BRCC to LSU Engineering Pathway to Success

Mrs. Sarah Cooley Jones, Louisiana State University
Dr. Warren N. Waggenspack Jr., Louisiana State University
BRCC to LSU Engineering Pathways to Success

ABSTRACT

The National Science Foundation (NSF) S-STEM funded scholarship program, Engineering Pathway to Success, is a joint effort of the College of Engineering at Louisiana State University (LSU) and Baton Rouge Community College (BRCC), and it supports the engineering degree progression program with students earning a BRCC associate of science in engineering and completing a bachelor’s of science engineering degree at LSU. Over three years, the program has provided scholarships and academic/ professional support to 24 students who demonstrate academic talent and financial need. Another 11 students will be added during year four. The primary goals of the program are: to utilize scholarships to create and sustain a pathway for BRCC transfer students and to develop a successful model for transfer students from other community colleges and 4-year institutions based on the experiences and outcomes of the project.

The Pathway Scholarship project in collaboration with the STEP 1B Engineering Grant has specific objectives that will support these goals. They are: (1) develop and maintain an effective liaison between BRCC and LSU; (2) utilize scholars to develop a peer ambassador/mentor program facilitating transfer success; (3) establish and conduct a pre-transfer academic counseling program; (4) expand existing seminars to orient and integrate BRCC and other transfer students into LSU and (5) invite BRCC math, science and engineering faculty to participate in ongoing Faculty Development.

Activities of the program to date have included outreach, professional development, advising, and developing an overall assessment tool. All scholars participated in outreach activities that consisted of Peer-to-Peer talks at BRCC each semester and Shadow Days at LSU for BRCC students. The Pathway scholars have been incorporated into the formalized College Peer Mentor Training program and participated in the Transfer Career Day for new transfer students. Advising for BRCC students was enhanced with the addition of a counselor who spends time at both campuses. Survey tools were created to gain a better understanding of the transfer students at key points of their academic career and to assess the program. The questionnaire has been administered to students considering transferring to LSU and Pathway scholars.

Scholarships have been awarded to three cohorts; Cohort 1- five students, Cohort 2 – seven students and Cohort 3 - twelve students. The eligibility and selection criteria included earning pre-engineering AS degree from BRCC with a 2.75 minimum cumulative GPA and financial need, and the selection committee included faculty and staff from both campuses. All scholars from Cohort 1 have graduated and their mean GPA was 3.22. Cohort 2 has entered the fourth semester at LSU (fall 2014), and the group mean GPA is 3.00. Program retention for Cohort 2 is 66% and engineering retention is 100% (one student went to part-time status as engineering major and another transferred to another university as an engineering major). Cohort 3 students have entered either the second or third semester at LSU (fall 2014), and the group mean GPA is 3.06. Retention for Cohort 3 is 100%. These preliminary results indicate that the Pathway scholars will have a graduation rate that greatly exceeds the historical (2003-2009) 25% rate for BRCC transfers to LSU. Overall, the Pathway Scholar Program is rated very highly by the scholars according to the questionnaire, and the program is delivering on its promise of supporting the students financially so they can focus more on their education, and connecting students with others in their field.
INTRODUCTION

In 2010, BRCC and LSU formally agreed on developing a degree progression program with students earning a BRCC associate of science in engineering and completing a bachelor’s of science engineering degree at LSU. Numerous factors and demographics suggested that a joint effort between the State’s largest and fastest growing community college system (BRCC) and the Louisiana’s Flagship University (LSU) would help yield additionally trained engineers for Louisiana’s workforce. First, the State of Louisiana does not produce enough engineers to meet its yearly demand. All engineering programs combined (7 Colleges of Engineering in the State) graduated 814 B.S. level students in the 2008-09 academic year while the state demand was 1,150. Louisiana State University (LSU) graduated 42% of all engineers in the state during the 2008-09 academic year. Second, many students strive to enter LSU but do not meet the institution’s entrance requirements as an incoming freshman, and thus begin their academic career at a community college. Third, numerous Baton Rouge Community College (BRCC) students have stated that they actively choose to attend BRCC for their first two years due to lower cost, smaller campus, smaller student body and convenient class times (early morning, nighttime and weekend). Fourth, the state appropriations for Higher Education have been reduced several times over prior years and further reductions anticipated into future fiscal years. Thus, strategic alignments of 2- and 4-year programs would help alleviate some costs to the higher education system by encouraging more students to begin their careers at a community college. Last, the socio-economic demographics of the state suggest that many talented, but financially needy students are not afforded opportunities to achieve an education at a 4-year institution. Thus, the demographics of a community college tend to vary vastly from that of LSU in terms of race/ethnicity/family education level. This scholarship program will help Louisiana State University, Baton Rouge Community College and the State of Louisiana meet the present and predicted future engineering workforce demands. In addition, the BRCC-LSU partnership will serve as a model that can be transported to other community colleges in the State to afford educational opportunities at LSU to a larger and more diverse population of Louisianans who may not have the resources or the confidence to enter LSU as true freshmen.

