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Report

East Los Angeles College Cal Poly Presentation Survey Report

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- 1.1. This evaluation report has been prepared by REAP Change Consultants for the East Los Angeles College (ELAC) A T E grant 1801188 “Filling Skills Gap Through the Geospatial Engineering and Technology Program.” The grant and its evaluation are funded by the National Science Foundation (NSF). As part of the grant evaluation Dr. Stephen C. Maack, Owner of REAP Change Consultants, surveyed students of ELAC 221 about an online presentation by grant Co-Principal Investigator (PI) Omar E. Mora and his colleagues Allan Ng, Professional Land Surveyor, and Dr. Lourdes V. Abellera concerning the California State Polytechnic University, Pomona (Cal Poly Pomona) B.S. program in Civil Engineering with a Geospatial Engineering option. One of the purposes of the NSF grant is to encourage students to obtain degrees in Land Surveying or its related professions and Cal Poly Pomona is both a nearby potential school to which ELAC community college students might transfer and a grant partner.
- 1.2. ES 221 is the second course in a two-course land surveying sequence at ELAC, with a pre-requisite being successful completion of ES 121 (Land Surveying I), or Civil Engineering 121. This is an advanced course in plane surveying. Students taking it may be close to graduating from ELAC or simply transferring to a four-year university like Cal Poly Pomona to continue their education. The online presentation on May 15, 2020 was intended to provide these students information about the Cal Poly Geospatial Engineering option, orient them to the university and entice them to possibly attend.
- 1.3. The presentation was online because both ELAC and Cal Poly Pomona, were closed for in-person instruction or events because of the COVID-19 pandemic that led to “stay at home” orders for surrounding cities, counties and California to prevent the spread of the virus. The survey was done online for similar reasons. The survey invitation went out on May 21, 2020 with four e-mail reminders sent by e-mail to non-respondents on May 24, 27, 30 and June 4, 2020 and at least two additional reminders communicated to the ES 221 class by Dr. Humberto Gallegos, its professor and co-PI on the grant. The survey closed automatically at 11:45 p.m. on Friday June 5 on the main Survey Monkey data collector listed in the e-mailed reminders. A second data collector made available to Dr. Gallegos for web access by students was inadvertently left open a couple more days, but no one ever used it. The survey was not password protected.
- 1.4. Despite this concerted effort, of the 24 students invited to take the survey, 13 (54%) did not click through from any of the e-mails to the survey, two apparently just looked at (but did not answer) the first “agreement to be surveyed” question, one refused outright to be surveyed, one indicated a willingness to be surveyed but then answered no more of the nine questions. This left seven (7) actual respondents for a response rate of 29%. The respondents took an average of three minutes to respond, and this was relayed to non-respondents from the first reminder.
- 1.5. One possible reason for the relatively low responses rate is that there were multiple demonstrations and some looting in major cities, including Los Angeles, throughout the country following the murder by police of George Floyd, an African American man, on May 25, 2020 in Minneapolis. Most of the students in ES 221 are known to be Latinx (Hispanic and so “people of color”) and one might speculate that these events were disturbing and distracting to them, as they were to many people, whether or not they participated in street protests. In addition, ELAC final

exam week was June 2 to June 8 and final presentations were made in ELAC 221 on June 5. Finally, students intending to transfer might already have selected a university or college, applied, and sought financial aid by a nationally respected deadlines of April 1 and the college/university offer deadline of May 1. The timing of the presentation itself was unfortunate and the circumstances at the time of the survey might logically all have contributed to the relatively low response rate for an audience that otherwise had multiple incentives to participate.

Findings and Analysis

Findings and Analysis Approach

- 2.1. The number of survey respondents (7) is too small to allow for valid and reliable statistical analysis. Even presentation of charts and graphs could be visually misleading. The analysis is therefore restricted to presentations of counts and percentages. The results should be interpreted only as the opinions of these seven students and not projected or assumed to represent the opinions of all ES 221 students, or all land surveying students attending ELAC.

