

UNIVERSITY OF PITTSBURGH

Collaborative for Evaluation
and Assessment Capacity

SCHOOL OF EDUCATION

CEAC



**Math & Science
Collaborative**

**Educator Corporate
Collaboration on
STEM Education
(EC²)**

**Year 5
2016-2017**

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Introduction

The Educator Corporate Collaboration (EC²) is an innovative approach to teacher professional development that provides educators with opportunities to experience real-world Mathematics, Science and Engineering, and ELA practices in corporate, industrial, and laboratory contexts. In its fifth year, EC² enables K-12 educators to better understand the requirements of the modern workplace, and how to address these needs in their classrooms.

Development of EC²

Developed from the Southwest Pennsylvania 2011 STEM Summit, EC² was initially titled EC⁴ and addressed a growing need for educator and corporate collaboration in Southwest Pennsylvania. This STEM Summit was convened by the Pittsburgh Tech Council, in partnership with the Math & Science Collaborative (MSC) of Southwest Pennsylvania, and supported by numerous industry partners in the area. During the event, groups of educators from K-12 and higher education, as well as industry partners, discussed areas of concern and action for the region regarding the future of STEM education. One of the recommendations that emerged from these discussions was the need for greater collaboration between the education and corporate sectors to advance STEM learning in Southwestern Pennsylvania.

From this recommendation, a subcommittee of K-12 administrators, higher education representatives, and industry partners formed to explore education and corporation collaboration. After deliberation of possible options, the group dedicated its time to developing a model of corporate visits, by educators, to see the important Practice Standards defined by the Common Core State Standards (CCSS) and the Next Generation Science Standards (NGSS) in the workplace. As planning continued, K-12 administrators requested participation from teachers at all three levels (elementary, middle, and high). The result of these discussions was the idea that teachers can more effectively transfer the corporate experience with the NGSS and NGSS to the classroom, educating their students on the applied and practical uses of STEM. This approach to educator and corporate collaboration allows the teachers to use this experience to develop their own classroom approach based on their students' needs and interests.

During the first year of implementation, three partner corporations agreed to support the pilot program, volunteering to host the program at each of their facilities. Additionally, two school districts that were involved in the conceptualization of the EC⁴ program volunteered to participate in the program, and a third district was contacted for participation. Districts selected one administrator and six teachers, two from each level (elementary, middle, and high), to participate in the three corporate visits. The MSC was charged with developing the program and orienting each of the three corporate partners and participating school districts. From there, the MSC encouraged each of the three corporate partners to develop their own unique

approach to the program, as long as the program adhered to the goal; to demonstrate the use of the CCSS and NGSS practices in the workplace. Each of the districts visited each of the corporate partners one time, creating three total sessions for each district.

Entering the second year of the pilot program, EC⁴ added one new corporate partner, three new locations with existing corporate partners, and four new school districts. These new districts responded to a call for participation from the MSC. In addition, district teams expanded to include an English/Language Arts teacher and the program worked to include ELA capacities within the corporation visits. For Year 2, each of the four districts conducted two corporate visits and participated in three professional development days with MSC staff and the three district team participants from last year's program. Districts met with MSC staff once before beginning visits, once in the middle of the program, and once at the end of the program. During these professional development days, educators discussed their corporate visits, and how what they were learning could affect their classroom practices and help their districts to address student needs around STEM education. Additionally, during these professional development days, the district teams worked on STEM education programs for their districts where they created action plans for delivering STEM education to their districts, using Rodger Bybee's¹ design as a guide.

Year 3

In year 3 of the EC⁴ program, six school districts participated. Five of the districts completed at least one corporate visit, with Districts A, B, and C participating in two. Three corporations provided these visits, with corporation B hosting school districts at four different sites. In addition to the corporate visits, each school district participated in a series of five professional development workshops provided by MSC staff. Workshops intended to develop a STEM action plan were held at the beginning, middle, and end of the program. At the end of the program, two additional professional development workshops were held regarding best STEM practices and classroom implementation.