The NSF S-STEM funded scholarship program, BRCC to LSU Engineering Pathway to Success, is a joint effort of the College of Engineering at LSU and Baton Rouge Community College (BRCC). The five-year S-STEM project focuses on students who transfer from BRCC to LSU, demonstrate academic talent, and have a financial need and the first year of implementation was 2011. This five-year grant supports the collaborative effort and will provide scholarships and academic/professional development to approximately 36 engineering undergraduate students over the course of the entire program. The two primary goals of the program are to:

1. Utilize the S-STEM scholarships to create and sustain a pathway of success for the target students.
2. Develop a successful pathway model for transfer students from other community colleges and 4-year institutions based on the experiences and outcomes of the project.

The Pathway Scholarship project in collaboration with the STEP 1B Engineering Engagement Grant has specific objectives that will support meeting the overall needs of the state and specific goals. They are: (1) develop and maintain an effective, collaborative liaison between BRCC and LSU personnel with each having key and joint roles; (2) utilize a selected group of BRCC transfer students already at LSU to develop a peer Ambassador program to help facilitate the transfer process and promote success; (3) establish and conduct a pre-transfer academic counseling program building upon the recently established MOU and utilizing counselors from both institutions; (4) expand and enhance the existing NSF sponsored S-STEM project seminar series to include the orientation and integration of BRCC and other transfer students into the LSU student body; (5) provide opportunities for BRCC and other area community college students to participate in the activities of LSU professional student organizations; and (6) invite BRCC math, science and engineering faculty to participate in the ongoing Faculty Development Program, which is part of LSU’s existing NSF-sponsored STEP Project. The successful implementation of these objectives and supporting activities will in turn help increase the number of transfer students seeking and obtaining a BS degree in engineering from LSU.
SCHOLARSHIP CRITERIA AND APPLICATION

The eligibility and selection criteria for the scholarship are: earn pre-engineering AS degree from BRCC; have a BRCC 2.75 minimum cumulative GPA; demonstrate financial need as determined by FAFSA cost of attendance; and exhibit success oriented attributes- motivation, leadership and professional orientation. The first cohort of scholars were selected from BRCC transfer students who had completed one semester at LSU and were not required to have an pre-engineering AS degree due to the newly approved BRCC degree program. The scholarship program focused on identifying current BRCC students through the engineering program liaison, KE and LSU outreach activities. The scholarship was offered each fall and spring semester and potential AS degree graduates were sent emails with the scholarship application in May and November each year and an announcement with application information was posted on the LSU College of Engineering website.

Applicants submitted a comprehensive application packet that included a transcript of college work; a resume listing work experience, achievements, honors, awards, participation in professional student organizations; a personal statement of career goals; a financial need statement and two letters of recommendation. The number of students graduating with the AS in Pre-Engineering from BRCC has increased each semester, thus, selection became more competitive.

PARTICIPANTS

The scholarships have been awarded to four cohorts with five students selected in 2011-2012 (Cohort 1), seven students selected in 2012-2013 (Cohort 2), twelve students selected in 2013-2014 (Cohort 3) and twelve students selected in 2014-2015 (Cohort 4). This paper discusses the results from the first three cohorts only.

Scholars

Cohort 1 (2011-2012)

The first cohort of five students (Figure 1) received the Pathway Scholarship in fall 2011. The emphasis of the Pathway Scholarship Program continues to support the scholars financially and provide critical support for their success. With this in mind, three scholars who were in their third year had their scholarships extended until graduation, and this was based on their academic performance and funds available as a result only six of the ten new scholarships were awarded in 2012-2013.

