Review of the Literature
Reaching students who are not pre-disposed to STEM by employing facilitators they can relate to.

If students can identify with role models they may be more likely to see the relevance in the subject matter. This holds for both genders, but has a stronger impact with female students who are more likely to cite a positive influence with a teacher or mentor as a factor for becoming interested in science.


Students can learn by watching a peer succeed at a task. In this context, a peer means someone who the student identifies with, not necessarily any other student. “Peers” may be drawn from groups as defined by gender, ethnicity, social circles, interests, achievement level, clothing, or age.

Margolis and McCabe (2006)

People have a fundamental need to feel connected or related to other people. In learning environment, research shows that students who feel they “belong” have a higher degree of intrinsic motivation and confidence. According to students, their sense of belonging is fostered by an instructor that demonstrates warmth and openness, encourages student participation, is enthusiastic, friendly and helpful, and familiar in a cultural sense.

Freeman, Anderman and Jensen (2007); Anderman and Leake (2005)

Learning activities that are based on topics that are relevant to students' lives – connecting the subject with students' culture, outside interests or social lives – helps to increase student motivation in STEM subjects.

Brozo (2005)

Operational Approach
Developing a Science Communicators Program

13 Partner Universities/900 Students recruited in 2016 (3,600+ since 2011)
STI students as well as education students and other liberal arts students

Science Communication Training
12 hours (2 days) on their university campus
Foundations in science communication
Introduction to basic science education pedagogy
Led by professional science communicators
Assessment of all students at end of 2 days and assignment to ADSF activity – quality control and best fit

Science Content Training
16 hours on site at ADSF prior to event
Basic science concepts behind the workshop or demonstration they are assigned to
Operational aspects of the workshop or demonstration
Alumni can return as “Team Leaders” in subsequent years

Outcomes for Science Communicators
1. Communications & leadership training
2. Exposure to hands-on science
3. University “credit”
4. Inclusion in a government-sponsored event that is viewed as important to the vision for their country’s future – contributing to the national agenda
5. Access to visiting delegates and importantly to HHs
6. Social opportunity to mix with peers
7. Awarded certificates at the culmination
8. (We hope) future science communicators for future initiatives in Abu Dhabi and the UAE

Outcomes for Visitors
Surveys 2011-2015

Visitors expressed a preference for human facilitation by Science Communicators over self-facilitation of activities or labels on exhibits

- Findings reflected a regional/cultural preference for dialogue over reading
- A general unfamiliarity with the concept of ISE led parents and teachers to ask for more support in workshops and at exhibits
- Parents and teachers strongly endorsed the use of bilingual science communicators (especially those with “local” Arabic)

“[The learning] should be supported by voice”, Emirati father
“[My preference is to have explainers who can explain in English and Arabic both]”, Emirati mother

“[The learning] should be supported by voice”, Emirati father

Implications for Future Program Development
Current 3,600+ Science Communicator “Alumni”

- Deployment for future editions of ADSF and new ISE programs in Abu Dhabi
  - Reduced cost of recruitment and training
  - More experienced volunteers
- Creation of “career ladder” from Science Communicator to Asst. Team Leader to Team Leader, etc.
- Built a bit of civic pride and recognition into the profession of “Science Communicator”

Those who do chose to go into STEM careers will have had some basic practice and training in communicating science to the public.

Citations
William G. Brozo. (2005). Connecting with students who are disinterested and inexperienced. Thinking Classroom. 6(3), 42.
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