

1. Describe the past year's accomplishment and the current status of this Action Project

The Dev. Ed. Tracking Committee has developed a set of variables to track student progress and to help judge student success from an institutional viewpoint. We have developed a visual representation of this multivariate data. This representation may be used to judge success of a course, a program, or all Dev. Ed. Courses. Any demographic student group or subgroup may be examined, or subgroups may be compared and contrasted. We have identified demographic subgroups for initial examination. We are currently attempting to construct a similar situation for examining student success from the student perspective.

A more detailed description of star plots follows the responses to the five questions.

A programmer was hired for the Summer 07 term to implement the production of star plots using the statistical program R. This program has a function to produce star plots. The goal was to adapt this function to our particular needs. The result was less than stellar.

Starting this Fall I have been developing a program in the C language to produce our version of star plots. I have pieced together several packages and libraries to accomplish this task.

2. Describe how the institution involved people in work on this Action Project.

With few exceptions the Dev. Ed. Tracking Committee has met for lively discussion every other week. Most meetings are attended by members of the committee and guests Brad Thomas and Faye Freeman-Smith of the AQUIP Student Success Action Team.

3. Describe your planned next steps for this Action Project.

I am nearly finished writing the program to produce the star plots. We have two remaining objectives. The first is to identify, in collaboration with the AQUIP Student Success Action Team, the variables we wish to examine with regards to student perspective of student success. The second objective is to develop a mechanism to gather data for all variables currently lacking data.

4. Describe any "effective practice(s)" that resulted from your work on this Action Project.

We fully expect the star plot to be an extremely effective tool to examine student progress and success. This is not a certainty. We also believe that separately examining institutional perspective of student success and student perspective of student success will prove to be an "effective practice".

5. What challenges, if any, are you still facing in regards to this Action Project?

Heartland Community College does not currently have information on many of the variables that this committee has identified for study. We need to identify the variables that lack data and then develop a mechanism of obtaining relevant data. The challenge is to develop the mechanism.

Goal

To develop a standardized methodology for collecting, analyzing and reporting student success data on students in developmental courses.

Introduction

Student success may be viewed and judged from different perspectives. Three perspectives stand out in their importance and relevance: academic institution, student, and societal. Under the assumption that the student population is representative of the population at large it may be reasonable to extrapolate the students' view of student success as that of society.

Quantifying student success from the students' perspective is perhaps a more difficult task than quantifying student success from the academic institution perspective in part because in our changing society this perspective is considered as different than our perspective of success when we were students. Faculty members also acknowledge that our collective memory of what constituted a successful student may be biased by the fact that, in general, we were part of the group of successful students. Quantifying student success from the academic institution perspective, considered more familiar, was prioritized.

Student Success from the Perspective of the Academic Institution

Academic institutions are multi-layered. Student success should be tracked and measured at all levels. For the purpose of measuring and tracking student success the Developmental Education Program was partitioned into the following layers:

- Individual Classes
- Course
- Discipline
- Program

To measure and track student success at the individual class and course level the possible outcome states for an individual student were determined to be:

- Completed course, did not graduate, did not return
- Completed course, graduated
- Completed course, taking other Dev. Ed. Courses
- Completed course, taking college level course(s) in discipline
- Did not complete course, re-enrolled in course
- Did not complete course, only taking other courses
- Did not complete course, did not return to school
- Other

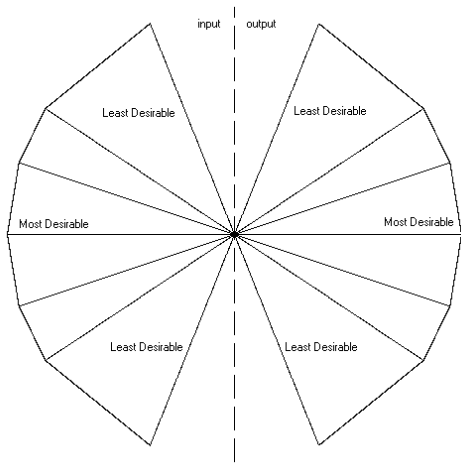
To measure and track student success at the individual class and course level the possible entering states for an individual student were determined to be:

- Transfer
- Assessment
- Prerequisites
- Instructor Approved
- Re-enrolled
- Other

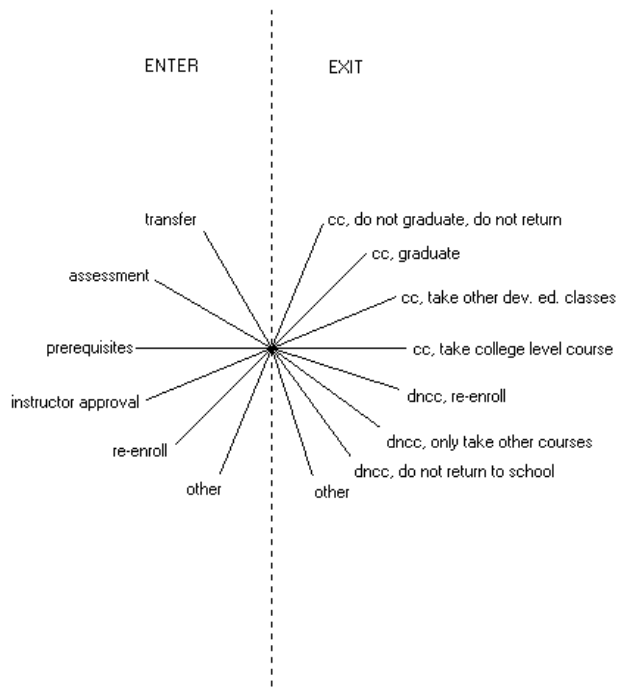
The percentage of students for each of the above categories will be computed and used to evaluate student success. A copious number of statistics could be generated following this plan of attack, especially when interesting demographic subgroups are to be considered. It would be difficult under these circumstances to construct a meaningful analysis and evaluation. A visual representation of the generated statistics would be preferable to a basketful of numbers.