Year 4

Year 4 of the program followed the same format as the third year. Expanded focus was placed on development and implementation of districts' STEM Action Plans. The districts that participated in the program's fourth year included City Charter High School, Woodland Hills, Mount Lebanon, Bethel Park, Propel Charter, and McKeesport School Districts. There were five school sessions scheduled between October and May.

¹ Bybee, R. W. (2013). *The case for STEM education: Challenges and opportunities*. National Science Teachers Association Press.

Year 5

Year 5 heralded changes in the EC⁴ program, including renaming the program EC², Educator Corporate Collaboration on STEM Education.. Additionally, there were substantive changes to the EC² program. The changes included greater emphasis with on-going reflection and communication facilitated through the creation of a Google Drive folder where district teams kept a record of their STEM action plan and individual team reflections. Reflection prompts were intentionally woven throughout each session and connected the professional development days with the corporate visits more closely by focusing on the STEM practices. Moreover, district teams were informed about having to present their STEM action plans to the whole group and corporate partners on the final day of the program. New participating districts included Greensburg Salem, Beaver Area, and Deer Lakes.

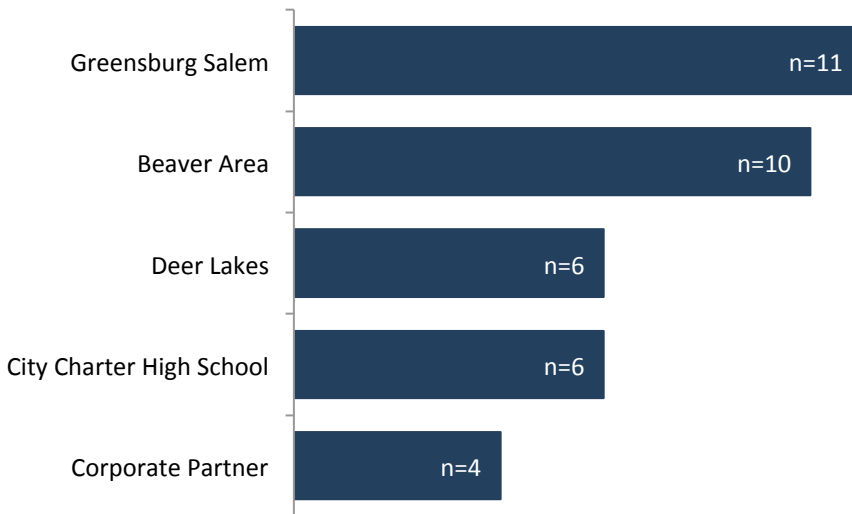
Evaluation

As the external evaluator, the Collaborative for Evaluation and Assessment Capacity (CEAC) at the University of Pittsburgh collected data through a survey administered to all participants at the end of their participation in the professional development program. The seven-item survey included one demographic quantitative question, and six qualitative and one quantitative item on their EC² experience. In addition, CEAC collected reflections filled out by participants after EC² workshops.

Survey Respondent Characteristics

Respondents were asked to select the organization they were representing at EC². Four of the respondents worked with a corporate partner, while the remaining 33 represented one of four school districts. A breakdown of individual districts can be found in Figure 1 below.

Figure 1: Respondent representation



Key Themes Among Respondent Reactions

The following section is organized by the four key themes prevalent in respondent responses to both the survey and reaction questions post-EC² workshop. Respondents showed a clear appreciation for corporate interactions and connections. Participants valued the input of corporate partners on what skills they valued in future employees. Increased knowledge of science, technology, engineering, and math (STEM) and science, technology, engineering, arts, and technology (STEAM) was also a primary takeaway from the sessions, with respondents stating that they had been informed of not only what STEM/STEAM entailed, but also of practical applications in the classroom. Another key concept that emerged through responses was a changed perception of the importance of soft skills/21st Century Skills. Respondents stated that the workshops made clear the importance of developing soft skills, such as communication and collaboration, in their learners. The final theme was the necessity for student engagement and critical thinking, with respondents stating that they intend to be more intentional in creating opportunities for their students to become engaged in their work and think critically.