The engineering majors represented by this cohort were chemical, civil, electrical, mechanical and petroleum, and they entered LSU as transfer students in the fall 2010 or spring 2011 semester. The scholars’ academic performance at selection (i.e. at the end of the spring 2011 semester) was on average well above the scholarship criteria, and demographics indicate that the program attracted underrepresented groups (Table 1).

Cohort 2 (2012-2013)

One BRCC student received the Pathway Scholarship for fall 2012, and five students who applied for 2013 spring semester and met the criteria, received the scholarship. It was also decided to award one scholarship to a current LSU student who applied with the first cohort. The engineering disciplines of this cohort were: five mechanical majors, one electrical major and one
Table 1. The GPA of scholars at selection and demographics for the Pathway Scholarship cohorts were summarized.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent (%)</td>
<td>Number</td>
</tr>
<tr>
<td>Mean cumulative BRCC GPA</td>
<td>3.47</td>
<td>-</td>
<td>3.39</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>80</td>
<td>6</td>
</tr>
<tr>
<td>Asian American</td>
<td>1</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Black/African American</td>
<td>1</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

environmental. The academic performance of this cohort at selection was also well above the scholarship criteria, and the demographics were in line with the previous cohort (Table 1).

**Cohort 3 (2013-2014)**

Six BRCC students received the Pathway Scholarship for fall 2013, and six students received the scholarship for the spring 2014 semester. The engineering disciplines of this cohort were: two civil, five electrical, three mechanical and two petroleum majors. The academic performance of this cohort at selection was also well above the scholarship criteria, and the demographics were diverse with respect to race/ethnicity but lacked female representation (Table 1).

**PROGRAM ACTIVITIES**

Within the framework of the scholarship program, activities were initiated during the first year and refined and expanded during years two and three. The overall goals of these programs were to promote the success of the scholarship recipients and engage potential BRCC engineering transfer students. Given that all allotted scholarship were not filled during the 2012-2013 year, significant efforts were continued to recruit BRCC transfer students for the 2013-2014 year. These activities included outreach to BRCC, seminars, advising and promotion of employment opportunities. The efforts were effective as 20 students applied to the program when Cohort 3 was selected versus only six for Cohort Two.

**Outreach**

It was deemed important to have all the scholars participate in outreach activities and utilize resources that promote success. The scholars have participated in Peer-to-Peer talks at BRCC and LSU Shadow Days held each semester beginning with the first year of the program. The scholars from all cohorts have visited BRCC classes in the fall and spring semester for the Peer-to-Peer talks, and each scholar participated in the presentation and answered questions from current BRCC students. The BRCC class schedule added a mid-day meeting break and lunch information session was also added as part of the Peer-to-Peer talks in 2014. During the spring visit, the newly selected spring 2014 Pathway Scholars were also included, and they visited six classes at BRCC. The 2013 -2014 Shadow Days used Pathway scholars as classroom hosts.

**Peer-to-Peer Talks**

BRCC classes at various points of the AS Pre-Engineering curriculum were visited in an attempt to reach more students, and to engage the students at an earlier point in their academic career. Each fall and spring semester, Peer-to-Peer talks were held over two days whereby the current Pathway Scholars, participating as Pathway Ambassadors, went to BRCC classes to recruit transfer applicants. Each semester, presentations were made to math classes (differential equations, calculus I, II, and III), physics classes and engineering classes (statics.) During the talks, there was a presentation by LSU staff and Pathway Scholars whereby information was provided, and questions were answered. Also, the Pathway Scholars were able to communicate their experiences in the program. Typically, a total of 100 BRCC students were reached each semester. The majority (~85%) of the participants indicated engineering as their major, and the remainder indicated other STEM disciplines.
An informational lunch on the BRCC campus was added to the outreach activities in spring 2014, and it served as a supplemental session to the Peer-to-Peer Talks. This allowed attending students to ask detailed and follow-up questions about the Pathway Scholarship Program and engineering programs at LSU. Several current Pathway Scholars attended and helped answer questions from the student perspective.

