 4.27, respectively) which seems to imply that program planners made favorable adaptations to the event structure after event , though there still appears to be room for improvement, especially in regards to audience participation. In terms of the policy recommendations made by the panelists, many of the respondents agreed that they reinforced ideas or policy positions they currently hold (4.20)



while fewer indicated that the panel’s recommendations caused them to reconsider the policy positions they currently hold (3.27).² This may indicate that either the panelists were communicating to a like-minded audience who already hold many of the same views as they do or that the policy recommendations made were not particularly novel or controversial. While this latter option was mentioned by a few survey respondents in their open-ended comments (discussed in the [Other Comments section](#) below), many also described the policy recommendations as clear, informative, realistic, important, useful, and good. The Wordle diagram on the following page captures the frequency of responses by proportional size. In other words, the more frequently a given response occurs, the bigger it appears in the diagram.

² All of these average ratings are very similar to those received at the event of C-STEMEC event 1 and interested readers are encouraged to examine that report for the full details.

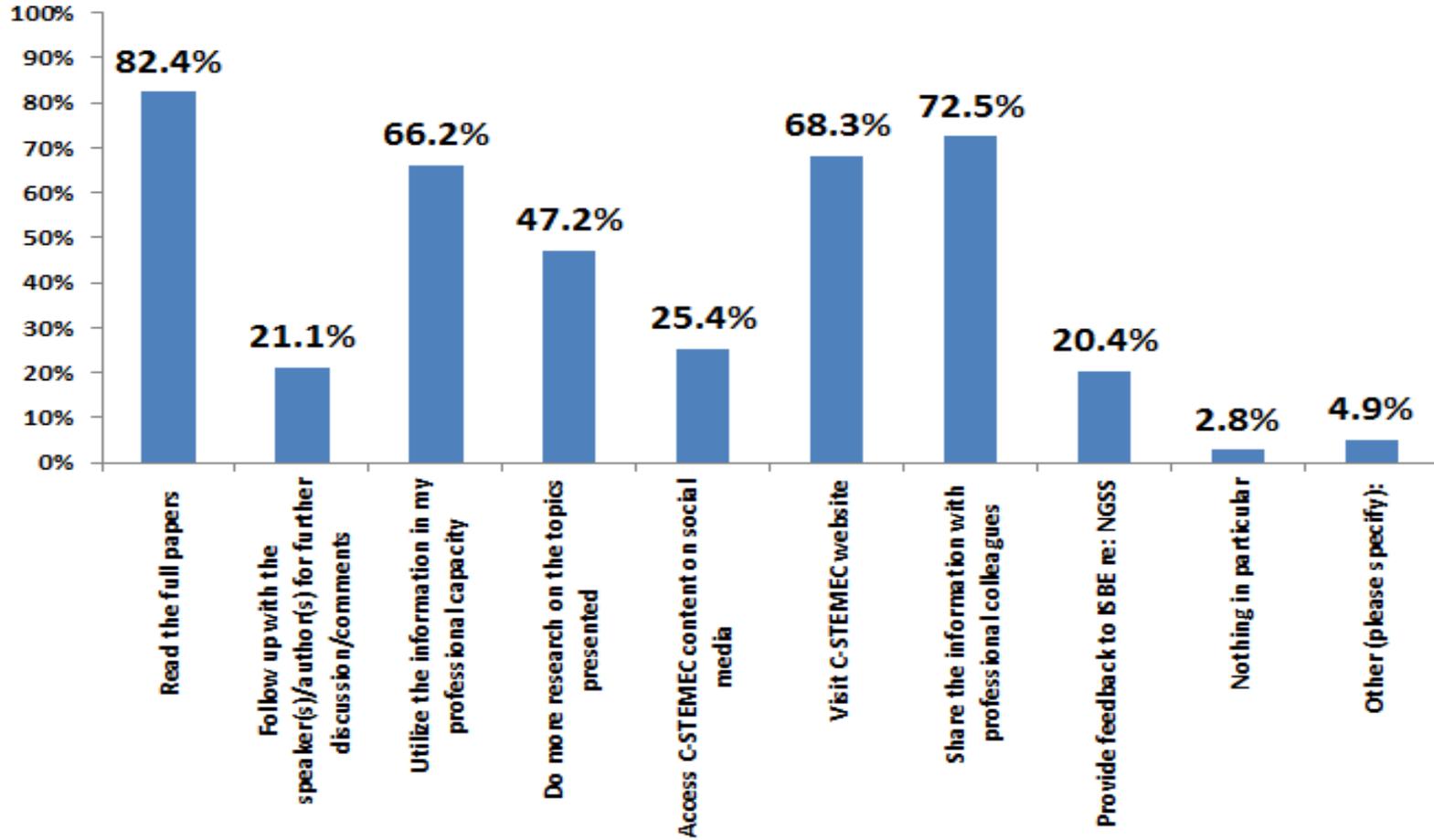
buy-in quality intense salient teachers ideal enforced unclear based teacher inconsistent thinking consider
passing starting well-stated frameworks worth help progression invaluable effort accessible implement
thought necessary scary NGSS mathematical stimulating relevant
transformative appropriate useful enlightening mapping hard
administrator rational old reassuring confusing visionary using depth
every lofty sharing concise development extremely math
refreshing obvious mostly specific go important
radar unfortunately re food
right realistic great inspiring start yet ideas
easy many general still sense professional
clear point evolutionary exemplary thoughtful collaboration resources
challenging build needed etc interesting school nothing helpful writing
examples organized valid angst worthwhile agenda common shifts
achievable authoritative supportive encouraging unrealistic common eye-opening
exciting reasonable powerful educational encouraging unrealistic common eye-opening
reflective already informed practices engaging noteworthy reinforcing capacity
effectual always schools slowly without engaging noteworthy reinforcing capacity
include always schools slowly without engaging noteworthy reinforcing capacity
cleared without science quite essential Forward instruction points curriculum actionable