The Value of Corporate Interactions and Connections

Importance of interaction with corporate representatives was a common theme among respondents' answers. Educators reported that collaboration with corporate representatives aided them in better understanding what skills and mindsets organizations are looking for in future employees, with one respondent stating, "The corporate visits, particularly hearing what these corporations are looking for in their future employees, was incredibly helpful." A total of six respondents mentioned corporate visits as being helpful in their work as an educator.

Corporate connections were also featured when respondents were asked their biggest takeaways from the EC² program, with a respondent asserting, “The schools are taking a comprehensive and well thought out approach to STEM. They should explore options outside of EC² to build out their corporate connections for internships, tours, shadows, and speakers.” Three respondents mentioned corporate visitations/expertise when asked their biggest takeaway. The value placed upon corporate partners was emphasized when respondents were asked for the strongest areas of the program, as well as in which ways the program could be improved. One participant responded, “I think the corporate visits worked really well to really solidify the importance of the math, science, and language arts capacities and how they are applied in the real-world. I wish that the corporate visits could have been closer to our hometown to increase the opportunity of partnerships for professional development or student tours. The corporate visits really enriched my understanding of the habits of mind and STEM literacy” Another corroborated this stating, “The corporate visits were amazing due to the hands on experiences and networking.” Eleven respondents reflected positively upon the corporate visits, in contrast to zero negative comments.

Increased STEM/STEAM Knowledge and Awareness

In addition to valuing corporate visits during the EC² program, respondents were appreciative of how the program increased their knowledge of STEM, as well as aided in better informing their teaching practices. When asked to describe any aspects of EC² that were helpful to your work as an educator one respondent stated, “I learned so much about STEM education during the entirety of this program. I went from not knowing much past what the acronym stood for to understanding the importance of its incorporation into my daily classroom teaching.” Another praised the program for increasing confidence in teaching STEAM, saying, “Coming into this, I didn’t have much experience with STEAM at all. Now, I feel confident incorporating STEAM into my classroom, and teaching my colleagues to do the same. I also became much more familiar with the practice standards and how they are embedded in STEAM activities.” Eight respondents included increased knowledge of STEM/STEAM in their responses to the most helpful aspects of EC².

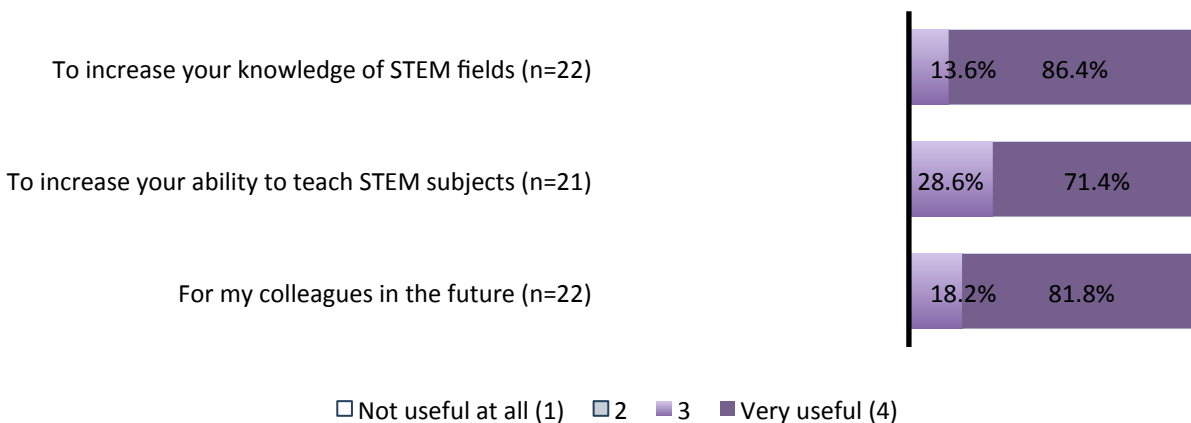
Increased knowledge and awareness of STEM was also featured when respondents were asked their biggest takeaway from the EC² program, with eight respondents mentioning STEM. One respondent stated, “The mindset of STEM education, and the insight that STEM skills, practices, and behaviors are a part of all careers. They are employability skills that we have to practice and reflect upon over and over. We have to engage our students in the practices...behaviorally, cognitively, and emotionally throughout their scholastic experiences.” Another answered, “The biggest takeaway from the EC² I have is a clear understanding of STEM literacy in the classroom. I had a huge misunderstanding that STEM learning had to take place in a science class. But, it

