

# National Career Pathways Network

formerly the National Tech Prep Network

# Connections

Educators and  
Employers:  
*Providing Education  
with a Purpose*

Volume 18, Number 6: *CORD Project Highlights*



## NCPN

An organization  
of CORD

## CORD: Breaking Barriers, Crossing Borders

David Bond, Director, National Career Pathways Network



If you have been a member of the National Career Pathways Network (NCPN) and its predecessor, the National Tech Prep Network (NTPN), you probably know a little of our history. But in case

you haven't been around very long, here is a brief summary. In 1991, the Center for Occupational Research and Development (CORD) created the National Tech Prep Network (NTPN). Last year the name was changed to NCPN to reflect changes brought about by requirements in the 2006 Perkins Act.

The name change and NCPN's continued support of Tech Prep have been widely communicated. This newsletter shares information about CORD, the parent

organization of both NTPN and NCPN. CORD is about to celebrate 30 years of assisting educators in secondary schools and colleges through new curricula; teaching strategies; professional development; and partnerships with community leaders, families, and employers.

These articles are not about what CORD has done over the last 30 years, but about what is happening right now. The article by Ann-Claire Anderson is about work on a National Science Foundation Advanced Technological Education project regarding *gender equity in emerging technologies*. The article by Hope Cotner is about a U.S. Department of Education-funded project designed to create free classroom resources that integrate elements of STEM (mostly math and science) into 63 projects over six career clusters. (Both initiatives will be presented at the 2008 NCPN Conference in Cincinnati, Ohio; see the articles for details.)

[See CORD, page 2.](#)

### Thanks!

We are very appreciative of Allied Construction Industries, Inc. (ACI) for sponsoring this issue of NCPN *Connections*.

ACI is a nonprofit trade association comprising over 600 member companies who employ more than 30,000 individuals throughout Greater Cincinnati. Founded in 1929, ACI's membership includes general contractors, subcontractors, architects, engineers, developers, material suppliers, and service providers to the construction industry.

Members may be either union or open-shop companies who are engaged in commercial, industrial, and public construction. ACI serves as an umbrella to twelve partnership associations, including the Cincinnati Division of the Associated General Contractors. For more information, visit [aci-construction.org](http://aci-construction.org).



Allied Construction Industries, Inc.



## CORD Project Addresses Needs of Struggling Math Students

The materials described in this article will be on display at the CORD Communications booths (607, 609, 706, and 708) in the 2008 NCPN Conference exhibit hall.

Funded by a grant from the Anders Foundation, CORD has developed new instructional resources for use with middle and high school students who need extra help learning essential prealgebra skills.

Just published under the name *Math That Works*, these materials cover topics such as fractions, integers, decimals, percents, exponents, scientific notation, expressions, variables, constants, and equations.

The materials, which include activities, examples, applications, workplace exercises, diagnostics, math labs, skill practice, and standardized test problems, were developed and field-tested with the help of Texas teachers.

"Many students just don't seem to 'get it' in math," says project director and CORD senior associate John Chamberlain. "They lose self-confidence, often reaching the mistaken conclusion that because they don't feel 'gifted' in math, they will never succeed. By middle school this problem becomes really acute, since

underachievement in mathematics can become a huge barrier to their future education and their working careers. These students require a wide variety of approaches to get them back on track. They need different teaching strategies that address their varied learning styles. That's what we have tried to build into these materials with this project."

"CORD is very grateful to the Anders Foundation for recognizing this vital need, and for making it possible for CORD to bring its contextual approach to bear to help these students and their teachers," Chamberlain said.

The *Math That Works* materials are now being used around the country to enhance regular math classes, for extra support classes, in after-school programs and Saturday classes, and in summer catch-up programs. For further information, please go to [www.cordcommunications.com](http://www.cordcommunications.com) and click on "Contextual Mathematics." Or call 800-231-3015, extension 328. ♦

CORD, cont.  
from page 1

A third article describes how almost 20 Career Pathways Leadership Certification workshops will have certified about 1300 educators by the end of 2008. Under the direction of Debra Mills, almost 150 are receiving certifications during the 2008 NCPN Conference in Cincinnati. Also, many may not realize that CORD has done work internationally for several years. An article by Dr. Agustin Navarra describes two recent examples of projects designed to improve academic and career education in Latin America.

