

LAVC Students' Major Selection (STEM Climate) Survey Brief

INTRODUCTION

Analysis made on students' major selection pattern indicated that nearly 69% of new students were "undecided" when they apply to LAVC¹. The remaining 31% declare their majors, of which 6% are in STEM (Science, Technology, Engineering, and Math) fields. Why the majority of students remain "undecided" to declare their majors? Why few students are majoring in STEM areas? What can we do to encourage students to declare their major, and to major in STEM fields? The survey was designed to collect additional information to address these questions.

SURVEY OBJECTIVES

The overall goal of this survey is to understand LAVC students' career decision making behaviors in general, and STEM careers in particular. The following are the specific objectives of the survey:

- To determine what percentage of students were clear on which career to pursue when they enroll to the College
- To assess whether students were aware of STEM careers when they declare their majors
- To determine the percentage of students who prefer to Major in STEM and Non-STEM fields, and their reason why
- To explore possible interventions that may encourage students to make informed decision in their major selection

METHODOLOGY

The survey was sent to all Fall 2015 LAVC students and responses from those who chose to respond are included in the analysis. The method is a non-probability sampling method where the respondents are selected based on convenience to reach, not by random sampling method. One of the disadvantages of non-probability sampling method is its inability to allow you to conclude about the population based on the sample result. The profile of the population and the sample are shown in attachment one.

Survey questions were designed to answer the research objectives discussed above. A mix of closed and open ended questions were used to collect the data from students. Data was collected using Survey Monkey web platform. Some of the open-ended responses were re-coded for the analysis.

Data analysis

Statistical test

¹ First Time LAVC Students Major Selection Patter, OIE, LAVC, 2015. The analysis was made based on first-time Fall semester students and covers the period from Fall 2005 to Fall 2014

RESULTS (BY QUESTION GROUP)

1. We start by asking students whether **they were clear which career to pursue when they get enrolled at the College**. 76% of the respondents to this question answered that they were clear while the remaining 24% stated that they were not. Crosstab of responses by gender, age, and ethnicity indicated the percentage of “Not Clear” is higher for the following demographic groups: Male students (26%), Younger students (age group below 20 (30%), Age group 20 – 24 (27%), Students from two or more races (29%), African Americans (27%), and Hispanic (25%).
2. Counseling Services is one of the professional support services available to LAVC students to help them decide what to major in their course of study. We asked students whether they **“have seen a counselor” or “got professional advice”** from LAVC regarding how to choose their major. 54% of the respondents stated that they have got professional support from LAVC. The following demographic groups have relatively lower rate of using the counseling services available for selecting their major: Male (52%), age groups under 20 (51%) and 40 and above (49%), Asian (49%), Pacific Islanders (33%), and two or more races (47%).
3. **How helpful were the counselling services provided for students to pick their major?** 88% of the respondents to the question rated the services they received as helpful (30% as extremely helpful, 37% as quite helpful, 20% as moderately helpful).
4. **What percentage of students declared their major?** 78% of the respondents indicated that they have already declared their major. Males (75%), age group under 20 (69%), Whites (76%), and Hispanics (77%) have relatively higher rate of undecided majors.
5. **What percentage of students declare their major in STEM fields?** From a total of 1411 students who declared their major, 23% are in STEM fields. Females (14%), African Americans (14%), Pacific Islanders (20%), Hispanics (21%), and age group 40 and above (9%) have lower proportion of STEM majors compared to others.
6. **What are the main reasons for students not to declare their majors?** We asked those students who did not declare their major to give us a reason why they did not. 81% of those responded to the question mentioned that *I am not sure yet, I don't know what to study*. The remaining 19% stated that they don't have to declare their major for the following reasons: *I have a degree, just taking courses for professional development (8%), I am in a high school, part time student (4%), retired, taking class for fun (3%), to transfer, LAVC don't have the major I want to study (2%), just to prepare for exam to get license (2%)*.
7. **Does career clarity have significance on students' declare their major?** Students who stated they are “not clear” which career to pursue accounts for 55% of those who did not declare their major. On the other hand, students who stated they are “clear” which career to study accounts for 85% of those who declared their major [Person Chi-Square Likelihood Ratio 288.49, Validate]. The same type of relationship is observed between those who received counseling services and those who declare their majors. Students who received counseling services seems to be more likely to declare their major than those who did not [Person Chi-Square Likelihood Ratio 166.46, Validate].
8. **Do undecided majors require any support from LAVC to declare their major?** 47% of the respondents to the question indicated that they need some kind of support from LAVC to decide which subject to major. Career guidance and counseling in the following areas is the most common types of interventions requested by the respondents : *Decision making strategies and skills on how I can chose my major; What classes should I take to transfer in the major I am going to select; Which university to transfer with all the prerequisites I completed; Career choice, job opportunities, and earning potentials (Career planning strategy); Financial aid, grants,*