does not! Now I want to be able to include my colleagues that teach social studies, reading, or music in the STEM learning goals.”

When asked what aspects of the program went well, one respondent answered, “I believe that exposing us educators to examples of STEAM activities and how we could incorporate them into our classes while still addressing the Pennsylvania Common Core Standards and the Practice Standards so that we are still helping students move as they prepare for state assessments was great.” Another suggested that the program does more examples of STEM in action, such as the log problem.

The survey’s one quantitative question also dealt with change in STEM knowledge. The item prompted respondents to consider their experience in the workshop and rate the degree to which they found it useful on a four-point scale with 1 being not useful at all and 4 being very useful. 100.0% of respondents rated each item with a 3 or 4. See Figure 1 for more details.

Figure 1: Considering your experience in this workshop/training, please rate the degree to which you found it useful...



Increased knowledge of STEM and a changed perception of its application in the classroom was a theme for participants who provided reflections on their experience, as well. A respondent answered the question, “*What else did you notice or wonder about that will influence your future action plan?*”, with, “Coming up with a common definition [of STEM] definitely helps in creating our action plan as a team. I look forward to the corporate visits!” When asked “*What ideas related to student learning emerged from your readings and discussions?*”, a respondent stated, “I’m less wary of STEM after today’s session. I see a place for ELA within STEM learning. I’m looking forward to learning more to share with my students.”

Changed Perception on the Importance of Soft Skills/21st Century Skills

A changed perception on the importance of soft skills as a result of EC² was a theme throughout respondent reactions. Four respondents mentioned that aspects related to soft skills were helpful to their work as an educator, with one stating, “So many aspects-collaboration, importance of other soft skills, thinking of ways to get our students open to more experiences, and so many more.” Another responded, “Be more intentional during group activities and challenges in the planning and communication skills. Encourage problem solving and that mistakes are a step to success.” Soft skills were also a popular response when asked the biggest takeaway from the EC² program, with 8 respondents mentioning either soft skills, or a specific soft skill. A respondent replied, “My biggest takeaway included the integration of soft skills into my curriculum for student success today and in the future,” while another stated, “In addition to viewing all aspects of instruction regarding how we are incorporating the 4C’S of critical thinking, collaboration, communication, and creativity, the other major takeaway was that STEAM activities do not have to involve building something.”

Participant reflections also showed a value for collaboration and other 21st Century Skills that are also part of the Mathematics, Science and Engineering, and ELA Practice Standards . One respondent exemplified this, saying, “We, as educators, need to continue to reflect upon and increase our competency with exposing students to 21st Century practices (i.e. collaboration, communication, higher level thinking, making personal meaning).” Another stated that, “Including more collaborative work is imperative.” When asked how a session influenced their future action plan a respondent replied, “I noticed that collaboration and effective communication is a large part of college and career readiness. I feel our future action plan should incorporate an avenue for students to collectively work together to solve a problem or generate an understanding of the world around.” Multiple respondents also cited a newfound importance for encouraging students to see failure as an opportunity to learn from mistakes and proceed with new solutions.

