

MEMORANDUM

TO: Arlington School Board

FROM: Career, Technical, and Adult Education Advisory Committee

DATE: December 14, 2012

SUBJECT: Recommending Year Report

Background

Career, Technical and Adult Education Advisory Committee

The Career, Technical and Adult Education Advisory Committee (CTAE) has 11 regular members and two ex-officio members representing community leaders, universities, the business community, former teachers, parents, scientists, and former congressional staff. The committee brings a broad range of relevant knowledge, experience, and analytical tools to its recommendation process. In addition to the Department of Instruction staff liaison, meetings are commonly attended by the various Arlington Public Schools (APS) supervisors and administrative staff from Family and Consumer Sciences (FACS), Business, the Arlington Education and Employment Program (REEP), Adult Education, and the Career Center.

The office of CTAE works within the Department of Instruction to provide programs of instruction in career and technical education to K-12 students. The office also provides lifelong learning opportunities to adults of all ages in the Arlington community through a variety of adult education courses, and has a close partnership with the Arlington Learning and Retirement Institute (ALRI). The CTAE advisory committee focuses on ***all students***, rather than solely children.

Expert presentations by local, state and national education policymakers are common at meetings and inform the committee's views and recommendations. Within the past year, the committee has engaged the Special Education committee chairs in an effort to coordinate recommendations and projects.

Please refer to the Appendix on page 7 for detailed supporting documentation for the following recommendations.

Response to 2012 School Board Charge

This is the first year our Committee has developed its recommendations under specific charges from the School Board, specifically whole-child education and

considerations of class size. The applied-science and integrated nature of our courses is closely aligned with the objectives of whole-child education, and is addressed in our Recommendation #3 (Continued Professional Development). Our Recommendations #1 (Dual Enrollment Courses) and #2 (Online and Blended Courses) include potential strategies for relieving the burdens of class size in secondary schools.

Recommendations

Recommendation #1: Award dual enrollment courses with the same quality points as other APS advanced courses.

The committee recommends that students who take dual enrollment classes, rigorous college courses, earn the same quality points as given to AP and IB classes.

2011 – 2017 Strategic Plan Alignment: Goal 1: Challenge and Engage All Students

2012 School Board Charge: Class Size Adjustments

Rationale: Dual enrollment classes are subject to a stringent review process by faculty or administrators at an institution of higher education to ensure that they meet the academic standards of an accredited college-level course and must be taught by an instructor who meets the requirements for a college professor. Throughout the region students can earn quality points for taking rigorous courses. For example, students who take either an AP or IB course can earn a quality point. As students continue to increasingly take AP and IB courses to earn a quality point and increase their GPA, adding a class that does not grant a quality point would not increase a student's GPA, even if the student received an A in a course. This phenomenon affects course selection for some students. Presently the office of CTAE is exploring college courses which would enable students to work outside of school classrooms.

Budgetary Implications:

- Additional staff time to mark appropriate students with quality point in student database.

Cost: Approximately \$300.00

Committee vote:

Recommendation #2: Create online learning courses in the CTAE program

The committee recommends that appropriate CTE online courses be developed to fulfill the upcoming new “online course” graduation requirement for all Commonwealth of Virginia students. These online courses can also be used to create an opportunity for students to explore career options and earn additional college credits while in high school.

2011 – 2017 Strategic Plan Alignment: Goal 1: Challenge and Engage All Students and Goal 4: Provide Optimal Learning Environments
2012 School Board Charge: Class Size Adjustments

Rationale: There are several CTE courses that currently offer an online component. The course materials may be -available synchronously (in “real-time”) or asynchronously, giving students the flexibility to choose the best time for their learning to take place. These include current dual enrollment courses (e.g. Automotive Technology, Advanced Topics in Information Technology, and Information Technology) and several under exploration. Most importantly, students may review these online materials multiple times to ensure that they have an understanding of the materials, whatever their learning style. Starting with the class of 2017, students will be required to complete an online course based on Commonwealth of Virginia requirements. Because of CTE's use of online environments, a CTE course is recommended to meet this requirement.

Budgetary Implications:

- On-line course on careers will require additional .5 staff to set up.
- Ongoing instructional support will be required to monitor these courses.
- Staff development for online teachers.
- Development of the online curriculum.

Cost: Approximately \$62,000*

*These costs are expected to be recovered through efficiencies and offset by savings in other program realignments.

Committee Vote:

Recommendation #3: Continue teacher professional development in STEM integration

The committee recommends that APS continue to provide CTE teachers with additional professional development, to provide them with the skills necessary to integrate rigorous academics with applied technical course content to improve student performance.

