

perspectives

RP Group | April 2014

The [blossoms](#) of the California golden poppy (a.k.a. Eschscholtzia californica, cup of gold, flame flower), our beloved state flower, peak during the month of April. Speaking of POPPYular, the annual RP Conference similarly attracts the largest number of institutional researchers and planners from community colleges across the state.

For those who were not able to attend the conference, the March and April issues are jointly dedicated to bringing the conference experience directly to your inbox. While the [March issue](#) focused on the efforts of the RP Awards recipients, the April issue features five conference sessions focused on research, planning and assessment as well as the keynote address. All conference materials are available [here](#).

To accompany your reading, here is the 1902 musical ode to the poppy, "[Golden Poppies Good Night!](#)"

Sincerely,
The RP Group

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Announcements

Apply for three Senior Researcher positions with The RP Group

The RP Group is pleased to announce a search for three full-time Senior Researchers to serve as project directors for the CCC Common Assessment, Educational Planning and Online Education Initiatives. Deadline for applications is May 19. Details [here](#).

Save the Date for 2014 RP Summer Institute

The 2014 RP Summer Institute will be held August 5-7 at the Kellogg West Conference Center and Hotel in Pomona. Details forthcoming.

Attend an Upcoming Regional Research Group Meeting

Over the next two months, three regional research groups are hosting in-person meetings: Greater Bay Area Region (May 16), CAMP Research - Los Angeles/Inland Empire Region (May 30) and Orange County Region (June 20). RSVP [here](#).

Submit a Nomination for the 2014 POWER Awards

Has your college created excellent strategies and processes for student learning outcomes assessment? Submit your nominations for the upcoming 2014 POWER Awards. Deadline for nominations is May 13. Details [here](#).

Discover Community College Practices that (Re)define Student Support

RP Group's Student Support (Re)defined study has released Practically Speaking: Community College Practices that (Re)define Student Support, a primer for practitioners that features 23 concrete examples of how community colleges provide student support both inside and outside the classroom. Access the primer [here](#).

Statewide Spotlight: Unpacking the Student Success Scorecard--Measuring Disproportionate Impact and Identifying Factors that Impact Hispanic Student Completion Rates



Authors: *Matthew Wetstein*, Assistant Superintendent/Vice President of Instruction, San Joaquin Delta College

With the growing focus on the Student Success Scorecard and the enduring achievement gaps that exist within higher education, the *Unpacking the Student Success Scorecard* panel at the RP Group's annual conference explored the ways that practitioners can analyze these trends and understand why some of the achievement gaps persist over time. The panel was a joint effort between researchers at the California Community College Chancellor's Office's Technology,

Research and Information Services Division and San Joaquin Delta College.

Alice van Ommeren and Tom Leigh of the Chancellor's Office have developed a methodology for examining disproportionate impact across some of the metrics in the annual scorecard. Using a so-called "80 percent rule" as one guide, researchers and college officials can identify where some of the larger completion gaps exist. By comparing rates of transfer and completion across ethnic lines, and benchmarking those numbers against the student population counts by ethnicity, disproportionately high or low rates can be teased out of the data. Typically, a college can use the largest student group as a comparative benchmark for disproportionate analysis. Combined with other methods such as using the college average, these techniques are particularly useful for college administrators and practitioners who are working on equity issues and reports.

Meanwhile, researchers at Delta College have gathered data from the Student Success Scorecard and publicly available sources to answer questions like: What factors help explain higher or lower rates of success for colleges on the completion metric (transfer or degree or certificate completion within six years)? Building on prior work by Alice van Ommeren and Robert Pacheco of MiraCosta College, the Delta College team examined patterns of success for all students and for Hispanic students in the 2013 Scorecard Report. They analyzed

various independent variables that might explain why some colleges have higher or lower success rates for Hispanic students.

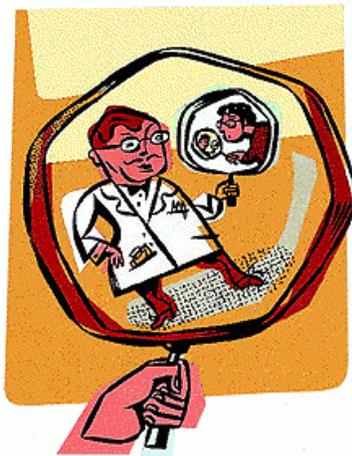
The team tested a hypothesis speculating that higher concentrations of Hispanic faculty might foster higher rates of success and completion by Hispanic students, all other factors being equal. Using publicly available data on college staffing reports via the Chancellor's Office, they found that the Hispanic faculty indicator had no real impact in the regression equation. Socioeconomic factors like educational attainment in the region and the percentage of students enrolling in basic skills courses at the college were more likely to explain the completion rates. Additionally, the data for the Hispanic student model of success explained less of the college variance than the full model for all students, suggesting that some key variables remain missing from the equation. One possible factor might be the percentage of students who are the first generation to attend college, which is a relatively new indicator in the Chancellor's Office data system.

