# Clarifying the Assessment Picture: Defined Metrics and Programming Choices in SAS® Coding

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## ABSTRACT

Healthy Programs Reporting at Central Piedmont Community College was developed as an opportunity to allow programs to conduct a program review using metrics common to all programs at the institution along with program-specific or industry-specific outcomes. Ensuring that programs were able to assess their performance beyond standard institutional measures was seen as key in keeping the process focused on student success.  The program review method was developed in a partnership between the College's Learning Unit and the Office of Planning and Research.

Some of the metrics in the review require data provided by Planning & Research, which utilizes Base SAS® and Enterprise Guide for reporting. In order to facilitate the writing of the SAS code, clear metric definitions had to be agreed upon by all project stakeholders to ensure that curriculum programs understood what data was being provided, that common parameters were established for analyzing applicable data points across programs, and that the data was meaningful for the programs. In the development process, data also had to be gathered from programs about their student intake process and timeline in order to establish the time parameters of the data report that would be provided.

Shared in this presentation will be best practices from the development of Healthy Programs Reporting and the utilization of SAS in the process, with a particular focus on portions of SAS code which demonstrate programming choices to improve efficiency and ease of future adaptation.

## INTRODUCTION

For over 15 years, program review has been a regular part of standard operations at Central Piedmont as part of our commitment to student success and to ensure that the College meets the accreditation requirements of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). However, programs would comment that the measures being used in the review process were arbitrary and not appropriate measures of success for their particular program. Thus, a team was assembled to gather input from various parts of the College in order to develop a program review that, while having some common measures, was also adaptable to measure data points that would be meaningful for the various types of programs at the College.

The first cycle of the new process, now called the Healthy Programs Report to differentiate it from previous program review cycles, began in Fall 2016. The process pulls together data provided to the programs by the College's Office of Institutional Research as well as data gathered by the individual programs. The latest iteration of the report consists of three primary sections:

1) Student Learning Outcomes (SLOs)

2) Critical Core Data

3) Quality Metrics

The primary focus of this paper will be on the Quality Metrics section. Student Learning Outcomes are generally gathered from course information in Blackboard, the primary learning management system utilized by the College. Critical Core Data, which are separate measures focused on "ensuring [that] students have the…skills they need for personal, academic, and professional success" ("CRITICAL CORE"), are gathered through reports generated in Blackboard Analytics.

For the Quality Metrics, these measures are subdivided into three sections reflecting the primary area of focus for each metric:

1. Student
2. College
3. Community

Each subsection has seven or eight metrics, and programs are invited to choose three which will count towards their total Healthy Programs score. More information on specific measures will be discussed further in the report.

To ensure the data is actionable, it was decided that the Healthy Programs review process should be conducted on a two year cycle aligned with the College's academic year. In each cycle, year one is focused on data gathering, data analysis, and drafting an action plan. The initial step in data gathering is for each program to revise their Program Data Form which provides information on the program of study to be utilized by Institutional Research in order to run reports to provide them with institutional data specific to their program. Once programs have both the data provided to them and any additional data that they were responsible for gathering, the report is submitted at the end of year one. It is reviewed by various levels of administration up to the Vice President of Learning.

In the time between year one and year two, a separate quality review process begins to review the data submitted for completion, to analyze data provided for institutional trends, and to make recommendations for necessary updates to the report, the measures, and/or the process as needed for the next cycle. Members of the quality review team are chosen from various programs and offices of the College associated with the Healthy Programs review process in order to ensure as wide a range of feedback as possible. The cycle then closes out with year two as programs update the report to correct any issues noted in the initial report and to provide information on the implementation of their action plan.

## DEFINITIONS AND TERMINOLOGY

One of the first challenges faced by the Healthy Programs team and one that proved much more problematic than originally thought was defining terms to be utilized in the process. Considering that all the members of the team providing the initial feedback were from the same academic institution, it was initially assumed that there was a common understanding of terms that many were using such as "cohort", "retention", "completion", and "credential" to name a few. In the course of the initial discussions, however, it quickly became apparent that, even within the team, there were variations in definitions based on which part of the College the contributor was representing.

Thus, a smaller working group with members from the Learning Unit and the Planning and Research department was developed in order to develop a common terminology to ensure that everyone was able to understand what the various data points represented. It was decided wherever possible to stay close to definitions from the Integrated Postsecondary Education Data System (IPEDS).

### COHORT VS NON-COHORT

One of the most important distinctions that would be made by agreeing to a common definition would be between what programs were considered "cohort programs". Some programs at the College operate in more of a "lock-step" model in that there is a set sequence of courses that must be taken from beginning to end in the course of study. However, in other programs, the course of study was less rigid, and though some courses may be prerequisites for higher level courses, there were a number of combinations for the course structure rather than a clearly defined sequence from beginning to end.