2011 – 2017 Strategic Plan Alignment: Goal 1: Challenge and Engage All Students and Goal 4: Provide Optimal Learning Environments

2012 School Board Charge: Whole Child Development

Rationale: Working together, CTE and academic staff can combine rigorous academics with demanding technical education, including teaching core subjects such as English, Mathematics, and Science in the context of how they will be used in the job field. The term "integrative" curriculum refers to an instructional method that includes multidisciplinary teams of teachers who organize their content such that students can make meaningful connections across subject areas. Currently, research-based Math-in-CTE and STEM-in-CTE professional development is provided to APS CTE, Math, Science and English Language Arts teachers, NOVA instructors, and teachers in neighboring jurisdictions, resulting in integrated lessons and also integrated courses. This recommendation seeks to continue professional development activities to increase the number of teachers who use the integrated approach. Professional development should also support course offerings and student engagement in online and blended learning environments, and career exploration and related course pathways.

Budgetary Implications:

- Professional development across instructional areas.

Cost: Approximately \$11,200*.

***These costs are expected to be offset by redirecting funds currently used for staff development.**

Committee Vote:

Recommendation #4: Further Engage the Business Community in the Education of our Students

The committee recommends that APS develop strategies and tools to increase the engagement of the local business, nonprofit and government sectors in broader teaching and learning activities.

2011 – 2017 Strategic Plan Alignment: Goal 4: Provide Optimal Learning Environment

Rationale: In addition to the core academic and technical components of a pathway, students and teachers must expand relationships with employers that make connections to classroom teaching and learning. This is particularly important in CTE as the career and technology field must be aligned with employers needs.

Arlington County is a vibrant business community with a variety of business sectors including government, computer technology, healthcare, and automotive technology. It is also unique with its concentration of government agencies and non-profit organizations, many in the policy area and many others in social causes. Professionals from all these organizations volunteer in APS schools but there is no coordinated business relationship between the CTE program and local employers.

A website showcasing collaborative opportunities with APS should be developed to attract other industry personnel given that more than 80% of Arlington residents do not have children in the school system. In addition, employers often incentivize working adults to do volunteer work. Relevant information materials need to be "pushed" to human resource departments in Arlington-based companies. This can be achieved through social media techniques that direct interested individuals to a web site. Student engagement may include paid and unpaid internships, field trips, job shadow opportunities, etc. Other opportunities include teacher externships as well as guest speakers and competition sponsorship.

Budgetary Implications:

- Set up of website and preparation of materials for distribution.
- Transportation for students to get to sites.

Cost: Approximately \$5000*

*These costs are expected to be offset by other program realignments.

Committee Vote:

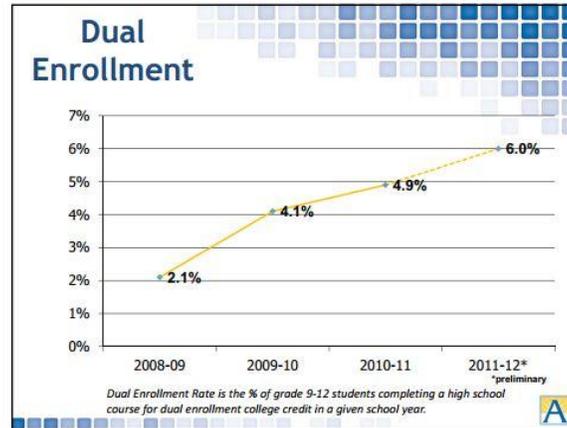
Update of Previous Recommendations:

Past Recommendation #1: Expanding Dual-Enrollment Courses and Pathways

Status: Dual Enrollment courses have continued to grow, not only at the Arlington Career Center which has a particular dual-enrollment focus through its Governor's Career & Technical Academy (GCTAA) Program, but also throughout all APS high school programs. Several APS instructors have been certified to teach various dual-enrolled courses at the community college and 4-year college level. Additionally, academic classes in English and Mathematics have been added to the Program of Studies for next school year. HB1184 has also opened the door for more collaboration with the area community colleges to develop

college certification programs which allow students gain college and high school credit concurrently.

The following chart illustrates the growth:



Over the past four years (Fall 2008 through Spring 2012), 1,149 APS students earned 2,801 college credits through these courses.

Past Recommendation #2: Implementing Integrative STEM Instructional Strategies

Status: While project-based learning has been an important part of CTE for decades, our teachers are learning to increase rigor and interdisciplinary connections through curriculum mapping and refocusing projects on enduring understandings as well as applied skills. Reflecting the changing nature of CTE, integrative and interdisciplinary teaching and learning provides student experiences in problem solving, collaboration, critical thinking, communication, published and shared products, and other characteristics of the modern workplace. The Math-in-CTE program was expanded to include Science and English Language Arts teachers and is now STEM-in-CTE professional development, and includes teachers from all APS secondary schools.

