# Report for the Student Quality Assurance Impact Research Project

## California State University, Bakersfield

## Summer 2016 – Spring 2017

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## Acknowledgement

This report is an update of the report submitted to the Chancellor's Office of California State University on August 26, 2017. In comparison, this version has expanded the scope beyond the survey data reporting for the Student Quality Assurance Impact Research (SQuAIR) project. Accordingly, more information was added to address focus on Quality Assurance (QA) California State University, Bakersfield (CSUB), QA professional development activities for instructors, impact of online and hybrid course offerings, indicators of learning outcomes across student demographics, and aggregation of the SQuAIR survey results.

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## Executive Summary

As the largest higher education institution in the golden state, the California State University (CSU) System has been championing advancements in instructional technology and teaching innovations across face-to-face, interactive television, hybrid, and online platforms. This report focuses on needs pertinent to the southern San Joaquin Valley and Antelope Valley. Thus, the report begins with an *Introduction* section describing the service region of CSU, Bakersfield (CSUB) in support of the Quality Assurance (QA) training for instructors and course certification for the institution. Recent CSUB initiatives are addressed in the *Campus QA Background* section to examine indicators of the ongoing capacity building in Academic Year (AY) 2016-17. In addition, *QA Professional Development* results are articulated with an overview of course certification status to facilitate analyses of student learning outcomes. Furthermore, contextual information is incorporated from the institutional research office to assess the impact of online and hybrid course offerings on students from diversified demographic backgrounds. The university transcript records are extracted to confirm the comparison of student performance in online, hybrid, and other course settings. Survey data are analyzed from 103 students who enrolled in online and/or hybrid courses taught by 10 instructors in AY 2016-17. The report concludes with recommendations for sustaining ongoing progress of the SQuAIR project at CSUB and beyond.

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## Introduction

The *Student Quality Assurance Impact Research* (SQuAIR) project is led by the Chancellor's Office of the California State University (CSU) to determine the impact of Quality Assurance (QA) professional development and course certification on teaching performance and student success. The project goals are aligned with the university commitment to maximizing student success, reducing time to degree, improving graduation rates, and shrinking the achievement gap.

California State University, Bakersfield (CSUB) participated in the SQuAIR partnership building with four sister campuses (CSU Channel Islands, East Bay, Fullerton and San Francisco) since January 2017 to improve its QA services through online and/or hybrid instructional practices. The support for teaching and professional development has created a community of faculty learners to improve student academic performance and course completion rates.

As the only public university within a radius of two-hour driving in all directions, CSUB has as its primary responsibility to serve the communities throughout the southern part of the California Central Valley and the Antelope Valley. Online instruction is an important platform for CSUB to offer higher education opportunities for over 1.3 million local residents across a land area as large as the state of Massachusetts. As Chancellor White (2016) acknowledged, "Cal State Bakersfield has lifted up lives, families and communities… and is a catalyst for innovation, social justice and economic success"[1].

[1] https://www2.calstate.edu/csu-system/chancellor/the-chancellors-communications/Pages/csub-presidents-associates-dinner.aspx

In support of the program outreach, CSUB volunteered to be an original partner with California State University, Northridge to initiate the CSU system-wide partnership building for online teaching. Prior to its incorporation of learning management systems, such as WebCT and Blackboard, the campus already invested in its infrastructure building to support course offerings through Instructional Television Network (ITV) at its surrounding community colleges. While technology advancement continues on the ITV platform to feature interactive two-way video instruction[2], the campus has institutionalized professional training for online and hybrid instruction, and thus, add new venues to support student program completion. According to the unduplicated counts of CSUB enrollment in AY 2016-17, online and hybrid instructions have grown to serve over 71% of the students beside the face-to-face teaching sector. In particular, Figure 1 showed that the head count has surpassed the ITV enrollment nearly 7.5 times, which directly supported an emphasis of the SQuAIR student survey on online and hybrid instruction in Summer, 2017.