Necessity for Engagement and Encouraging Critical Thinking

This theme was much more prevalent amongst the post-corporate visit reflections. Participants were asked, “*Reflecting on the practice standards, what are the implications for the classroom?*” Eight respondents mentioned a greater necessity to better engage students and/or encourage critical thinking. One stated, “In my ELA class, I will provide more opportunities for students to read purposefully and find text meaningful and purposeful to my learners. I will also encourage my students to refine and share their knowledge through writing and speaking and collaborating with peers.” Another opined, “We must engage students in hands on experiences, having them apply knowledge from the STEM disciplines.” When asked what was helpful as a learner during the session, a respondent stated, “It really opened my eyes to different STEM approaches I can take and incorporate into my ELA classroom. I feel motivated to seek out

opportunities and learning activities that engage my students, get them to collaborate and problem solve, and integrate technology.”

Corporate Perspective

Corporate representatives who took part in EC² were also asked to provide their perception of the program. When asked for takeaways from the EC² STEM literacy symposiums on how corporate visits affected district STEM action plans, one respondent stated, “As a corporate host, my goal was to show how STEM thinking, specifically problem formulation, analysis, and solution development, is used every day. I hope some understanding of our work will help the teachers give students concrete examples of “why it is important”, not just “what it is”.” Another replied, “The schools are demonstrating that they see a clear link between their plans and the needs of employers. They should continue to keep this in mind during lesson development.”

Conclusion

In conclusion, respondents to both the survey and post-corporate visit reflections overwhelmingly felt the EC² workshop was beneficial and informative on STEM learning and practice standards. Recurring themes in responses included appreciation of corporate visits, increased knowledge and awareness of STEM knowledge and application, and a changed perception on the importance of soft skills/21st Century Skills. For future consideration, EC² may wish to address respondent suggestions for improvement including: development of a rubric for the final presentation, a mechanism to share successes and failures across school districts, more ideas for use in the classroom, and more corporate visits.

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Appendix A

[MSC] EC2 Survey

Q1.1 Introduction- The following evaluation is to better understand your recent experience with the Math Science Collaborative (MSC) EC2 experience. All responses will be anonymous.

Q2.1 Please select where you are representing at EC2:

- Beaver Area
- Dear Lakes
- Greensburg Salem
- City Charter High School
- Corporate Partner
-

Display This Question:

If Please select where you are representing at EC2: Corporate Partner Is Not Selected

Q2.2 Please describe any aspects of EC2 that were helpful to your work as an educator:

Q2.3 Please describe your biggest takeaway from the EC2 program:

Display This Question:

If Please select where you are representing at EC2: Corporate Partner Is Selected

Q2.4 Please describe any takeaways from the EC2 STEM literacy symposium about how corporate visits affected district STEM action plans?

Q2.5 Please describe any aspects of the overall EC2 program that worked well, which aspects could be better, and explain why:

Q2.6 Please describe aspects of sharing STEM literacy plans that worked well, which aspects could be better, and explain why:

Display This Question:

If Please select where you are representing at EC2: Corporate Partner Is Not Selected

Q3.1 Considering your experience in this workshop/training, please rate the degree to which you found it useful...

	Not at all useful (0)	1	2	Very useful (3)
To increase your knowledge of STEM fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To increase your ability to teach STEM subjects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For my colleagues in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3.2 Thank you for taking the time to complete this evaluation. Please hit submit below to ensure your responses are recorded.

