



Engagement

Having an orientation to the sciences and/or quantitative disciplines that includes such qualities as awareness, interest and motivation.

The ECC Trilogy

Continuity

Institutional and programmatic opportunities, material resources and guidance that support advancement to increasingly rigorous content in the sciences and quantitative disciplines.

Capacity

Possessing the acquired knowledge and skills needed to advance to increasingly rigorous content in the sciences and quantitative disciplines.

from Jolly et al. 2004





Engagement

- Behavioral (relevance to social circumstances)
- Emotional (fun, intriguing, intellectually rewarding)
- Cognitive (willingness to master complexity, sense of when something has been mastered)
- Vocational (fulfilling long-term aspirations)
- Belief or confidence in ability to pursue STEM

How to increase: include socially relevant activities (outreach, service learning), career counseling, alumni interactions





Capacity

- Logical-mathematical
- Spatial
- Naturalistic (recognize and classify objects)
- Linguistic
- Becoming life-long learners

How to increase: allow students to demonstrate what they know and can do, include teamwork, open ended questions, less emphasis on speed/timed exams, provide hands-on, real-world experiences





Continuity:

Pathways or systems with resources for advancement Structure needed for a student to flourish

How to increase: make aware of required higher level courses, what they need to do to position themselves for career or 4YC, opportunities for scholarships, internships, financial support, tutoring, counseling, and other support services.





Essential to have <u>all</u> 3 parts of ECC-Trilogy model!

"We don't need to do it all, but we must see that it all gets done"







Specific Examples of Increasing Engagement:

- El Paso Community College (EPCC) Geo-ventures Program: curriculum based field trips

https://www.facebook.com/GeoVenturesEIPaso/

- Service Learning program
- EPCCTejano Passport Program

https://www.epcc.edu/Services/TejanoPassport

 http://www.sacscoc.org/2018%20AM%20Handouts/CS%20Handouts/CS-41 Civil%20Engagement%20-%20Beyond%20the%20Frontier%20of%20Participation%20(Quiros).pdf







Specific Examples of Increasing Capacity:

Active Learning: InTeGrate's EJ & freshwater module

https://serc.carleton.edu/integrate/teaching_materials/freshwater/index.html







Specific Examples of Increasing Continuity:

Capstone Courses: research methods, field methods

Guided Pathways Maps