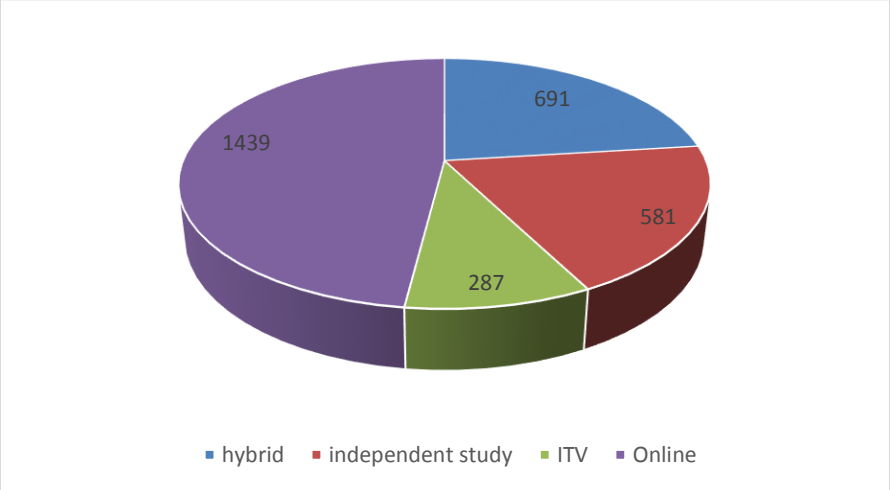


*Figure 1. Distribution of Student Enrollment in Non-Face-to-Face Settings*

[2] https://www.csub.edu/its/services/itv/index.html

In comparison, the online enrollment figure was more than twice of the hybrid enrollment counts (Figure 1). Altogether a total of 65 courses/177 course sections were offered online in Fall, 2016 and Spring, 2017 while 54 courses/114 course sections were offered hybrid in Fall, 2016 and Spring, 2017. Primary reasons for the growth of online enrollment hinged on the QA background and QA professional development at CSUB.

## Campus QA Background

As online education evolved into a popular mode of instruction in higher education, investing in quality assurance has become critical in meeting the increasing demands for high quality instruction. In fulfilling its commitment to professional practice, CSUB became a Quality Matters (QM) subscriber in May of 2012. In the spring of 2013 the Academic Senate approved an Online and Hybrid Instruction Policy that required all faculty to receive training prior to teaching online or hybrid courses. The Distributed Learning Committee appointed by President Mitchel proposed a set of requirements for online and/or hybrid instruction, including demonstration of competencies in using Learning Management Systems.

To facilitate faculty preparation, professional development programs are designed and implemented to provide the much-needed training for course preparation and QM review by an internal or external team. The internal review is conducted by experienced faculty whose course(s) were recognized through external QM review. The campus also contributes $1000 to pay the process fee for external QM certification. Training workshops, *Applying the QM Rubric* (APPQMR), are developed by local experts and offered regularly in each term to guide the instructional design of quality online courses.

Additional training is provided through delivery of Peer Reviewer Course (PRC) and QM Master Reviewer Course (QMMRC) to prepare QM certified reviewers and master reviewers. CSUB also actively participated in the CSU system Quality Online Learning and Teaching (QOLT) initiative. As of October 10, 2017, credentials of the online-teaching faculty have been achieved across all of the following professional domains (see Table 1).

| QA Faculty Resources | Number |
|---|---|
| APPQMR Completer | 252 |
| QOLT Completer | 6 |
| QM Certified Reviewer | 10 |
| QM Master Reviewer | 3 |
| Internal Course Review Completer | 212 |
| QM Certified Courses | 15 |
| QM Training Facilitator | 2 |

*Table 1: QA Capacity of CSUB Faculty in Fall, 2017*

## QA Professional Development at CSUB

Currently, three hundred twenty faculty and staff have received various QM training; fifteen courses received QM certification; and two hundred twelve courses were approved through internal reviews process. The QA professional development directly strengthened faculty expertise in their course offerings. In AY 2016-17, CSUB offered 795 course sections, and 80.25% of them were taught by instructors with QM training. One hundred and thirty-nine instructors taught at least one online or hybrid course. One

hundred and six of them received QM training and 19 instructors had at least one course approved by the internal review through independent study of the QM rubric.

The Summer Institute for Online Teaching is viewed as a flagship model for campus-wide training and faculty professional development. The number of participants consistently increases each year. All four academic schools are well represented in the Institute. Feedback received from attendees has been overwhelmingly positive. The goal of the Summer Institute, administered by the Faculty Teaching and Learning Center (FTLC), is to align the activities of the Institute with the University's strategic goals. The training is balanced to support both online and hybrid instructions. For instance, among the 139 instructors who taught online and/or hybrid courses in AR 2016-17, 68 taught hybrid course sections only, 61 taught online course sections only, and 10 taught both online and hybrid sections. Because some courses were offered in multiple sections, a total of 56 hybrid courses and 59 online courses were taught by instructors with CSUB QM training, which concurred with the balanced support of faculty professional development in the course section counts.

