

## Cal Poly Quantitative Reasoning Learning Community 2015-16

April 27, 2016

9:10 am to 10:00 am (33-285)

### Membership

Jack Phelan/Acad Prog; Mary Pedersen/Acad Prog; Bruno Giberti/Architecture; CAED; Thomas Fowler/Architecture; Gary Clay/Landscape Architecture, Susan Mackenzie/RPTA, Michael Latner/Political Science; Kevin Ross/Statistics; Todd Grundmeyer/Mathematics; Fred DePiero/CENG; Russ White/Library; Gary Laver/CLA

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### MEETING NOTES

1. Review: Meeting Notes from [April 13, 2016](#)
  - a. Kevin Ross is willing to incorporate QR assessment in Stat 130. The student number provided on the last meeting minute is wrong. The total number of students in Stat 130 is 65. It is a great class for this exercise, sample group is large, business and engineering majors take the class.
  - b. Kevin is currently teaching the course. The committee discusses options for starting in Fall. Kevin will discuss with Allen Rossman about the possibility of letting Kevin R. teach the course in Fall but may not teach until Spring. Kevin R. says embedding one or two question in the finals this quarter would be easy, but creating a new assignment would be difficult.
  - c. Kevin R. and Todd G. emphasize that constructing some kind of assignment is time consuming, but if only a few targeted questions are injected, it can be done now.
  - d. Discussion presumes regarding Stat 217 as a possibility. Kevin R. states Stat 217 is taught primarily to the Engineering and Biological Sciences major, Stat 217 is more methods based. And adds Stat 130 has a diverse and large sample group which incorporates students from Journalism, Graphic Design, etc.
  - e. Kevin R. wants to know if he should be corresponding about the assessment in the college. Committee appreciates the effort.
  - f. Committee discusses the coverage of the campus-wide QR assessment effort, PSY 202 frames the Social Science majors. Committee addresses concerns on how the triangulation will be performed.
2. Share: Takeaways from the CSU SJSU Symposium on Quantitative Reasoning (4/22)
  - a. Universities from across CSU presented their efforts in assessing QR, the development of rubrics, methods etc,. Keynote speaker Eric Gaze explained the philosophy of QR in nutshell, and he talked about how education of Mathematics in approach is changing throughout the nation. He looked at the importance on the basic understanding of spreadsheet, how to read it what it tells us. And he also talked about the thematic disconnect of spreadsheet from the learning of master equations. He concretized two basic algebra based reasoning skill, Bruno G. appreciates the effort somebody took to do that. Companies such as Google are

focusing on the importance of tolerance for ambiguity Being able to think on your feet. Dealing with problems that don't have one right answer

- b. Other CSU universities have started with the Value Rubric and expanding the definitions for their purpose. They are all exploring attempts to define the mid zone or idea or benchmark, what meets, doesn't meet or exceeds expectations. They are trying to put the numbers from the formula and at the same time deciphering the formula.

### 3. Activity: Examine QR rubric dimensions and levels of performance in PSY 202 assignments

- [QR Rubric](#)
- [PSY 202 Assignment Prompt](#)
- PSY 202 Sample Assignments (attached with the [meeting agenda](#))

Committee examines current QR rubric (traits and levels of performance) alongside 3 assignments from PSY 202 that represent high, middle, and low performance.

