NOTICE OF MEETING
SCHOOL DISTRICT NO. 17

Notice is hereby given of a Board of Education meeting of School District No. 17, in the County of Douglas, which will be held at 7:00 p.m. on **Monday, January 15, 2007** at 5606 South 147th Street, Omaha, Nebraska.

An agenda for such meetings, kept continuously current are available for public inspection at the office of the superintendent at 5606 South 147th Street, Omaha, Nebraska.

MIKE KENNEDY,
Secretary

1-12-07

THE DAILY RECORD OF OMAHA

RONALD A. HENNINGSEN, Publisher

PROOF OF PUBLICATION

UNITED STATES OF AMERICA,
The State of Nebraska,
District of Nebraska,
County of Douglas,
City of Omaha, } ss.

J. BOYD

being duly sworn, deposes and says that she is

LEGAL EDITOR

of THE DAILY RECORD, of Omaha, a legal newspaper, printed and published daily in the English language, having a bona fide paid circulation in Douglas County in excess of 300 copies, printed in Omaha, in said County of Douglas, for more than fifty-two weeks last past; that the printed notice hereto attached was published in THE DAILY RECORD, of Omaha, on

January 12, 2007

That said Newspaper during that time was regularly published and in general circulation in the County of Douglas, and State of Nebraska.

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MARY [illegible] GENERAL NOTARY COMMISSION EXPIRES MAY 6, 2010 STATE OF NEBRASKA

Subscribed in my presence and sworn to before me this 12th day of January 20 07

Notary Public in and for Douglas County, State of Nebraska

Millard
PUBLIC SCHOOLS

COMMITTEE OF THE WHOLE MEETING

JANUARY 15, 2007

MILLARD PUBLIC SCHOOLS

The Board of Education will meet on Monday, January 15, 2007 at 7:00 p.m. at the Don Stroh Administration Center, 5606 South 147th Street.

The Public Meeting Act is posted on the Wall and Available for Public Inspection

Public Comments on agenda items - This is the proper time for public questions and comments on agenda items only. Please make sure a request form is given to the Board Vice-President before the meeting begins.

A G E N D A

1. Non- Traditional Small High School Update

Public Comments - This is the proper time for public questions and comments on any topic. Please make sure a request form is given to the Board Vice President before the meeting begins.

Minutes
Committee of the Whole
January 15, 2007

The members of the Board of Education met for a Committee Meeting on Monday, January 15, 2007 at 7:00 p.m. at the Don Stroh Administration Center, 5606 South 147th Street. The agenda for the meeting was an update on the non-traditional small high school.

PRESENT: Brad Burwell, Mike Kennedy, Mike Pate, Linda Poole, and Dave Anderson

ABSENT: Jean Stothert

Others in attendance were Keith Lutz, Martha Bruckner, Judy Porter, and other administrators.

Dr. Lutz opened the meeting by reviewing what took place during a full day retreat to do the initial planning for a non-traditional high school that is called for in the District's Strategic Plan Strategy 8. Participants in planning session included teachers, students, the architect, higher education partners, and a member from the Omaha Chamber of Commerce.

During October and November the District sent out three traveling teams to various school districts across the United State who had comparable schools that had career clusters. Martha Bruckner provided a thumbnail sketch as to what each of the schools visited offered in their programs, and the strengths and weaknesses of each school were discussed.

Dr. Lutz reinforced the idea that establishing partnerships with other higher educational institutions in the Omaha area was seen as being paramount for the success of the non-traditional high school. Furthermore, it was seen that by getting businesses involved and committed they could offer students the opportunities for internships, which would be an invaluable possibility.

Continued collaboration with the Omaha Chamber of Commerce, Metropolitan Community College, and UNO will be a vital part in the establishment of the non-traditional high school. The partnership with Metropolitan Community College is very important, because they have facilities, equipment, and staff in the cluster areas that the district is looking at for this non-traditional high school. The continued support of the University of Nebraska at Omaha is also important in regards to the dual credit option for the students of Millard.

Dr. Lutz continued by saying that the three current high schools are not being left out of this process. He said he will be working with the high school principals in establishing 9th grade academies to help in the transition of students into the career clusters. Students currently attending the Millard Learning Center needing an alternative setting would probably fit into the school very well. However, there are students attending the Learning Center that will still need to be served in a different manner, and there are alternatives being considered on how best this would be accomplished.

The next steps will be to conceptually develop a school along with three to four (or more) career modules, which may include 1) health and human sciences, including culinary arts; 2) business, finance and manufacturing; 3) engineering, science and technology, and 4) digital media communications. We will continue to work with the three high school principals to see what a

9th grade academy would look like and to consider if there could be any other modules that would work in the three comprehensive high schools. One of the upcoming steps will be to have the architect provide a preliminary design of what the building might look like.

There is also a tentative plan to survey students and parents in grades seven through ten to find out if the concept of the non-traditional high school appeals to the students and parents, and what interest exists in specific career clusters. There may also be focus groups with students explaining the concept.

The board will be updated periodically on the progress of the planning for the non-traditional high school.

Brad Burwell adjourned the meeting at 8:15 p.m.

Brad R. Burwell

CHAIRMAN

A SUMMARY TO THE BOARD OF EDUCATION FROM THE SUPERINTENDENT OF SCHOOLS REGARDING THE SMALL HIGH SCHOOL UPDATE

Pursuant to Strategy 8 Action Plans 4, 5, and 6 of the Millard Public School District Strategic Plan the following Executive Summary is submitted to the Board of Education for their input to enable further planning on the make up of the "small high school" will be.

On December 19, 2006, a group of team members met for much of the day. These were school people, students, and partners to address the strengths and weaknesses of what we would like the school to look like, both what the possibilities could be, and tried to answer some critical questions, and make recommendations to the school board. We have summaries of those attached as well as who was on the team.

We did have three teams who visited different districts across the United States with similar programs to assess program issues, strengths and weaknesses, building issues, staffing issues, and to come back and share with the group. They did a great job of doing this, and reports are attached.

I've also attached the three action plans. The pertinent part of the action plan is a specific result. The steps are just guidelines for the administrator to consider as they try to reach the specific result. You will note that there is one step in Strategy 8 Action Plan 6 step number 7 that says "identifying existing buildings that could be converted into a small high school". Obviously, we have already changed course on that as we are intending to build a new school. We have purchased property in the amount of 15 acres on 183rd & Q to develop and implement plans to create a small high school. Along those lines we are also trying at the same time to address specific results of an alternative off-campus learning experience for high school students, and also an alternative on-campus learning experience for high school students.