Demographics

- 3.1. Survey respondents included five (5) males (71.4%), one (1) female (14.3%) and one person who preferred not to answer (14.3%). To protect confidentiality of individual respondents, no analysis of results will be presented by gender even though one focus of the grant is to encourage more females to obtain land survey related degrees or certificates and enter related fields.
- 3.2. The respondents included four (4) Hispanics (57.1%), one (1) White (14.3%), one (1) African-American/Black (14.3%), and one (1) person of another ethnicity (14.3%). Since Hispanics (Latinx) are a target group, data below will have a breakout by ethnicity of Hispanics (Latinx) versus the entire group. However, breaking out four respondents among several responses will likely often result in one response per category which makes even calculation of percentages misleading or questionable. Also, the entire population of seven includes Latinx responses, but a comparison of responses of four (4) Latinx students to three (3) students of other ethnicities would result in even more misleading counts and percentages.

Opinions About the Presentation Itself

- 4.1. The presentation did well in capturing student attention. Five respondents (71.4%), including three of the four Latinx respondents, reported that they had watched the entire presentation. The other two respondents (28.6%) reported watching half or more of the presentation but not all of it.
- 4.2. The presentation content, how it was done, and who presented were very well-received. Six of the respondents (85.7%) rated the presentation as excellent in terms of:
 - information presented,
 - communication style, and
 - diversity of presenters.

The other responses on these factors were always “good.” In addition, all seven (7) respondents (100%) rated the answers to questions as “excellent.” Also, 53% of respondents (including three of the four

Latinx students) “strongly agreed” and the rest “agreed” that “The presentation gave me a better awareness of what it takes to succeed at Cal Poly Pomona.”

- 4.3. Two areas for potential improvement of the presentation are based on only slightly lower, but quite acceptable ratings. Five respondents (71.4%) rated the opportunity to ask questions as “excellent” and the other two (28.6%) as “good.” While five (5) respondents (71.4%) rated the use of Zoom for the meeting as “excellent” and one (1) rated that “good” (14.3%), the other respondent said that use of Zoom was “terrible” (14.3%) – the lowest rating listed. Clearly the presenters had to use Zoom or some other online platform to present in COVID-19 “stay at home” circumstances so use of an online platform was unavoidable. How to interpret the one low rating is problematic. It is not known if the one student had general problems using Zoom, or if Zoom problems surfaced during the presentation, if that student had had a poor internet connection, or was simply expressing a preference for an in-person presentation.
- 4.4. Five students (71.4%) provided open-ended responses that all either reflected well on the overall quality of the presentation or had suggestions for improving it further. These comments (unedited) were:
- I was blown away by the graphic details, the engineering and their professionalism.
 - It was great
 - The presentation was great, it could be beneficial if there were some videos of land surveyors during their practice.
 - A flyer repeating key points shared during the presentation, could be useful, including which classes are transferable and some guide to start the enrolling process.
 - The presentation went ok. I would suggest informing future students how geospatial engineering is closely related to surveying.
- 4.5. Question three (3) allows us to unpack a bit further whether or not the Cal Poly Pomona presenters were simply “preaching to the choir.” To what extent were the respondents already interested in attending Cal Poly Pomona? Since all of respondents were “neutral” to “very interested” in attending Cal Poly Pomona before attending the presentation we have left off the two negative categories in the table below in order the show proportions for Latinx students as well as all students.

Table 1. Prior Interest in Cal Poly Pomona

	All 7 Respondents			4 Latinx Respondents		
	Very Interested	Somewhat Interested	Neutral	Very Interested	Somewhat Interested	Neutral
in attending Cal Poly Pomona at all?	4 (57.1%)	2 (28.6%)	1 (14.3%)	3 (75.0%)	1(25.0%)	0
in majoring in Geospatial Engineering at Cal Poly Pomona?	4 (57.1%)	0	3 (42.9%)	3 (75.0%)	1(25.0%)	
in majoring in Civil Engineering at Cal Poly Pomona?	4 (57.1%)	0	3 (42.9%)	2 (50.0%)	0	2 (50.0%)