Finally, the newsletter includes two examples of math texts that CORD has authored, and its subsidiary, CORD Communications, Inc., has published. Both texts reflect one of CORD's core principles—that it's easier to teach

"contextually" if course materials are designed with contextual teaching and learning in mind.

CORD works hard to break through barriers for those who need more motivation to learn, to stay in school, and to try something outside of past traditions. CORD's new Adult Career Pathways effort encourages collaborations to *provide a second chance* for those who missed out the first time around.

In addition to being the Director of NCPN, I'm proud to also hold the title of CORD Senior Vice President. To find out more about why we are proud to be associated with CORD, contact me or one of the article authors, or visit our website at [www.cord.org](http://www.cord.org). ♦



## Red or Blue? Regardless, ALL States Are Embracing Career Pathways

Debra Mills, Vice President for Partnerships, CORD

**W**hat do the following have in common?

Amarillo, Texas • Northern Virginia Community College • Georgia Education and Career Partnerships • Fort Wayne, Indiana • State of Arkansas • South Suburban College • Region 20 Service Center @ San Antonio • State of Louisiana • St Johns River Community College • State of Alabama • State of Wisconsin • California Bay Area • State of Wyoming • St. Louis Community College • Georgia DTAE Directors • State of New Hampshire • Southwest Virginia Community College

*Answer:* All have participated in, or have scheduled, Career Pathways Leadership Certification workshops, and all are one step closer to implementation of Career Pathways in their states and regions. Collectively, those sites represent approximately 1300 professionals who have completed, or will complete, the certification process.

As the presidential election approaches, states are being identified as either blue or red. So it is really refreshing for me to see red and blue states alike moving toward the common goal of Career Pathways

implementation. Of course, Americans are independent souls, and it seems that every state wants to exercise that independence by making its own “mark” on what Career Pathways should look like. But that’s okay. The career cluster/Career Pathways approach is broad enough in scope to allow for many differences in detail.

Here are some examples of the kind of flexibility I’m talking about. In the Alamo Region in San Antonio, we allowed time for best practices in dual credit and articulated credit and time to have an update from the local five-year plan. In Northern Virginia, the local CCTI model was highlighted as an example of best practices. In Arkansas and Wisconsin, the Adult Career Pathways module took on the state flair as those modules were delivered by state personnel so participants could understand the nuances in their particular states. Alabama’s agenda incorporated a state update. All workshops include regional or state economic and labor market data.

Even though the certification is usually delivered in a two-day back-to-back mode, we have appreciated the obstacles that this might cause. In Georgia, we have delivered Day 1 in October and Day 2 in December,

It is really refreshing to see states, whether they are red or blue, align toward the common goal of Career Pathways implementation.

See *Certification*, page 8.

### **Career Pathways Leadership Certification Workshops**

The *Career Pathways Leadership Certification* workshop is a two-day workshop led by nationally recognized trainers. The first day usually runs from 8:00 to 5:00 and the second day from 8:00 to 3:00. The host site provides lunches and refreshments. Handouts will be sent to the host site electronically. CORD provides a CD for each participant with all the presentations and over 90 additional files (resources). Certificates can be given out on the last day, or the host site can require an assignment, in which case the host site mails the certificates when the assignments have been completed.

For more information, contact Deb Mills at [dmills@cord.org](mailto:dmills@cord.org) or Teemus Warner at [twarner@cord.org](mailto:twarner@cord.org).



## STEM Transitions Project Completes Free Resources for Classroom Use

Hope Cotner, Vice President for Community College Initiatives, CORD



The projects described in this article will be the focus of a conference presentation on Friday from 1:45 to 3:00 in room 236. See pages 17 and 49 of the 2008 NCPN Conference program book.