## Impact of Online and Hybrid Courses on Student Learning Outcomes

In AY 2016-17, CSUB offered a total of 978 courses face-to-face, 40 courses through ITV, 81 courses hybrid, and 92 courses online. The percent of students receiving a lettered grade across these teaching platforms are listed in Table 2.

Regardless of the teaching platforms, noted in each column of Table 2, student consistently earned grades in the A grade category. In comparison, the percent of students

achieving an *A* in a face-to-face class is slightly lower than their peers in an online or hybrid class. Meanwhile, a higher percent of students received an *Incomplete* (I) or *Report in Progress* (RP) grade in a hybrid class than in other teaching platforms. Online and face-to-face classes seem to have a larger chance to grant a *No Credit* (NC), *Withdrawal* (W), or *Unauthorized Withdrawal* (WU) grade (Table 2).

| GRADE | FACE-TO-FACE | ITV | HYBRID | ONLINE |
|---|---|---|---|---|
| **A** | 20.86 | 22.82 | 30.57 | 22.29 |
| **A-** | 9.42 | 18.66 | 12.47 | 11.30 |
| **B+** | 7.54 | 9.57 | 8.76 | 9.73 |
| **B** | 12.02 | 11.98 | 10.66 | 10.99 |
| **B-** | 6.96 | 8.67 | 7.27 | 8.08 |
| **C+** | 5.03 | 5.48 | 5.00 | 5.15 |
| **C** | 8.34 | 7.10 | 4.60 | 5.43 |
| **C-** | 3.89 | 4.33 | 2.87 | 2.61 |
| **D+** | 1.68 | 0.90 | 1.09 | 1.22 |
| **D** | 3.22 | 1.26 | 1.95 | 1.86 |
| **D-** | 1.28 | 1.26 | 1.38 | 0.80 |
| **F** | 7.52 | 2.95 | 4.42 | 6.26 |
| **I** | 0.42 | 0.66 | 1.29 | 0.26 |
| **NC** | 1.26 | 0.12 | 0.52 | 2.55 |
| **RD** | 0.04 | 0.00 | 0.00 | 0.00 |
| **RP** | 0.01 | 0.00 | 0.43 | 0.00 |
| **W** | 1.02 | 0.48 | 0.55 | 0.89 |
| **AU** | 0.03 | 0.00 | 0.00 | 0.00 |
| **WU** | 1.66 | 1.32 | 1.18 | 1.98 |

*Table 2. Percent of the lettered grade from face-to-face, ITV, hybrid, and online courses*

In Table 3, results are aggregated to compare the **percent of students receiving a passing grade of C or above** across the entire CSUB student population. The results show a higher percent of students passing a hybrid or online class than a face-to-face class.

| GRADES | FACE-TO-FACE | ITV | HYBRID | ONLINE |
|---|---|---|---|---|
| **C OR ABOVE** | 70.21 | 84.29 | 79.32 | 72.96 |

*Table 3. Percent of student receiving a passing grade or above across teaching platforms*

In summary, online and hybrid instruction, as an alternative to face-to-face teaching, not only surpassed the enrollment of ITV that was established in the mid-1990s, but also provided a better chance than the face-to-face alternative to support student course completion at CSUB (Table 3).

## Comparison of GPA Outcomes across Student Demographics

In the CSUB service region, Kern County has been ranked as one of the lowest regions in access to adult education across the United States (Brookings Institution, 2010), and Bakersfield was ranked as one of the least educated metropolitan areas in the nation (Zumbrun, 2008). The course enrollment data in AR 2016-17 also showed that 63.6% of the CSUB student population belong to underrepresented minority (URM) groups. In addition, 61.6% of the local enrollments were females, 57.4% were Pell-eligible, 56.8% had Hispanic/Latino origin, and 30.3% of the student population experienced remediation training in English and/or mathematics. With the grade points configured for the letter grade scale, the average grade point (GPA) is presented for these demographic categorizations across different teaching platforms (Table 4).