In addition to the strategic plan, other guiding directions for the group, and for me, were the Superintendent's goals established by the Board of Education for 2006-2007, specifically goal number #2 where it states the superintendent will continue progress with the Strategic Plan with emphasis on the following; 1) develop a framework for the implementation of a small high school, this is our attempt at accomplishing that goal. 2) Develop a framework for the implementation of a Career Education program, both on and off campus. This committee did consider all of the issues.

During the meeting with the large group we did both small group work, and large group work and shared both in large and small groups. Summaries of that meeting are attached. .

The group did consider all of those things as mentioned above including giving group reports as to what they saw at the other districts. Our first objective was to discuss in small groups the strength and weaknesses of the programs that were visited, and come back to share with the large group. Our next objective was to discuss in small group what a small school in Millard might look like compared to what we saw in various districts across the country. Having done that in

four different groups we tried to address issues or problems that we might run into along the way, and also things that would be great to consider if there were no impediments.

Some of the other factors that were outside of the realm of this group, that we need to consider will be the number of teachers, teacher certification, the implementation of the law LB 1024, or anything that comes out of the legislature, that addresses focus schools or magnet schools, pathways, equipment costs, and of course cost of the building, and partners. We've have already been working with Metropolitan Community College, the University of Nebraska Omaha, and the Chamber of Commerce, all were represented at this meeting in the planning phase.

Attached you will also find a preliminary plat for what the property looks like, and how the site would be developed. You will also find bond issue slides that we presented to the public during out last bond issue which we said $8.6 million would be allocated for a small non-traditional high school, that would serve four to six hundred students, and the Millard Learning Center would be replaced. This did not include purchase of land. I do realize that many of these students would fit into the small high school, both academically and socially, but I do realize that there will be a small number that would not. And, we still need to have a plan for those students ranging from a school within a school to leasing store front property for this small number of students.

Our main objective this evening is to get input to see what you would like to see in this high school. To give you some indication I have included some pieces of research, ideas, also summaries of plans that we've seen along the road.

To say there was consensus within the group would not be true, but each group did come out with a recommendation. This would be a career type center, and the five major clusters this group would like to offer would be those in health and human sciences, which means education, biosciences, med tech, and culinary arts. Additional things that could be added on would be things in the hotel management industry and the like. Our second cluster would be business and finance, and manufacturing. The third group would be engineering, science and technology, and the fourth one was digital media communication. The model we saw in Olathe, KS included eCommunications, and I'm assuming that this would be eCommunications, which would include television and radio.

Some of the recommendations that were suggested is that this school would be open for operation from seven in the morning until ten at night, that it would be some form of a block schedule, there was a great deal of discussion as to whether this should be where kids go to school full time, and no other high school, or fill the career service block and do their core subjects back at their regular high school. There was no space or money allocated for activities for this building. Though it will be difficult on the culture, circumstances may dictate that we run split shifts of morning, afternoon, and then open it in the evening for non-traditional and older learners.

Internships would be an integral part of the curriculum of the career center, and it would be our intention to make the "senior project" the capstone of the experiences for anyone going through this high school.

Transportation and the cost associated with it need to be considered and we would have to provide for transportation several times a day between the high schools, and the Career Center. We also know that we would like to develop a ninth grade academy at our three comprehensive high schools would prepare kids to go into the Career Center, as the Career Center, at this point would include 10th , 11th, and 12th graders. Students wishing to attend this school would have to go through several hoops to be admitted, teacher nomination, self selection by the student wanting to go there, meeting certain attendance requirements, are examples to be able to attend this school.

It is also our intent to have a very strong partnership with Metropolitan Community College to come up with dual credit and if a student does not qualify for an associate arts degree at the same time they qualify for their high school diploma they should be very close. It is also our intent to expand our dual enrollment program with the University of Nebraska at Omaha to offer to our students so they can also further their college experiences.

It was a full day and a fulfilling day. I have included the agenda that we followed. We look forward to the boards input, and then we will come back with the formal document.

Bob Mabry, the architect, was also at our meeting for the day to get some direction on how to start designing this building. He will also be at the board meeting to get further input, and then we will start going through drafts. It will be with some contention as to what of the career clusters we are going to offer.

Just a reminder the Chamber of Commerce was represented on this committee also, and as we go down the road it will be our hope the Workforce Council, through the Chamber would help drive the curriculum and the clusters that we can offer, and we could be flexible as the job opportunities and requirements change in the Omaha area, and we are able to keep more of our students in the local area.

Planning Team Agenda

Small School Planning Meeting
December 19, 2006
8:00 to 4:00 p.m. DSAC

Objective: To design the overall concept of the new small high school in MPS

Introductions of participants

Review of materials in packets
- List of participants
- Strategic Plan
- Recommendations from Committee 8-4
- Summaries of all visits
- Copies of power point presentations from all visits
- Summary of Career conference
- Jobs outlook for metro, Nebraska, US
- Article: Vocational Technical Concept to CTE (Career Technical Education)

Presentations on other high schools
- Olathe District / Olathe North High School – Olathe, KS
- CEC Middle College of Denver
- Southwest Early College at Denver Community College
- Granite Technical Institute – Salt Lake City
- Jordan High School – Sandy, Utah
- Clark Advanced Learning Center – Stuart, FL
- Wando High School – Charleston, SC

Small Group Discussion
- In small group sessions, participants will discuss what they heard (strengths and weaknesses) and what they would like to exist in the new school (proposals). Small groups will report to large group.

Establishment of major questions
- Should new school be a "home school" or a partial day magnet?
- How will these decisions impact scheduling at three comprehensive schools?
- What transportation will be provided?
- How will partner agencies (MCC; UNO) be involved in the school and on site?
- How will current "alternate high school MLC" students be served?
- What career clusters will be housed at new school?
- What (if any) career clusters should be housed at other high schools?
- What is the timeline for planning, building, opening the new high school?