scholarships; How to double major; Help me to explore my options and help me to decide on my career choice; Which majors will lead to which careers? (ex. To be a Navy pilot, physician assistant ...); what will enhance my chance to land a job related to my major?

9. Given the priority to encourage students to major in STEM fields as a nation, we asked students about **their STEM awareness and interest**.
 - a. The first question we asked them was whether they are **familiar with STEM careers or not**. 54.75% of students responded that they are not familiar with STEM careers while the remaining 45.25% indicated that they are familiar.
 - b. We further drilldown on the issue by asking them **whether STEM career have been topic of discussion in any of the events they attended at LAVC**. 82% of the respondents to the question indicated that STEM careers were not topic of discussion in any of the events they attended at LAVC.
 - c. **Where do students get information about STEM careers?** Those who answered that they participated in an event where STEM was discussed, were asked to name the event. The following are the main events where students heard about STEM careers at LAVC: *In their regular classrooms (16%), Counseling class (14%), College/Career/Job Fair (14%), STEM Week/ Pi Day/Summer Bridge events (12%), Welcome Fair/Orientation (11%), Club meetings/ field trips (7%), Internship workshops (6%), Manufacturing day (3%), others (6%)*. The remaining 12% stated that they don't exactly remember the event.
 - d. When asked **which carrier group is more interesting to you**, 51% of the respondents said STEM careers while the remaining 49% non-STEM careers. We list 14 STEM and Non-STEM majors and asked students to rate each major as "Interesting" and "Not Interesting" to study. Then we rank the 14 majors based on their percentage rate received as "interesting". Overall, STEM majors seems to be "interesting" to study than Non-STEM Majors, for students. Engineering (which is a STEM major) seems to be the least interesting to study subject among the fourteen. The STEM interest is low among Females (46%), age group 40 and above (39%), and African Americans (46%). Males and Asians are more interested in STEM careers than the rest of the demographic groups.
 - e. Students were asked to reason out **why they choose a subject/major/ as "interesting" to study**, to learn about the important factor that drives their career decision. The responses were: *it is my passion (36%), I feel I can succeed in these area (34%), job/earning potential (24%), and not stressful (7%)*. *Job/earning potential* seems not as important as "passion" or as *success* in students' decision making when they make career choices. The exceptions are Asians, and age groups 40 and above where *job/earning potential* is mentioned as the primary or secondary reason. For students who are interested in STEM careers, *job/earning potential* is the second highest ranked reason (after perceived success) for making their career choice.

DISCUSSION

1. Why 66% of first time LAVC students remain "undecided" majors if they know which career to pursue when they join LAVC? Probably first time students might need some time to learn about their career interest before they decide on what to major. If we take all Fall 2015 students for example, the rate is only 41%². Though 78% of survey respondents indicated that they have

² Year four annual outcome report, Outcome two, Math Accelerated Project, OIE, LAVC, 2015.

already declared their major, only 47% of Fall 2015 students actually declared their majors as recorded in DEC. Why is the mismatch between the survey result and the record in DEC? Probably some students might have decided what to major, but still marked as “undecided?”

2. Students who were clear about their career or who got counseling services seems to declare their major than those who did not. 81% of the students who want to get support from LAVC to declare their major underlined the need for career guidance and counseling for them to declare their major. All these indicate the importance of career guidance and counseling for undecided students to declare their major.
3. Though 51% of the survey respondents indicated that it is “interesting” to study STEM subjects/major, only 9% of Fall 2015 students are actually STEM majors. Awareness of students about STEM careers seems very limited at LAVC. 55% of survey respondents are not aware of STEM careers at all. 82% of the respondents stated that they have never been to an event at LAVC where STEM career is discussed.