Distance Learning Programs


PLATO Learning and the League for Innovation in the Community College initiated a major study on the challenges of implementing successful distance learning developmental math programs at eight colleges. There were several critical success factors that were investigated on by exploring college administrators, instructors and students:

Development of individualized, open entry/open exit, effective programs for developmental students via distance education.

1. Easy Access to Internet and Easy Navigational Courseware
2. Technical Support
3. Alignment of Online Courseware and Course Objectives
4. Individualized Instructional Format

Development of successful student profiles using distance learning technology.

5. Student Recruitment and Counseling
6. Orientation

Cultivation of learners' motivation through the use of technology in developmental studies programs using distance education.

7. Student Connections

Combination of campus–based support service and distance learning delivery systems as models of success for developmental learners.

8. Faculty Development
9. High Standards of Quality and Content Development
10. College Leadership & Program Support


North Arkansas College facilitated a meeting where local educators discussed the problems they face with students in high school and college. They agreed that high school students are not prepared for math courses when they enter college and that there is a large disproportion in the way math is taught. Another issue discussed was the fact that Arkansas requires high school students to take math courses for three years and not during senior year. The year gap is seen as a disservice to these students because they are out of the subject area for too long and then are expected to succeed in College Algebra when they enter college. This is where incentives come into play where the state encourages students to use their senior year to take
dual credit courses and get a head start on college. The group also realized that parents, principals, counselors, educators and anyone involved with students needed to know the statistics and consequences of students not being prepared correctly.


This source discusses the decline of students enrolling in calculus courses when they arrive to college and if they do, they are not well prepared for it. For the last decade, colleges and universities have seen a major increase of ill prepared students. Many students however are taking calculus in high school but the problem lies within the content of both courses. Since 1985, the number of students taking the Advance Placement Calculus exam in high school has increased approximately 7% each year from 46,000 to 292,000. A reasonable estimate is that between 150,000 and 200,000 students arrive to college each fall bringing with them credit for calculus. The conclusion of the article is that students are not as interested in career paths such as engineering where mathematics is essential. Better communication between the university mathematics department and others in the community is essential to provide a better understanding of where students are lacking interest or drive to pursue more advanced math throughout college.


A study was done to analyze student satisfaction and learning ability in an online college mathematics course. These students were given weekly assignments and time to discuss problems on an online forum where the instructor had access to their progress. Many learning objectives such as PowerPoint, text, video lectures, homework, discussions and quizzes were used and then the students were surveyed on what helped best. The end result for most students was that this course was very demanding, time consuming but perceived as successful. A major benefit of this program was the ability for students to use the whiteboard feature to show their hand-worked problem solving.


This source identifies the importance of dual enrollment programs and the need for state policy to encourage stronger connections and partnerships between high schools, colleges and the workforce. In this study, students who enrolled in dual credit courses were more likely to continue college for a second semester and had higher GPAs than those who were not enrolled.
Dual credit students also had an average of 15 more college credits than nonparticipants after three years after high school. Florida was given praise for their research and data on providing students with multiple means to accumulate college credit. These students are able to take courses before or after school, during the summer and online to alleviate the overcrowding issue. Incentives such as the Bright Futures Scholars Program are given to students to encourage them to enroll in distance learning programs.


The Achieving a College Education (ACE) program in Phoenix, Arizona focuses on increasing access to higher education for minority, low–income, first generation high school sophomores. Students take courses that are needed to succeed in college such as critical reading and writing skills, oral expression, mathematics and computer skills. ACE courses are taught on the college campus during weekend workshops and during the summer. The students are given expectations and responsibilities as if they are already college students which help in their attendance and preparedness skills. The program prides itself in a 96% high school graduation rate compared to the district dropout rate of almost 50%.

College Now, part of the City University of New York System, has had such success that the program is being implemented across other states and even into earlier grade levels. The program works with high school juniors by testing them in reading, writing and math to determine if they are ready for college credit course. If they are not able to pass any of the subject areas, they are enrolled in remedial courses taught by college faculty but designed specifically for high school students. College Now’s goal is to have all their graduates enter one of the CUNY schools without having to take remedial courses. This dual enrollment program has also expanded to the 9th grade where a pilot program called College Now Nine has begun.


This article suggests that instead of judging whether online education is more effective than face–to–face education, education in general should be evaluated especially when using technology. Many colleges have yet to find ways to improve education when using technology. Western Governors University defines their programs through assessing program skill competencies, monthly student surveys, and third–party studies for both graduates and employers on how they rank and compare with other graduates. In the end, education has to be high quality, effective and affordable.
The WVEB Mathematics Project was developed for high school students to make a smooth transition into college by taking multiple math courses that aligned with college courses. The students were expected to enroll in more advanced math courses with the goal of choosing a major and career in STEM. Another goal of this project was to create more dialogue between secondary and higher education by providing high school math teachers personal development in math content and by engaging all parties involved such as parents, teachers, counselors, superintendent and principals. A report done in 2009 by the U.S. Department of Education said that a blended model of learning where students have face-to-face time with a teacher and online exposure benefit most especially when there is effective collaboration between the high school teacher and college professor. In a 2006 study, it was said that students who are placed in college level math courses based on their test scores instead of completion of prerequisite courses do better.


The Education Program for Gifted Youth (EPGY) was developed to provide stand-alone multi-media computer-based courses for students from kindergarten to high school the opportunity to take rigorous online course offerings, specifically in mathematics and physics. The online classroom promotes self-paced instruction and the ability to interact with the instructor and other students on a whiteboard. Email is essential with this program because students are able to send problems they have difficulty with their notes or questions to the instructor and they then are able to assist the student. This program helps ambitious students to graduate high school five courses short of a degree in mathematics as well as in physics.


In 2010, Khan Academy teamed with Los Altos, California School District to provide online math lectures to 5–8th graders. The program originally started with 150 students in 5 classrooms and now reaches over 1,000 students in 40 classrooms. Many of the teachers have said that the
best advantage to this program is seeing what videos each student viewed and how long it took them to understand to lecture. This new program gives them the opportunity to address these issues right away and saves on valuable time that is now used to learn additional content. According to the district, 23 percent of the 7th grade remediation students were proficient on the state mathematics test, but after the first year, the proficiency rate climbed to more than 40 percent. Digital lessons like this have been booming around the country thanks to the support of foundations such as the Bill and Melinda Gates Foundation.