| Demographics | | Face-to-Face | ITV | Hybrid | Online |
|---|---|---|---|---|---|
| **Minority Representation** | URM | 2.55 | 2.92 | 2.88 | 2.76 |
| | Non-URM | 2.89 | 3.14 | 3.27 | 2.96 |
| **Gender** | Female | 2.74 | 3.01 | 3.07 | 2.88 |
| | Male | 2.58 | 2.97 | 2.91 | 2.75 |
| **Pell-Eligible** | Yes | 2.54 | 2.91 | 2.72 | 2.73 |
| | No | 2.87 | 3.13 | 3.31 | 3.00 |
| **Remediation** | English and Math | 2.15 | 2.61 | 2.28 | 2.46 |
| | English Only | 2.41 | 2.72 | 2.49 | 2.75 |
| | Math Only | 2.23 | 2.91 | 2.30 | 2.47 |
| | None | 2.87 | 3.07 | 3.25 | 2.93 |

| | | | | | |
|---|---|---|---|---|---|
| **Ethnicity** | American Indian | 2.81 | 3.01 | 3.32 | 2.79 |
| | Asian | 2.83 | 2.99 | 3.06 | 2.97 |
| | African American | 2.38 | 2.72 | 2.71 | 2.40 |
| | Hispanic/Latino | 2.57 | 2.95 | 2.90 | 2.82 |
| | Native Hawaiian | 2.77 | 3.30 | 3.68 | 2.93 |
| | White | 2.96 | 3.19 | 3.41 | 3.01 |
| | Multiple Races | 2.81 | 3.10 | 3.03 | 2.91 |

*Table 4. GPA distributions across instructional mode and demographics.*

The choice of demographic variables in Table 3 was guided by a document of the CSU Chancellor's Office, *Outline for Reporting SQuAIR Results, August 2017*. In reviewing of that document, the CSUB research team attempted to obtain student data on *first generation status*. A colleague of the CSUB's OIRPA office responded,

> Students are not required to provide first generation status data in their CSU Mentor/Cal State Apply application; hence, that is the reason why there are gaps for this particular variable. Without a response from a student, we have no way of knowing whether they are a first generation student. (Personal Communication on 10/3/2017).

To amend the data gap, additional information gathering would demand extra time to establish a protocol for IRB approval, which will far exceed the one-week workload for the report completion. Given the time constraint, interpretation of the GPA comparisons is delimited to these demographic variables aggregated in Table 4:

- On the URM dimension, independent sample t tests were conducted in each teaching platforms to show a significant gap of GPA between URM and Non-URM students at $\alpha$=.0001. Despite the consistent difference, the results in Table 4 demonstrated

higher GPAs for *online* and/or *hybrid* students than the GPA for their peers in *face-to-face* courses.

- Regarding the gender difference, statistical testing indicated a significantly higher GPA for female students than male students across face-to-face, hybrid, and online platforms. Students in ITV course sections did not demonstrate significant gender differences in the GPA records. On average, students in online and/or hybrid courses had a higher GPA than students in face-to-face classes, regardless of the gender grouping.
- The *Pell-Eligible* criterion showed a significantly lower GPA for the eligible group across all teaching platforms. In comparison, GPA for face-to-face students was lower than the other student groups.
- A statistical F test indicated significantly higher GPAs for students without remediation requirements. Students with both remediation courses in English and mathematics had the lowest GPAs across the four teaching platforms in Table 4. Again, students in hybrid or online classes achieved higher GPAs than their peers in a face-to-face class.
- On the ethnicity dimension, African American and Hispanic/Latino groups obtained lower GPAs than other groups in Table 4. Except for the category of American Indian, GPA of face-to-face students were lower than that of their peers in the corresponding ethnic groups under other teaching platforms.

In summary, student learning outcomes, as represented by the GPA index, demonstrated better course performance for the online and/or hybrid groups than the face-

to-face group across the demographic classifications of student URM, gender, Pell-eligibility, and remediation status.

## SQuAIR Survey Results

Five CSU campuses participated in collection of Student Course Survey Data (SCSD) to evaluate student learning experiences in both online and hybrid courses taught by faculty who have successfully completed Quality Assurance training and/or certification. The instrument is aligned with the QM CORE/QOLT essential standards, and has been administered in Summer, 2017. A total of 103 CSUB students responded to this survey. The 25 survey items are classified into eight groups to reflect student course experiences in (1) Course Overview and Introduction, (2) Assessment of Student Learning, (3) Instructional Materials and Resources Utilized, (4) Student Interaction and Community, (5) Facilitation and Instruction, (6) Technology for Teaching and Learning, (7) Student Support and Resources, (8) Inclusivity, Accessibility, and Navigability.