Respondents were also asked to comment about what next steps they plan to take as a result of attending the event, since the program planners are hoping to spur individuals to action through this project. Results are indicated in Figure 4 below. Please note that the numbers do not add to 100% as respondents could indicate more than one action that they plan to take. Over two-thirds of the respondents indicated they would read the full papers (82.4%), share the information with professional colleagues (72.5%), visit the C-STEMEC website at <http://c-stemec.org> (68.3%), and utilize the information in their professional capacity (66.2%). These numbers are similar, but slightly lower, than those received after the first C-STEMEC policy event³. Approximately one quarter (25.4%) of survey respondents indicated that they would access C-STEMEC content on social media (*e.g.*, Twitter, LinkedIn, and Facebook). This response combined with the previous one related to access the C-STEMEC website seems to indicate an interest in continuing to follow the work of the consortium. It will be interesting to see if future web analytics support this professed increased interest. Four individuals (2.8%) indicated that they would do nothing.

³ Interested readers should consult the previous evaluation brief, “The Future of Mathematics Education in Illinois Policy Breakfast June 27, 2013--Evaluation Brief” which can be accessed on the C-STEMEC website.

Figure 4: Actions Attendees Plan to Take





Other Comments

Event attendees were also asked to provide any additional comments they had about the event and 58 did so. A thematic analysis of these open-ended responses was conducted and several common thematic categories of comments emerged. Specifically:

- (c) **Event Format**—numerous respondents indicated their approval of the event format, noting they were treated as professionals and it allowed an opportunity to network with other individuals who are passionate about STEM teaching. However, many suggested that they wished there would have been more time for additional interaction both between the panelists as well as with the audience and would like to “dig deeper” into the topics addressed. One respondent thought that the organizers might want to consider the use of hand held technologies, such as clickers, to increase audience involvement and interactivity. Some noted it was difficult to read the slides from the very back of the room.
- (d) **Event Content**—the vast majority of respondents had very positive feelings about the content of the presentations and several particularly noted the presentation by Dr. Wendy Jackson. Many others noted that they thought the policy recommendations were practical and should be implemented, though a few indicated that they didn’t think the recommendations were particularly novel or new. Other raised issues as to how to pay for the recommended changes. Several survey respondents requested more explicit, detailed, tangible suggestions of either sites that are putting some (or all) of the recommendations into practice well or examples of what the recommendations would look like in actual classrooms, schools, and districts. They felt that without concrete examples the recommendations were too vague.