**Shadow Day**

The 2011 Pathway Scholars (Cohort 1) recommended that potential BRCC transfers visit the LSU campus to help alleviate some of the concerns a transfer student would have. These concerns ranged from being overwhelmed by a much larger physical campus, large class size and transfer logistics. During the Peer-to-Peer talks at BRCC, Shadow Day information was provided, and students were able to register for a time and course that they would like to attend at LSU during the designated “BRCC at LSU Shadow Day.” Registration forms were also provided to the BRCC liaison and BRCC transfer counselor. Each semester, the interest by the students was high at typically 20-25 students registering for the visit, but only about half of them participating. The students who participated toured the engineering building, attended at least one class related to the area of their intended engineering major with a current Pathway Scholar, and met LSU staff and counselor for a wrap up session to answer questions.

**Workshops**

In conjunction with the STEP IB grant objectives and tasks, the LSU College of Engineering held a career orientation workshop (Transfer Career Day) for all transfer students immediately before the start of the 2014 spring semester. The goals of this workshop were to:

- Connect transfers to current LSU engineering students.
- Provide information about engineering internships and careers.
- Encourage student organization involvement.
- Familiarize students with details about the LSU Olinde Career Center and the online application process.

The workshop participants were recruited by emails sent to transfer students who were admitted for spring 2014, and 16 students attended out of the 46 transfer students entering LSU as of December 2013. The newly selected Pathway Scholars participated in this event. Five current LSU engineering students who had the Pathway Scholarship assisted as mentors during the workshop. The agenda consisted of an icebreaker teambuilding activity with Peer Mentors; a panel session with student leaders on the benefits of actively participating in student organizations; lunch with industry engineers with a panel discussion; tours of key engineering facilities and laboratories; and a presentation on accessing the LSU Olinde Career Center services and preparing a professional resume. This workshop format was repeated for fall 2014 and spring 2015 transfers, and the Pathway Scholars contributed to program serving as peer mentors and student presenters.

**Seminars**

The Pathway Scholars were regular participants in the Professional Development Seminars that have been offered to LSU College of Engineering undergraduates served by the Diversity Initiatives Office. The topics varied from general student networking to career skills. Each winter the Pathway Scholars were included in the required book club reading that supports developing a strong work ethic, leadership and overall success. The selections were, *EntreLeadership* by Dave Ramsey, *QBQ! The Question behind the Question* by John Miller, and *It Worked for Me* by Colin Powell, and roundtable discussions were held during the first seminar of the spring semester.

The Pathway Scholars were also incorporated into the formalized College Peer Mentor Training program that was held in two, five-hour sessions. This training covered a variety of topics and activities to prepare them as mentor to incoming students and develop leadership.

**Advising Meetings & Communications**

The Pathway Scholars were required to meet with a staff member from the Diversity Initiatives Office on a regular basis. The purpose of these meetings was to cover critical areas that contribute to being a successful student, and the meetings were held with the scholars as a group and with individual students. Each student was required to improve his/her resume and utilize all the resources of the LSU Career Services. Students were encouraged to actively participate in student organizations to build their network of study groups and connections with employers.
As part of the STEP 1B Engineering Engagement Grant, a part-time (20 hours per week) engineering counselor was hired in 2013 to advise STEM students at BRCC and engineering transfer students at LSU. The person selected to fill the position had previously worked at LSU as counselor thus was well versed in advising engineering students.

Internships and Employment
The Pathway Scholars have entered the program with a variety of work experience, with much of it related to engineering, and they have reported working fulltime while taking courses at BRCC. All of the Pathway Scholars have reported a reduction in the number of hours worked during the academic year as a result of the financial support. The value of internships and engineering experience has been communicated to all students who participate in College of Engineering Programs. All five of the Cohort 1 Scholars had engineering internships prior to receiving their degrees. Of the Cohort 2 Scholars, four have had engineering internships and five of the students in Cohort 3 have held internships or a part-time engineering position during the school semester.

All five Cohort 1 Scholars have graduated, and they all hold permanent engineering positions in their respective fields.

ASSESSMENTS
The Pathway S-STEM Program has primarily been assessed using student academic performance and program elements surveys completed by students at the end of the each semester. A new assessment survey of current scholars and potential transfer students was developed for the Pathway Scholars program in fall 2012 (Appendix A), and this was done with a goal of providing information about students and their experiences that would help improve the program. The new student survey and the results have been detailed in the ASEE 2015 Conference submitted paper titled “BRCC to LSU Engineering Pathways to Success – Assessment Measures.”