Committee

Small High School Meeting
December 19, 2006

School Visitation Team

Angie Mercier	Millard Learning Center, Principal
Barb Waller	Millard Education Program Facilitator
Dave Patten	Millard North HS, Teacher
Jim Sutfin	Director, Human Resources
Jon Lopez	Exec. Director, Planning & Evaluation
Judy Porter	Director, Secondary Education
Julie Kemp	Millard North HS, Teacher
Kathy Ryan	Millard West HS, Asst. Principal
Linda Brewer	Millard West HS, Counselor
Martha Bruckner	Assoc. Supt. Educational Services
Melissa Byington	Andersen MS, Asst. Principal

District Administration

Keith Lutz	Superintendent
Mark Feldhausen	Asst. Supt. Technology

Community Partners

Sheri Rogers	University of Nebraska – Omaha Acting Vice Chancellor, Academic & Student Affairs
B.J. Reed	University of Nebraska – Omaha Dean, College of Public Affairs & Community Services
Randy VanWaggoner	Metropolitan Community College Vice President, Academic Affairs
Rich Katt	NE Dept. of Education Career & Technical Education/Perkins Project Leadership
Wendy Boyer	Greater Omaha Chamber of Commerce Vice President, Education & Workforce Development
Robert Mabrey	Beringer Ciaccio Dennell Mabrey Associates Architect

Student Representatives

Nick Argyle	Millard North High School, Student
Jeff Petersen	Millard Learning Center, Student

Discussion of Planning Group

9-12-16 Via Application (Assessment)

School Open
- 7:00 a.m. – 10:00 p.m.
- 9:00 a.m. – 10:00 p.m. (Sherri)

Could be Full Time or Part-time
- Multiple learning opportunities
  - Internships
  - Service Learning
  - Mentoring

Interdisciplinary Learning
- (Clusters of Teachers
  - o Core
  - o Community Mentor
  - o Problem Based – Online
- Competencies
- Performance Based Assessment (Assessment)
- Senior Project (Assessment)

Career Clusters
- Banking and Finance >Imbedded It
- Medical
- Pre Engineering
- Entrepreneuship

Plysical Plant – Open – Flexible – Spaces – Wireless

MPS has 9th grade academies at all schools (with career focus)

JPS is an all day program for 10-12 graders (apply to enter)

JPS provides afternnon and evening classes for all MPS students – MCC,
And UNO

If extra seats others can enter
Part-time

3 "schools" at JPS (Core and elective)
* Health and Human Services
  Education CNA
  BioScience Med Tech
  Food Service Culinary Arts
* Science and Engineering
* Business and Manufacturing

TDWL

MPS develops additional career partnerships at other schools

Strengths

- Learning Environment
    - o engaged
    - o seems like college
    - o small numbers
- Connection to post high school
    - o business
    - o employer
    - o higher education
    - o sharing faculty
    - o associates degree/certificate
    - o early entry
- Instructional Approaches
    - o inderdisciplinary
    - o authentic
    - o technology enhanced certification

Weaknesses

- Disconnects if students are involved in multiple environments (travel is only a symbol of this)
- Different Cultures
- Career exploration implication
    - o declare too early
    - o feasibility to change?
    - o earlier exploration may be needed

Equity In Opportunity
- o Self-select
- o Application upon reaching capacity
- o Transportation
- o Tuition for Dual Credit

Combine Full-day/Partial Day

Limited CORE Program integrated with career path/Integrated Curriculum

Pathways --- NCE

Large bands with sub-strands

- o Business/Business Management
  - - Hospitality/Culinary
  - - Finance
- o Communication/Info tech
  - - Digital media
- o Health Science/Health
- o Science, Technology, Engineering, math/manufacturing
- o potential re-structuring for MNHS, MSHS, MWHS
- o Transition beyond this school
  - - University
  - - Work
  - - Credentials
    - * Diploma
    - * Certification/Degree "AAAS"

      Progress toward degree

Strengths

- Student focused/engaged
-
- Career relevance
- Little or no cost to students
- Learning contextual
- Community economic match
- Cut red tape
- Flexible credit (CC/College)
- Student expected to excel (can do college level work)
- Business/Industry/Educational Partnerships

Weaknesses

- Programs not always linked to high demand areas (frequency/ability to change)
- No e-learning
- Limited history/assessment
- Time (schedules, transportation)
- Staff Development

- Funding sources (State, grants, etc.)

Learning focused – regardless of age

Funding – grants, interlocal agreements
- colleges, workforce contributions

Partnerships, Giving Back to the Community (internships, teaching, in-kind)

Relevance – no discipline prob. Teachers wanted to teach. Passion for their profession. Students are connected to world

Community Based – day care, dentists, PT, Utah State Early Childhood, International/Cultural Affairs

Opportunities for all – alternative, middle majority, advanced level – articulation between colleges and schools

Use of building – P.M. and evening classes for high school students. High school students in class with adults

Students may not want to leave home school for other classes

NCLB limitation – can we open conversation?

Traditional Times issue, UNO serve is most busy at 2:00 a.m.

Design challenge – space, flexibility for change, space for technology, future oriented

Funding/support from State???

Strengths

- High relevance and student engagement
- Collaborative (Articulated) with post-secondary options
- Career paths with multiple exit points
- Ultimate collaboration with business, industry, and education
- Meet needs of a segment of student population

Weaknesses

- Certification/Registration Barriers
- Funding (preliminary sources vs. on-going sources) enough?
- Caution: Do not make clusters to narrow
- Logistics
  - o Schedules
    - With other high schools
    - Of courses
    - Collaboration with colleges/outside opportunities
  - o transportation
  - o application, etc.
- Must have a clear vision before proceeding or marketing
  - o Who are the students?

