



Welcome to the Joint Special Population Advisory Committee's E-seminar on *Improving STEM and Nontraditional Career Advising in a Busy Environment*.

Giving advice about an individual's career path decision or education plan is a big responsibility. The last thing anyone wants to do is unintentionally limit students' options especially when we are all working to create equity and access for all! The goal of this E-seminar is to provide you with information and tools so that you can be aware of internal barriers and mitigate the impact they create, as well providing students with the information they need to make an informed decision, and not one based on misdirected emotion or self-imposed limitations.

Let's get started.

Before we begin, let's define our meaning of an advisor or counselor. We mean any person who is working with people of any age as they explore and decide upon a career path and educational plan. So, an advisor could refer to the landscaping or cafeteria employees that the students relate to or the single-parent program coordinator. The term advisor, as we use it, can refer the career center staff and of course the formal career advisor! It is also the classroom academic and CTE teachers, coaches, administrative staff, peers, and even members of parent groups. However, it is important to note that after students seek advice from their parents, siblings, aunts, uncles, neighbors, teachers, and friends, it is imperative that they work with a career pathways advisor to develop an educational plan to meet their goals! However, for the rest of this E-Seminar, the lessons learned are for all of us along the pipeline of career choice and preparation from pre-K through employment!

We all know that it is important to recruit all students into STEM and nontraditional careers. However, for the sake of our economy, it is especially important to recruit under-represented women and minorities. The [Invest in Women, Invest in America](#)¹ report shows that, "women's power as an engine of economic growth extends beyond their role as consumers. Women have proven their potential as economic producers as well." The report goes on to say that, company performance correlates directly with women's representation in corporate leadership. Companies with the most women on their boards of directors outperform those with the fewest women on their boards. Fortune 500 firms with the best record of promoting women to senior positions, including their boards of directors, are more profitable than their peers.

Ok, now that we know who we are talking about and we understand it's the right thing to do for the students, and the economy, let's get to it. There is a common attitude in American society that says that "girls and women can't" and "boys and men don't." Women can't do math and men aren't nurturing. Additionally, a current mantra is that every student has to go straight to a four-year college immediately after high school. There are many reasons to rethink these beliefs!

Some students don't want to stay in a traditional school environment for another year much less four more years. Some students must face the economic reality of having to work to support a family. Many students have a driving passion for a career that does *not* require a four-year degree. Some students don't know what their "life's-work" will be and therefore, want to get technical skills – in high school or after – and work for a few years prior to attending a two- or four-year college.

¹ http://www.jec.senate.gov/public/index.cfm?p=Reports1&ContentRecord_id=11dd6449-8d54-41ff-9bb2-87d98cbf66c2&ContentType_id=efc78dac-24b1-4196-a730-d48568b9a5d7&Group_id=c120e658-3d60-470b-a8a1-6d2d8fc30132&MonthDisplay=12&YearDisplay=2010



As many students as there are, there are that many reasons for going straight to an apprenticeship, straight to a two-year college, or straight to a four-year college. The only thing we really know is that it's up to the students and their families. There is more than one way to succeed, and educational and employment success happens over a lifetime!

Let's look at some facts about education and the workforce as a whole in CA:

- NOT including living expenses, the cost for tuition and books averages² \$14,750 at the University of CA, \$8,691 at CA State Universities and only \$2,779 at the California Community colleges.
- Only 2 out of 10 high school graduates will earn a four-year degree within six years.
- The average four-year graduate leaves school with \$27,253³ in student debt.
- 27% of people with less than an Associate degree, including industry licenses and community college certificates, earn more than the average Bachelor degree recipient.⁴
- The skilled trades are the hardest jobs to fill in the United States, with recent data citing 550,000 jobs open in the trade, transportation and utilities sector and 246,000 jobs open in manufacturing.^{5,6}
- Of the 99 fastest growing careers in California, 66 DO NOT require a four-year degree. Of those 66, 22 require an AA or certificate AND pay \$30,000 or more annually.⁷
- According to [Wiser Women](http://www.wiserwomen.org)⁸, 48% of all women earn less than \$30,000 a year.⁹
- Of CA's 99 fastest growing careers, 53 are in Science, Technology, Engineering, and Math fields, otherwise known as STEM.¹⁰

	CCC	CSU	UC	Private
Fees/Tuition	\$1,104	\$7,025	\$13,200	\$32,100
Books & supplies	\$1,675	\$1,666	\$1,550	\$1,650
TOTAL	\$2,779	\$8,691	\$14,750	\$33,750

Within Perkins legislation, which governs CTE, there are six sub-groups of students referred to as students from special populations. For a deeper discussion on special populations, visit <http://jspac.org/training-e-seminars>. Many students, especially those of color and those with disabilities are "tracked" directly or indirectly into careers that pay significantly less. This results in economic instability and educational inequity for their children after them. One of the sub-groups, Nontraditional, is defined as students who are preparing to enter into a career that employs less than 25% of *their* gender. A woman in a nontraditional career earns on average 20%-30% more annually. Over a lifetime, they can earn 150% more! In addition to a more self-sufficient life, a higher income during a woman's career ensures a more secure retirement.