Academic Assessments and Graduation
Cohort 1 Pathway Scholars had a mean cumulative GPA of 3.22 upon graduation, and this dropped from the group mean of 3.47 when they entered as scholars (Table 2). All scholars in this cohort maintained a cumulative GPA above the minimum 2.75 required to retain the scholarship. The very small drop in mean, cumulative GPA of this cohort during their tenure at LSU speaks clearly to the sound, academic rigor and preparation of the students while at BRCC. Retention in the scholarship program for this cohort was 100%. All five of the scholars from Cohort 1 graduated; two in May 2013, one in December 2013 and two May 2014.

To date, Cohort 2 Pathway Scholars have taken a range of sophomore to senior level engineering courses in their respective curriculums with five of the six scholars enrolled fulltime during 2013-2014 year. The LSU registrar’s office recalcultes entering students GPA based on all classes taken during a student’s academic career unless they declare academic bankruptcy that removes all college credit prior to a set date. This official recalculation does not occur until after the student enrolls in LSU. Three of the scholars attended other universities prior to starting the BRCC program and cumulative grades were negatively impacted by their early academic career, although the students performed well at BRCC (Table 3). With this recalculation, one student’s GPA actually fell below the 2.75 GPA minimum, and it was decided to keep the student as a Pathway Scholar. The mean cumulative GPA for this cohort while at LSU has remained stable at about 3.00. Program retention for Cohort 2 is 66% and engineering retention is 100% (one student went to part-time status as engineering major and another transferred to another university as an engineering major).

Table 2. The cumulative GPA’s for Pathway Cohort 1 (n=5 through spring 2013) trended slightly lower as indicated by the semester data.

<table>
<thead>
<tr>
<th></th>
<th>Spring 2011*</th>
<th>Fall 2011</th>
<th>Spring 2012</th>
<th>Fall 2012</th>
<th>Spring 2013</th>
<th>Fall 2013</th>
<th>Spring 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.47</td>
<td>3.37</td>
<td>3.28</td>
<td>3.23</td>
<td>3.22</td>
<td>3.22</td>
<td>3.46</td>
</tr>
<tr>
<td>Minimum</td>
<td>2.97</td>
<td>2.92</td>
<td>2.83</td>
<td>2.78</td>
<td>2.78</td>
<td>3.07</td>
<td>3.05</td>
</tr>
<tr>
<td>Maximum</td>
<td>3.91</td>
<td>3.67</td>
<td>3.63</td>
<td>3.64</td>
<td>3.65</td>
<td>3.43</td>
<td>3.26</td>
</tr>
</tbody>
</table>

* GPA at selection
Table 4. The cumulative GPA’s for Pathway Cohort 3 trended lower as indicated by the semester data.

<table>
<thead>
<tr>
<th>BRCC GPA</th>
<th>LSU 2012*</th>
<th>Fall 2013</th>
<th>Spring 2013</th>
<th>Fall 2013</th>
<th>Spring 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knockout</td>
<td>(n=12)</td>
<td>(n=7)</td>
<td>(n=4)</td>
<td>(n=5)</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.31</td>
<td>3.05</td>
<td>2.98</td>
<td>3.06</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>2.78</td>
<td>2.62</td>
<td>2.55</td>
<td>2.61</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>3.96</td>
<td>3.34</td>
<td>3.38</td>
<td>3.34</td>
<td></td>
</tr>
</tbody>
</table>

*Includes grades from all institutions attended and all classes taken regardless of repeat status.

During the first year at LSU, Cohort 3 Pathway Scholars took sophomore to junior level engineering courses in their respective curriculums with six scholars enrolled fulltime during fall 2013 and twelve enrolled in spring 2014. As a group, this cohort of students performed well at BRCC (Table 4). Six of these scholars attended other universities prior to starting the BRCC program and cumulative grades were negatively impacted by their early academic career, and the average drop was 0.23 on a 4.0 scale with one student having a 0.585 decrease on the four point scale. With the GPA recalculation, one student’s GPA actually fell below the 2.75 GPA minimum, and this student has steadily increased their cumulative GPA each semester and had a spring 2014 semester GPA of 3.92 taking 13 hours of engineering courses. Neither student was dropped from the scholarship program after the recalculated GPA, rather each student’s progress and academic performance was monitored each semester. Scholarship program retention for Cohort 3 after one year was 100%.