Small schools retreat day

First Small group report out

Strengths

- Student focused/engaged
- Career relevance
- Little or no cost to students
- Learning is contextual
- Community/economic match
- Cut red tape
- Flexible credit (cc/college)
- Student expected to excel (can do college level work)
- Business industry/education partnership
- High relevance/student engagement
- Collaborative (articulated) with post secondary options
- Career paths with multiple exit points
- Ultimate collaboration with business and industry/education
- Meet needs of a segment of student population
- Broad scope of learning regardless of age – fluid system of facility program to address needs of kids through adults – consider time of day of offerings – do you have to start with teens at 7:45 in am and end with them at 3:15 can there be a redesign of school day concept
- Concurrent education of kids and adults
- Can there be early childhood component as a training program
- Funding – interlocal agreements, buy in from community, grants, investing in greater community – value in grants could be looked at as challenge – there is a great accountability component to a grant based organization = you must do program evaluation
- Structure of internships and partnerships in place as part of the guarantee to kids – not only will we place you on a career track but the buy in and relevance is there because there will be someone in the field there to help you along
- Opportunities to all – some kids that fit into our current alt. program, relevance is a high priority for them, also discussed what Florida called the middle majority –

doing what they are supposed to do – not over or underachieving, but not getting any attention either
- Cultural affairs, world perspective – we could capitalize on the availability of univ. people who could teach languages, etc. for us. Not just looking at local perspective but considering global perspective and needs
- Use of building for evening classes, throw the schedule out the window – schedule building use in new way.
- Learning environment, college environment, small size, ped approaches and learning methods add value to student engagement
- Partnerships, sharing faculty, early entry, etc. seem to be working well in models visited.
- Instructional approaches, interdisciplinary focus, gen ed. Links with career classes.

Weakness

- Some programs not always linked to high demand areas (frequency or ability to change)
- No e learning
- Limited history/assessment
- Time (schedules, transportation)
- Staff development, personnel issues – people coming from bus/industry world to an education world and ed people learning to work in a business/industry setting.
- Funding sources (state, grants, etc.)
- Must create an attraction for students to want to leave their home schools – what is the draw or win for me to go
- Limitation of NCLB – opening conversations with Neb Ed (Rich) about alternative certification, provisional trade, etc. chances are good about creating what we need
- Doing something unique – interlocal agreements – funding, facilities, Somone probably our supt. Will need to communicate with legislature – people don't understand .
- Design challenges – looking at an "austere" budget – physical plant design will be a challenge, will present planners with a challenge after hearing the ideas we have.
- Disconnect if they are going between trad. And non-trad hs – different cultures in two types of schools – hard for students to exist in "two worlds" and succeed in both.
- Career exploration implications – necessary to have a broadbased approach, is there flexibility there to move between clusters if they discover that they are not interested in what they thought they were interested in.

WHO ARE WE TALKING ABOUT?

- Sophomores through seniors, start working with the middle schools to start programming students toward this opportunity
- Select group of 9th graders
- Non-traditional populations that we would recruit to engage in certain fields of study
- Perkins def. of non-traditional : any career field where there are less than 25% of a gender represented in the field
- This is not a non-traditional high school.
- Non-traditional students who find comprehensive high schools overwhelming and disengaging. –

What are NON-Traditional kids –

- Child of parent who do not attend college?
- Is there overlap between the above group and those that do not perform well in traditional academic settings?
- Learners who do not fit in traditional classrooms b/c their learning style is more kinesthetic.
- What might lead a student to be a non-traditional learner – lack of relevancy – many of them demonstrate adult learning characteristics – problem solving skills, want high relevancy, want to solve it for themselves, self-directed in high interest areas.
- Guidelines to decide who we are looking at as population – ms records, assessment scores, teacher recc., career decision maker results, student self selection, plps.

Put more space into comprehensive hs in their sq ft. into athletics than there is in this whole building (space utilization by discipline MW – get copies)

****Clusters primary focus would be on non-entry level positions – most often careers that require additional preparation post-secondary.

What futurist? (question for Dr. Lutz)
Only 30% of jobs will not require a college diploma in future. If pub. Schools do not progress, they will become what the county hospital has become in urban areas.

Programmatic issues:
What will go into this school?
Sessions? How many?
Schedule?

Design and Define:

Small group:

Judy's group

Non-traditional learner : Student not engaged in the comprehensive high school, fall through the cracks, self-selected, middle majority - students for whom career orientation would significantly enhance their passion for learning, this program would act as a springboard for their education.

Students who are interested in career immersion opportunities in a small, focused setting with highly interactive programs, which will provide advancement in career paths and post secondary education.

Areas of focus:

Health and Human Services
Business and Finance
Engineering, Science, and Technology

Attendance/Programs:

- Both Full time and part time – FT participating in full program including core requirements, part time focuses on career courses/electives only.
- Application for full time, career classes for pt kids on first come first serve or app also.
- Purposely not identifying a "type" of kid.
- Must be internship experiences.
- Will include early entry, dual enrollment
- Must build foundation starting at the middle and elementary level.
- Discussed opening to 9-12 grade students: possibly a freshman academy, offering some core classes there, combining some core requirements with career focus areas and collaborating with Metro and UNO to develop courses that will meet dual requirements (articulation agreement).
- Application with opportunity to express career interest area (either in writing or orally in interview or both) and where they see themselves going (goal-setting).
- Must include a global perspective course (as a core req/elective) in each focus area. Could be a free-standing course or integrated within the focus area.
- Include lots of technology through out all plans
- Building design – components of large central common collaborative area. Flexible space (large spaces) with modular components, may need some specialized areas, which will be identified with career strands and able to change with them.

PLPs for each student – major and minor selected – engage metro and UNO at that point to help tailor courses to student needs and focus areas.

Sheri's group

- 9-12 building
- Students apply (first assessment point, requires essay)
- School is open 7-10 pm
- Could be full time or part time, high school kids are full time
- Multiple learning opportunities, internship, service learning, interdisciplinary learning, problem based online
- Want them to be aware of the value added from the beginning
- Capped with a senior project, (led by core teacher, community member)
- Banking and Finance, Medical, Pre-engineering, entrepreneurship,
- Physical plant – open and flexible areas
- PT students are primarily higher ed students or potentially adult learners.
- Much discussion about whether it should be full time or part-time for high school students – wanted to create a venue for full time placement for students who are disengaged in traditional school.
- Discussion about interdisciplinary studies of core teachers (math, science, English teachers working together to make those core areas work together with career cluster).

Barb's group

- Theoretical questions: wanted to be sure we provided equitable access to the students – addressed it by self selection and application process.
- Transportation from home school to this site would need to be available, dual credit would need to be at no cost to the student potentially to the district.
- Would like this to be a combined school for both ft and pt students. This would fit with being open from 7am to 10pm.
- Full day program would be limited core program that would combine with cluster programs
- Pragmatic discussions about what is to be offered, how do we make programs available here that might be cost prohibitive in other hs
- Business and business mgmt (includes Hospitality industry and culinary arts)
- Digital Media, Communication and information technology (digital media)
- Health science and health occupations.
- STEM (science, technology, engineering, and math)
- Might need to address or restructure in comp hs because some of these could be offered or are offered in existing hs
- Synergy of opportunities so they might be earning dual credits and progress toward a degree of their choice.