To facilitate the result summary, the six-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Somewhat Agree, 5=Agree, 6=Strongly Disagree) is treated as an interval scale to compute means and standard deviations that describe the central tendency and variability of the data distribution in each of the eight categories (Table 5).

| Category | N | Mean | Std Deviation |
|---|---|---|---|
| Course Overview and Introduction (4 items) | 102 | 19.04 | 1.67 |
| Assessment of Student Learning (4 items) | 100 | 18.76 | 2.05 |
| Instructional Materials and Resources Utilized (3 items) | 93 | 14.01 | 1.89 |
| Student Interaction and Community (2 items) | 99 | 9.10 | 1.78 |
| Facilitation and Instruction (4 items) | 97 | 18.56 | 2.36 |
| Technology for Teaching and Learning (2 items) | 93 | 9.05 | 1.53 |

| | | | |
|---|---|---|---|
| Student Support and Resources (2 items) | 89 | 9.10 | 1.77 |
| Inclusivity, Accessibility, & Navigability (4 items) | 95 | 18.69 | 2.18 |

*Table 5. Descriptive Statistics of the CSUB Student Survey Responses*

When the number of items is considered in the student ratings, the per-item responses reached a point above 4.5 on the six-point scale across all eight categories in Table 5. The highest average rating of 4.76 occurred in a category of *Course Overview and Introduction* while categories *Student Interaction and Community* and *Student Support and Resources* tied at the lowest rating of 4.55. With a rating range less than 0.11, the results demonstrated consistent approval of CSUB online and hybrid instruction by the survey respondents across the eight scales of SCSD.

It should also be noted that the response counts (N) vary across these eight scales in Table 5 due to missing data in the survey outcomes. However, the rate of missing responses is less than 10% of the accessible sample, which is below the nonresponse tolerance threshold set by the standard of the National Center for Education Statistics[3]. Details of the survey findings at CSUB, including the sorted results for free-response items, can be found from the previous version of the CO report, "Report for the CSU Quality Assurance Program: Survey Findings about CSUB Student Learning Experiences in Summer, 2017"[4].

| Category Label | $\overline{X_1}$ | $\overline{X_2}$ | df | t | p | Effect Size |
|---|---|---|---|---|---|---|
| **C1** | 18.77 | 19.21 | 100 | 1.29 | .20 | 0.26 |
| **C2** | 18.39 | 19.98 | 98 | 1.40 | .16 | 0.28 |
| **C3** | 13.74 | 14.17 | 91 | 1.06 | .29 | 0.22 |

[3] https://nces.ed.gov/statprog/2002/std4_1.asp
[4] http://www.csub.edu/~jwang/TLC.pdf

| | | | | | | |
|---|---|---|---|---|---|---|
| **C4** | 8.61 | 9.41 | 97 | 2.24 | .03 | 0.45 |
| **C5** | 17.95 | 18.95 | 95 | 2.08 | .04 | 0.43 |
| **C6** | 8.94 | 9.12 | 91 | 0.54 | .59 | 0.11 |
| **C7** | 8.58 | 9.45 | 87 | 2.33 | .02 | 0.50 |
| **C8** | 18.19 | 19.02 | 93 | 1.82 | .07 | 0.38 |

*Table 6. Test of the Rating Differences between Online and Hybrid Student Respondents*

Among the 103 respondents, 39 students enrolled in hybrid courses and 64 students took online courses in AY 2016-17. To accommodate the margin of the tabulation, these categories are labeled sequentially as C1-C8 in Table 5. The mean ratings from the hybrid ($\overline{X_1}$) and online ($\overline{X_2}$) respondents are subjected to statistical testing in Table 6. Following the guideline from an APA publication manual (American Psychological Association, 2001), effect sizes are computed to avoid statistical artifacts due to large samples.

Although the survey ratings are more positive from online students than their peers in hybrid courses across all eight categories (Table 6), the statistical testing shows significant differences in the survey findings across categories of *Student Interaction and Community* (C4), *Facilitation and Instruction* (C5), and *Student Support and Resources* (C7) at $\alpha$=.05. The corresponding effect sizes are above 0.40, confirming a moderate impact in student responses due to the online and hybrid course settings.