Past Recommendation #3: Promoting CTE opportunities for all APS students

Status: The committee recommended increased communication with parents, teachers and guidance counselors, particularly at the middle school level, to widely disseminate information about the opportunities available to Arlington students through CTE. A Newsletter is published monthly and shared with Principals, Directors of counseling, PTA Presidents, and posted on the APS website. The CTE department is in the process of developing online guides that will permit interested parents and students to see the lab, activities, and the teacher in each program area. A sample template was developed and work is

now starting to incorporate the information from the various CTE programs. Work continues to take place in the expansion of dual enrollment offerings at the GCTAA and other locations within APS.

Past Recommendation #4: Supporting Adult English Learners

Status: The Arlington Education and Employment Program (REEP) is a nationally recognized program that provides valuable career readiness training for non-traditional students. The Committee recommended that APS improve the accessibility of intensive REEP classes to target populations by 1) finding suitable space for intensive English classes accessible to target populations, including the Columbia Pike and metro-accessible sites and 2) developing a plan for maintaining metro accessibility of current REEP space given the expected expiration of the lease at the Clarendon Education Center in September 2012. REEP will be moving into a new site at 2110 Washington Boulevard in January 2013 with greater access to Columbia Pike. Classroom space in the new facility has interactive educational technology and mobile computer carts that convert any classroom into a computer lab.

Committee members:

Dr. Diane Murphy, Marymount University, Committee Chair
Dr. John Andelin, Community Volunteer
David Bain, Viral Media Productions
Audrey Kremer, George Mason University
Mohamed Mekkawi, Community Volunteer
Patrick Muggill, Student Representative
Michael Shea, A.I.M. Member
Patrick Brennan, Community Volunteer
Howard Feldstein, Arlington County Employment Center
Don Hodgen, APS Parent and Community Volunteer
Dr. Peter Joyce, MPR Associates
Rosie O'Neil, ACI Representative
Polly Liss, ex-officio
Bill Sullivan, ex-officio

CTAE Staff:

Kris Martini, Director, APS Career, Technical, and Adult Education
Shari Brown, Coordinator, Project Y.E.S
Nancy Opsut, Acting Principal, Arlington Career Center
Jim Egenrieder, STEM Education Specialist
Marilyn Faris Scholl, Supervisor, Family and Consumer Sciences
Phyllis Gandy, Business, Information Technology, Computer Science and Marketing Education
Suzanne Grant, REEP
Rona Hernandez, Administrative Specialist to the Director

Raul Matos, Coordinator, Adult Education
David Welsh, CTE Specialist, Arlington Career Center

Appendix: Supporting Documentation

Recommendation #1: Award a quality point for dual enrollment courses

Dual enrollment courses meet all requirements for advanced courses and the course curriculum and the APS course instructors must meet the academic qualifications required by the institution (community college and 4-year school).

Instructors must have earned a Master's degree in the subject area or a Master's degree in another area with a minimum of 18 graduate hours in the subject area. Dual enrollment courses are aligned with college curricula and reviewed for compliance with college requirements by their Dean or Department Chair of the relevant program area before approval. Institutions with which APS currently has dual enrollment agreements include Northern Virginia Community College, Marymount University, Adams College and Shenandoah University all regionally accredited institutions allowing their college credits to be recognized as transfer credits by other institutions of higher education. NVCC and Marymount are both accredited by the Southern Association of Colleges and Schools (SACS) (see www.sacs.org).

A quick review of surrounding jurisdictions shows that students in several counties earn quality points for dual enrollment classes. Some counties give a half point, others give one point.

Dual enrollment provides a rigorous educational experience for students as they experience the rigors of a college class while in high school. It is also a means for assisting some students' transitions to postsecondary education and can help reduce the cost of their subsequent college experience. The dual enrollment class also provides a college grade and transcript for the student that can be carried with the student to a post-secondary institution if they gain a grade of "C" or higher.

In addition, for example in Florida, participation in dual enrollment receives the same weight as participation in AP and IB for the purposes of evaluating a candidate's scholarship application. (Hoffman et al p. 49, 2009)

In its 2008 report to Superintendent Jack Dale, the Fairfax County Public Schools Department of Accountability reported that an additional weight of 0.5 points is awarded for successful completion of each Advanced Placement (AP), Higher Level International Baccalaureate (IB), Standard Level IB, and dual enrollment courses (FCPS, 2008).

In other school divisions, additional weights of 0.5 quality points for honors courses and 1.0 quality point for AP, IB, and dual enrollment courses are more common.

Another factor is how these courses are considered when a student is applying to an institution of higher education, Dutkowsky et. al. (2009) found deans of admission place the AP, Dual Enrollment, and IB models at roughly the same indicator that the student has taken challenging college-level courses. Regarding quality of the courses themselves, Dutkowsky (2006) reported that students from the dual enrollment Economics course outperformed the AP/Honors Economics group on the nationally normed Test of Economic Literacy.

