

## The Higher Learning Commission Action Project Directory

### Des Moines Area Community College: Using High School Transcript Information to Predict Student Success

Project Details	
<b>Title</b>	Using High School Transcript Information to Predict Student Success
<b>Category</b>	1-Helping Students Learn
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#### 1: Project Accomplishments and Status

**A:** This project began with a goal of data entering transcript information from a random sample of 554 DMACC students to assess high school transcript's ability to predict student success. As has been discussed in an earlier update, only 350 student transcripts were data entered due to time and personnel issues. Because of these barriers, this project split into two parts. The first part was to use the 350 transcripts to determine if the data is valuable in predicting student success even if not generalizable to the DMACC student population. The second part of this project completed mostly during the 2011-12 academic year was to use predictive analytic software to create predictive models for student success using the data we gather on students prior to registering for classes.

Data from the 350 high school transcripts were matched with student data from DMACC's student information system (SIS) so that an analysis could be done that determines how well these 350 students did during their first term at DMACC. Specifically, each student was assessed whether they met the requirements for being placed on academic warning after their first term. Academic warning at DMACC is defined as having not completed at least 67% of the courses attempted or having a GPA less than 2.0 for that term. The statistical analysis revealed that their overall high school GPA, normalized high school rank, and overall GPA in English, math and social studies correlated well with student success. This information is valuable knowledge and will be addressed specifically in the next steps portion of this report.

Though transcript information correlated with student success, there are many other data elements that we collect and know about students through the recruitment, application and orientation processes prior to their enrolling in courses. Because the time and manpower involved with data entering complete high school transcripts prevents district-wide implementation, and electronic data transcripts are not yet available, DMACC decided to use predictive modeling to look at all the data we collect prior to registration to try to create models using this data that have more predictive power regarding student success than traditional placement exams. Models were created to determine likelihood of first time students receiving a C or better in English and Math courses taken during their first term. These models used 36 variables for more than 3,500 students during the past three years. Models were assessed against fall 2011 students with similar assessments for traditional ACT and Compass placement exams. Models for English and Math significantly outperformed traditional placement exams in their ability to predict student success.

**R:** As Des Moines Area Community College closes out this action project, the college is to be commended on its focus, adaptability, and ability to coordinate people and resources to focus on a critical issue that exists not only at DMACC, but nationwide. The original hypothesis has been proven and results of this project strongly suggest future action beneficial to student success. This project and its results fit within and support HLC Criterion 1 - Student Learning and Effective Teaching and Criterion 4 - Acquisition, Discovery, and Application of Knowledge as well as AQIP Category 3 - Understanding Students' and Other Stakeholders' Need and 8 - Planning Continuous Improvement.

The inclusion of predictive modeling appears to have greatly improved project results and is an important step in continuing to move the institution in the AQIP direction of data-informed decision-making and continuous quality improvement.

This project has potential to be considered a best practice and DMACC should consider how to disseminate its results, including project challenges, to a broader audience, not only within Iowa, but nationwide.

## 2: Institution Involvement

**A:** This project was coordinated by institutional effectiveness staff with input and direction from college leadership including the CAO, Academic Deans and Provosts. Input from math and English faculty was sought before and during the project. Key student services staff responsible for helping students make placement decisions were also important contributors to both the content of this project and determining next steps with the results.

**R:** DMACC is to be commended for broad institutional involvement. Including a wide-variety of internal stakeholders and ideas as this project evolved has obviously enhanced outcomes and likely gone a long way in helping the institution understand the action project's place within the college's student success initiatives. As an earlier reviewer suggested, outreach to K-12 stakeholders could enrich internal stakeholders' understanding of ways to enhance the important bridge between K-12 and post-secondary education. If the college has not done so already, it should consider how to share these results with its K-12 partners.

## 3: Next Steps

**A:** Though this project is closing as an AQIP Action Project, there remain several next steps based on the results of this project.

1. Though the results of this study have been shared with college leadership, the results need to be shared with more faculty and staff. To be successful, everyone should know how the models were created, what the results were and have the opportunity to discuss how this might help students.
2. Mandatory placement has been avoided at DMACC because of the historically poor performance of placement tests being able to determine student success. Since these models perform much better than placement tests alone, the issue of mandatory placement needs to be discussed. Primarily, DMACC would need more sections and instructor for developmental courses.
3. Because part of this study showed strong correlation with elements of high school transcripts and student success, DMACC needs to data enter high school GPA and normalized high school rank into the SIS along with the elements already being data entered. These additional elements can then be more readily available to advisors and counselors, and can be incorporated into future predictive models.
4. Moving forward, resources will need to be identified for model creation, maintenance and integration with DMACC's SIS.
5. Better communication needs to occur relating current national research about predictive analytics and the effectiveness of modeling and placement test scores.

**R:** DMACC recognizes next steps that are actionable, doable, and supported by results. Likely unspoken in this summary are the political issues of making some of these changes. Communicating these results, having college conversations about student success, and engaging broad support for changing policies, practices, and resource allocation in support of activities that appear to have strong potential for increasing the likelihood for every student to succeed could help overcome some of the political issues. This reviewer is very excited about this study and encourages the project team and college leadership to be bold.

## 4:

**Resulting Effective Practices**

- A:** We need to data enter 2 additional pieces of information from high school transcripts to leverage their usefulness to students and the college. We currently data enter their sending high school, data of graduation, and receipt date of the transcript.  
High school GPA and normalized class rank are better single predictors of student success than ACT or Compass placement tests and need to be used in addition to placement scores in determining student placement.  
Models using dozens of data elements and thousands of students can be better predictors of student success and more useful in making placement decisions than traditional placement exams.
- R:** The institution identifies practices that are actionable, realistic, based on data and results, and focused on student success. It is apparent DMACC understands its results and next steps. An earlier reviewer expressed concerns about entering students whose life circumstances did not fit within the model being tested through this project and this reviewer shares that concern, but is reassured that DMACC has demonstrated the capability to address other student populations through data modeling and analytics. The scope of this project has been to focus on the traditional high school student and results for that population have been achieved. Now, in the true spirit of academic quality improvement, it's up to DMACC to integrate what it has learned from this project into its practices and policies.

**5: Project Challenges**

- A:** Two primary challenges remain; ability to incorporate this new information in our existing processes and procedures, and securing the necessary resources to effectively implement and continue these practices.
- R:** DMACC recognizes two very important challenges in a project that has strong potential to change student course placement policies and practices, student advisement, course scheduling, faculty assignments, and ultimately, student success. It will be important to focus on resolving these challenges if the institution is committed to using this project's results moving forward. Although the benefits of this project may seem obvious to this reviewer and to the project team, as DMACC has noted in its response to #4, it will be important to ensure results and plans are communicated continuously and broadly across the institution and to be unapologetic about dedicating resources and changing processes and procedures to better predict and ensure student success. The AQIP tenets of leading and communicating and valuing people will help DMACC in meeting these challenges.