Another important benefit of this research to colleges is that helping to identify colleges whose efforts are enabling higher than expected completion rates for Hispanic students. For example, Porterville College has exhibited the strongest rates of Hispanic success when compared against the predicted rates based on the regression equation. In fact, Porterville College's success in fostering a transfer-directed culture has been highlighted in [prior RP Group research](#). Furthermore, colleges can replicate these analyses to discover how their colleges' rates compare with other colleges in the system. Through these analyses and points of reference, colleges can be strengthened their capacity to explore which factors drive success and completion rates, and determine how to adjust their programs, processes and policies.

Resources:

- [PowerPoint](#) from panel at the 2014 RP Conference
- [Student Success Scorecard](#)
- [Staffing Summaries for California Community Colleges](#)
- [Transfer Practices at Porterville College: Case Study #4 of 7 Featuring Colleges With Consistently Higher Transfer Rates, Fall 2008](#)

Research: Clash of Causal Inference Techniques--Regression versus Propensity Score Matching



Authors: *Terrence Willett*, Director of Planning, Research and Knowledge System, Cabrillo College and *Nathan Pellegrin*, Temporary Classified Employee for Educational Services, Peralta Community College District

A common question for institutional researchers is whether participation in an activity, class or support results in higher outcomes for students than would have happened had they not participated. Typically students self-select to participate and/or are recruited to participate. When participants are compared to non-participants, differences in outcomes can be attributed to differences in background variables or motivation. In this situation, can we determine if the

participation caused a change in outcomes? No. One reason for this is that prediction of average treatment effects require measurements we do not observe (see figure below).

One prevalent technique is multivariate regression with logistic regression as a common choice for predicting a binary success indicator. Covariates are used in the model to attempt to control for differences in background variables. Background variables can include measures of or proxies for skill level, social capital or socioeconomic status. Measures of self-motivation or other important factors are often unavailable. Regression models are imperfect and generally must be combined with other evidence to more completely describe the possible influence of an intervention, program or strategy. Additional techniques can be applied in this setting, such as imputing unobserved outcomes and structural equation modeling.

An increasingly popular alternative to regression is propensity score matching (PSM). This technique was created as a response to Lewis' [counterfactual framework](#). In this framework, we would like to observe the counterfactual condition of outcomes for treated students had they not been treated, which cannot be observed in our universe (see figure). However, in light of recently published evidence for inflationary theories of the cosmos, we may be living in a multiverse and counterfactual conditions may be observed in an alternate universe (Alan Guth, 2014). Until we can travel to such an alternate universe, we are left with statistical approximations.

		Potential Outcome	
		Treatment Group	Comparison Group
Actual Treatment Status	Received Treatment	Observable	Not Observable
	Did Not Receive Treatment	Not Observable	Observable

PSM is one of several ways to create a matched comparison group of non-participants intended to be similar to participant group. The matched comparison group represents the counterfactual condition. A probit regression or other technique is used to create a score indicating the likelihood that a particular non-participant would have been a participant based on similarity to one or more participants. Then, the process matches participants and non-participants on a set of control variables to create a comparison group with similar proportions on all characteristics (i.e. comparison group would have a similar percent female, Hispanic, low income, etc. as compared to the participant group). This step is referred to as "balancing" and generally must be repeated several times to obtain balance on all variables of interest, either by adjusting matching criteria or removing variables. After matching, the analyst can run comparative analyses, which can include simple t-tests, post-PSM regressions or other techniques.

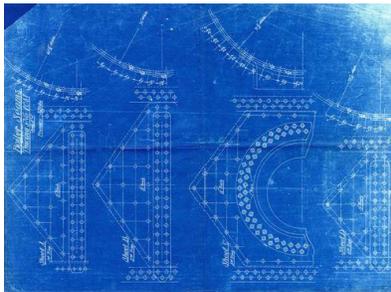
A key advantage of PSM over regression is the ease of reporting outcomes. Instead of explaining beta weights, odds ratios and estimated marginal means, PSM allows the simple comparison of outcomes between a treatment and comparison group. However, PSM can be more time consuming than a regression to conduct during the balancing phase. Another concern with PSM is that it is newer and there is not yet consensus on optimal matching procedures or proper error terms. In comparing regression and PSM, regressions tend to

perform better with large data sets while PSM tends to perform better with few observations, provided the non-participant group has sufficient numbers of individuals with the key confounding variables (Soledad Cepeda et al, 2003). Of course, all analytic methods will suffer if key variables are not available. Note also that regression is a step in the PSM process and can suffer from the same threats as traditional regression techniques. Despite some strong enthusiasm about PSM, it still is a work in progress and conclusions can often be the same between PSM or regression (Padgett et al, 2010). If time permits, it can be beneficial to run both a regression and PSM to confirm findings. In the clash of casual inference techniques, the clear winner is...data quality.