Activities
The Pathway Scholars were requested to self-report academic and professional development activities on a semester basis via an online survey that is linked with each scholar. The results indicate that as a group they were involved in professional development and community service (Table 5). The scholars seem to under-report their activities when they complete semester surveys. Many of the scholars do not report community building and recruitment although all of them have participated in Peer-to-Peer Talks and Shadow Days.

One of the goals of the scholarship program was to provide significant financial support that would alleviate a scholar’s need to maintain a heavy work schedule while enrolled in academically rigorous courses. A semester survey of the scholars indicates that seven of the scholars worked during the fall semester. The average number of hours worked per week was 15. For the spring 2014 semester, 12 students reported working with the weekly average at 12 hours. Also for the spring semester, six students were working 20 or more hours each week.

Overall Assessment
In order to fully assess the program and transfer student experiences, questionnaires were created by a PhD graduate assistant in Cognitive Psychology who has experience in scientific research methodology and statistics. There were two questionnaires administered in fall 2012, spring 2013, fall 2013, and spring 2014: one for the Current pathway scholars and one for the potential transfer students who attended Shadow Day (the Anticipating students). Both questionnaires assessed demographic information and information regarding their choice and feelings for choosing engineering as a career. The questionnaires also assessed any hurdles they expect to face by transferring to LSU or continuing in the program. The responses to these questions were compared between the two groups to determine potential effects of actually transferring to LSU. The results from the self-efficacy questions suggests that anticipating students rated this more...
Table 5. The Pathway Scholars reported activities for the 2013-2014 Academic Year as percent of participants.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Fall 2013 % (n = 14)</th>
<th>Spring 2014 % (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Support Services</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Career counseling/Job Placement</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Community Building</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Field trips</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Internships</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Meetings/conferences</td>
<td>46</td>
<td>42</td>
</tr>
<tr>
<td>Mentoring</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Recruitment</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Research Opportunities</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Seminars</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>None</td>
<td>31</td>
<td>35</td>
</tr>
</tbody>
</table>

Advisory Board

The Pathway Scholarship Program also utilizes an advisory board consisting of external and internal members including faculty and staff from LSU and BRCC as well as engineers from the community. The meetings have been held jointly with the S-STEP advisory board, and the emphasis has been on providing updates for both programs, the progress of incorporating components of each project into a comprehensive and coordinated plan, and the academic support of the STEP project via supplemental instructions. One of the primary recommendations to both programs was to collect and analyze the academic outcomes of participants in the programs.

CONCLUSIONS AND FUTURE PLANS

Overall, the Pathway Scholar Program is rated very highly by current students, and the program is delivering on its promise of supporting the students financially so they can focus more on their education, and connecting the students with others in their field to promote networking. Additionally, the Pathway Scholars from the first three cohorts, i.e. students who have completed at least 2 semesters at LSU, has yielded an engineering retention rate of 92% while maintaining scholarship eligibility. Based on the 100% graduation rate of Cohort 1 and current retention, the Pathway scholars will have a graduation rate that greatly exceeds the historical (2003-2009) 25% rate for BRCC transfers to LSU. Additionally, the survey results have been used to improve the program by adding targeted workshops focused on the needs of transfer students such as the Transfer Career Day. Some recommendations include: providing the same experiences for all students, better informing the students of all supportive resources available, and encouraging all students to work less outside of school.

The emphasis of the Pathway Scholarship Program will continue to support the scholars financially and provide critical information for their success. For the 2014-2015 year, the fourth and last cohort of 12 new Pathway Scholars was added, and this brings the total number of program scholars to 36. Additionally, the STEP project will provide supplemental instruction for key engineering barrier courses, and the Pathway scholars (and other transfer students) will be given information and data based evidence on how to best incorporate this additional academic support into an overall plan to succeed academically. This joint effort will address the hurdles of transfer students.

The College takes its commitment to the State very seriously and truly believes future partnerships with other institutions such as BRCC are critical to ensuring a diverse engineering workforce is trained.
References

In this section, you will be asked to think back to when you were about to transfer to LSU. Specifically, what were your concerns regarding the potential hurdles you were going to face?

1. Did you expect to face any ACADEMIC hurdles?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

2. Did you expect to face any PERSONAL hurdles?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

3. Did you expect to face any FINANCIAL hurdles?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

4. Did you expect to face any hurdles with FACULTY MEMBERS?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

5. Did you expect to face any hurdles with OTHER STUDENTS?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

6. Did you expect to face any hurdles with your FAMILY AND FRIENDS?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?

