

AC 1998-294: Innovative Educational Partnership for the New Century

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ABSTRACT

The Arizona State University and the Maricopa Community Colleges have a history of collaboration that is acclaimed as a model across the nation. However, Arizona State University East and Chandler-Gilbert Community college together are working diligently to elevate their educational partnership to a new level beyond traditional articulation. This paper describes the innovative nature of the educational partnership that exists between the two-year and four-year institutions at the Williams Campus.

INTRODUCTION

Public universities and four-year colleges are constantly subjected to new policies and procedures set by state lawmakers', with the goal of enhancing on time student graduation and accommodating students who transfer from two-year colleges. A statewide *Transfer Articulation Task Force* (TATF) was established by the Arizona Board of Regents (ABOR) and the State Board of Directors for Community Colleges. It was established in the best interest of students at Community colleges who wish to transfer to one of the three state universities in Arizona. The State Legislature's goal was to provide a seamless statewide articulation and transfer system, including the process of transfer for both general education credits and for curriculum major requirements. Therefore, the TATF's intent is to reach consensus on a course by course basis to assure that community college students may transfer to Arizona public universities without loss of baccalaureate degree [1]. The task force members are representatives of faculty, academic administration, student services and chief executive officers.

Arizona State University (ASU) and the Maricopa County Community College District (MCCCD) have a history of collaboration that is acknowledged as a model across the nation. In addition, Arizona State University East (ASU East) and Chandler-Gilbert Community College (CGCC) are working together diligently to elevate their educational partnership to a new level beyond traditional articulation that exists between the two-year and the States' four-year institutions. The co-location of ASU East and CGCC at the Williams campus has provided numerous opportunities to bring this partnership to a new dimension. In short one and one-half years it has moved well beyond the conventional articulation, described above. The uniqueness of the partnership between these two institutions has been marked by joint curriculum development, infrastructure planning, academic scheduling and sharing institutional data. The special collaboration extends to housing and academic/student support services as well. The primary focus of this paper is to illustrate the innovative educational partnership that exists between ASU East and CGCC and its benefits to students and the two institutions.

BACKGROUND

ASU East is a new campus of Arizona State University located in the city of Mesa, Arizona. It is at the former Williams Air Force Base in the southeast part of the Phoenix Metropolitan area, now known as the Williams Campus. The Williams Air Force Base conversion to a college campus has opened numerous opportunities to develop a unique partnership between two-year and four-year institutions. ASU and Maricopa Community Colleges both received substantial portions of the Williams facilities because of base closure. The wide range of high quality facilities that were made available made it possible to create a peerless coterie.

ASU East was created by the Legislature in 1994 as the third anchor campus of Arizona State University. ASU East serves students and the metropolitan area by providing baccalaureate degree, master's degree and non-degree programs, applied research and service. The evolution of the new campus, ASU East was initiated by moving programs in the School of Technology and the School of Agribusiness and Resource Management from ASU main campus in their entirety. Other programs will be relocated and new programs developed in response to students and employer demand. All programs at ASU East provide students with the knowledge and skills to succeed in the dynamic, technological, multicultural and transnational environment of the 21st century.

ASU East opened for business on August 26, 1996. It was designed as a student-centered campus that welcomes and interacts with the community. This new campus is destined to help Arizona State University meet the needs of some 36,000 new university students projected for Maricopa County over the next 15-20 years. ASU East is expected to be ready to serve 15,000 to 20,000 students by that time. Educational excellence at ASU East is defined by the value added to students' intellectual capabilities and skills [2]. Over the next five years, ASU East will focus on developing an array of high quality programs that respond to student demand and societal need for college graduates with particular knowledge and skills. As a corollary, the East campus will follow ABOR policy and emphasize programs that do not duplicate fields that are being well served by the other campuses of the State's Universities. In partnership with ASU East, Chandler-Gilbert Community College will develop and implement a general education core that will strengthen general academic skills and provide a liberal arts and sciences foundation for all programs.

New Partnership in Baccalaureate Education

ASU East and CGCC have combined the proven strengths of each institution in an innovative, *New Partnership in Baccalaureate Education*, at the Williams Campus. The new partnership takes community college and university articulation to a new level, integrating the strengths of the two institutions and creating fully, a new option in baccalaureate education for students from Arizona and around the world.