Recommendation #2: Create online learning environment in the CTE program

The concept of virtual and blended classrooms has been developing in the CTE program over the past few years. Several CTE courses in business, information technology, and automotive technology programs are currently using online components for instruction. As examples, Ed Options, CISCO, Oracle, Learnkey, and the Microsoft Academies, have online components that provide students the opportunity to advance their learning in mobile application development, cyber security, web development, database administration, open source applications, automotive servicing, and computer networking. Parts of the courses are taught in the classroom using electronic tools, online, and in blended classroom settings.

A fully online course is proposed that introduces students to the concept of work and the process of making informed career and continuing education choices. This course will teach students how to make the right choices for themselves and to successfully transition to the workplace. Students will be taught ethical behaviors and career-research, job-acquisition, workplace-communication, self-awareness, self-advocacy, customer-service, critical thinking, and life skills. Doing this in an online or blended format would give students an opportunity to fulfill a graduation requirement while gaining career skills that will last a lifetime.

Once this first virtual course is successfully launched, other CTE courses should be considered as good candidates to provide options for students that would like to take a CTE class but cannot fit it in their schedule. A blended course could provide online instruction that is convenient to the student with fixed lab times where hands-on work is accomplished at a standard time each week, such as, Saturday morning. Lessons learned from the first online fully course on careers will be used in the development of subsequent courses.

In 2005, a study funded by the National Research Center for Career and Technical Education (NRCCTE) investigated the differences between online and campus-based CTE degree programs at three different community colleges in the United States (Benson, 2005). The results of the study were consistent with earlier studies that found no overall significant difference in the experiences of students enrolled in the online courses and students enrolled in campus versions

of those same courses. Of more significance in terms of student achievement, students who completed either the online or campus versions of the course were found to be likely to pass the national board exam on the first attempt. Students in the campus versions of the courses, however, reported a higher test anxiety average than their online counterparts.

Community colleges are actively involved in distance-learning programs in Career and Technical Education (CTE) (Benson et al, 2007). Over 76% of community colleges offer some form of distance learning in their CTE programs.

Recommendation #3: Continue teacher professional development in STEM integration

It has been shown that one of the most powerful strategies teachers can use to make learning relevant is to place academics within the context of issues and problems from the world at work (Perry 2010). ConnectEd, the California Center for College and Career, is working with school districts to improve student preparedness for both college and career through Linked Learning Pathways. This approach emphasizes a challenging academic core (English, mathematics, science, social studies, and foreign language) but it is taught differently, stressing real-world application and experience in a specific career. (See example of integrated curricula:

http://www.connectedcalifornia.org/curriculum/integrated_units)

The Southern Regional Education Board (SREB) began field tests in 2011 of a new initiative to create blended academic and career courses (Anne, 2010). Some of the courses focus on technologies that will introduce new curricula in green technologies, biotechnology systems, aerospace technology, cyber infrastructure, geospatial technology, and design science. The courses introduce students to fields that are not traditional to career education but are experiencing shortages even during the current economic downturn.

Teachers, by working together and collaborating, can begin to link their subject matters to one another, as well as to the students (Bloyd, 2006). This teamwork and coordination can help in generating new ideas for everyone. However, professional development is a prerequisite to this.

Recommendation #4: Further Engage the Business Community in the Education of our Students

To be successful, students and teachers must have relationships with employers. This helps keep teachers on top of what needs to be taught and allows students the opportunity to make connections to what they learn in the classroom. This exposure helps sharpen students' desire to increase knowledge and develop skills that are relevant to their career interests. The involvement with the local community is vitally important to the success of these initiatives.

Arlington County has many business advantages as it is geographically small and includes a wide range of businesses; many high tech. It also includes many government agencies and many non-profit organizations. Currently there is no coordinated business relationship between the CTE program at the school system level and local employers, except for members of the CTAE committee. Developing pathways that include business partnerships would increase the rigor and relevance of the program while giving students a true work experience. This should be done at the APS level building on relationships that individual schools have with the community (usually through parents). A Web site should be developed to attract other industry personnel, given that more than 80% of Arlington residents do not have children in the school system.

Career academies, with relationships to business communities, have been shown to be successful, particularly in urban settings. Studies show that these programs retain students better and provide more incentives for students to graduate. Career academies partner with local industries to offer students internships, field trips, and other work-related opportunities that connect the real world to classroom learning. Such academies may also help to narrow the achievement gap with Black and Hispanic/Latino students (Studier, 2010).

Career academies, after more than four decades of development and three decades of evaluation, have been found by a conclusive random assignment study to be effective in improving outcomes for students during and after high school. Career academies have therefore become the most durable and best-tested component of a high school reform strategy to prepare students for both college and careers.

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