Bronco Scholar – An Online Hub for STEM Student Research
Dr. Winny Dong, Dr. Laurie Riggs, Dr. Rebecca Eddy, Monique Matelski, Katherine A. Azurin, and Suzanna Conrad
California State Polytechnic University, Pomona, Cobblestone Applied Research & Evaluation, Inc.

Background
Undergraduate research (UR) is a commonly cited best-practice for increasing participation in STEM, especially in low-income, underrepresented minority, and first-generation students.

While approximately 20% of Cal Poly Pomona (CPP) students participate in UR, only 4% of undergraduate students go on to publish their work in peer-reviewed journals. The small amount of published research creates the illusion that UR opportunities are rare and only the most accomplished students can participate in UR.

As part of an effort to create a culture of UR at CPP, the NSF STEP team has collaborated with the University Library to establish an online repository, which provides alternative dissemination opportunities for UR.

What is Bronco Scholar?
Bronco Scholar is an open access, online repository that houses faculty-approved scholarly & creative output.

Bronco Scholar serves as a point of reference for students who are interested in UR, allowing them to showcase their work and explore various UR opportunities at CPP.

Promotion Efforts
Shortly after launch, a marketing plan was developed for the purpose of informing the campus community of the new service. Promotion/dissemination efforts include:

- Promote on various mediums (e.g., social networking sites)
- Developed & piloted accessibility training
- Created submissions guideline and instructions video
- Developed video promotional content
- Created brochures targeting UR programs and faculty across department
- Developed “talking points” to train subject librarians staff
- Designed and piloted “digital badges” to highlight student accomplishments
- Added promotional (and rotating) banners to the library website & Bronco Scholar
- Disseminated information at presentations outside CPP community (e.g., CSU ScholarWorks Conference, SoCal Code4Lib, Digital Initiatives Symposium, Council on Undergraduate Research, etc.)

Discussion/Next Steps
- Bronco Scholar is a form of non-traditional publication open to all student researchers and thus serves as an example of high-quality work and encouragement to conduct one’s own research project.
- Faculty are quick to respond positively to student submissions while also commending its benefits.
- Initial demographic information is being collected with Google Analytics to further understand Bronco Scholar usage.
- Bronco Scholar is expanding with the research climate at CPP to be inclusive of undergraduate research in various formats, such as creative works, across disciplines.

Further efforts to refine and promote Bronco Scholar will continue. Bronco Scholar improvements include:

- Enhance current software
- Hire additional staff
- Further collaborate with campus departments (e.g., eLearning)
- Apply for future grant funding (e.g., NSF, IUSE)
- Disseminate repository information through article submissions/presentations

Bronco Scholar Content
Student Research
- CPP Student Research Conference (SRC) abstracts, posters, and presentations
- Southern California Conference for UR (SCCUR) & Bridge Program Posters
- CPP Student Theses & Dissertations
- Achieve (Title III), Engineering (S-STEM), & McNair Scholar Profiles

Learning Objects
- CEMaST, Physics, and Astronomy
- eLearning link up

Publications
- Journal of East West Thought
- Ad hoc faculty publications/data
- McNair Scholars Journal

The website can be found at http://broncoscholar.library.cpp.edu

Impacts
The following table presents supporting data across Bronco Scholar goals. Data sources include Google Analytics and surveys collected from evaluations of undergraduate research programs (i.e., Achieve Scholars) or efforts at CPP (i.e., STEP grant). The timeframe for Google Analytics data is from 2/28/2014 until 3/01/2016.

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<th>Goal</th>
<th>Supporting Data</th>
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<td>Document frequency of on-campus UR</td>
<td>Since its launch, overall uploads and downloads to and from Bronco Scholar have increased (see Figure 1). Bronco Scholar started with 15 UR items and currently has approximately 315 UR items.</td>
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| Provide dissemination opportunities | Dissemination opportunities have been provided as evidenced through the frequencies of uploads and downloads to date.  
- 315 total UR items uploaded  
- 2,405 total UR objects downloaded  
Initial demographic data indicates CPP students are benefiting from the dissemination of UR available in Bronco Scholar |
| Increase student awareness of UR opportunities | Promotional efforts such as library website, banners, and promotional materials have been used to raise student awareness.  
In collaboration with STEP and Bronco Scholar, the OUR posts UR opportunities on its website and social media pages |
| Increase student interest in UR | Overall, 88% of Bronco Scholar downloads consist of student research suggesting an overall interest (see Figure 2).  
Analysis of downloaded content suggests that users are accessing Bronco Scholar to “engage” in the culture of research at CPP.  
Two new grant funded initiatives, the Achieve and Engineering Scholars programs, are extensions of the STEP and Bronco Scholar efforts.  
Of those who responded, 25 of 29 Achieve Scholars (86%) agreed they plan to upload documents to Bronco Scholar in the future |
| Showcase UR by students at CPP | Library developed banners and announcements display when new UR collections were made available  
Contributions from UR program and conferences are added annually  
Bronco Scholar features student profiles from those who participate in the McNair, Achieve, and Engineering Scholars programs |

Figure 1. Bronco Scholar Uploads and Downloads since Launch
Downloads compared to rising usage

Figure 2. Bronco Scholar Downloads by Location
Downloads by Location

Global Usage
- Los Angeles Metro 2%
- Pomona 5%
- Conference 3%
- Student Research 85%
- McNair Research 85%
- McNair Research 85%
- McNair Research 85%
- McNair Research 85%
- McNair Research 85%