NCPN members may recall reading about CORD's STEM Transitions project in the *Connections* issue on CCTI (College and Career Transitions Initiative) published earlier this year (vol. 18-1). The purpose of the one-year project, funded by the U.S. Department of Education Office of Vocational and Adult Education under a cooperative agreement with the League for Innovation in the Community College, is to develop classroom-ready integrated materials for math, science, and technical courses. Specifically, the projects are designed for use in the six STEM-related career clusters—health science; information technology; manufacturing; transportation; science, technology, engineering, and mathematics; and agriculture. The materials are intended to aid students in mastery of essential mathematics and science concepts while motivating them to pursue STEM-related careers.

The integrated projects are organized around the six STEM-related career clusters and their associated career pathways. The intent is to provide community college faculty with teaching resources that offer both academic and career-related skills. The materials were developed by CORD, in conjunction with 38 faculty members from community colleges across the country. The projects offer integrated content that can be used in its entirety or as a resource from which to extract a wide variety of teaching materials to enrich existing curriculum. Some projects highlight math concepts, others highlight science concepts, and some feature both math and science concepts in addition to the technical content presented. Instructors can choose to conduct a project in its entirety or select specific components for their students. In all instances, the classroom resources

needed to conduct a project are provided for the instructor, including student handouts and assessment tools.

A total of 63 integrated projects have been completed and are available in draft form on the project website, <http://www.stemtransitions.org>. Designed for use at the community college level, many of the projects can easily be adapted for use in high school. An external review period is in progress and will conclude on October 31, 2008. Interested community college faculty members are invited to review and evaluate the project(s) of their choice. Evaluation forms for comments and suggested revisions are provided online, within each project. While the materials are considered to be in "draft" form, they are available for classroom implementation. Revision suggestions gathered during the external review period will be incorporated into the final versions of the projects and re-posted to the website by the end of 2008.

Example project titles include "DSL Filters: Why I No Longer Hear Voices" in the STEM cluster; "Simulating a Network of Sensors for Detecting Tsunamis" in the IT cluster; "The Planning Behind the Payoff: Developing an Agribusiness Plan and Financial Record Analysis" from Agriculture and Natural Resources; "It's Magic: Dynamics of Flight" in the Transportation, Logistics, and Distribution cluster; "Bubbles and Troubles: Sampling Water to Identify Quality Parameters" from the Manufacturing cluster; and "DNA-Based Prenatal Genotyping" from the Health Science cluster. All projects have industry connections and offer a feature section on STEM-related careers relevant to the project's content. ♦

For more information, contact Hope Cotner at [hcotner@cord.org](mailto:hcotner@cord.org).



## The Collaborative for Gender Equity in Emerging Technologies: A National Science Foundation Advanced Technological Education Project



Ann-Claire Anderson, Senior Associate, CORD

As the United States becomes more scientifically complex and its job market more technology-driven, the need for a larger, more diverse, science- and computer-literate workforce becomes more acute. To strengthen and diversify the nation's human capital, educators must seek ways to expand the participation of females in technical fields. The inability of high-tech employers to meet their workforce needs with just male graduates will lead to further outsourcing of American jobs to other countries.

The underrepresentation of women in technical careers is due in part to the misperception that women are less capable in science and technology—a myth that is refuted by standardized assessments. Thus, there is a need for initiatives that dispel that myth while providing tools for mentoring, disseminating information about high-tech careers, and fostering gender-equitable classrooms.

CORD's NSF-ATE project titled *Cultivating Gender Equity in Emerging Technologies: Mentoring and Mythbusting* (DUE #0703149) is taking steps to increase female participation in cutting-edge technologies. In partnership with the Center for Systems Security and Information Assurance (CSSIA) at Moraine Valley Community College, the project is engaged in three activities:

(1) Facilitating regional *mentoring program training workshops* designed to show program coordinators how to design, market, manage, evaluate, and sustain mentoring programs. Participants in these full-day workshops have included secondary and postsecondary

administrators and faculty, career pathways coordinators, academic and career counselors, and technical program chairpersons. (This workshop has led to the development of a half-day workshop on recruitment and retention in emerging technologies and nontraditional programs.)