- a. Committee discusses the coverage of the campus wide QR assessment effort, PSY 202 frames the Social Science majors. Committee addresses concerns on how the triangulation will be performed. Committee discusses past experiences with Math and Econ assignments, committee looked at one article, which was least developed and tried to identify the pieces. In PSY 202, the committee is not trying to see if the students are becoming social scientist, but how they are working to solve real life quantitative problem. PSY 202 is a giant course and there is not one interest, on the other hand Stat 217 is broadest of interests for Engineers.
- b. The students were not expected to do computation, but only interpret the table that was presented in the article. High got an 18, medium got 16, and the low performer might have gotten a 13 or 14. Regarding different levels of performance with this assignment, evaluating in the same field, it brings the committee back to 75 percent of the rubric being empty. Majority of the CSU are in the same boat.
- c. Bruno G. references the current rubric, and asks whether in the long run, the bench mark level will define the minimum level of competency. He adds, the committee did not have a solid idea when the labels were attached. He states that the labels (Capstone, Milestone, Benchmark) are confusing and that establishing a benchmark might be possible for any level.
- d. Committee focuses discussion on what the rubric is not saying, Bruno reads one of the traits and asserts that when the rubric is read, the statements are found granular.
- e. Defining Low level, should it stop at identifying the problem. Todd wants to know if the committee is talking about freshmen level.
- f. Committee emphasizes about having a clear idea about what the rubric is trying to do. Committee discusses options on how the rubric might be used in both senior level and freshman level. There are 4 levels, Bruno referring to senior levels says, 90 percent of the upper levels have discipline-based rubrics. Question arises on

focusing on foundational level rather than upper level, as they tend to be discipline specific.

- g. Gary L. states current problem is defining the foundational level, before the committee uses across levels, there must be compelling rational established to do that. The rational that might work for the freshman, might not be the same rational for seniors.
- h. Committee raises question on deciding whether the 3 columns be filled and put the rubric to practice.
- i. Committee discusses on foundational level, should there be emphasis on students' ability to interpret the argument that is already made, rather than making the arguments themselves, followed by doing their own work and computation and expressing. Is that something broad? Committee agrees that is reasonable. That can be put to context. Trying to analyze the arguments that's already there, critiquing the argument rather making the argument.
- j. Math 112 QR project (Home Buying) focuses on making an argument. Todd coins the idea of writing two rubrics, making an argument or critiquing an argument.
- k. Committee discusses the Mid-level. Should it meet the expectation? In PSY 202 assignment high quality papers are A/B on the grading spectrum, medium quality papers are B/C and low performance papers are C/D.
- l. Bruno suggests to get away from language of the descriptors in the rubric. A few examples that have been coined, language of competence, high pass, low pass, par, below par, etc.
- m. Todd asks if there is a reason for being quantitative and adding numbers 1,2,3 to the performance descriptors. Bruno responds, quantitative judgment is a way to assess qualitative information.
- n. Committee discusses on the bottom line margin and discusses on preference to put a 0. Gary L. compares this with the GWR rubric, there is language associated with 0, who writes sufficiently long essay, but completely off topic, they may receive an 11 and there may be no quantitative elements on the writing.
- o. For a 3 point rubric, describing the middle is the minimum expectation, others are low. The committee starts with defining the minimum expectation and then going below or up.
- p. Committee discusses on different numbering strategies, e.g. 3, 2, 1 or -1, 0, and 1. And give the names later. Committee discusses on the definition of 0. 0 means absolutely nothing has been done by the student.
- q. Committee discusses on grades for different quality papers. Gary L. suggests high quality papers should obtain a/b, mid ones b/c, and low quality papers should receive C/D. Committee agrees C/D is low pass. And it's a fair corollary for the low quality papers to receive C/D.
- r. Committee discusses the definition of low quality, if that is a minimum that is expected, or work that shows the students have done nothing. Gary adds if low quality papers are graded as C/D that defines the borderline that is expected.

- s. Jack raises discussion on numbering strategy, if it should be 4 point scale, where 1 is different from 0 or 3 point scale, the lowest being 1.
- t. Jack raises question, on the language use of capstone and wording of different levels. Bruno responds, words are not required, until the committee knows what they mean.
- u. Kevin R. agrees to draft a mean to incorporate the rubric in the assignment (Stat 130). Jack appreciates the effort.

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### **Spring 2016 Schedule**

~~Wednesday 4/13 9:10 am to 10:00am 33-285~~

~~Wednesday 4/27 9:10 am to 10:00am 33-285~~

Wednesday 5/11 9:10 am to 10:00am 33-285

Wednesday 5/25 9:10 am to 10:00am 33-285