Martha's group

- MPS has 9th grade academies at all schools with career focus
- JPS is an all day program for 10-12 graders (w/ application process)
- Provides afternoon and evening classes for all MPS Students – MCC and UNO – they could return after 3:30 for those courses.
- If extra seats, others can enter part time.
- Would allow them to complete a degree early.
- Much discussion about whether it was an all day school or part time (Jeff Petersen school – student giving advice to group). Design an all day program to build the relationships – some students need to be there all the time to build the relationships
- 3 R's =Rigor, Relevance, and Relationships. Relationships to developing the school
- Also discussed BJ Reed's comment about the disconnect between the two worlds of traditional hs and career high school.
- Liked Wando's concept of using a team of teachers within each cluster area to incorporate core areas within each cluster.
- Discussion (in large group) about meeting graduation requirements – question raised by Kathy Ryan and answered by Martha Bruckner that all students would have to meet the graduation requirements but the courses that they take at this high school might look differently than some of the courses at other high school. Continued discussion about having 9th grade academy at all high schools and at new school.
- MPS develops additional career partnerships at other schools.
- 3 schools at JPS (core and elective)
    - Science and engineering
    - Business and manufacturing (TDWL)
    - Health and human services
        - Education
        - CNA
        - BioScience
        - MedTech
        - Food service/culinary arts

YEAH, BUT's

- Don't want it to look like or smell like an alternative school.
- If its not a come and go school, why would you need it
- If it's a full day program, you don't have to deal with it.
- This should not take the place or in some way limit career opportunities in 3 existing hs. Needs to be an enhancement.
- This shouldn't preclude systemic change in other Millard schools that would lead us in the same direction

- Will it affect enrollment in AP classes? Will dual enrollment and early entry classes affect that enrollment?
- Forces student to make career choice very early, when even college students have not made that choice (European model). May make students not as well rounded if they focus to early. Needs to be flexibility to adjust or change within the program.
- We don't want the clusters to be so tracked that if they take their core requirements in line with one cluster that it does not relate at all to other career requirements.
- Needs to be designed with flexibility in mind for students changing career clusters. Need to have some foundation building to help students identify their career areas.
- Started with career exploratories at MS level 20 years ago? Yeah, but how long do you explore?
- Will a student be able to get any one of the diploma paths from this school or will it be limited?
- What about transportation? When/how often would you run buses? Could do mid-day transportation? Waller – to be equitable to all we need to provide some transportation, especially for 9th and 10th grade students.
- Need to ensure that students are viewing opportunities that are free of bias (especially gender role) so they can see an opportunity as being open to them.
- On the red tape/instructor credentials/ tuition model: All of the thriving schools had outside entities that are supporting them breaking the mold.
- How are you going to staff it – Metro, UNO teachers, or Millard teachers?
- This really takes business/school partnerships to a new level. They will be working in a different way than they ever have been. Education has a role and business has a role. Senior projects are part of this and internships are part of this. Businesses must step up at this point.
- One of the pieces that we need to look at is the marketing. In the parent community, it already looks like that. Marketing will have to be communicated very clearly what this school is and is not.
- Naming of the school will be important in marketing the school.
- Discussion of the pace of our curriculum process currently and how it will have to change and speed up to address the work we need.

WOULDN'T IT BE NICE IF . . .

- The Omaha work task force helped drive the curriculum
- If this new school, would end up changing all of our schools
- If this fundamentally changed the success of students within the MPS system. In terms of whatever your measures of success are.
- Wouldn't it be nice to have teachers get on the same page to help kids dream again to be successful?
- If this school creates a model, that influences state level policy so change can occur on a larger level across the state (and nation)

- If all of our students would see themselves as college graduates, either 2 year or 4 year.
- If this leads to more effective integration between the higher education community and MPS and leads to the benefits of the students.
- ******missed one by Wendy
- If students could still participate in their home school extra-curriculars.

Goals, Action
Plans, Map

SUPERINTENDENT GOALS - 2006-2007

1. The Superintendent will advocate and communicate the Board of Education's legislative agenda to the legislature and to the community.

2. The Superintendent will continue progress with the Strategic Plan with emphasis on the following:

   - Develop a framework for the implementation of a small high school
   - Develop a framework for the implementation of a Career Educational program, both on and off campus
   - Develop a plan to address the rapid increase of drug and alcohol use/abuse in our schools

3. The Superintendent will reexamine the curriculum and ensure it is aligned with the Strategic Plan and our goal to become a World Class School district.

ACTION PLAN

STRATEGY NUMBER: 8
PLAN NUMBER: 6
DATE: *March 2004*

STRATEGY: We will develop and implement innovative approaches to motivate and educate students who learn in non-traditional ways.

SPECIFIC RESULT: Develop and implement plans to create a small high school.

#	*ACTION STEP (Number each one)*	*Assigned To:*	*Starting Date:*	*Due Date:*	*Completed Date:*
1.	Survey parents and students to determine the level of interest in a small high school within the District.				
2.	Identify specific niches of non-traditional students whose needs could best be met through a small high school.				
3.	Develop a specific profile for a new small high school (mission, vision, student body makeup, curriculum, special programs, calendar, schedule, staff) that encompasses best practices aimed at motivating non-traditional students.				
	Identify in detailed specifics how to best leverage the opportunity for personalization that a small school affords.				
5.	Create an innovative activities department that includes traditional and non-traditional opportunities for students to be engaged with and attached to school.				
6.	Brainstorm with colleges and universities about roles that they might play in providing innovative, motivational programming.				
7.	Identify an existing building that could be converted into a small high school.				
8.	Charge an administrator with developing the logistics of opening a new high school.				

Responsible:

ACTION PLAN

STRATEGY NUMBER: 8
PLAN NUMBER: 4
DATE: ***March 2004***

STRATEGY: We will develop and implement innovative approaches to motivate and educate students who learn in non-traditional ways.

SPECIFIC RESULT: Develop and implement alternative on-campus learning experiences for high school students.

