Title of SEM Project: **Fixing the Leaky Pipeline: An Equity-Minded and Data-Supported Approach to Improve Outcomes**

College: Orange Coast College

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Website: [http://www.orangecoastcollege.edu/Pages/home.aspx](http://www.orangecoastcollege.edu/Pages/home.aspx)

**Fast Facts**

- Fall 2019 Headcount: 20,259
- Fall 2019 FTES: 8,647.16
- Fall 2018 FTEF: 912.1
- Location: Costa Mesa, CA
- Structure: Multi-college district

**BACKGROUND & PURPOSE**

The Orange Coast College (OCC) SEM plan was to conduct a three-phase project using student-level data to identify and address areas needing improvement along our college’s enrollment pipeline. The pipeline encompasses all major steps in a student’s journey, beginning with application and continuing through completion of an educational goal. The project will focus on pinpointing and closing achievement gaps among different student groups, ensuring equity is at the forefront of analysis, interpretation, and improvement. Research has shown that student data can be a powerful resource for understanding patterns of student progression and achievement over time, can aid in understanding how students’ progress through their programs, and illuminate key barriers and college practices connected with successful student outcomes (Leinbach & Jenkins, 2008). A key component of the project was to integrate practitioners in the identification and building of the models using their expertise and viewpoints to ensure key variables are included.

The focus of this project was on using a data-supported approach to help further the College’s mission to “empower students to achieve their educational goals,” as well as, assist in the development of strategies in order to choose appropriate interventions that address the gaps in achievement and areas of improvement as outlined in the College’s Quality Focus Essay, ensuring equity is at the forefront of analysis, interpretation, and improvement.

Fixing the Leaky Pipeline was outlined as a three-phase project using student-level data to identify and address areas in need of improvement along the college’s enrollment pipeline. Phase 1 focused on creating quantitative predictive models of student outcomes based on the identified major steps of the students journey along the enrollment pipeline. Phase 2 plans on extending the results from phase 1 by gathering qualitative input on the results from senior leadership and student services and instructional practitioners. As needed, the team will then collaborate with relevant areas to conduct focus groups with students (including student equity groups) to identify specific areas for improvement. Phase 3 will involve utilizing the data and information gathered in the previous two phases to develop specific action plans for improvement in collaboration with cross-functional campus groups.
**PROCESS & PROCEDURES**

Project planning, designing, and implementation was facilitated by OCC’s Office of Institutional Effectiveness. The Office collaborated with the OCC SEM Team with consisted of practitioners from various campus areas such as outreach, enrollment, retention, instruction, and counseling. These practitioners provided valuable effort in preliminary literature reviews regarding best practices in the major steps of the student’s journey, as well as provided input on predictors for the predictive models. Collaborating with a cross-functional team on this project strengthens the ability for the outcomes to be integrated into the campus. Additional monies were found to fund for overtime pay of data work done by the research analysts and data science interns, as well as for time and travel for the OCC SEM team to attend SEM events.

**OUTCOMES & EFFECTIVENESS**

As this is the time that OCC has undertaken such a large data-driven project, the first year was largely dedicated to identifying and operationalizing pertinent data and building of the predictive models. Five models to be created focusing on registration, enrollment on census, course success & retention, persistence, & completion. Results of exploratory analyses and adjustment to the models were discussed with our cross-functional team. As the project evolved, the applicability of the predictive models at the program level gathered interest from the College’s Title V STEM grant. The grant had identified using predictive modeling to determine success factors and barriers that impact completion for OCC STEM students. As such, this effort has now been combined with the STEM grant and is expected to be extended at least through the duration of the grant.

**BENEFITS**

These predictive models with outcomes of registration, course success, retention, and completion will play a critical role in assisting our campus in closing the achievement gaps. This project will identify key areas that are valuable to achieving positive student outcomes and provide opportunities to bring together and coordinate initiatives across the campus, focusing on large-scale efforts and long-term planning. The project allows us to understand the critical institutional and student factors that impact our students progressing at points along the student journey. This allows us to strategically pinpoint the processes and services that can be evaluated, discontinued, modified and/or augmented for the highest impact. The project can tie into existing campus-wide initiatives, like Guided Pathways and Vision for Success. Additionally, when disaggregated by year, results from the models can inform the effectiveness of interventions that have been implemented historically and monitor new interventions in the future. Thus, this project will provide the opportunity to close achievement gaps, evaluate intersectional groups, and integrate planning and improvement efforts across campus.

**LESSONS LEARNED**

Major parts of the project have included locating historical data, redefining data points, understanding how data are/were collected and stored, and creating a process to help track these changes for future projects. Thus, the importance of documenting processes and data history was highlighted by this project. Additionally, one challenge to the implementation and continuation of this project is research resources. A greater amount of time and resources from our research staff were needed to this project,
including the procurement of additional statistical software to run analyses. Guidance from our SEM coaches proved crucial for the project and underscored the need to bring on additional staff with expertise in predictive analytics and decisions trees, and/or additional professional development for current staff.

**NEXT STEPS**
Next steps include presenting the findings campus-wide and to our design teams for Guided Pathways. In addition, we will share the findings with the practitioners whose work contributes to student success and work with them on recommendations for changes and encouragement to continue effective practices. Future models will incorporate feedback from practitioners and expanding them for the STEM grant. As the results are discussed with the campus, we will be highlighting the dynamic nature of predictive models and the need to adjust and maintain them as changes occur at the College.