Appendix B

<i>Q1: Please describe any aspects of EC2 that were helpful to your work as an educator:</i>
Truthfully - all of it was helpful. The corporate visits, especially to PPG were fantastic. Truly remarkable in assisting our team in moving forward.
I learned so much about STEM education during the entirety of this program. I went from not knowing much past what the acronym stood for to understanding the importance of its incorporation into my daily classroom teaching. I think the corporate visits were a vital piece that helped me to understand how the skills I am teaching in my elementary classroom transfer into the real world and will impact my students for a lifetime.
Many aspects! Coming into this, I didn't have much experience with STEAM at all. Now, I feel confident incorporating STEAM into my classroom, and teaching my colleagues to do the same. I also became much more familiar with the practice standards and how they are embedded in STEAM activities.
Be more intentional during group activities and challenges in the planning and communication skills. Encourage problem solving and that mistakes are a step to success.
The quality professional development for our district team
The corporate visits, particularly hearing what these corporations are looking for in their future employees, was incredibly helpful. This information was very well received by my colleagues and hit home why STEAM education is so incredibly important moving forward.
Clear definition, vision, and explanation of what STEM education is and how the practices translate to the workplace.
I came into this workshop not having much prior STEM knowledge. Now I am bring all of this knowledge, activities, and a new approach to teaching back to my team and to my students.
So many aspects-collaboration, importance of other soft skills, thinking of ways to get our students open to more experiences, and so many more
Everything! I found the EC2 action items helpful and they led me to use ADI labs (argument driven inquiry) and especially helpful to see inside the corporations.
The affirmation of what we already do was helpful.
The collaboration between our team, other teams, and corporations.
All aspects were helpful. Most helpful were the corporation visits and the reflection opportunities.
Experience with STEM experiments that don't normally happen in my curriculum.
Getting to visit the corporate sites.
Talking to other educators in the area.
The corporate visits and presentation feedback were invaluable. Learning about the skills necessary for the workforce and the job opportunities was invaluable.
Reinforcing the idea that process is more important than content.
Opening my eyes to teaching STEM in a variety of ways.
The hands-on activities that we participated in at each site we instrumental to our understanding
I feel a large part of EC2 that was most helpful. to me as an educator was the continuous

<p>reflection of the capacities after each activity or corporate visit. The reflection of the practices really helped me to see how the capacities are so important and easy to incorporate into the classroom. Overall, that was the point - to connect our new vision of STEM literacy to our classroom and students.</p>
<p>Working with the other school districts and the AIU was very helpful and inspiring!</p>
<p>I loved the corporate visits! They brought this all to life.</p>
<p>I was surprised by the emphasis on "soft skills"</p>

<p><i>Q2: Please describe your biggest takeaway from the EC2 program:</i></p>
<p>They I am lucky to be working with such a truly dedicated team of teachers and administrators- because of this program, I was able to witness there determination, dedication and commitment to students. The 4 Cs tied to the practice standards now drives how my teachers are thinking about all there lessons!</p>
<p>I was impressed by the engagement and team-based approach within each school district.</p>
<p>My biggest takeaway included the integration of soft skills into my curriculum for student success today and in the future.</p>
<p>The schools are taking a comprehensive and well thought out approach to STEM. They should explore options outside of EC2 to build out their corporate connections for internships, tours, shadows, and speakers.</p>
<p>My biggest take away was realizing the need for a shift in education to help our students best prepare for the real-world after school. Students may have the best grades, but if they can't communicate, collaborate, and problem-solve, they won't be well prepared for their future. Another big take away was giving students the opportunities in the classroom to fail, and teaching them that failure is okay and is part of the learning process. That's something that I struggle with as an adult, and maybe if I was exposed to more activities where I had to learn to fail as a child, I would be better able to handle failure as an adult.</p>
<p>The enthusiasm from the educators to the STEM goals</p>
<p>Develop students to be problem solvers by giving them more of the tasks with less instruction & clear target but many avenues for achievement. Encourage logic and teamwork.</p>
<p>how important it is for the workplace and school to have meaningful opportunities to exchange information.</p>
<p>In addition to viewing all aspects of instruction regarding how we are incorporating the 4Cs of critical thinking, collaboration, communication, and creativity, the other major takeaway was that STEAM activities do not have to involve building something. From our Arconic visit, the task that was presented was not only rigorous, but it also simply required us to utilize the 4Cs without having to actually physically construct something. In the past, I thought that STEAM meant we had to make something.</p>
<p>The mindset of STEM education, and the insight that STEM skills, practices, and behaviors are a part of all careers. They are employability skills that we have to practice and reflect upon over and over. We have to engage our students in the practices for behaviorally, cognitively, and emotionally throughout their scholastic experiences.</p>
<p>I have many take-aways from this workshop:</p>