#	*ACTION STEP (Number each one)*	*Assigned To:*	*Starting Date:*	*Due Date:*	*Completed Date:*
1.	Set guidelines for identifying non-traditional learners. These may include some or all of the following: elementary and middle school records, teacher recommendations, Career Decision Maker results, Terra Nova, PLAN, student self selection, etc.				
2.	Establish building-level committee to investigate the feasibility of non-traditional educational options on campus. These may include, but are not limited to, the following: • Allow for alternative grading options within individual classes. • Night school in the traditional setting. • Creative ideas of staff members who are willing to design and implement an educational dream for students. • Researching innovative techniques being used at other schools of comparable size. • Department help room				
3.	Research and implement creative ways to support differentiation within each high school building, i.e. • Drop-in evaluations by administration. • Use of department heads in the teacher evaluation process. • Develop an end-of-course student assessment regarding differentiation used in the class. This assessment should be used for teacher growth and shared with evaluator.				
4.	Evaluate the effectiveness of each program. *Cross reference to "smaller learning communities" in Strategy 8*				

Responsible:

ACTION PLAN

STRATEGY NUMBER: 8
PLAN NUMBER: 5
DATE: ***March 2004***

STRATEGY: We will develop and implement innovative approaches to motivate and educate students who learn in non-traditional ways.

SPECIFIC RESULT: Develop and implement alternative off-campus learning experiences for high school students.

#	*ACTION STEP (Number each one)*	*Assigned To:*	*Starting Date:*	*Due Date:*	*Completed Date:*
1.	Set guidelines for identifying non-traditional learners. These may include some or all of the following: elementary and middle school records, teacher recommendations, Career Decision Maker results, Terra Nova, PLAN, student self selection, etc.				
2.	Actively recruit students to seek out currently articulated internships, academies, work-study opportunities, and classes in post-secondary institutions, as well as online options.				
3.	Create new internships, academies, work-study opportunities and articulations with area post-secondary institutions. Coordinate these with district level persons and school registrars.				
4.	Seek new online options and other technological programs available for student use.				
5.	Educate staff, students and current parents regarding these options and the steps a student must take in order to become a participant.				
6.	Develop a high school entry program that informs incoming parents and students of available choices as juniors and seniors.				
7.	Evaluate the effectiveness of each program.				

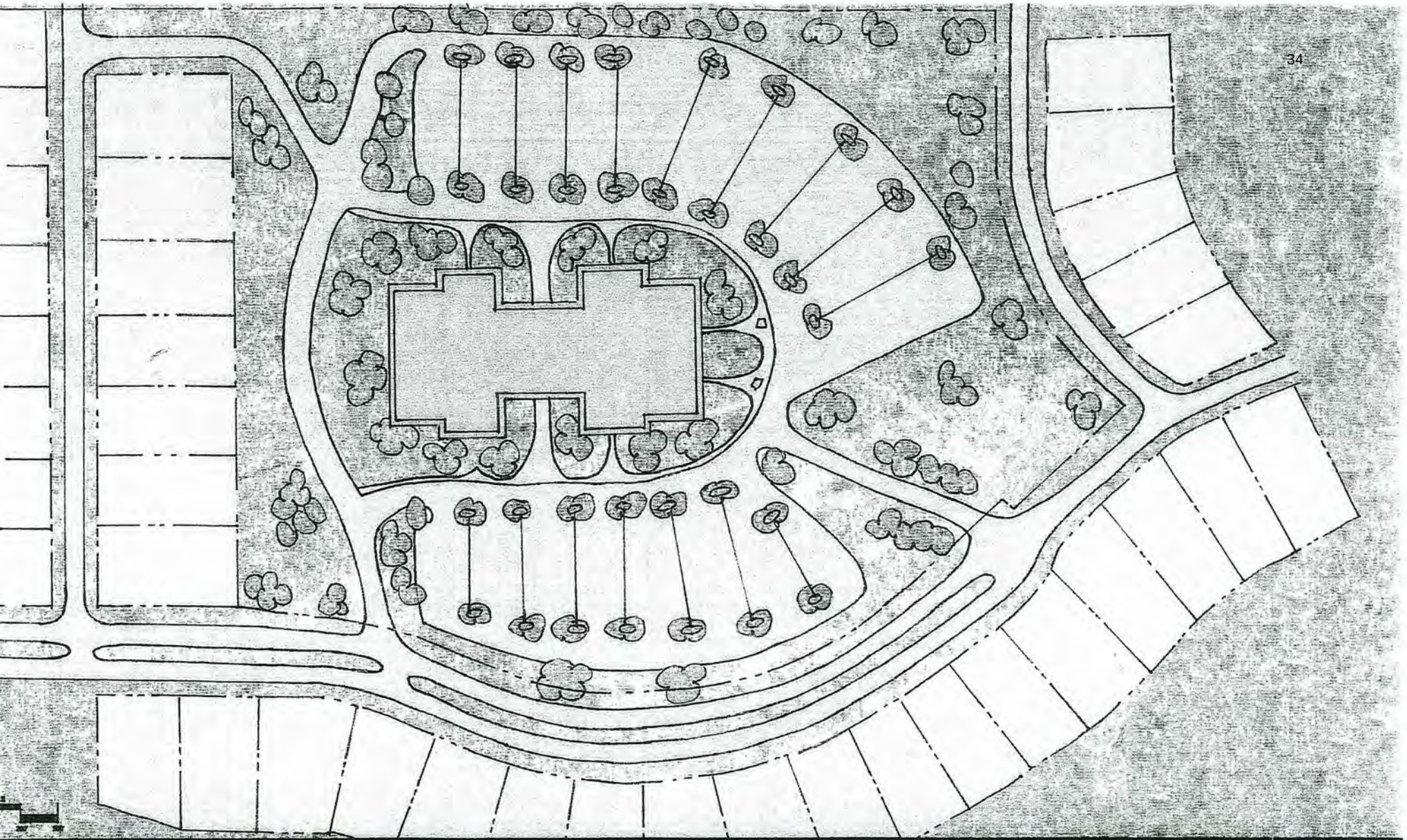
Responsible:

New Schools

- Two elementary schools ($15.8 million) will serve growing neighborhoods.
- The schools will be located near 168th & Giles and 198th & F.
- A small non-traditional high school ($8.6 million) will serve 400-600 students (Millard's oldest building will be replaced).