Resources:

- [PowerPoint](#) from session at 2014 RP Conference
- Caliendo and Kopeinig, 2005: [Practical Guide for PSM](#)
- [Software for Implementing Matching Methods and Propensity Scores](#)
- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70, 41-55.
- Padgett, R.; Salisbury, M.; An, B.; & Pascarella, E. (2010). Required, Practical, or Unnecessary? An Examination and Demonstration of Propensity Score Matching Using Longitudinal Secondary Data. *New Directions for Institutional Research - Assessment Supplement* (pp. 29-42). San Francisco, CA: Jossey-Bass.
- Soledad Cepeda, M.; Boston, R.; Farrar, J., & Strom, B. (2003). Comparison of Logistic Regression versus Propensity Score When the Number of Events Is Low and There Are Multiple Confounders. *American Journal of Epidemiology*, 158, 280-287.

Planning: Projecting Enrollment with a Decision Support System



Author: *Daniel Lamoree*, Senior Systems Analyst/Programmer, Mt. San Antonio College

Scheduling decisions have a wide array of impacts for the institution and the students of the institution. Limited offerings of high-demand courses create bottlenecks, significantly hampering student success and completion rates. Offering too many low-demand courses results in reduced enrollment and funding, and an inefficient use of resources. These resources could be better utilized by increasing the sections offered of high-demand courses. What are those low-demand and high-demand courses? How many sections should be cut from the low-demand courses and how many sections should be added of the high-demand courses? How might cutting or adding sections impact FTES generation? While Mt. San Antonio College had excellent reports for current and historical data, scheduling decisions were made without the use of projections. As a result, Mt. San Antonio College recognized the need to build a dashboard for key institutional stakeholders that incorporated reports already developed using the institutional reporting tool (Argos) with new reports and features allowing for data-driven decisions to support the creation of optimal future schedules.

The development of a Decision Support System received widespread institutional support; the developer met regularly with key institutional stakeholders responsible for the

development of schedules (e.g., president's cabinet and deans) to present new features and enrollment data, while getting feedback to integrate into the next development cycle. The Decision Support System shows a number of key metrics in a user-friendly, graphical dashboard. These include:

- sections not filling compared to projected course fill rate on a day-by-day comparison
- courses with excess demand expressed as a function of either attempted registration on fully enrolled sections or the number of days before a course has almost fully filled
- courses with improper section sizes
- registration acceleration of divisions, departments, disciplines or courses

Most importantly, the dashboard also includes a sandbox feature to test the impact of scheduling decisions. All key members involved in scheduling processes have access to this sandbox feature and use it to test how adding, removing or modifying schedules at the section level will impact FTES. Newly created sections in this sandbox receive a projected FTES calculation but the user is afforded the option to modify the projection; this gives users the flexibility to apply their experience to override the projection.

The Decision Support System was designed in Oracle using the cost-free rapid web development tool native to Oracle: Oracle Application Express (APEX). As such, any California community college using Oracle can leverage APEX to build a similar enrollment dashboard enabling key stakeholders to best create future schedules with the goal of maximizing FTES and minimizing course bottlenecks.

Resource:

- [PowerPoint](#) from session at 2014 RP Conference

Assessment: Leading by Example--Assessing Institutional Research Office Outcomes



Authors: *Andrew LaManque*, Executive Director, Institutional Research and Planning, Foothill-De Anza CCD; *Katherine McLain*, Dean of Planning and Research, Cosumnes River College; *Rachel Baker*, Post Doctorate Student, Graduate School of Education, Stanford University, and *Elizabeth Dalton*, Post Doctorate Student, Graduate School of Education, Stanford University

As Institutional Research and Planning (IRP) professionals, we are often called upon to assist faculty and others with student learning outcomes assessment. Accreditation standards include an expectation that faculty will look not only at what they have taught, but also at the impact of that teaching (i.e., what students have learned). Shouldn't IRP

do the same? IRP Offices could gain valuable experience by assessing the "educator" function of our work by looking at the impact of our efforts on the people we serve. This session at the 2014 RP Conference shared four approaches to assessing IR outcomes.

We can define the effectiveness of IR in multiple ways:

- How do people feel about our work (satisfaction)?
- How many projects were completed (outputs)?
- How is our work utilized to enhance programs/services and/or the college (outcomes)?