-colleague collaboration -creating an action plan for our district -corporate visitations/expertise
The importance of teaching kids to problem solve and "fail forward"
Developing competence in practices is essential
Continue to emphasize to students to be flexible and be life-long learners.
Our corporate experiences as well as the process that the EC2 team used to facilitate.
The importance of STEM education and the impact it will have on students future goals. Also the need for students to have an equal balance of content skills and soft skills.
That STEM is a mindset and not four isolated disciplines
Getting to know the practices a little better and getting ideas in the classroom from other teachers.
Students don't just need content- soft skills and flexibility are key to success. Also, thee need to reinforce that failure is ok and necessary to move towards success.
That STEM can be incoporatred into all curriculum areas.
Learning about the importance of the "soft skills"
The biggest takeaway from the EC2 I have is a clear understanding of STEM literacy in the classroom. I had a huge misunderstanding that STEM learning had to take place in science class. But, it does not! Now I want to be able to include my colleagues that teach social studies, reading, or music in the STEM learning goals.
It's okay to fail...but keep trying until u come up with solutions.
That we are all in this together.

<i>Q3: Please describe any takeaways from the EC2 STEM literacy symposium about how corporate visits affected district STEM action plans?</i>
As a corporate host, my goal was to show how STEM thinking, specifically problem formulation, analysis, and solution development, is used every day.
I hope some understanding of our work will help the teachers give students concrete examples of "why it is important", not just "what it is".
The schools are demonstrating that they see a clear link between their plans and the needs of employers. They should continue to keep this in mind during lesson development.
The school districts needed financial support to maintain the momentum they've established. The enthusiasm from the students. The visits to the corporate partners had an effect on the educators.

<i>Q4: Please describe any aspects of the overall EC2 program that worked well, which aspects could be better, and explain why:</i>
All aspects worked extremely well. If there was any room for improvement is would be as follows:

1. Avoid Mondays and Fridays for training and visits. It is hard enough to get subs - it is even worse on Mondays and Fridays. Getting 6 subs for each day is really tough. We committed to it and made sure it happened, but Tues - Wed would have been easier.
I am aware of the corporate site visits. Within the EC2 program, is there a mechanism for periodic check-ins both within a school district and across districts?
I appreciated the ability to collaborate with other educators throughout our sessions and visits. It was helpful for me to discuss ideas with other elementary educators, especially those that shared a subject area with me. It is rare that we have the opportunity to talk with educators outside our district, so it is helpful to bounce ideas off each other.
The EC2 program definitely needs additional corporate partners. The program is heavily reliant on a few deeply engaged partners. Other corporate partners should be aggressively pursued, even if other partners cannot provide funding, they could enrich the experience.
I really enjoyed the EC2 experience! I can't really think of anything I would change.
Would be great to see it expand to other schools and other corporate partners.
Activities that engage all students work well and motivate creativity and fun while working towards a solution.
More pressure should be put on state to develop or trust teachers to assess team and problem solving skills. Overcoming test prep stress is a MAJOR obstacle.
The requirements for the team makeup made the groups have the right voices at the table, possibly having one more workplace to visit
I believe that exposing us educators to examples of STEAM activities and how we could incorporate them into our classes while still addressing the Pennsylvania Core Academic Standards and the Practices Standards so that we are still helping students move as they prepare for state assessments was great. I would like to see more examples of those types of activities to illustrate how STEAM can support standards in the classroom.
I thought everything was well developed. The experiences and time for interaction with corporate partners was irreplaceable.
It was extremely eye-opening and I appreciate all that I learned. I wouldn't change a thing!
The corporate visits were amazing due to the hands on experiences and networking. I also love the addition of the presentations and dialogue with the districts and corporations at the end which we didn't do last year. I don't have any suggestions for changes.
Everything was very effective and went smoothly, well done
The combination of classroom and corporate visits worked very well.
The program was well planned.
The entire experience worked well. I would love to incorporate more corporate visits, if possible.
I liked that we did a bit of everything. I enjoyed the corporate visit(s). I also liked having collaboration time with my team.
WELL visiting the corporate sites and see the processes in action.
BETTER