Included here is a complete list of the open-ended comments of attendees:

- Ongoing professional learning is essential. Assessment without clear purposes.
- Good work!
- Thank you!
- Thank you for providing this opportunity!
- Be more excited!
- This is a great event. It is awesome to be in a room with so many people that are passionate about science education.
- Would love more time to interact with groups
- How are the recommendations moving forward?
- Thank you. Keep fighting for the ignorant. We need it.
- Tonight's presentation was an introduction to the topics by using the papers as talking points, but what I need is information regarding HOW TO IMPLEMENT not vague steps. Something concrete. OK so don't unpack, don't buy curriculum texts, etc. without a

focused look. That's common sense interpretation, don't focus on what I shouldn't be doing, tell me what and how I can get underway. Give me ideas for good professional development, curriculum, etc.

- Read to understand before I comment
- This was a pleasure to attend. I felt treated as a professional and inspired in my work. The food was fantastic, so was the setting. Speakers and the MC were interesting and kept my attention. Excellent event!
- enjoyed all the data
- The papers will be very beneficial to share with my colleagues and integrate into the curriculum.
- I would like to see/hear more real implementation examples.
- More questions/comments from audience--though there was not enough time.
- --Wording on the screen was not large enough to be seen clearly at the back table
- --Provide more interaction with the audience during the presentation. Please don't read the slide
- --Please turn off the air conditioning
- --What school sites do you recommend as a model of your vision?
- I would have gotten more from the event if it offered more audience participation during the presentation, or more time for interactive opportunities.
- I enjoyed hearing from the three educators, but I would have liked to hear the thoughts of more educators. The presenters were very informative and they demonstrated their knowledge of the content presented. The papers have a lot of information. The event was well thought-out and organized. I learned a lot and it was a great use of time.
- I agree that writing curriculum is difficult and time consuming. But the best curriculum I've even seen was developed by teachers and well aligned with their students' knowledge, background, and interest. One size does NOT fit all. So how do we support this?
- I was looking for more information about how to "organize schools and districts to best take advantage of state and national resources designed to support these initiatives".
- Great information. Plan to visit the website.
- Please tell CPS not enough time for math instruction--45 minutes is not an hour. Teachers need frequent, effective, and sustained PD. A supported teacher will be useful and successful. Tell CPS not to "slow down to catch up".
- This is an event that is so needed at ISTA. I cannot compliment the organizers enough, especially Dr. Jackson. This was a great event and I hope to see more symposia in the future. Well done!
- Wendy Jackson's PowerPoint was very motivating and should be shared with administrators!
- Wendy Jackson's presentation was well done! It seemed motivating to our administrator to see its use as a way for implementing and why implementation at the school level is important.
- Thanks for all the hard work you did to prepare such an important message. The need for quality STEM education is a must. Thanks for supporting and pushing forth what those of us on the battle fields know is SO important.
- More information on teacher input and how to engage disengaged students