Based on Table 1, the majority of all survey respondents, and three-quarters of the Latinx respondents were already considering Cal Poly Pomona as a transfer university, and overall Latinx students were more interested in the Geospatial Engineering Option than in simply a Civil Engineering degree. Given the neutral to positive predisposition toward Cal Poly Pomona the greater risk was that the presentation might turn students away. Since the students rated the presentation well, one would expect outcome results based more on individual considerations of the students than on presentation quality. In a sense the presenters had little to lose by presenting, if they did an acceptable or better job in the presentation of their program, which in student opinions they did. What were the short-term outcomes?¹

Outcomes or Short-term Impact of the Presentation

5.1. The best ways to summarize the short-term impact of the presentation are “generally positive” but “mixed” in that “it depends on one’s perspective,” and “it depends on what the presentation was expected to accomplish.” Consider Table 2 below, which shows responses to question 5 that are not exclusive.

Table 2. Presentation Short-Term Outcomes

		Percent	Latinx	Latinx	Other	Other
	All N=7	N = 7	N=4	Percent	N=3	Percent
I'm interested in attending Cal Poly Pomona, majoring in Civil Engineering	5	71.4%	3	75.0%	2	66.7%
I'm interested in attending Cal Poly Pomona, majoring in Geospatial Science	4	57.1%	2	50.0%	2	66.7%
I'm interested in obtaining a Land Surveying related baccalaureate degree at some other university	3	42.9%	3	75.0%	0	0.0%
I'm interested in obtaining a Civil Engineering baccalaureate degree at some other university	3	42.9%	2	50.0%	1	33.3%
I'm only interested in becoming a Land Survey technician	2	28.6%	2	50.0%	0	0.0%
I'm not interested in obtaining a baccalaureate degree at this time	1	14.3%	1	25.0%	0	0.0%

It is positive for Cal Poly Pomona that the majority of those who watched the presentation are interested in attending Cal Poly Pomona and majoring in Civil Engineering. However, it may be less positive for both Cal Poly’s Geospatial option and for purposes of the grant that lower proportions overall want to major there with the Geospatial Engineering option (at least among Latinx). Also, it is a good sign for grant purposes, but not necessarily for Cal Poly Pomona that more students – especially more Latinx students -- are considering land surveying baccalaureates than civil engineering degrees at other universities. Looking at the raw data the situation here is simply that in some cases Cal Poly Pomona has competition for transfer students. Some students are also looking at other baccalaureate university or

¹ If there had been a higher response rate and a higher number of students in the population to start with, this could have been explored statistically. However, with so few respondents and five possible response categories in questions 3, 4, and 6, a crosstabulation would likely quickly lead to one response in many crosstabulation cells. That would not tell us much more about the general pattern of responses, other than that decisions in such matters depend on a wide variety of combinations of individual variables, many of which neither ELAC nor Cal Poly Pomona have control, and that people already interested in attending a transfer university might be expected to respond well to a good presentation of opportunities there.

college options for their land surveying and/or Civil Engineering degrees. The responses are not exclusive of one another. Considering other universities for these degrees does not preclude also considering Cal Poly Pomona. This is an area for which the grant PIs have not yet set or communicated targets. What is the optimal or expected proportion of ELAC land surveying students expected by Cal Poly Pomona or targeted by the grant to go to that specific university for a land survey related baccalaureate (and would a Civil Engineering degree B.S. degree obtained somewhere count as sufficiently “land survey related” to declare grant success?). Finally, it is potentially positive for grant purposes but not for Cal Poly Pomona’s short-term interests that two students, both Latinx, only want to become land survey technicians. One of these students did check that he or she is not interested in a baccalaureate degree “at this time” – and the other did not specify. Would both consider going for a B.S. degree later – somewhere? We cannot tell from this survey.

Other Potential Grant-Related Goal Outcomes from the Presentation

6.1. Leaving aside the complicated questions surrounding student transfer university choices, did the presentation encourage students to pursue broader grant goals of seeking degrees and careers related to land surveying? Question six asked “To what extent do you agree with the following statements?” Results for the four statements related to the broad, longer term grant goals are given in Table 3 below. Negative responses (“disagree” and “strongly disagree”) are left out of the table below since no one used them, and in order to show the responses of Latinx students as well as all respondents.

