the RP group

Research • Planning • Professional Development
for California Community Colleges

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perspectives

Hello, !

It's been a busy summer. We saw the agony and ecstasy of the Rio Olympics. The presidential election hit a pinnacle (or a trough, depending upon your perspective) during the convention. Many of us went on vacations and attended family gatherings that we'll never forget. In the midst of all this, the community of institutional researchers and planners did not skip a beat. The RP Group held our annual Summer Institute to stimulate and educate us during "break" so that our critical work for community colleges can continue to march forward.

In this issue of *Perspectives*, we highlight some of the sessions that the Summer Institute featured. Bri Hays, RP Group's Chair of Professional Development, begins with an overview and review of the Summer Institute to set the stage. From there, Institute presenters offer a peek into their sessions: (1) Denice Inciong shares a commentary on her session on strategic planning; (2) Rebecca Wong walks through the thought process on how institutional researcher and planning (IRP) professionals can strengthen their roles as agents of change; (3) Terrence Willett enlightens us about the virtues of R, this relatively new tool for data analysis, including an important evaluation of its pros and cons; and (4) Craig Hayward humorously recites the decisive edge that R specifically offered to his work on building decision trees to inform assessment and placement.

So with apologies to George Gershwin, the living was not all easy and the fish weren't all jumping for these presenters as they pushed us forward. Paraphrasing the lines from balladeers Chad and Jeremy, when the rain beats against my window pane, we'll think of summer days (Institutes) again and dream of you.

Sincerely,
Willard Hom

Consulting Editor, RP Group

In This Issue

Overview | Congrats to the RP Summer Institute Class of 2016!

Author: *Bri Hays, Professional Development Chair, RP Group; and Campus-Based Researcher, San Diego Mesa College*

Over the past decade, and particularly over four years in the wake of the Student Success Act, the institutional research and planning field has changed significantly. Many institutional research offices have taken on strategic and integrated planning responsibilities, and an increasing number of offices have also assumed a leadership role in areas such as accreditation and the assessment of overall institutional effectiveness. In addition, with the increased focus on program evaluation for statewide initiatives, such as the Student Success and Support Program (SSSP), Student Equity, and redesign of basic skills pathways, the IRP field has welcomed a large cohort of new professionals entering the California community colleges in the past two years.

To help support these new IRP professionals, the RP Group hosted the 2016 Summer Institute in June. This year's Summer Institute consisted of an intense three-day event specially designed for those entering the institutional research and planning field in the California community colleges. In all, 47 researchers/planners and other campus leaders came together to learn foundational skills for a successful IRP career. Guided by feedback from the field, the Summer Institute workshop topics ranged from research-related technical skills (e.g., using R to analyze and visualize data) to institutional planning to becoming agents of change in their own institutions. Twelve seasoned IRP professionals and campus leaders volunteered to facilitate mini workshops during the institute, and at the culmination of the Summer Institute, participants presented a group project focused on analysis of Student Success Scorecard data. Groups were able to leverage the skills they learned in the Summer Institute along with experiences at their institutions to prepare the presentations for the larger group. These group project experiences were designed to foster teamwork and collaboration among this cohort of IRP newcomers.

While participants described the institute as being particularly rigorous, overall, feedback about the Summer Institute was positive, and, based on participant feedback, several opportunities for additional support and enhanced training have been identified. Although the Institute focused on a broad set of skills, most participants found the networking opportunities with other IRP professionals to be the most valuable aspect of their Summer Institute experiences. Furthermore, participants indicated they would like to see additional training opportunities in technical skills from the RP Group in the future. Suggested topics included additional hands-on training in R statistical software, SQL, statistical analysis, program evaluation, and research methods. Newcomers expressed great interest in professional development with SQL, qualitative research methods, quasi-experimental designs, placement test validation, equity, R, and SPSS.