The outcomes of institutional research efforts might include campus leaders (administrators, faculty and staff) who know how to interpret and apply research, campus improvements based on the research, as well as the development of a culture of inquiry. It is fairly straightforward to track projects (e.g., by type, number, patterns) and we can easily obtain formal and informal feedback from our "clients," but getting at a more holistic assessment of the impact of our work is something few of us have done.

The Foothill-De Anza College District IRP Office has used a survey and structured interviews to assess the outcomes of the office over the last two years. A survey in 2012 was used to assess how well campus leaders understood data provided by IRP. The survey was in the form of a multiple choice "test" and included, for example, a table of data for participants to analyze. To better understand findings from this survey, we conducted ten in-depth interviews in 2014. We pursued two overarching questions: (1) Is the information received from IR useful and presented in a way that is easily understood and applied? (2) How is information received from IR used to make decisions? The office next engaged in a second round of reflection based on the data. This reflection will hopefully lead to changes in our work and improvements of the outcomes for our clients.

At Cosumnes River College, we explored how IR contributes to the development of a culture of inquiry. This required defining a culture of inquiry and developing two assessments. We used a rubric from the RP Group's Bridging Research, Information and Cultures (BRIC's) inquiry guide to classify our research dissemination activities. This allowed us to assess the potential impact of our work relative to establishing a culture of inquiry. Second, we developed and pilot-tested an administrator survey with questions derived from the seven principles from the Strategic Use of Data rubric. All respondents stated that internal research disseminated in response to specific requests for information and to inform discussions about issues was essential or very important. Many respondents noted a weakness in their use of data to adjust budgets and/or modify programs and that the dissemination of external research related to a topic or issue being discussed was relatively unimportant.

Our fledgling assessment projects, while imperfect, have been successful in that they resulted in learning and dialog about what our colleges' colleagues are learning from our work. Through this cycle of assessment, we have been able to identify changes we can and will make to enhance our program effectiveness. We have also learned a little about how hard this work is, giving us empathy for what others at our colleges experience.

Resources:

- [PowerPoint](#) from session at 2014 RP Conference
- [A Model for Building Information Capacity and Promoting a Culture of Inquiry](#)

Keynote Address: From Data to Action--Bridging Across Settings to Improve Youth Outcomes



Author: *Mike Howe*, Executive Director, The RP Group

Dr. Milbrey McLaughlin, founding director of the John W. Gardner Center for Youth and Their Communities at Stanford University, served as the keynote speaker at the 2014 RP Conference.

Her keynote address focused on the challenges and opportunities of accessing and using data from the context of public and not-for-profit youth-serving agencies, such as schools, health and welfare services, and community-based organizations. While the field may be different, the mechanics are similar to those experienced in community colleges.

McLaughlin and a colleague, Rebecca London, have conducted research on youth-serving agencies since the early 2000s. Despite sharing a common focus on serving youth, such agencies are typically disconnected from and uninformed about each other's organizational programs and policies. In fact, the research found that agencies often do not operate in ways that support one another's work conceptually, technically, practically or administratively. Moreover, the key challenge for researchers, policymakers and practitioners is how to integrate the data, partnerships and activities across traditionally siloed sectors to better support more comprehensive supports for the youth.

The result was the creation of the Youth Data Archive (YDA), an integrated longitudinal data system comprised of administrative records from diverse youth-serving organization, linked at the individual level. The YDA informs and facilitates cross-organizational collaboration focused on better serving the youth population. It empowers participating agencies to examine questions that combine information about the youth they serve with data from other agencies--often for the first time. McLaughlin's keynote outlined the YDA's guiding principles, development and operation as well as lessons learned along the way about collaboration, data sharing, communicating with various stakeholders and how to move data to action within a collaborative partnership.

Challenges in this field include establishing trust partnerships between researchers and agencies, negotiating the use of data findings, navigating organizational complexities, ensuring data integrity and increasing capacity. In many ways, these challenges mirror those faced by community colleges. To address these challenges, the YDA's research underscored the importance of clear expectations about access to data along with transparency about how data are used. With multiple partner agencies, periodic and consistent communication about what is working and what can be improved can help both the process as well as the partnerships. Additionally, research that is relevant, valid and aligned to answer questions of importance can help collaborative efforts.

Integrating data and sustaining cross-agency partnerships is not easy. However, once agencies began to access data--to which they did not previously have access--and these data meaningfully served their needs, the support for YDA grew. McLaughlin's overview of

the Youth Data Archive and its context provided the conference attendees with a similar but separate example of what they may be facing.

Resources:

- [PowerPoint](#) from keynote presentation at 2014 RP Conference

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