Table 3. Longer Term Potential Presentation Outcomes

	All Respondents (N=7)			Latinx Respondents (N=4)		
	strongly agree	agree	neutral	strongly agree	agree	neutral
The presentation made me more eager to pass the Fundamentals of Surveying (FS) exam.	5 (83.3%)	1 (16.7%)	0	3 (75.0%)	1 (25.0%)	0
The presentation made me more eager to pursue a career in Geospatial Engineering.	4 (57.1%)	3 (42.9%)	0	2 (50.0%)	2 (50.0%)	0
The presentation made me more eager to get licensed as a professional land surveyor.	3 (42.9%)	4 (57.1%)	0	2 (50.0%)	2 (50.0%)	0
The presentation made me more eager to pursue a career in Land Surveying.	3 (42.9%)	2 (28.6%)	2 (28.6%)	2 (50.0%)	2 (50.0%)	0

- The strongest response, which is also positive for grant goals, is that the Cal Poly presentation made students, including Latinx students more eager to pass the Fundamentals of Surveying (FS) exam. This is also good news for the ELAC land surveying program since ELAC intends offering an FS exam test preparation course online in summer 2020. If students take the course and then pass the FS exam, the pass rate can be used as a metric measuring value added by the grant program for these students. The presentation was focused on a Geospatial Engineering program and was well received. Over half of all students, including half of the Hispanic students strongly agreed and the rest agreed that they were more eager to pursue a career in Geospatial Engineering as a result of the presentation. Since the presentation was held as part of the overall grant program effort, this is a positive finding for the value of the grant and its goals. Similarly

but somewhat less strongly, 43% of respondents (including half of Latinx respondents) strongly agreed, and the rest agreed that the presentation made them more eager to get licensed as a professional land surveyor. This is a longer term grant goal and we do not have information from this survey as to how eager they were before the presentation to get licensed as a professional land surveyor. However, this presentation helped nudge the participants in that direction. Finally, 43% of all respondents strongly agreed and 29% agreed that the presentation made them more eager to pursue a career in Land Surveying – but another 29% were neutral about that impact. It is worth noting here that after the presentation Land Surveying as a career is less interesting to the entire group of students than Geospatial Engineering, but for Latinx students the outcome is the same for both careers. Again there is no evidence one way or another as to comparative interest in these two different but related careers before the presentation, and the numbers are very small. So the difference may come from just one or two individuals and be unimportant from a broader perspective. However left unanswered are questions about whether this finding might be the result of the terminology difference, actual differences in the work of the related differences, or possibly preferences of Latinx students as opposed to all students. And it is unclear to what extent the presenters had tried to influence students in these ways. If the small differences seen here were found to hold with a larger sample, it might be worthwhile exploring further the causes or reasons behind the difference. At this time we can only speculate.

Evaluator Conclusions

- 7.1. Because of starting with a small number (24) of students invited to the presentation and several serious extenuating circumstances, the relatively low response rate led to too small a number of responses (7) to conclude much definitive from the survey. The primary conclusions are:
- The presentation itself was well-done and well-received.
 - Most students who attended and who responded to the survey were neutral to very interested in Cal Poly Pomona before the presentation, but the numbers are too small to provide valid and reliable analysis of how that prior interest affected their responses.
 - The survey had mixed, although somewhat positive results in relation to attracting ELAC students to attend Cal Poly Pomona and attempt the Geospatial Engineering option there. Some students may have been still considering other university/college options this year, although two stated that they simply wanted to start work as Land Survey technicians.
 - Several positive findings surfaced for the grant goals. Although the numbers are too small to say much definitively, Latinx responses were similar or in some cases more positive than the group as a whole. This particular presentation did help along the target group of Hispanics toward degrees or careers in Land Surveying or Geospatial Engineering. A short-term impact of note from the presentation is an increase in interest in taking the FS exam, the first step after education toward the right to use “Land Surveyor in Training” as a title, and a necessary step toward eventually obtaining a Land Surveyor professional license. The participants in the presentation have enough academic preparation to take the FS exam, and ELAC is offering an FS Test Preparation course this summer. Should the students who took ES 221 and participated in the Zoom meeting presentation pass the FS exam that will be additional valid and reliable evidence of the value of this ATE grant.
 - In the future the Cal Poly Pomona professors might consider offering a similar presentation earlier in the academic year, preferably well before national financial aid and admissions deadline, in order to maximize their chances of attracting students to their Geospatial

Engineering B.S. option. The presentation was well done by appropriate presenters but could be improved further by considering incorporation of some of the suggestions made by students in open-ended comments.

