



**Assessing Undergraduate STEM
Majors' Interest in K-12 Science
Teaching**

Mamta Singh

Lamar University

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**Inter-College
Collaborative
Project**

**The College of
Arts & Science**

**The College of
Education &
Human
Development**

Objective

Assess Undergraduate STEM Majors' Interest in K-12 Science Teaching

Participants

4 - Biology major

2 - juniors & 2 - seniors

3 - females & 1 male

Based on their applications and essays, all these four student participants had a keen interest in K-12 science teaching, particularly high school science (biology)

These student participants had no prior experience or knowledge in K-12 teaching & Learning

STEM Lesson Plans & Tricks

- June 4th – July 6th, 2020; 9:45 a.m. – 11:15 a.m. M-F.
- Each student participant was actively engaged in live class sessions, discussions, presentations on Blackboard through BB Collaborate Ultra.
- Local Elementary School – University Partnership
- Each student participant prepared a full inquiry-based STEM 5E lesson plan with assessments (pre-mid-post) on different STEM topics:
 - Aquatic Insects' Adaptations
 - Hereditary & Genetics
 - Natural Selection
 - Symbiosis

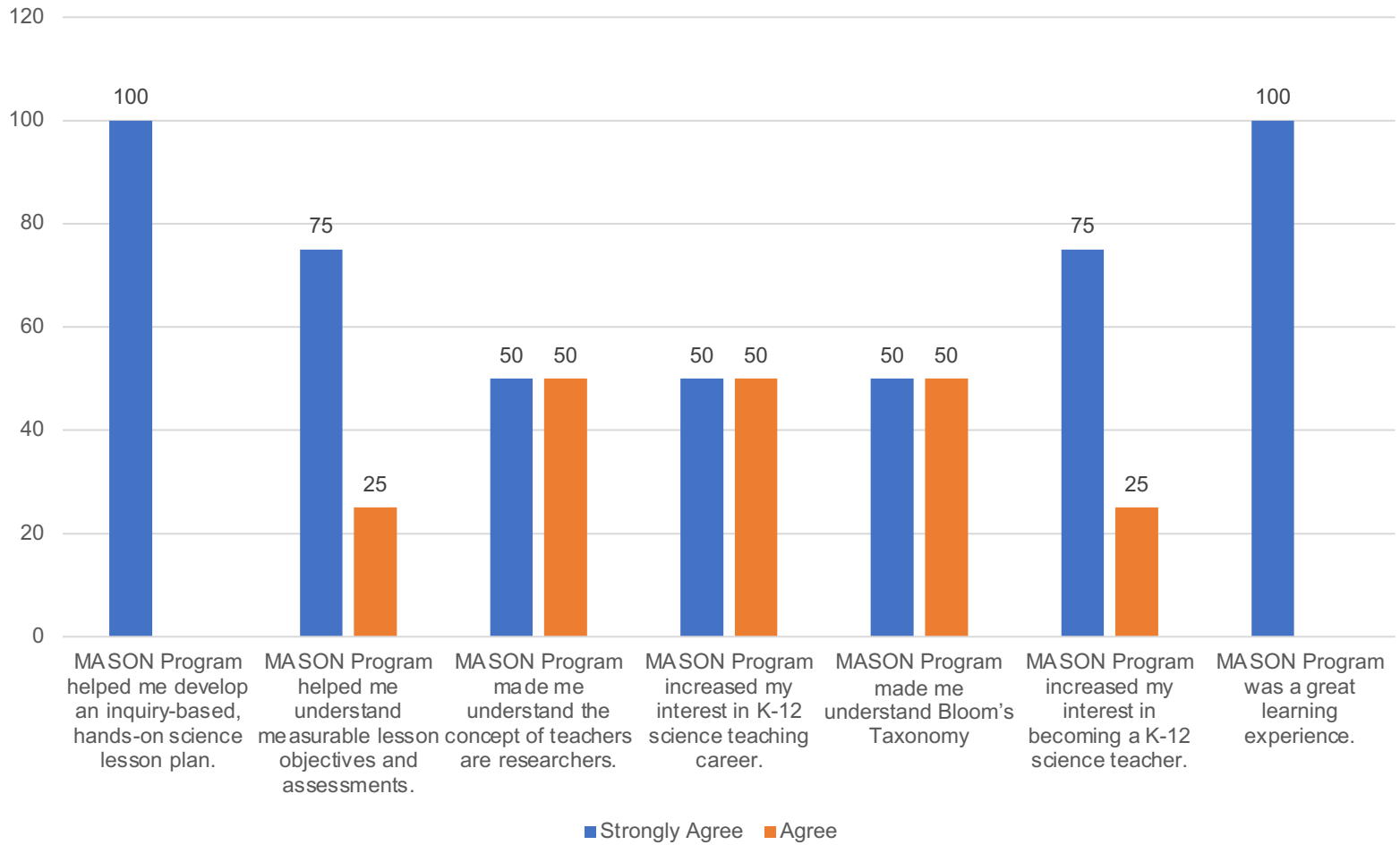
Google Classroom

- Each of the above lesson has pre-mid-and post-assessments build on google drive. Each lesson has an associated PowerPoint presentation slides and a recorded lesson.
- Each student has developed “STEM Tricks” demonstration with assessment.
- These lessons and tricks were shared in “Google Classroom” where the local elementary school could access asynchronously.
<https://drive.google.com/drive/u/0/folders/0B0SsJCmmQpcgfkEyWG1CTDBLU1hGYVQwVkJiWWdKbERPTmlsQ2syNWg2ektHSjFfbkdwRGM>.
- PMAC students had access to these lessons till July 19th, 2020 to complete all the assignments.