In summary, the student survey indicated a positive rating for online and hybrid instruction across eight categories in Table 5. Online instruction was viewed by the respondents as a more supportive platform than hybrid teaching in terms of enhancing student interaction, community, and resource supports (Table 6).

## Conclusions

This report is built on collaborative efforts across several offices of CSUB to merge a comprehensive database for examining the impact of QA professional development on faculty teaching performance and student learning outcomes through online and hybrid instruction. The institutional support for faculty training has led to rapid growth of student enrollment in online and hybrid instruction. Accompanied with the participation of local instructors in QM and/or QOLT reviews are certifications of nearly 200 courses across all four academic schools at CSUB.

In this study, the effectiveness of quality assurance is confirmed by a comparison of student performance data across different teaching platforms. In particular, students in online and hybrid classes demonstrated a higher chance to achieve an A grade than their peers in a face-to-face class (see Table 2). The percent of students **receiving a passing grade or above** was also higher in online and hybrid courses than face-to-face courses (see Table 3). Across demographic classifications of the student body on *UMI, Gender, Pell-Eligible,* and *Remediation* dimensions, students in online or hybrid courses earned slightly higher GPAs than their peers in face-to-face classes (see Table 4). The positive outcomes were substantiated by consistent results of a student survey pertaining to the QM CORE/QOLT essential standards (Table 5).

In comparison to the previous version of the CO report, the scope of this report is expanded beyond an analysis of the student survey data last Summer to include results of transcript analysis, training record aggregation, demographic information gathering, and probabilistic inference. As a result, the report development has completely conformed to

the *Outline for Reporting SQuAIR Results, August 2017*, a guiding document from the Chancellor's Office. Based on the resulting triangulation, this report concludes with an assertion to support the CSU system-wide capacity building through the SQuAIR project.

To sustain the ongoing progress, FTLC of CSUB is introducing a new program this academic year to guide faculty through the development of online or hybrid courses. Ten participants will be recruited in the Online Academy with a purpose to provide them with the knowledge and support they need to build a complete course and become certified to teach online. Participants will be given opportunities to collaborate with one another and utilize available facilitators to brainstorm, organize and develop their course. Upon completion of the monthly workshops, they will submit courses for an internal review to complete the certification process.

## Recommendations

Because this first project guided by the online reporting template, it is prudent to identify opportunity for improvement prior to the report completion. In this regard, it should be noted that the SQuAIR Survey data were not gathered from a random student sample, nor did the student sampling cover a contrast group from face-to-face instruction for result comparison. As a result, the CSUB respondents came from course sections taught by 10 instructors in AR 2016-17. An analysis of GPA from these classes showed significant differences between the surveyed students and the general student body at CSUB in academic achievement, which justified speculation on confounding variables behind the population representation.

Like in any data matrix presentation, subject representation only represents one dimension of the survey design. On the variable dimension, it was already noted on page 12 that CSUB did not have adequate data to differentiate the first-generation college students, nor did the university have the legal authority to require that information for student admission. In addition, half of the 10 instructors who taught courses for these SQuAIR survey participants did not provide demographic information, such as **years of teaching** online or in higher education. The CSUB team conducted a sensitivity analysis to assess the impact from the missing demographic variables. While the current literature indicated the **length of teaching experiences** as an indicator to differentiate novice vs. experienced instructors, researchers reported that "most new instructors (those with less than one year of teaching) were very receptive to and appreciative of" the professional development pertaining to online teaching[5]. It was also reported that some experienced (more seasoned) faculty members were more resistant to engage in professional development[5]. Thus, it remains unclear whether the exclusion of certain demographic variables will necessarily undermine validity of a project like SQuAIR.

In summary, consideration of the future recommendations is inseparable from the voluntary natures of the data gathering. For instance, 64 out of the 103 CSUB participants in the last SQuAIR survey came from a class section that was taught by one instructor. For the remaining one third of the instructors, each received only one student response. In retrospect, the Chancellor's Office was considerate in clarifying the original intention of

[5] http://www.westga.edu/~distance/ojdla/summer162/eskey_roehrich162.html

the information gathering, i.e., "This survey is NOT an evaluation of your instructor's teaching performance"[6]. It seems important to continue the practice of not only *indicating what the data are intended to represent*, but also *clarifying what data are NOT designed to measure*.

[6] http://www.surveygizmo.com/s3/2746632/CSU-QA-Course-Survey

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