(2) Creating the Collaborative's *website* (<http://genderequitycollaborative.org>), which contains sections on model programs for replication; career connections; fun sites for exploration; and gender equity research on mentoring, overcoming bias, career and technical education, and economic/employment issues. The jewel of the website is its online toolkit, *Building Your Mentoring Program*, a step-by-step guide that covers program design; student recruitment; mentor training; matching mentors to students; and program funding, management, marketing, and evaluation.

(3) Developing an *online professional development course* designed to help secondary teachers favorably alter the gender-equity climate in their classrooms. The six-week course, *Fostering Gender Equity in the Science, Technology, Engineering, and Mathematics Classroom*, provides an overview of recent research on girls' abilities and preferences in technological learning environments and strategies for promoting their interest in STEM fields. Upon completion of the course, participants will understand the underlying causes of gender inequity, recognize conscious and unconscious bias, and be equipped to alter their pedagogy and initiate programs aimed at recruitment and retention of young women in

The project described in this article will be the focus of a conference presentation on Friday from 8:20 to 9:20 A.M. in room 207. See pages 18 and 28 of the 2008 NCPN Conference program book.

See *Equity*, page 8.

## Los Angeles Unified School District Goes Contextual in Algebra 2 Classes

The materials described in this article will be on display at the CORD Communications booths (607, 609, 706, and 708) in the 2008 NCPN Conference exhibit hall.

Math educators in the Los Angeles Unified School district chose CORD's recently published *Algebra 2* textbook as its number one option for use in its schools. The district, with an estimated high school enrollment approaching 200,000 students, chose CORD's materials over more traditional offerings from other publishers to take advantage of CORD's pedagogical approach to address a wide variety of learning styles. District teachers have undergone in-service and training by CORD staff, which will continue in the coming years.

An increasing number of states have established the requirement that high school students take algebra 2 in order to graduate. CORD's *Algebra 2* textbook was developed in response to many requests from the field for a further title in its *Learning In Context* series covering prealgebra, algebra 1, and geometry. As was the case for the previous titles, the instructional materials were developed in collaboration with math educators around the country and with the assistance of MathQueue, a nationally recognized agency in Cincinnati, Ohio.

"Some math topics in algebra 2 do not naturally lend themselves to a contextual approach, so in many ways this was a

difficult project," said Piers Bateman, project director and president of CORD Communications, CORD's publishing affiliate. "We are absolutely delighted at the response to the textbook we have received from math educators everywhere. We feel both humble and very pleased that a major urban school district like Los Angeles would choose our book over the many other available texts, including those from the long established major publishing companies."

Another major challenge of the project was to create a book that addresses the many varied algebra 2 standards of different states and districts across the country. "So far, the book has been adopted by every state to which it has been submitted. Clearly, educators see this as a different instructional approach that they need to consider," Bateman said. "Now that the third editions of our *Algebra 1* and *Geometry* texts have come out, schools have some great new alternatives to look at."

For more information on *CORD Algebra 2* or the other titles in the *Learning In Context* series, go to [www.cordcommunications.com](http://www.cordcommunications.com) and click on "Contextual Mathematics." Or call 800-231-3015 Extension 328. ♦

**Don't miss the 2009 NCPN Conference in Atlanta, Georgia.**

**Sept 30–Oct 3**

All sessions will be held at the Hyatt Regency Atlanta.





## Career Pathways: Promising Results in Two Latin American Initiatives

*Dr. Agustin Navarra, Vice President for International Projects, CORD*

**B**ecause of DR-CAFTA—the Dominican Republic–Central America Free Trade Agreement, which was recently signed by the Dominican Republic and the United States—the Dominican Republic is facing a huge challenge. If it hopes to flourish economically, it must be able to compete with the United States and other countries in providing competitive products and services. If the Dominican Republic wants to improve its competitiveness, a significant mismatch between the supply of and demand for well-prepared technicians must be resolved.

