Individual-Learning Activity: Do you prefer learning using lectures, hands-on activities, or in groups? How fun are group projects and oral presentations?

GeoFORCE students graduate high school, enroll in college, and remain in college for at least 2 years at a rate that is higher than the average in the United States and Texas.

We hypothesized that students prefer learning from group-activities, which more closely resemble their cultures. We test this by modifying the legacy cycle challenge-based pedagogical model to include both group and individual learning activities.

GeoFORCE Texas is an out-of-school time K-12 geoscience program that successfully increases diversity of students pursuing STEM majors. Although 43 % of GeoFORCE alumni in college are STEM majors, relatively few pursue the geosciences. Could geoscience retention rates be improved by teaching in a way that more closely resembles the students’ cultures?

Students prefer learning in groups where they get to work on hands-on activities. Students’ response to individual-learning activities was more varied than to group-learning activities. Difficulty can be increased for group-learning activities without sacrificing student interest, excitement and fun.

Students’ perceptions of a geoscientist broadened to include a scientist who not only studies the earth but its history and governing processes.

Pre-Course Responses
A scientist:
Discover new formations and its causes
Looks at rock to learn about the earth
Researches oil, gas and rocks
Studies earth and how it functions

Post-Course Responses
A scientist:
Discovers new formations and its causes
Looks at rock to learn about the earth
Infer rock formation
Studies earth and how it functions
Researches oil, gas and rocks

Survey Questions (n = 28): Do you prefer learning using lectures, hands-on activities, or in groups? How fun are group projects and oral presentations?

Survey Questions (n = 28): How interested are you in learning more? How fun was this activity? How exciting was this activity? How much did you feel you understood? How difficult was this activity?