After gathering information from each program about their course of study, it was determined that there were 23 cohort programs and 53 non-cohort programs. The primary impact on this definition in terms of the data that was provided back to the program was that Planning and Research could use the first course of the program of study for cohort programs as an additional check to ensure that the only students counted were those that were correctly placed in the program code for that particular program. For non-cohort programs, they have to rely on program code data alone.

The final definition for the term "cohort" was "A group of students who have defined admission criteria and entry point, lock step students; students selected for tracking based on a pre-defined characteristic or course sequence; may have a maximum number enrolled in a term" ("Healthy Programs Reporting Handbook," 2018).

## CREDENTIAL

The actual definition for "credential" was not as difficult to settle on versus how credentials would be utilized in reporting. "Credential" for the purposes of Healthy Programs Reporting is as follows: "Associate, Certificate, or Diploma earned by a student in a specific academic year" ("Healthy Programs Reporting Handbook," 2018).

With the previous program review process, it was assumed that programs would want to be measured on the highest degree type that could be earned in the program. However, it was found that this was not always the case. In the 2016-2018 cycle, programs had been given information on all program codes associated with their program. However, when they went to input the information into the report, they were asked to choose only one as it would be incongruous to combine Associate's degree data with that of a Certificate or Diploma program code.

As providing all of the data when only one set of data would be used seemed an inefficient use of time and resources, it was decided that programs would be asked on the Program Data Form at the beginning of the process to choose the one program code that they wanted to evaluate in the Healthy Programs process.

## DATA PARAMETERS

With the terms defined, the planning team was then able to start determining which data parameters could be set in order to ensure that in the data being provided by Planning & Research was consistent across programs and could serve as a measurable point of comparison. This, however, presented its own share of issues.

## TIME TO COMPLETION

While we had agreed on the definition of credential and that programs could determine the credential that was most applicable to their training and the best measure for professional employment, it remained to be determined exactly how long after beginning their course of study students would have to completion. For IPEDS, based on the expectation of an Associate's Degree being completed within two years, the College measures graduation rates at students graduating within 100% of time for the program (i.e. two years), within 150% of time (three years), and within 200% of time (four years).

Though it was acknowledged that, as an institution, measuring at the 100% completion time standard would result in low numbers as this measure averaged for the same three year period for all curriculum program codes was 6.5%, this measure was agreed upon as the time for completion that would be used for the Healthy Programs Reporting for one key reason.

At the time that programs would receive their data (Fall 2018), the last data set that would provide completion data was students beginning in Fall 2016 with completion within 100% of time for the program being in Spring 2018. Waiting for the 150% or 200% time for completion of the program would mean that the data being utilized for the other measures (enrollment, retention, etc.) would be older and further removed from the present. As one of the charges of Healthy Programs was to provide actionable data to programs, it was more likely that programs could speak to more recent data and that the data would be more beneficial in determining next steps in their action plans.

## TRANSFER RATES

In the 2016-2018 cycle, the transfer rate had been an overall rate, but in our discussions while planning for the next cycle, it was felt that breaking the one metric into two which would separately measure the transfer rate for those students who had earned a credential versus transfer students who did not earn a credential at the College could provide important information for programs. For programs who are intentionally training with the possibility of the students continuing their education, this differentiation was

thought to be beneficial to helping them gauge how many students transition to a four-year institution soon after completing their education at the College. For the transfer without a credential, it was felt that this would provide information on how our programs may be competing with four-year institutions and how that is impacting the completion rates for our programs.

## RETENTION

One of the key areas identified as a problem area in the data compiled for the 2016-2018 cycle was that numerous measures of retention were provided, but only one field was provided, and there was not a systematic way for programs to indicate which retention measure they were using for the report. Thus, as with the transfer rate metric, it was determined to provide two retention measures and to provide fields in the report for each measure. Programs were thus provided on the retention of students from their first Fall semester in the program to the first Spring semester as well as from first Fall to second Fall.

## REPORTING OUT

The measures that were reported out to all programs by Planning and Research were as follows:

- 3 Year Average Number of Students Completing a Credential

- 3 Year Average Number of Students Transfer to University (Credentialed)

- 3 Year Average Number of Students Transfer to University (Non-Credentialed)

- Student Retention in Program (Semester – Fall to Spring)

- Student Retention in Program (Year – First Fall to Second Fall)

- 3 Year Trend in Unduplicated Student Enrollment

A final measure (Highest Enrollment in Program-Specific Course by Non-Program Students) was included for programs that had a course taken by over 100 students annually who were not in one of the program codes for that particular program. An example of this is Medical Terminology which is run by the Medical Assisting program but which is included as part of the program of study for multiple other programs.