One device to graphically represent multivariate data is called a star plot. Each constructed star represents a particular demographic subgroup and each point or radial of a star represents a particular variable. The length of each radial is proportional to the data value (percentage) of the corresponding variable. The shape of the star reveals the relationships between variables. Comparing stars gives a quick graphical picture of similarities and differences between the various demographic subgroups. The above variables may be arranged in the star so that the shape of individual stars contains information. If the entering states of students are contained in the left half of the star and the outcome states are on the right half of the star then some idea of flow may be obtained. If in addition, the variables are arranged in order from the most desirable variables being along the horizontal axis and the least desirable variables near the vertical axis a graphical representation of student success is constructed. A nearly horizontal star would indicate high student success and a nearly vertical star would represent a lack of student success.

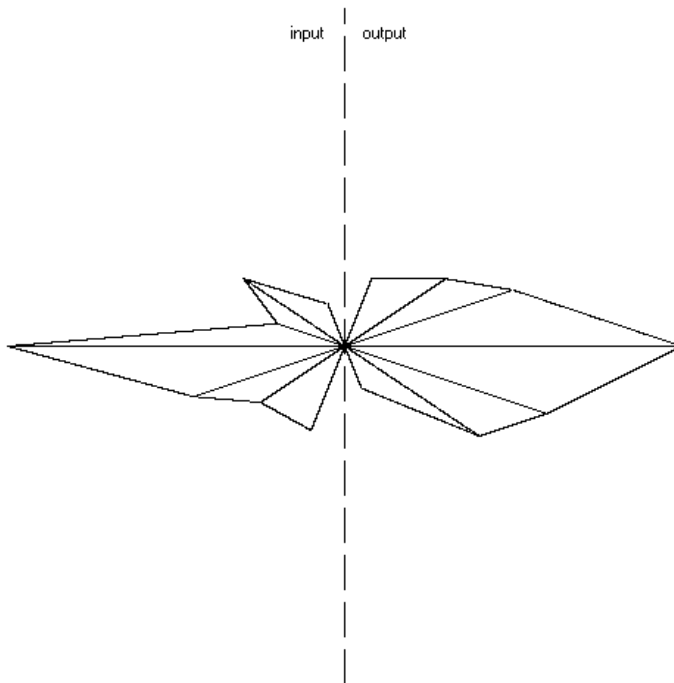
A visual representation of the previous discussion follows.



The variables discussed above might be arranged as follows.



The adjacent points of the stars are connected with straight lines. An example of a star is displayed in the following graph.



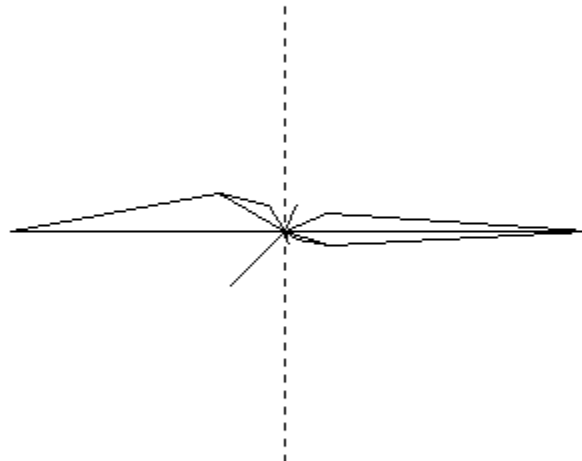
Using the arrangement of radials previously discussed, a star for a particular numeric example will be displayed.

A particular class of 30 students has the following data.

Entering state: 2 transfer, 5 assessment, 18 prerequisites, 5 re-enroll

Outcome state: 2 cc do not graduate do not return, 3 cc take other dev ed classes, 20 cc take college level class, 3 dncc re-enroll, 1 dncc only take other classes, 1 other

The corresponding star would be:



To measure and track student success at the discipline level linked stars could be used. For instance, mathematics classes 070 and 087 would have possible outcome states for an individual student to be (modification in bold):

- Completed course, did not graduate, did not return
- Completed course, graduated
- Completed course, taking other Dev. Ed. Courses
- Completed course, taking **next Dev. Ed. Math course**
- Did not complete course, re-enrolled in course
- Did not complete course, only taking other courses
- Did not complete course, did not return to school
- Other

For mathematics 096 the possible outcome states for an individual student would be (modification in bold):

- Completed course, did not graduate, did not return
- Completed course, graduated
- Completed course, taking other Dev. Ed. Courses
- Completed course, taking college level course(s) in discipline
- **Completed course, not taking college level course(s) in discipline**
- Did not complete course, re-enrolled in course
- Did not complete course, only taking other courses
- Did not complete course, did not return to school
- Other

To measure and track student success at the discipline level the possible entering states for an individual student would be:

- Transfer
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- Prerequisites
- Instructor Approved
- Re-enrolled
- Other

Then *Completed course, taking next Dev. Ed. Math course* would link to *Prerequisites*. This approach may be considered an extension of the model developed for Reading.

Measuring and tracking student success at the program level could possibly be modeled after the discipline level where all of the Dev. Ed. Courses are interlinked. The number of different paths that students could take through that “galaxy of stars” would be so large as to render the model useless. Perhaps a better approach would be to collect and examine all of the information from the individual disci