In order to address the professional development needs of these new research and planning professionals, as well as those of the rest of the field, the RP Group will be offering drive-in workshops, webinars, and other training opportunities. These offerings will take place in addition to the annual RP Conference focused on IRP professionals in the 2016-2017 academic year. Stay tuned to the RP Group listserv and RP Group website for information on upcoming RP Group professional development activities.

Resources:

- Summer Institute Presentation Materials: http://rpgroup.org/events/Summer-Institute-2016/institute-materials

Strategic Planning | Reflections on Presenting a "Planning Primer" at the RP Summer Institute 2016

Author: *Denice Inciong, Planning and Policy Chair, RP Group; and Director, Research, Planning, and Data Management, South Orange Community College District*

At the RP Group's Summer Institute, which included researchers, planners, and other campus leaders who ranged in experience from less than two months to nearly two years on the job, I was asked to lead a session called "Planning Primer: Current Issues in the IRP Field." As I developed my presentation, I felt myself reflecting on how I came to planning when I first started as a substitute Research Analyst. When I started in the community college in summer 2004, one of my first activities was participating at our college's retreat to discuss 128 planning agendas. At the time, accreditors focused on planning agendas, which later evolved to action plans, and currently Quality Focused Essays (QFEs). I remember trying to understand how all of these planning agendas related to one another and how they were being managed. In addition, the college president told me it was important for me to attend this retreat because my office of one researcher would help assess all of these agendas. It was a daunting task to review these agendas and to coordinate progress and evaluation. Additionally, our college did not have an active strategic plan, making many of the efforts uncoordinated and duplicative across the campus. That was my first foray into planning, and 12 years later, my planning world is very different. This world has evolved and developed into today's integrated planning process, but questions arise for me: How would new researchers be introduced into their colleges' planning efforts? What are their experiences? What would they need in a primer?

As I stood in front of the fresh faces at the RP Summer Institute, I wondered how much they were involved in planning and if they had experiences like mine from the summer of 2004. When I asked the group how many were part of some planning effort, all hands were raised. When we listed all the types of plans on their campuses, we filled two full flip chart pages with our lists. When we talked about types of goals, objectives, and measurements, everyone had some perspective of what their campuses were doing. I felt relieved that I wasn't starting from scratch, but then I worried--maybe my presentation was too simple, and I should have delved into the complexities of planning and the roles we play.

I went forward with my presentation, looking for affirmation or disagreement. They were definitely coming in at such a different time and place in our field that it was encouraging to feel their interest in the topic. The slide that highlighted some points from K. Hinton's *A Practical Guide to Strategic Planning in Higher Education (Society for College and University Planning, 2012)* seemed to hit home.
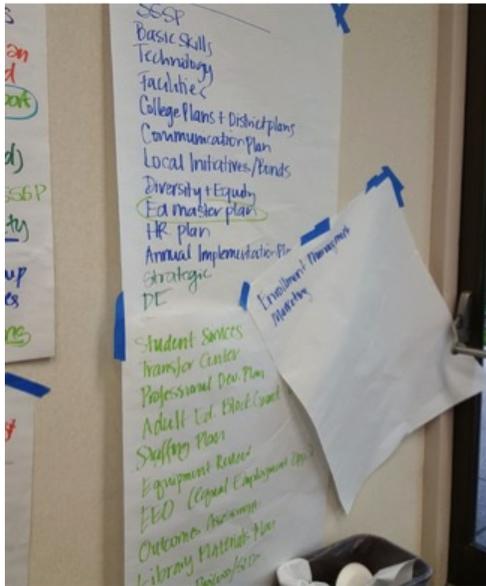
- The costs of engaging in a poor planning process range from disillusioned faculty, staff, and students, to poor use of vital resources, to failed accreditation reviews which, in turn, cause an institution to lose funding and prestige.
- The risks are high, but the rewards are higher. A well designed and implemented strategic planning process can provide an institution with a forum for campus-wide conversations about important decisions.
- The process can also be organized to make assessment, resource allocation, and accreditation easier, and be a source of information about progress and achievement plan with very real meaning to those associated with the institution.