The initial round of data to report out information on students designated as "new to the College" and curriculum students in the program code indicated on the Program Data Form and attended classes past the census date for three consecutive Fall semester (Fall 2014, Fall 2015, and Fall 2016) was run through SAS® for each program in December. Per the request of some of the programs, the code was adapted to run the same report for three consecutive Spring semesters (Spring 2014, Spring 2015, and Spring 2016) for programs that indicated that they had a spring cohort either in addition to or in lieu of a fall cohort.

Once the data reports were completed and attached to the overall report, working meetings were held in Spring 2019 (nine sessions with programs being grouped by division and/or campus whenever possible for convenience) for program chairs and division directors to share information about the data and to answer questions or address concerns.

## LESSONS LEARNED

As with the first iteration of Healthy Programs, between new questions coming up in the process as well as overall institutional developments, changes are already being planned for the 2020-2022 program review cycle.

### New/Changing Program Codes

One of the primary challenges in getting programs three academic years of data in the latest iteration is that some existing programs changed their program codes. When the data was initially run, a number of programs that had existed through the three year period covered by the data would only return one or two years' worth of data. Upon following up with the programs, it was discovered that there had been a change in the program code during the period between Fall 2014 and Fall 2016. For most programs, this was easy to resolve by changing the parameters to account for the previous code. Other programs, however, presented a greater challenge.

An example of this challenge was the Information Technology area of the College. At the beginning of the cycle, there was only one program code for Computer Technology Integration (CTI) that had multiple training tracks. In Fall 2016, however, the training tracks were divided into eight separate program codes that had courses of study not directly aligned to the prior CTI program of study. In this instance, the individual programs had to use the same data which reflected the single code in the first two academic year and the eight codes combined for Fall 2016 in order to have three years of data to analyze. Moving forward, so long as the program codes do not change, all of the programs should be able to break down the data to their specific training. However, even that revelation brought up an important point: program codes do change, and especially in an ever-changing job field like Information Technology, we should be able to anticipate how the training changes to adapt to the needs of the profession.

In order to give Planning and Research an opportunity to flag programs that have undergone program code changes during the three year period covered by the data, it has been decided that a question to that effect will be added on the Program Data Form that is the first step in the process. If programs do indicate that there has been a change to their program code since the last cycle, then they will be prompted to provide information on the change which should hopefully minimize the work that Planning and Research staff has to do in order to pull in any additional data as applicable.

### New Quality Metrics

As with the Quality Review process in the 2016-2018 cycle, the Quality Review in the current cycle will consider the relevance of the current quality metrics in order to ensure that they are meeting the needs the students, the program, and the institution. One development since the latest cycle of Healthy Programs began in Fall 2018 is that the College has implemented new strategic goals. In particular a new strategic goal focused on equity has been the subject of discussion around the institution and is worthy of consideration for the inclusion of new quality metrics in order to help to meet that goal on a programmatic level. However, as with the consideration of any new quality metrics, it will have to be determined how this new measure could be defined in such a way as to ensure that it is measurable and actionable.

### Data Gathering for Existing Quality Metrics

In the two cycles of Healthy Programs to date, the quality metrics beyond the student data provided by Planning and Research have at times presented a challenge to the programs in terms of gathering the data to respond. This has already led to institutional process improvements such as the development of an internal database of articulation agreements across the College which is easily accessible to all programs for reference. Programs have also been provided with job outlook data from databases accessed through Project & Market Resources. However, as part of the commitment to constant refinement of processes, one focus moving forward is on how programs can be connected with additional data gathering resources in a systematic way.

Job placement data is of particular interest to programs as well as to the institution as a whole, so discussions are underway as to how to facilitate the sharing of information that would better inform programs on how to guide students into the workforce on a regular basis and, in turn, how we can more accurately and efficiently gather information on where our students are gaining employment post-completion.

New partners in other sections of the College are being brought in to help determine a way to facilitate programs getting data on the average scholarship dollars provided to students, one of the current quality metrics. In working with programs during this process, it was discovered that some programs were already regularly getting this data due to accreditation requirements while others were not aware of its existence. As with our other work in this process, helping our faculty to understand what data are available is a pivotal first step in creating a culture of data at the institution.

## CONCLUSION

The Healthy Programs process has thus far proved to be a benefit to the College for numerous reasons. First, the collaborative nature of the process brings together programs and areas of the College that may not otherwise be in conversation. It has invited colleagues to share best practices as well as challenges with one another and has spurred conversations that carry on far beyond the reporting structure.

Crafting clear definitions and data parameters has created a common ground on which the College community can engage and build a culture of data with the ultimate end goal being to serve the students who are represented in the quantitative data.

The two-year cycle and quality review process ensure that the Healthy Programs process can continuously be honed and improved in order to best serve the students, the programs, and the institution.

The commitment of our programs to student success has never been in doubt, but the Healthy Programs process has worked since day one to give the programs the tools they need to conduct an honest assessment in order to ensure that we are preparing our students for the professional worlds awaiting them once they leave our classrooms.

## REFERENCES

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