Land ($3.4 million)

- 10 acres for a new elementary school
- 15 acres for the non-traditional high school
- 50 acres for a future high school site



Millard Public Schools - Alternative High School

Omaha, Nebraska

CONCEPT SITE PLAN

Bahnger Ciaccio Dennell Mabrey
architecture • landscape architecture • interior design • construction management
bcdm

COLLEGE AND WORKFORCE TRAINING READINESS

Ready for College and Ready for Work: Same or Different?

Executive Summary

Results of a new ACT study provide empirical evidence that, whether planning to enter college or workforce training programs after graduation, high school students need to be educated to a comparable level of readiness in reading and mathematics. Graduates need this level of readiness if they are to succeed in college-level courses without remediation and to enter workforce training programs ready to learn job-specific skills.

We reached this conclusion by:

- Identifying the level of reading and mathematics skills students need to be ready for entry-level jobs that require less than a bachelor's degree, pay a wage sufficient to support a family, and offer the potential for career advancement
- Comparing student performance on ACT tests that measure workforce readiness with those that measure college readiness
- Determining if the levels of performance needed for college and workforce readiness are the same or different

The study results convey an important message to U.S. high school educators and high school students: We should be educating all high school students according to a common academic expectation, one that prepares them for both postsecondary education and the workforce. Only then—whether they are among the two-thirds who enter college directly after graduation or those who enter workforce training programs—will they be ready for life after high school.

Although the contexts within which these expectations are taught and assessed may differ, the level of expectation for all students must be the same. Anything less will not give high school graduates the foundation of academic skills they will need to learn additional skills as their jobs change or as they change jobs throughout their careers. The results of this study provide ample evidence that we must move the agenda for high school redesign in a direction that will prepare *all* students for success no matter which path they choose after graduation.

ACT

 IC 0402TA060

Introduction

For decades it has been a commonly held belief that high school students planning to go to college need to take more rigorous coursework than those going directly into the workforce. Today, however, many employers are convinced that in an expanding global economy, entry-level workers need much the same knowledge and skills as college-going students. But such claims have been based mostly on anecdotal rather than empirical evidence. This research brief examines the relationship between college readiness and workforce readiness by asking the question: Are readiness for college and readiness for work the same, or different?

The primary mission of our public education system is to give every student the opportunity to live a meaningful and productive life, which includes earning a wage sufficient to support a small family. All students need to develop the knowledge and skills that will give them real options after high school. No student's choices should be limited by a system that can sometimes appear to have different goals for different groups. Educating some students to a lesser standard than others narrows their options to jobs that, in today's economy, no longer pay well enough to support a family of four. Widening access to the American dream through public education has always been one of the foundations of our society, and it is more critical than ever to our ability to remain competitive in today's global economy.

Our new finding has important implications for U.S. high school education. It suggests that all high school students should be educated according to a common academic expectation that prepares them for both postsecondary education and the workforce. This means that all students should be ready and have the opportunity to take a rigorous core preparatory program in high school, one that is designed to promote readiness for both college and workforce training programs.

What Is the Expectation for Workforce Training Readiness?

Our first step was to define workforce readiness. We began by referring to the Occupational Information Network (O*NET), a comprehensive national database of job and worker attributes developed for the Employment and Training Administration of the U.S. Department of Labor. O*NET classifies jobs using five zones, each defined by particular education, training, and experiential requirements.

We focused on Job Zone 3 because the occupations in this zone are likely to offer a wage sufficient to support a small family[1], provide the potential for career advancement, and are projected to increase in the future (U.S. Department of Labor, 2004). Zone 3 is the highest O*NET level that includes jobs that do not require a bachelor's degree, but which likely require some combination of vocational training and/or on-the-job experience, or an associate's or higher degree (*O*NET OnLine Help,* n.d.). Examples include electricians, construction workers, upholsterers, and plumbers.

By selecting O*NET Zone 3, we are essentially defining workforce readiness as workforce *training* readiness, since Zone 3 jobs require high school graduates to

The WorkKeys® System

WorkKeys is ACT's job skills assessment system measuring the "real-world" skills that employers believe are critical to job success. The skills are valuable for any occupation—skilled or professional—and at any level of education. WorkKeys is used by businesses, workforce development groups, and schools to find, hire, train, and retain qualified employees.

Components include:

Job Analysis (Profiling)
Identify the skill requirements and WorkKeys skill levels an individual must have to perform successfully. The WorkKeys job profile database currently includes profiles for more than 12,000 jobs across all industry verticals.

WorkKeys Assessments
Measure the current skills of individuals in nine key areas. WorkKeys tests in Reading for Information and Applied Mathematics were used for the present study.

Training
Improve skills that make individuals more employable and business more competitive through a better trained workforce.

have the foundational skills necessary to learn additional job-specific skills throughout their careers.

What are the minimum skill standards that high school graduates need to enter Zone 3 occupations? We used job profiles from ACT's WorkKeys program (see sidebar, previous page), O*NET occupational data that identify the minimum level of knowledge and skills needed to enter each of these profiled jobs, and expert ratings to derive a profile that identifies the reading and mathematics skills needed for students to be ready to enter the vast majority—90 percent—of the profiled Zone 3 occupations after high school.[2] On a WorkKeys scale that reports scores for Reading for Information and Applied Mathematics ranging from Level 3 to Level 7 (see sidebar, this page), this level of knowledge and skills was profiled at a Level 5 for *both* reading and mathematics.

Do College Readiness and Workforce Training Readiness Represent a Common Expectation?

After defining workforce training readiness for 90 percent of the profiled Zone 3 occupations that require training after high school, we examined whether the level of readiness for workforce training programs is the same as or different than the level of readiness needed for success in college.

Commonalities: Readiness Levels

Because WorkKeys and the ACT® test are measures of workforce and college readiness, respectively, we based our analysis on WorkKeys and ACT scores from a statewide sample of high school eleventh-grade students over a four–year period. We conducted a statistical concordance between the respective college and workforce training readiness levels in reading and mathematics from both programs.[3] The concordance between the ACT College Readiness Benchmarks (see sidebar, next page) and WorkKeys Level 5 shows that the levels of readiness in reading and mathematics are comparable. Therefore, it is reasonable to conclude that the expectations of students who choose to enter workforce training programs for jobs that are likely to offer both a wage sufficient to support a small family and potential career advancement should be no different from the expectations of students who choose to enter college after high school graduation. Table 1 summarizes the comparability analysis.