Therefore, as counselors, we need to keep in mind that our economy does better, families are more secure, and that both women and men are fully capable of learning the skills to perform well in any career that interests them, especially those that are in the high-wage, high-demand STEM careers!

Degrees in STEM fields frequently pay significantly more than non-STEM fields, STEM graduates are more in demand, and there is a plethora of advancement opportunities for STEM employees, especially those who are women, students

² <https://secure.californiacolleges.edu/finance/how-much-does-college-cost.asp>

³ <http://www.forbes.com/sites/halahtouryalai/2013/01/29/more-evidence-on-the-student-debt-crisis-average-grads-loan-jumps-to-27000/>

⁴ Harvard Graduate School of Ed., *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*, 2011.

⁵ ManpowerGroup, *2012 Talent Shortage Survey Research Results*, 2012; U.S. Department of Labor, Bureau of Labor Statistics, Job Openings and Labor Turnover—April 2012, June 2012

⁶ http://www.manpowergroup.us/campaigns/talent-shortage-2012/pdf/2012_Talent_Shortage_Survey_Results_US_FINALFINAL.pdf

⁷ <http://www.labormarketinfo.edd.ca.gov/OccGuides/FastGrowingOcc.aspx>

⁸ <http://www.wiserwomen.org/index.php?id=1&page=Home>

⁹ <https://www.wiserwomen.org/images/imagefiles/WomenMenIncome%2025years2011.pdf>

¹⁰ <http://www.labormarketinfo.edd.ca.gov/OccGuides/FastGrowingOcc.aspx>



of color, differently-abled, or from low socioeconomic families. There is a lot to consider when a student is making a career choice. Our role is to guide and inform – not to decide and direct!

As uncomfortable as it is to talk about, it is important to recognize bias. In some communities, a Latina's role is within the confines of her home. In others, Blacks are seen as less capable academically and thus are better suited to labor jobs. In still others, women are seen as not capable of doing higher-level math and science and so are not cut out for high-wage, high-demand engineering careers. In some communities, men who are interested in careers that are typically held by women are seen to be dangerous.

Regardless of our upbringing, it is up to us to know, understand, and work to overcome bias – overt or implicit - or at a bare minimum, mitigate the impact on students. There are many ways that we communicate our expectations and beliefs about a student's role in society and education. We are all aware of the words we speak as well as the notes, brochures, and official documents we dispense. However, are we aware of the messages hidden within our communications?

Micro-messages – little messages with a big voice!

Our unconscious biases, beliefs, and personal feelings – both positive and negative – are frequently revealed through “Micro-messages.” A micro-message is a small behavior or action that can communicate your belief in a student's ability or, conversely, that you think that they do not belong. All without saying a word!

Micro-messages are ways we communicate our feelings to one another. They go well beyond our words and frequently beyond our conscious minds. Many times, we are completely unaware of the actual messages sent and, to complicate things further, the message received can be very different from the message we meant to deliver! Frequently, the micro-messages communicate stereotypes and thus place students at risk of being negatively impacted by stereotype threat. It is a rare thing to meet a person who is openly biased. However, all of us have implicit bias – biases we are truly unaware of – that can influence student's choices and successes.

For a more complete discussion on Micro-messages, Stereotype Threat, and other internal barriers, visit the JSPAC website and view the Internal Barriers E-Seminar (<http://jspac.org/training-e-seminars>).

It is no surprise that the environment in which we were raised left an impression. However, if that impression gives one stereotypical attitudes about girls or students of color etc. and the attitudes influence the students you interact with, the bias needs identifying so that we can mitigate the negative and enhance the positive. One way we can become aware of our biases is to participate in Harvard University's [Implicit Association](#) tests that measure attitudes and beliefs that we may be unable to self-identify.

Another factor that plays heavily into a student's ultimate career choice is **Self-Efficacy**.

According to [Albert Bandura](#), self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations."

Self-efficacy is the ability to "see one's self as successful in a particular task or role".

Students too were raised in an environment that left an impression. If a student learned through micro-messages or directly that “girls can't, or boys don't,” or that students of color are less capable and they have no role models telling them otherwise, it can erode a student's self-efficacy.



If a student has never seen an African American, female engineer, it may never occur to your student that she can indeed become one! According to Bandura, people with a strong sense of self-efficacy view problems as challenges not setbacks and they develop deeper interest and commitments to activities. Conversely, people with a weak sense of self-efficacy avoid challenging tasks and quickly lose self-confidence. Again, for a more complete discussion on self-efficacy as well as ways to help students enhance their self-efficacy, view the Internal Barriers E-Seminar at <http://jspac.org/training-e-seminars>.