We discussed the culture of planning in terms of each person's district or campus. Who were the groups that gathered and made decisions? How was planning perceived, and did they think the process was working? Does your college have planning and decision-making
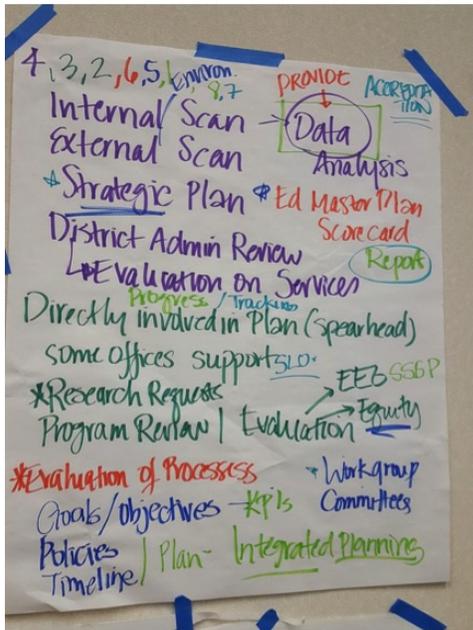
guides? What impressed me most was the comprehensive understanding of all the aspects of planning that participants have already known and used. (See Picture #1) I was delighted by the discussion of how to align, prioritize, and integrate plans. We could have spent all day working on these parts of planning which was beyond a primer. (See picture #2, 3, 4)
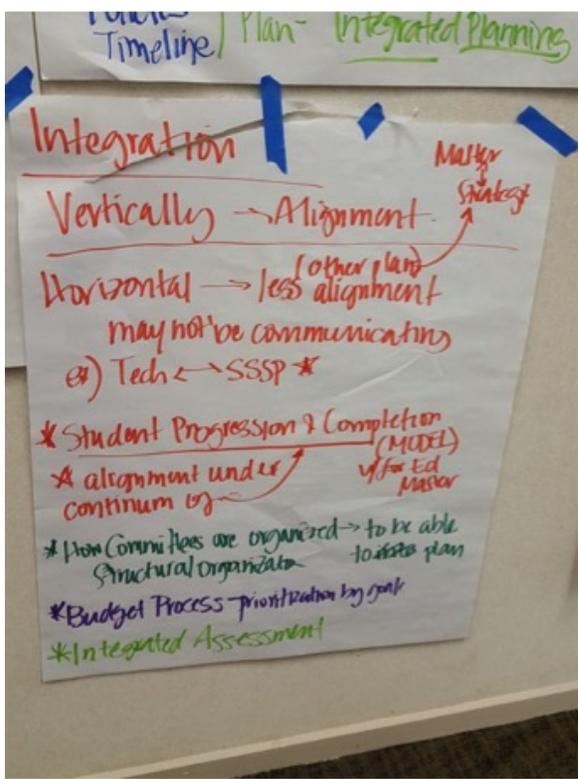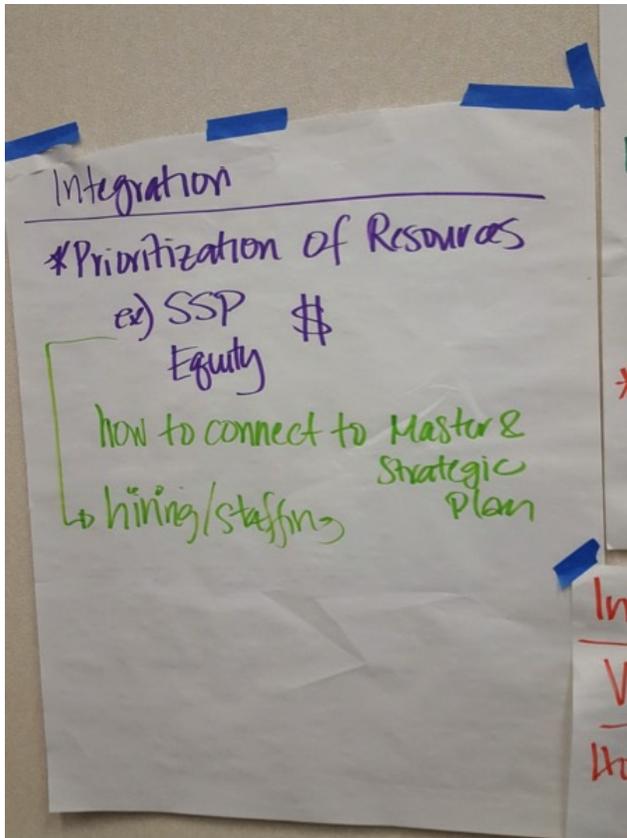
Pictures:

Picture #1

-

Picture #2

Picture #3

Timeline / Plan- Integrated Planning

Integration

Vertically → Alignment

Master Strategy

Horizontal → less alignment
(other plan)
may not be communicating
e) Tech ← → SSP

*Student Progression & Completion
(MODEL)
*A alignment under
continuum by
✓ for Ed
Master

*Prim Committees are organized → to be able
Structural organization
to state plan

*Budget Process prioritization by goal
*Integrated Assessment

Picture #4

Integration

*Prioritization of Resources
ex) SSP   #
Equity
how to connect to Master &
Strategic
Plan
↳ hiring/staffing

In
V
Ho

Authors: *Rebecca Wong, Steering Group Member, Leading from the Middle; and Professor, Mathematics, West Valley College*

To wrap up an intensive three-day 2016 Summer Institute experience, Ben Gamboa and I were invited to lead a session entitled "Becoming an Agent of Change." Ben and I are members of the RP Group's Leading from the Middle (LFM) steering group. Our session consisted of three parts: (1) an opportunity for reflection and self-assessment, (2) a discussion of the unique opportunity institutional researchers have to be change agents, and (3) the development of personal professional development plans.

The session began with a discussion of the diverse skill set change agents need to successfully navigate their campus cultures, and participants reflected on their own comfort level being a "change agent" at their institutions. Participants also assessed their skill level on each of the Summer Institute Core Competencies:

1. Collect/analyze data appropriate to research questions
2. Facilitate data-informed decision-making
3. Assess/analyze context of institutional research and planning
4. Effectively communicate research findings
5. Integrate professional responsibilities/development/goals

After the opportunity for reflection and self-assessment, the group discussed how institutional researchers and planners are in a unique position to take on the role of change agent at their colleges. IRP professionals have access to and understand the institution's data, seeing clearly the gap between "what is" versus "what ought to be." In addition, researchers are familiar with college structures and usually have access to all levels of leadership at the college. Unlike faculty and staff in student services and instruction who often work in siloes, IRP professionals regularly cross-boundaries, working on interdisciplinary projects throughout the campus. To delve more deeply into this idea of crossing boundaries, participants discussed a case study in which an institutional researcher played a key role in the adoption of an Student Learning Outcomes (SLO) Cloud tool, enabling a college to go from a SLO assessment rate of under 70% to one close to 100%.

The final part of the session focused on the development of individual professional development plans. Participants were asked to picture where they saw themselves professionally one year, five years, and 10 years into the future. Once they had established their professional goals, participants then identified the skills they would need in order to attain these goals. The group then identified additional professional development opportunities including regional RP group meetings, the Strengthening Student Success Conference, and the Leading from the Middle Academy. Several of the Summer Institute attendees were former or current LFM attendees and were able to share with the larger group the value they had found in participating in this project-based leadership development program sponsored by the RP Group.

The Summer Institute was an intensive three-day experience focused on key technical skills researchers need. Many participants appreciated the opportunity to end the Institute with some time devoted to their own personal development as leaders and change agents at their institutions and to make plans for ongoing professional development. One participant told me she was going to put her professional development plan in her desk drawer and pull it out monthly as a reminder to keep developing and moving toward her professional goals.