- I love and fully support the notion that science education is a matter of equity and is a civil rights issue. Perhaps a next step is to get advocacy groups' support?
- financial
- How is Illinois going to pay for the professional development and new, updated media (books, etc.) to implement NGSS and CCSS?
- The state of STEM education in Illinois is currently very sad overall, but it is useful to see how many hard working passionate educators are working to make a difference.
- More time during event to go more in-depth on findings and recommendations. Gap of time from 7:30 to 8. Thank you.
- Short, informative, and sweet
- I went to NGSS professional development offered last school year and went back excited to my school, but everyone looked at me like "crazy". Thanks for the validation. Looking forward to NGSS.
- Although this event was held after work, I was very enlightened from the presentations and the literature distributed. I look forward to moving forward with NGSS implemented.
- Great information
- Great job.
- Provide more opportunities for stakeholders to engage in discussion on these topics. I am truly concerned and worried that things won't change until we change policy. We must engage more stakeholders!
- Professors are good to lend credibility. Have us look at a problem/solution in a different way. Make us use clickers to together work on a collective spreadsheet through Goggle docs, show us how to get the students excited with science in action. IPA had a great technology presenter regarding technology--interactive.
- Excellent information. We need more involvement from more teachers!
- This meeting tonight helped reinforce my commitment to enhance our science curriculum with more rigor.
- Thank you.
- I like following along with the articles.
- The papers are made to be user friendly on a variety of audiences. Perfect!
- Good event.
- The symposium was great! Enjoyed the discussions at our table. It was great networking with other school administrators.
- The resources provided are much appreciated and quite useful for transfer of knowledge to build capacity. Thank you.
- Great job!
- I want more! Awesome.
- --Have more professional development workshops that implement the new NGSS into the curriculum
 - How to start a STEM club at your school
- How can our schools be supported in implementing STEM teaching through state or outside (of school) funding?
- The papers seem well organized, but also seem like they leave a lot of gaps for how schools in particular situations can reach their visions for STEM education



- provide non Science/math integration strategies and become thinking of how to measure/assess the process of learning through questioning and discussion techniques
- Thank you
- Can you provide professional development on how to teach STEM?
- To increase awareness about STEM, speakers may have showcased what it looks like through a video presentation instead of constant talking.
- It was all very helpful, well-paced, and a great opportunity to have discussions with my principal!



Reflection Questions

1. Will the event planners continue to engage event attendees around STEM issues, and if so, in what ways? What types of follow-up (e.g., sharing of event presentations, CCSS developed materials, future events, event listserv, event website, social media, etc.), if any, will be provided to event attendees or other stakeholders?
2. Will the event planners seek to replicate this event, in a similar or different format, in other locations, and if so how, where, and when? Will event planners change their advertising or marketing strategies to more explicitly target individuals in policy roles, and if so, how?
3. How will event planners respond to attendees' requests for:
 - a. more specific examples of how the recommended policies would look in practice in actual classrooms, schools, and districts;
 - b. prototype or illustrative examples of specific schools or districts to examine who are doing well at putting some (or all) of these recommendations into practice;
 - c. examples of how schools, districts, and states can implement these recommendations in the current fiscally difficult environment, including example budgets?
4. How will event planners respond to attendees' desire to have more interaction at the events both between panelists and with the audience? Will there be breakout sessions offered for more in-depth discussion as suggested by some attendees or a longer Question and Answer period with the audience? Can technology be used to address this desire for increase interactivity with the audience?
5. How will event staff make evident to attendees and presenters how they are utilizing these evaluation findings?



Appendix A: Event Survey Instrumentation—October 24, 2013



3. Please complete the following statement with 1-3 words:

The STEM policy recommendations offered by the panel are _____.

4. After attending today's event, I intend to take the following action(s): (check all that apply)

- Read the full papers
- Follow up with the speaker(s)/author(s) for further discussion/comments
- Utilize the information in my professional capacity
- Do more research on the topics presented
- Access C-STEMEC content on social media (e.g., Twitter, LinkedIn, Facebook)
- Visit the C-STEMEC website at <http://c-stemec.org/>
- Share the information with professional colleagues
- Provide feedback to ISBE regarding Illinois adoption of the Next Generation Science Standards (NGSS)
- Nothing in particular
- Other (please specify):

5. Any other comments about individual presentations/papers or the event overall that you would like to share?

Thank you for completing this survey! Please return it on your way out the door. You can view the results from this survey, when available, and from previous events at: <http://c-stemec.org/>