So what do we do about all of this?

1. We can take Implicit Association tests to become aware of our own biases - <https://implicit.harvard.edu/implicit/education.html>
2. We educate ourselves about the barriers students face and our role in purposefully dismantling the barriers. JSPAC has additional E-seminars that can assist in this endeavor.
3. We can understand that higher-level middle and high school math and science classes are required to transition smoothly into high-demand, high-income STEM programs at community and four year colleges and encourage students to take these classes.
4. We can utilize the **JSPAC Four Step Career Selection Plan** when working with students.
 - a. The first step is to determine the fiscal needs of the student (and their families) in **their** community. Two resources for this are the InsightCCED.org website to obtain Self-sufficiency wages required to live without assistance in each CA County and by 176 family compositions and the [California Reality Check](#), which is an online source for helping students, decide on a required salary and thus an appropriate career!
 - b. The second step is to assist the students in determining **their** interests, abilities, strengths and weaknesses as well as develop a list of 8-10 possible careers that match these strengths and interests. However, it is vital to use caution on this step, as a student who doesn't have any experience in taking apart a small engine or computer, will not answer that she likes taking things apart. Participation in a hands-on career exploration day may be in order PRIOR to this step!
 - i. Interest inventories – <http://www.mynextmove.org/explore/ip>;
<http://www.cde.ca.gov/ls/cg/cc/careercounsel.asp>; www.careercafe.com;
 - ii. Skill assessments – http://www.youth.gc.ca/eng/media/skills_inventory.shtml;
<http://www.rileyguide.com/assess.html>.
 - c. Next, educate your students on using a Labor Market website, such as [CA EDD LMI](#) website or the CA Community College's [Doing What Matters](#), website to determine the job skills, daily tasks, annual income, and if training is available in the area, and finally if there are going to be jobs when the student finishes training or graduates. If the job does not meet the needs from the first two steps, eliminate this career option from the list of 8-10 possibilities. Once the list is whittled down to only a few options that meet their need financially, interests them, matches their strengths, and has training options locally they are ready to make an educational and career plan.
 - d. Now, help the student make a plan! Include information on two and four year colleges, financial aid (remember some students may not know you can get financial aid for a two year college), school/college visits, etc. in this planning process.



5. Finally, some suggested school policy changes include:
 - a. Confirm that all marketing materials – from website to printed materials – send positive micro-messages about who is “appropriate” for particular careers – ANYONE! EVERYONE!
 - b. Provide Professional Development opportunities for all career counselors and teachers – CTE and academic – on the benefits of CTE, Nontraditional and STEM careers. This should include periodic emails, workshops, E-Seminars, short presentations at meetings, etc... Remember it takes an average of nine times hearing or seeing new information for us to remember it. Provide information to students and colleagues often about the benefits of STEM and Nontraditional employment.
 - c. Provide Nontraditional career information directly from NT employee role models. JSPAC’s 14-minute E-Seminar on Nontraditional employment and careers, etc. would be good to show at counselor meetings, etc... to ignite conversations and begin to make a plan for improving core indicators and elevate student success!
 - d. Ensure that **all** students and/or families - at counseling appointments and orientations, during registration and in their book purchase bags - receive demographically diverse literature outlining the benefits, including financial remuneration, of a Nontraditional or STEM career.
 - e. Make certain that all schools work up and down the K-16 career pathway pipelines with an aim at closing the opportunity-gap pipeline for high-wage, high-demand careers. Especially those that lead to the ever-expanding and green careers.
 - i. Middle schools work with both elementary and high schools; high schools work with both middle schools and colleges; community colleges work with middle schools, high schools, and four-year institutions; and four-year institutions work with community colleges and business and industry!
 - f. Finally, give incentives, such as priority registration, free test forms or booklets, free cafeteria lunch tickets, bus tokens, etc. for students to complete the **JSPAC Four Step Career Selection Plan**.

These are just some of the things we as advisors and counselors can do to ensure that high-wage, high-demand, and fulfilling career pathways are available to all students. There are a number of policy changes we can implement at the school level, as well as issues we can educate ourselves and our students about that will enable them to choose a career that is a good fit and affords them a self-sufficiency wage. Outside of our formal advisory time, many barriers can have enormous impact on student success and career choice. The solutions to the barriers frequently cost little other than our time and awareness! What we need is professional development and a commitment to improving our communication and a strong commitment to educating all students about all the possibilities available to them.

Visit www.jspac.org for additional E-Seminars on barriers and solutions for Special Populations, and on Nontraditional careers and Internal Barriers. While you’re there, sign up to receive the *News You Can Use* newsletter, and find out about hosting or attending professional development opportunities like special populations workshops and conferences.

Thank you for working towards creating equity and access for all our students!