Resources:

- Leading From the Middle Academy: https://rpgroup.org/projects/leading-middle-academy

Data Analysis | Wherefore "R" Thou: Why the R Statistical Language Is Cool, Romantic, and Frustrating

Author: *Terrence Willett, Dean, Research, Planning, and Institutional Effectiveness, Cabrillo College*

Lasers are universally considered the coolest thing ever (no citation needed). From telling us the price of our box of cereal to providing sight-saving eye surgeries to augmenting the experience of a concert, lasers improve our lives in both important and trivial ways. The laser was developed in the late 50's and early 60's by Bell Laboratories, which also invented the transistor (1947), solar cell (1954), information theory (1948), and the S statistical programming language (1976). Created by John Chambers, S was designed as an improvement over the more general languages of Fortran and C for statistical analysis. In the 90's, Ross Ihaka and Robert Gentleman of the University of Auckland began an offshoot of S to provide a tool for their students. By 2000, they had developed a new language they called "R," both as a play off of their first names and the S language they had begun with. Deciding to eschew a commercial license and instead releasing under a General Public License (GPL), they offered a new open source statistical programming language in R.

Because R shares a common lineage with the laser, we must consider that it is also very cool. This may be part of why instead of remaining an isolated project on an island nation, R has become a global standard in statistical analysis. One key factor to its appeal is its price tag (read: free) and therefore affordable even by graduate students and the most impoverished research shops. Code developed by one office can be readily shared with another without worrying about a Romeo and Juliet situation where offices with different licenses (such as SPSS, STATA, or SAS) are not allowed to freely communicate. This is the primary reason R is used by the Multiple Measures Assessment Project (MMAP) so that MMAP models can be replicated by any college researcher to validate results. The open nature of R is also its primary downside as open source software typically has a steeper learning curve and less "friendly" interfaces than commercial products such as SPSS, SAS, and STATA. Several interfaces for R have been developed some with an "open core" model where the base interface is free but advanced features come at a price.

The interface preferred by MMAP is RStudio. Another popular interface is Revolution Analytics recently acquired by Microsoft. This interface has been criticized by Ihaka as violating the GPL for not sharing the code for their interface and essentially commercializing an open source project. But, don't wait for any class action lawsuits as Ihaka is working on a replacement for R that he expects will run many times faster and improve upon problems that have plagued R such as poor memory management in the face of large data sets. Despite R's impending but not imminent doom, another key advantage that makes learning R beneficial is its market and social value. Many researcher job postings now list R programming as an essential or desirable skill and potential employers may question your worth if you only list SPSS among your statistical packages. You can also run SQL commands directly in R and create visualizations and tables with yet more commands. A summary of pros and cons are shown below:

Pros	Cons
Free base software and add on packages	Steep learning curve
Has both statistical and machine learning algorithms	Can require deep knowledge of a technique to set parameters correctly (or is this a pro?)
Robust user community	Poor memory management
Looks cool on a resume	Author cannot remember the last con

A final reason for readers to consider R is how its open source nature dovetails with the ideals of the RP Group in promoting collaborations among researchers as reflected in this quote from Ihaka in a recent [blog post](#):

> R changed my opinion of humanity to some extent, to see how people are really willing to freely give of themselves and produce something larger than themselves without any thought of personal glory. There's a lot of work with no recognition.

Useful R commands to get started:

- #set working directory to local folder on encrypted drive

- setwd("C:/Users/Me/Documents/Data")

- #read in data file

- foo <- read.delim("foo.txt", quote = "",row.names = NULL,stringsAsFactors = FALSE)

- #save workspace, repeat command after new objects are created

- save.image("foo.RData")

Resources:

- Main R project page: https://cran.r-project.org/

- MMAP R tutorial with additional links and resources: http://rpgroup.org/system/files/MMAPScriptsPhaseIIDraft5.pdf

References and Further Reading:

- https://en.wikipedia.org/wiki/Bell_Labs

- https://en.wikipedia.org/wiki/S_(programming_language)

