

## Summary and Response for The E in STEM Live Session on June 20, 2019

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In the beginning of the live session Dr. Brown explained the rest of the course requirements, in particular the Major Project – Engineering Design Challenge. The following will need to be submitted by July 17<sup>th</sup>: my engineering design notebook, responses to questions, student work samples, and a 1-2 slide presentation of the major project including images and/or drawings. On July 17<sup>th</sup> each student will present his/her slides for approximately 1-2 minutes.

The next topic in the session was about the growth of STEM education. It was noted that more people have heard of STEM but there is still not a uniform definition or learning outcomes in education. When speaking with fellow teachers at my school, it is evident that they are familiar with the acronym STEM but many cannot define STEM education.

In addition the “siloes” approach was discussed and I would agree with many of my classmates that the teachers in my elementary school teach their specified subjects and most of the time are not integrating subject areas or collaborating to create integrated lessons. This is due to several challenges. First, the teachers are not allotted the time to collaborate and plan STEM lessons. Teachers need time to find the “big idea” and create the lesson that will incorporate multiple subject areas when teaching that idea or concept. Not only do teachers need time to plan, but they also need the time to implement the lessons. There is not much flexibility in the schedule at my school, especially with the upper elementary grades. Students have the common core subjects, Spanish, health, and responsive teaching time which leads little time to teach a STEM lesson. Lastly, the teachers at my school have expressed to me that they have not been trained on the science content and engineering design process making them uncomfortable teaching STEM lessons. Without knowledge and comfort level, it is evident why teachers are hesitant to plan STEM lessons.

In my school, some teachers are using the ad hoc infusion method for STEM instruction with the exception of one situation. The students who are in the gifted and talented program are involved in a stand-alone program that incorporates STEM and STEAM challenges several times throughout the year. The gifted and talented students meet for an hour once a week with the gifted and talented teacher. When implementing my design challenge, I found that these students were quite familiar with the engineering design process.

As I learned earlier in this course there are elements of the engineering design process incorporated in the science, math, and

technology standards making it possible to plan and teach STEM lessons to all students. To do this, the needed changes outlined in the live session I found to be critical. The changes include funding, credentialing, diversity, developing models of implementation, and STEM literacy. As pointed out earlier, these are the same challenges the teachers in my school are encountering. There is not one licensed STEM teacher in my school, not even the gifted and talented teacher, nor is there a model to implement a STEM education for all students. As for diversity, I would agree with the presented statistics and classmates' poll data that the majority of students who are interested in a job in engineering are white males. To increase the interest in females, students need to be exposed to STEM activities and STEM jobs. Not only is it important to expose the students but also their parents. Using school, home, community, district, and state resources can help increase STEM literacy and education in the classroom.