To respond to this challenge, CORD and a group of business and industry leaders have initiated a pre-engineering career pathway that provides a model for reforming education throughout the Dominican Republic. The initiative has put in place a new curriculum oriented toward engineering careers, a new way of teaching (contextualized and supported by a long professional development process), and a new way of engaging business and industry in education. The pilot school, which offers instruction in seven pre-engineering specialties, is seeing excellent preliminary results. IMCA, Caterpillar’s representative in the Dominican Republic, is playing a key leadership role by helping to form the IEET (in English: Business Initiative for Technical Education) with several other business/industry leaders in the country. Strong leadership is also being provided by the participating school.

Brazil, on the other hand, is facing a different but equally challenging situation. Because of rapid economic growth over the last decade, many industries cannot find the well-prepared workers they must have in order to keep pace in today’s global marketplace. Brazilian

aircraft manufacturer Embraer (third largest in the world) has taken a lead role in reversing the worker shortage by contracting CORD to create and implement a pre-engineering career pathway in its school in São José dos Campos, State of São Paulo. A new contextual curriculum model has been established at the school, and participating teachers are working through a professional development process based on CORD’s contextual teaching model, the REACT methodology. (The acronym stands for *Relating, Experiencing, Applying, Cooperating, and Transferring*.) CORD has developed curriculum planning guides that provide lesson plans, resources, and assessment instruments. Embraer has purchased the equipment needed to acquaint students with real-world engineering problems and has provided conditions that enable the “pre-engineering students” to stay *two additional hours per day* in the school. Results have been excellent. The Embraer school is ranked among the strongest in national tests. Best of all, its first cohort of students, who will graduate in December 2008, will have acquired skills, abilities, and attitudes that will give them a competitive edge in their careers. Plans are under way to expand the program to public schools.

In its more than fifteen years of international work, CORD has found that the need to improve student performance is universal. Career pathways and contextual teaching and learning provide a promising model and a proven methodology for enhancing student performance, and both are welcome among growing numbers of educators around the world. ♦

*For more information, contact Dr. Agustin Navarra at [anavarra@cord.org](mailto:anavarra@cord.org).* ♦

Under the sponsorship of IMCA, Caterpillar’s representative in the Dominican Republic, the pilot school is seeing excellent preliminary results. Results in Brazil have also been excellent. The Embraer school is ranked among the strongest in national tests. Best of all, its first cohort of students, who will graduate in December 2008, will have acquired skills, abilities, and attitudes that will give them a competitive edge in their careers.



**Certification, cont.**  
from page 3

and one certification workshop in Georgia was stretched over several months. In Wyoming, we are aligning workshop modules with the breakout sessions of a conference.

Even though we have a standard assignment, many sites customize the assignment. For example, Wyoming and Georgia are using the assignment as a way to collect data on staff development

and the stages of Career Pathways implementation.

Even though all states are moving towards the Career Pathways goal, there are differences between states. So the built-in flexibility adds value to the certification process. I hope that I have piqued your interest. Contact us and see how we can customize the certification to fit your needs. ♦

**Equity, cont.**  
from page 5

emerging technologies. The course is free and runs January 16–February 27, 2009. Registration opens December 15 at the project website. Space is limited.

**Resources**—*New Formulas for America's Workforce: Girls in Science and Engineering* (NSF, 2003); *The Talent Imperative: Meeting America's Challenge in Science and Engineering* (Building Engineering and Science Talent, 2004);

*Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering and Technology* (Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development, 2000) ♦

For more information, visit <http://www.genderequitycollaborative.org> or email Ann-Claire Anderson, Principal Investigator, at [anderson@cord.org](mailto:anderson@cord.org).

## Connections

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*Connections* is published by the National Career Pathways Network, an organization of educators and employers dedicated to the advancement of Career Pathways, Tech Prep, and other CTE initiatives. NCPN assists its members in planning, implementing, evaluating, and improving workforce education programs. NCPN was founded by CORD, a national nonprofit organization that has been leading change in education for almost thirty years.

### Questions about *Connections*?

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