ASU reallocated the School of Agribusiness and the School of Technology, their programs, labs, courses, faculty, staff and students to the new site. CGCC initially designated the Williams campus as a satellite campus to offer its aviation and semiconductor manufacturing programs. However, rather than merely working side-by-side, ASU East and CGCC have converted the simple fact of co-location into a zestful reality of co-operation through the innovative *New*

Partnership in Baccalaureate Education. Thus, the new partnership formalizes what students have been doing informally for years; combining community college and university courses to complete their bachelor's degrees.

Traditional Partnership

Achieving well-articulated transfer between Community Colleges and Universities is a complex matter. Much of the complexity arises because of the *different kinds of transfer students*:

- ◆ Some students want to transfer a few courses, while others want to transfer complete associate degree programs.
- ◆ Some students know exactly what they want to major in and where, while others either change their minds frequently or delay choosing university or major until they have had sometime to explore.
- ◆ There are still other students with *different kinds of majors* requiring very different kinds of lower division preparation.

Thus, no single transfer tool will completely serve the needs of all students. Arizona is often cited as a national leader in transfer articulation for its many faceted efforts to ensure that community college students can move smoothly into different kinds of university programs. For over fifteen years, discipline-specific **Transfer Articulation Task Forces (TATFs)**, composed of faculty representatives in the same discipline from all of the community colleges and universities, have been meeting face-to-face annually to develop, maintain, and improve various articulation tools [1]. The essential articulation tools are:

- ◆ **Course Equivalency Guide (CEG):** The annual CEG shows exactly how each community college course will transfer to the different universities.
- ◆ **Transfer Guides:** Transfer guides provide a clear and secure transfer pathway into the major, for the students who have chosen their major and university. They show exactly what course transfers from a particular community college to specific university's required courses and/or major requirement.

Consequently, the articulation tools are mainly useful to students who want to transfer a few courses or who have chosen a university and a major before starting at the community college. ASU East has initiated a new statewide Technology TATF group to address issues related to the **Technology Programs** throughout the state. The technology articulation group has met biannually since its inception in 1996 to address the issues related to the statewide technology course and program offerings. Over 65% of upper division students at ASU East have some community college credits that apply to their baccalaureate degree programs. In any given semester, over 2000 undergraduate students are simultaneously enrolled in courses at ASU and at local community colleges. A long standing agreement has set sixty-four credit hours as the maximum number that a student can transfer to Arizona State University from community college course work.

While maintaining separate identities, ASU East and CGCC are simulating a single institution for students. Faculties from both institutions are acting jointly to ensure that all course work is

of the highest quality and effective in providing the essential academic foundation and advanced knowledge and skill. CGCC offers general education and major prerequisite courses at the Williams Campus that have direct ASU East equivalents. The courses can be aggregated to meet directly ASU requirements. Cooperative advising is being used to ensure that students maximize their course selection to meet requirements efficiently.

The partnership between CGCC and ASU East has also drawn on conventional kinds of program articulation. An efficient 2 + 2 articulation between CGCC's Associate of Arts degree in semiconductor manufacturing was developed with ASU East's BS in electronics engineering technology program. The two program faculties designed four courses together that would prepare students for immediate employment and yet transfer into the BS degree program. As a part of the 2 + 2 agreement, the ASU faculty agreed to change the existing content in two upper division courses, to complement lower division content needs. This is quite an achievement in higher education.

Bachelor of Applied Sciences (BAS) Degree

The innovative partnership between ASU East and CGCC has evolved quickly and the positive experience has been sufficient to cause ASU East to break new ground by creating a new degree. Arizona has a large and successful community college system that produces an enormous number of occupational degrees. Such Degrees have long been classified as "terminal degrees." CGCC and all of its sister institutions offer Associate of Applied Sciences (AAS) degrees that have had no direct path to a baccalaureate degree. On December 5, 1997, the Arizona Board of Regents granted permission to ASU East to offer a multidisciplinary *Bachelor of Applied Sciences (BAS) degree*, starting from fall semester, 1998.

The BAS degree program is a flexible degree plan designed specifically to serve additional educational needs of students who have earned the Associate of Applied Science (AAS) degree. The primary admission requirement for BAS program is completion of an AAS degree at a regionally accredited institution. Students with AAS degrees will receive *sixty hours* of credit as a *block transfer* toward the university's 120-hour minimum degree requirement. BAS students must then complete a *sixty-hour* program offered by ASU East [3]. BAS program goal is to provide students with management, leadership, critical thinking and communication skills along with significant work in an area of specialization that will broaden their career horizons, promote life-long learning and enrich their lives.