Do more examples of STEM in action like the log problem.
Inquiry activities and corporate visits
The site visits were great
Sharing out and the presentations were effective and a positive learning experience.
Being able to sit down and dialogue with the corporate partners worked very well. Getting direct feedback from them really allowed us to have important take-aways
I think the corporate visits worked really well to really solidify the importance of the math, science, and language arts capacities and how they are applied in the real-world. I wish that the corporate visits could have been closer to our hometown to increase the opportunity of partnerships for professional development or student tours. The corporate visits really enriched my understanding of the habits of mind and STEM literacy.
The corporate visits were a great piece to this.
The overall plan and site visits were outstanding.

<i>Q5: Please describe aspects of sharing STEM literacy plans that worked well, which aspects could be better, and explain why:</i>
<ol style="list-style-type: none"> 1. Hold teams to their 20 minute presentations - many teams went way over their time limit and it was tough to sit and hear lecture for so long 2. I would encourage the development of a rubric for the final presentations - make sure each team has a clear expectation of what makes a good presentation. On two of the teams, I didn't really understand their plan. 3. Know the dates of the corporate visits on the first day of the training. This really helps with planning at the district level
I would be interested in knowing if there are mechanisms in place to share success AND failures in approaches across school districts. Every school district will have a unique culture and challenges, but it would be useful to know what approaches and activities seemed to work and which didn't.
I enjoyed hearing the STEM literacy plans because a lot of the ideas we had were shared by the other districts. I felt like a lot of the feedback was the same, and it might have been helpful to hear all presentations first, then have the discussion from the corporate partners since we all could have contributed to a lot of the discussion.
What could work better is that the schools could go deeper into a single aspect of what is being developed, rather than talk about their overall experience. Most participants had a similar experience, so the convening should focus on the unique details each school can share about their work post-program. This will provide the most learning for the other schools.
Again, I think it was a very positive experience for all!
Beaver's video was great! I was worried that after the first presentation the questions and discussion would tail off but it didn't. Each school had a different angle.
Enjoyed the sharing of literacy plans, but sometimes it seemed redundant and slow.
I thought that was really done well, not rushed and very reflective.
It was nice to hear that everyone from the other schools was essentially on the same page as us. Possibly focusing the plans and presentations only on what will be done moving forward

would be helpful.
All was well planned.
It was extremely helpful to see how other districts are incorporating STEM into their district and classrooms.
Hearing from the other districts and sharing ideas and experiences as well as hearing feedback from the companies was very beneficial.
I initially thought an hour per presentation was going to be too long, but I found myself wanting to hear more from the teams and the corporations
Gave some good ideas to use in my classroom.
All aspects worked well.
WELL allowed each District to look into its own plans and how to start, improve, and implement them in the years to come.
BETTER maybe show how districts in the past have worked STEM into their own Districts (on this last day) which might give the current Districts more ideas.
Defining stem literacy and how it applies across all disciplines.
It was very nice to share ideas with colleagues. Might be better to have groups by age group. Was not much interested in elementary stuff.
All aspects of sharing plans worked well, because it was a great learning experience.
I think the discussion after the presentation incorporating the panel of corporate leaders was really helpful for us as educators to continue thinking about our action plan. I would love the opportunity to communicate further with the other districts that were a part of EC2 to hear more about their progress with their action plans.
I loved the presentations!
It allowed us to see what other districts were up to and to fine tune our program from their presentations.