Guest Speakers

- Welcome - Program Overview (College of Education & Human Development)
- Assistant Principal of Local Elementary School
- Maker Space & K-12 Teaching: (Maker Space Director, Engineering)
- STEM Content & Resources: (Biology)
- STEAM Teaching: (Teacher Education)
- Diversity & Inclusion: (Teacher Education)
- Classroom Management: (Teacher Education)
- Teach Live: (Teacher Education)

Program Satisfactory Survey



Pre-Post Program Survey Responses

Pre-Program Survey	Post-Program Survey
50% of student participants (SP) had a fair knowledge about teaching & pedagogy	75% of SP agreed that MSP helped to understand teaching & pedagogy
50% of student participants (SP) had a poor knowledge about PCK	50% of SP strongly agreed that MSP helped them understand Pedagogical Content Knowledge (PCK) 50% of SP agreed that MSP helped them understand Pedagogical Content Knowledge (PCK)
100% of SP had a poor knowledge about K-12 teaching & learning	50% of SP strongly agreed that MSP helped them understand K-12 teaching and learning concepts 50% of SP agreed that MSP helped them understand K-12 teaching and learning concepts
75% of SP had a poor knowledge regarding 5E Instructional design in science teaching	50% of SP strongly agreed that MSP helped them understand 5E Instructional design to develop science lesson plans 50% of SP agreed that MSP helped them understand 5E Instructional design to develop science lesson plans
50% of SP had a fair knowledge of TEKS	100% of SP strongly agreed that MSP helped them understand TEKS
50% of SP had a poor knowledge of measurable objectives & lesson assessments tools & techniques	75% of SP strongly agreed that MSP helped them understand measurable objectives and assessment tools and techniques
75% of SP a fair knowledge of inquire based hands-on science lesson	100% of SP strongly agreed that MSP helped them increase their knowledge of inquire based hands-on science lesson
50% of SP had a poor knowledge of “Teacher as Researcher” concept	50% of SP strongly agreed that MSP helped them understand “Teacher as Researcher” concept 50% of SP agreed that MSP helped them understand “Teacher as Researcher” concept
75% of SP a fair knowledge of differentiated instructional strategies	75% of SP agreed that MSP helped them understand differentiated instructional strategies

Program Summary

All these student participants will be taking Alternative Certification (AlCert) route to get certified in high school science teaching

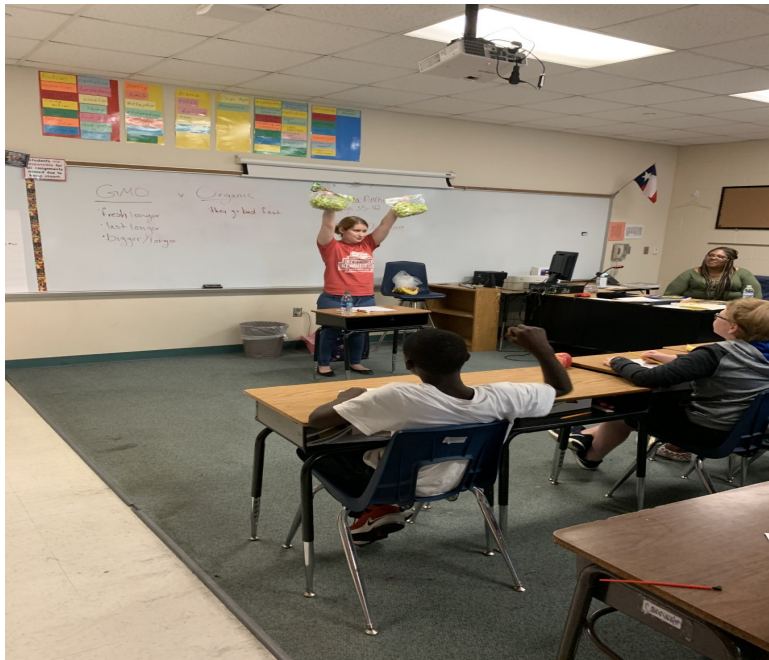
One of the participants will start teaching effective this fall 2020 at local High School while being enrolled in AlCert Program

Remaining three will work as substitute teachers while taking LU online classes

The COVID-19 Pandemic Limitations

- Only four elementary students completed the assignments shared on google classroom
- Lesson plans & tricks will be shared
- 5th grade elementary students will participate.
- Pre-mid-post assessments scores will be collected for analysis

Genetic Engineering & DNA Bar Coding: Day One



Genetic Engineering & DNA Bar Coding: Day Two





Questions!!