Sharing Resources such as Laboratories:

According to a study conducted by SEMATECH (a non-profit organization representing the semiconductor industry) there will be a workforce need of approximately 40,000 skilled and trained persons in the semiconductor field nationwide. To meet these demands semiconductor companies nationally and locally have launched an ad campaign to attract student into programs that prepare them for the future workforce. Local semiconductor companies have sought to collaborate with the higher education institutions, such as their neighboring universities and community colleges, to implement this workforce initiative.

The College of Technology and Applied Sciences (CTAS) at ASU East is leading the way by developing a state-of-the-art teaching factory in response to this huge workforce need nationally. A one-of-a-kind Microelectronics Teaching Factory is being developed and used in partnership with Intel, Motorola and other local partners in semiconductor industry. The facility will provide a unique learning environment for the students from ASU East, ASU Main and Maricopa Community Colleges who represent the future semiconductor workforce. As well, Intel, Motorola and other local industrial and educational partners will use this facility for education and training purposes. To accommodate the state-of-the-art teaching factory, approximately six million dollars was appropriated by the State Legislature to reconfigure an existing Williams Campus building. Equipment and intellectual support are being provided by Intel and Motorola respectively, with the help of our other industry partners. The design phase of this project was just completed and the construction has begun. First level completion is scheduled for October of 1998. The teaching factory will be utilized to teach semiconductor-processing classes to ASU East and CGCC students and those from other institutions on demand. It will also be used as a training facility for industry employees.

CGCC has developed excellent physical and biological sciences laboratories located on the Williams Campus, for joint use of students from both institutions. CGCC is presently using the existing microelectronics laboratory on ASU Main to teach their semiconductor-processing course that was jointly developed by ASU East and CGCC faculties. These collaborations demonstrate that our innovative partnership between the institutions, supported industry can enhance our benefit the students, industry and the community. Through collaborative development and sharing of resources, we can maximize our capability without duplication.

Student Support Services

The uniqueness of this partnership extends to student support services as well. CGSS and ASU East are sharing instructional spaces, providing library services and student access to computers. A coordinated class schedule is jointly planned and produced each semester. The course schedule lists the course equivalencies right along with the CGCC course information for the convenience of students. Although student services such as admissions, registration, financial aid, and academic advising are provided by ASU East staff and CGCC staff separately and in two or more locations, there is close coordination and communication between the two institutions. The goal is to merge these services as soon as computer systems can be adapted to communicate directly with each other.

The former Williams Air Force Base has approximately seven hundred single family homes and several dormitories on the base which became a plus to both institutions to develop a residential campus. ASU East and CGCC have coordinated the management of all of the housing both individual houses and residence hall rooms. The housing is available to students, faculty and staff of both institutions.

ASU East and CGCC are combining their academic strengths with the unique features of the Williams Campus to offer cooperatively complete baccalaureate degree programs, at significant savings to the students and Arizona taxpayers. There are but a few other two-year / Four-year educational partnership models existing nationally [4 and 5]. The approaches of the model are not used by any of them.

Challenges

The partnership described in this paper did not evolve without encounters with challenges. Bureaucratic hurdles, perception and prejudiced attitude problems have been present from the beginning. *Am I an ASU East student? Or, if my son or daughter is an ASU student why I am taking community college courses?* These questions are commonly raised by students and parents. ASU East has created an information booklet that covered the commonly asked questions and others day to day concerns. Another major challenge was the need to keep co-enrolled student's tuition and fees at a level not to exceed that of a similarly situated ASU student. A creative mechanism was put in place, which assures that an ASU East co-enrolled student will not pay more than the full time ASU tuition and fees. Campus evolution is a long-term process. ASU East and CGCC will work together continually, to craft creative solutions to the issues that arise.

Summary

The new Partnership in Baccalaureate Education at the Williams Campus offers an innovative and powerful model for the development of new campuses across the nation to meet the growing need for more comprehensive postsecondary programs. The key word here is *partnership*. Because of this *partnership* these institutions are able to serve their students efficiently and economically to fulfill their desire of obtaining a baccalaureate degree in a timely efficient manner.

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Dr. Lakshmi V. Munukutla is Professor and Associate Dean of the College of Technology and Applied Science at ASU East, Mesa Arizona. She received her Ph.D. degree in Solid State Physics from Ohio University, Athens, Ohio and M.Sc and B.Sc degrees from Andhra University, India. L.V. Munukutla developed an interest in semiconductor device processing technology and characterization while she was working at Motorola Inc. Her current focused research areas are semiconductor device processing technology (in particular oxidation and lithography), environmental issues related to the semiconductor processing, characterization of interfaces using both electrical and surface characterization tools, and semiconductor packaging technology. She has been active in research and published several journal articles