APPENDIX A. Cal Poly Presentation 2020 Survey

Cal Poly Presentation 2020

Cal Poly Pomona Presentation Survey

You are receiving this survey because you may have participated in a Zoom meeting on Friday, May 15 about the Cal Poly, Pomona Geospatial B.S. program. Cal Poly and East Los Angeles College are partners in a National Science Foundation (NSF) grant and this survey is part of the evaluation of that grant. If you have questions about the grant and its goals please contact Dr. Humberto A. Gallegos (GALLEGHA@ELAC.EDU) or Dr. Omar E. Mora (oemora@cpp.edu).

Your individual responses to the survey will be kept confidential and only reported to the grant co-directors and NSF in a summary fashion. Please respond in a frank and honest fashion. While no questions are required except the first one, it will greatly help the grant evaluation if you take a few minutes to reply to this short survey. If you have questions about the survey, please e-mail Dr. Stephen C. Maack (consultant@reapchange.com). Thank you for your participation.

* 1. I have read the introduction and voluntarily agree to participate in this survey.

- Yes
 No

Cal Poly Presentation 2020

2. How much of the presentation did you watch on May 15, 2020?

- I watched the whole presentation
 I watched half or more of the presentation but not all of it
 I watched less than half of the presentation
 I didn't watch the presentation but knew about it
 I didn't watch the presentation because I didn't know about it
 Other (please specify)

3. Before seeing the presentation how interested were you...

	Very Interested	Somewhat Interested	Neutral	Somewhat Uninterested	Very Uninterested
in attending Cal Poly Pomona at all?	<input type="radio"/>				
in majoring in Geospatial Engineering at Cal Poly Pomona?	<input type="radio"/>				
in majoring in Civil Engineering at Cal Poly Pomona?	<input type="radio"/>				

Cal Poly Presentation 2020

4. Please rate the presentation on the following:

	Excellent	Good	Fair	Poor	Terrible
information presented	<input type="radio"/>				
diversity of presenters	<input type="radio"/>				
communication style	<input type="radio"/>				
opportunity to ask questions	<input type="radio"/>				
responses to questions	<input type="radio"/>				
Use of Zoom for the presentation	<input type="radio"/>				

Cal Poly Presentation 2020

5. Which of the following statements represent your reactions to the Cal Poly presentation? (Check all that apply)

- I'm interested in attending Cal Poly Pomona, majoring in Geospatial Science
- I'm interested in attending Cal Poly Pomona, majoring in Civil Engineering
- I'm interested in obtaining a Land Surveying related baccalaureate degree at some other university
- I'm interested in obtaining a Civil Engineering baccalaureate degree at some other university
- I'm not interested in obtaining a baccalaureate degree at this time
- I'm only interested in becoming a Land Survey technician

Cal Poly Presentation 2020

6. To what extent do you agree with the following statements?

	strongly agree	agree	neutral	disagree	strongly disagree
The presentation gave me a better awareness of what it takes to succeed at Cal Poly Pomona.	<input type="radio"/>				
The presentation made me more eager to pursue a career in Land Surveying.	<input type="radio"/>				
The presentation made me more eager to pursue a career in Geospatial Engineering.	<input type="radio"/>				
The presentation made me more eager to pass the Fundamentals of Surveying (FS) exam.	<input type="radio"/>				
The presentation made me more eager to get licensed as a professional land surveyor.	<input type="radio"/>				

7. Please tell us more about your reaction to the presentation or its availability. How could it have been better?

Cal Poly Presentation 2020

Demographics

These questions are asked only to help us better understand survey responses.

8. What is your gender?

- Female
- Male
- Other
- Prefer not to answer

9. With which of the following ethnic/"racial" groups do you identify yourself (check all that apply)?

- White or Caucasian
- Black or African American
- Hispanic or Latino
- Asian or Asian American
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Another ethnicity

Cal Poly Presentation 2020

End of Survey

Thank you!!