- https://en.wikipedia.org/wiki/R_(programming_language)

- https://www.r-project.org/about.html

- https://www.r-bloggers.com/ross-ihaka-co-creator-of-r-in-the-economist/

- http://www.computerworld.co.nz/article/489306/story_r_statistical_tale_twist/

- https://www.r-bloggers.com/%E2%80%9Csimply-start-over-and-build-something-better%E2%80%9D/

- https://www.r-bloggers.com/ross-ihaka-on-the-history-of-the-r-project/

- http://www.ingenio-magazine.com/r-the-ultimate-virus/

- https://www.r-bloggers.com/revolution-r-renamed-microsoft-r-available-free-to-developers-and-students/

Placement and Assessment | I think, therefore I R

Article Author: *Craig Hayward, Director of Research, Planning, and Accreditation, Irvine Valley College*

"Gaze upon the glory that is a multiple measures decision tree!"

This is a sentence I have actually uttered in public-while presenting, nonetheless. While not everyone may share my enthusiasm for decision trees, it helps to know R if you want to create them. R is an open-source (read: "free") statistical analysis program. It can be a bit thorny to learn how to use, particularly if you have put in years learning to use SPSS, as many educational researchers have done (including me). However, if you are willing to learn to "think different" about data and how you code, you will be rewarded by a universe of analytical options supported by a large and active user community.

Why bother to learn R, if you are already perfectly comfortable in the SPSS environment? Yes, it is true that R has a lot of buzz and is the darling of the data science whiz kids. But being trendy is not what institutional research is necessarily all about. What finally drove me to use R was its facility at creating decision trees. The Multiple Measures Assessment Project (MMAP) research team had decided on decision trees as an ideal statistical tool for MMAP. They create discrete categories of students, differentiated by their performance in key courses, and these categories could be described (and prospectively created) by a parsimonious set of easily articulated rules.

There was one catch: neither of our go-to statistical programs (SPSS and Stata) had the capability to grow decision trees. This led us to conduct a scan of available software options. In addition to R, we evaluated a number of software packages including AMOS, KNIME, Rapidminer, SAS Enterprise Miner, and SPSS Modeler. After comparing the packages, R was determined to be a good choice. It has a number of advantages: it was free; it was available for immediate use by all MMAP research team members and MMAP pilot colleges; and it had an array of procedures for growing and for displaying decision trees. Perhaps most importantly, there was a robust user community for R and there were forums where R users of all levels sought and offered assistance. Additionally, there are online R tutorials that are helpful in getting up to speed in R. The MMAP research team even has an R decision tree walk-through that is designed to get CCC researchers running MMAP-style decision trees quickly and relatively painlessly.

Learning R has been a difficult but valuable experience. When I first tried R, it was just because I had heard the buzz about it and I wanted to check it out. It wasn't until I needed to do something that I just couldn't do in good ol' SPSS that I actually persevered and got over that initial hump of learning how to get data files properly loaded. Things are easier now, too, than in the past. R-Studio and R-Commander interface options make it easier to code and interact with the R environment. Finally, the user community and online self-training options are robust and will definitely help you to add this skill set to your toolbox.

Resources:

- Poll on popularity of R: http://www.kdnuggets.com/polls/2015/analytics-data-mining-data-science-software-used.html

- R User Groups (RUGs): https://www.r-bloggers.com/RUG/

- Answers to key questions at Stack Overflow: http://stackoverflow.com/questions/tagged/r

- R Tuorials: https://www.datacamp.com/

- MMAP's guide to using R to grow placement decision trees: http://rpgroup.org/system/files/MMAPScriptsPhaseIIDraft5.pdf

- R download: https://www.r-project.org/

- R-Studio interface: https://www.rstudio.com/

- R-Commander interface: http://rcommander.com/

- Cool stuff that Copper Mountain College has done with R and Google docs: https://sites.google.com/site/researchcmcnow/standards/dashboard

- Think different video: https://www.youtube.com/watch?v=nmwXdGm89Tk

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