7. Were there any other hurdles you anticipated?
   a. If so, please describe them:
   b. How did you plan to overcome the hurdles?
   c. Did you actually experience these hurdles in your first year?
   d. If so, how did you overcome them?
SECTION 2

In this section, you will be asked to think about your concerns about your upcoming year at LSU. Specifically, what are your concerns regarding the potential hurdles you are going to face?

1. Do you expect to face any ACADEMIC hurdles?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

2. Do you expect to face any PERSONAL hurdles?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

3. Do you expect to face any FINANCIAL hurdles?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

4. Do you expect to face any hurdles with FACULTY MEMBERS?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

5. Do you expect to face any hurdles with OTHER STUDENTS?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

6. Do you expect to face any hurdles with your FAMILY AND FRIENDS?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?

7. Are there any other hurdles you anticipate?
   a. If so, please describe them:
   b. How do you plan to overcome the hurdles?
SECTION 3

In this section, you will be asked to rate the effectiveness of the program.

1. Which part(s) of the Pathway Scholars program have you found to be the MOST helpful in supporting you in your transition to LSU?
2. Which part(s) of the Pathway Scholars program have you found to be the LEAST helpful in supporting you in your transition to LSU?

Please rate to what extent the Pathway Scholars program has supported your transition to LSU based on the specified aspects.

Please use the following scale:

1-------------------2-------------------3-------------------4-------------------5

No Support at all A lot of support

1. Academic support:
2. Financial support:
3. Social support:
4. Career support:
5. Professional Development support
6. Personal support:

Why did you decide to apply to the Pathway Scholars program at LSU?

How effective was the recruitment efforts of the Pathway Scholars program?

How did you learn about the Pathway Scholars Program?

How easy was the application process for the Pathway Scholars program?
SECTION 4

In this section, please describe different aspects of your support system (friends and family).

1. What financially supportive role do you play in your family?
2. What emotionally supportive role do you play in your family?
3. Is your family financially supportive of your education plans?
4. Is your family emotionally supportive of your education plans?
5. Are your friends emotionally supportive of your education plans?
6. Do you know anyone in your personal life who is an engineer?
   a. If yes, who is this person in your life?
   b. Is he or she a mentor for you?
7. Do you belong to a student or professional organization?
   a. If yes, which one(s)
In this section, please provide some demographic information.

1. What is your gender?
   a. Male or Female

2. How old are you?

3. Please indicate your race/ethnicity (select all that describe you):
   a. American Indian/Alaskan
   b. Asian
   c. Black/African American
   d. Hispanic
   e. Native Hawaiian/Pacific Islander
   f. White
   g. Other (please describe)

4. Were you born in the USA?
   a. If not, please describe your immigration status

5. Are you married?
   a. If yes, for how long?
   b. What does your spouse do for a living?

6. Do you have children?
   a. If yes, how many? Ages?
   b. Are you the primary caregiver?
   c. Do you co-parent or are you a single parent?

7. Do you have a job?
   a. If yes, how often do you work per week?
   b. Is it related to the engineering field?

8. Have you ever served in the military?
   a. If yes, please describe the branch, highest rank and for how long

9. Did either parent graduate from college?
SECTION 6

In this section, you will be asked questions regarding your decision to go to school for engineering.

1. Why did you choose engineering? Check all that apply:
   a. Interest in mathematics and science
   b. Ability in mathematics and science
   c. Good financial rewards
   d. Information from a parent or friend
   e. Recommended by co-worker/supervisor
   f. Interest in electronics, electricity
   g. “I like it”
   h. Interest in mechanical things, building
   i. Seemed interesting, I thought I would like it
   j. Other; describe

2. How old were you when you chose engineering?

3. What are your ideal career goals in engineering?

4. Was there another field that you sincerely considered entering?
   a. If yes, why did you not pursue that field?
SECTION 7

In this section, you will be asked to answer questions regarding your experience in an engineering program.

Please use the following scale:

1------------------2------------------3------------------4------------------5

Strongly Disagree                       Strongly Agree

1. All faculty members treat me with fairness and respect
2. I feel that I am an equal participant in group work
3. I am comfortable approaching instructors for help outside of class
4. I have not felt discouraged about pursuing an engineering degree
5. I am comfortable asking questions in the classroom
6. I will be an excellent engineer