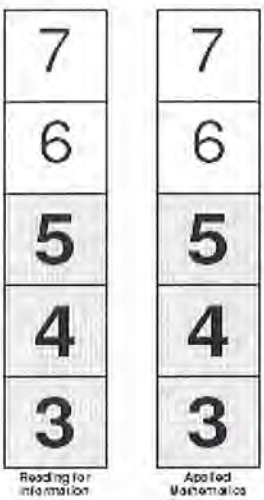
Table 1
Comparability between WorkKeys Job Profile Level 5 and ACT College Readiness Benchmarks in Reading and Mathematics[4]

WorkKeys Test	WorkKeys Readiness Level	Comparable ACT Score Range and College Readiness Benchmark
Reading for Information	5	19–23 Benchmark = 21
Applied Mathematics	5	18–21 Benchmark = 22

WorkKeys Level Scores

Developed with input from employers, labor organizations, educators, and policymakers, ACT's WorkKeys tests are criterion-referenced tests anchored to the skills needed for workforce readiness in nine areas.

Jobs are profiled using the same levels to assess individuals' workforce readiness skills. An individual's readiness for a particular job can be compared to the requirements of the job, as defined through the job profiling process. In this study, the level of knowledge and skills considered to represent work readiness was profiled at a Level 5 for both reading and mathematics.



Level 5 WorkKeys Applied Mathematics and Reading for Information scores are often used in state and community workforce readiness certificate programs across the nation. These programs are used to qualify prospective worker readiness for a majority of jobs in a particular locale.

ACT College Readiness Benchmarks

The ACT, the most widely accepted and used test by postsecondary institutions across the U.S. for college admission and course placement, measures students' academic readiness to make successful transitions to college and work after high school. ACT has defined college readiness empirically by establishing College Readiness Benchmarks representing the minimum ACT test scores required for students to have a high probability of success in corresponding credit-bearing first-year college courses. The ACT Benchmarks are based on course placement data from a nationally representative sample of postsecondary institutions. The Benchmarks reflect the ACT scores students need to earn to have at least a 75 percent or greater chance of obtaining a course grade of C or better. The College Readiness Benchmarks for Reading and Mathematics are:

Reading:	21
Mathematics:	22

The results of this analysis address the comparability of the *levels of expectation* represented by college and workforce training readiness. Because each test measures only one of the two kinds of readiness and is not perfectly correlated with the other test, a given individual's ACT test score *cannot* be substituted for a WorkKeys test score or vice versa.

Commonalities: Skills

This analysis provides empirical evidence supporting the contention that the expectations for college readiness and for workforce training readiness are comparable. This empirical comparability is further supported by similarities in the skills defined for college and workforce training readiness shown in Tables 2 and 3.

For reading and mathematics, respectively, the two tables contain all of the ACT College Readiness Standards in the 20–23 range (the score range that contains the corresponding College Readiness Benchmark) and all of the WorkKeys skills at Level 5. Because WorkKeys is designed expressly to reflect what businesses expect of entering workers and the ACT is designed expressly to reflect what colleges expect of entering students, the two assessment programs have uniquenesses in what they measure and in the scores they report. But there are also commonalities in the expectations for readiness in the two tests, as shown by the skill groupings in these tables.

Table 2
Reading Skills for College and Workforce Training Readiness

Skill Group	ACT Reading Test College Readiness Standards (20-23 Range)	WorkKeys Reading for Information Test Skills (Level 5)
Main Ideas and Supporting Details	Infer the main idea or purpose of straightforward paragraphs Understand the overall approach taken in a passage (e.g., point of view, kinds of evidence used) Locate important details Make simple inferences about how details are used in a passage	Understand main ideas, topic sentences, and the relationships among sentences in a paragraph Correctly use technical terms when describing the main idea and supporting details in a passage Recognize organizational structures of passages to identify pertinent details and recognize appropriate applications Select important details to clarify meaning
Sequential, Comparative, and Cause-Effect Relationships	Order simple sequences of events Identify clear relationships between people, ideas, and events Identify clear cause-effect relationships	Apply straightforward instructions to new situations Apply complex instructions that include conditionals to situations described in a passage

Skill Group	ACT Reading Test College Readiness Standards (20-23 Range)	WorkKeys Reading for Information Test Skills (Level 5)
Meaning of Words	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements	Figure out the correct meaning of a word based on how the word is used Understand the definitions of acronyms defined in a passage Identify the appropriate definition of words with multiple meanings based on context
Generalizations and Conclusions	Draw generalizations and conclusions about people, ideas, and events Draw simple generalizations and conclusions using details that support the main point of a passage	Apply technical terms to stated situations Apply given information to new situations

Table 3
Mathematics Skills for College and Workforce Training Readiness

Skill Group	ACT Mathematics Test College Readiness Standards (20-23 Range)	WorkKeys Applied Mathematics Test Skills (Level 5)
Algebra and Algebraic Thinking	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Evaluate algebraic expressions by substituting integers for unknown quantities Add and subtract simple algebraic expressions Solve routine first-degree equations Perform straightforward word-to-symbol translations Multiply two binomials Evaluate quadratic functions, expressed in function notation, at integer values	Solve problems that include a considerable amount of extraneous information Calculate using several steps of logic Perform single-step conversions within or between systems of measurement Look up and use a single formula Calculate using mixed units (e.g., 3.5 hours and 4 hours 30 minutes) Find the best deal using one- and two-step calculations and then comparing results Calculate percentages, percentage discounts, or percentage markups Divide negative numbers Decide what information, calculations, or unit conversions to use to solve the problem Use exponents, including exponents in fractions and formulas
Geometry and Geometric Thinking	Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Locate points in the coordinate plane Comprehend the concept of length on the number line	Solve geometric problems that include a considerable amount of extraneous information Calculate using several steps of logic Calculate perimeters and areas of basic shapes (rectangles and circles) Look up and use a single formula

Skill Group	ACT Mathematics Test College Readiness Standards (20-23 Range)	WorkKeys Applied Mathematics Test Skills (Level 5)
Geometry and Geometric Thinking (continued)	Exhibit knowledge of slope Find the measure of an angle using properties of parallel lines Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°)	Decide what information, calculations, or unit conversions to use to solve the problem
Data Representation and Statistical Thinking	Calculate the missing data value, given the average and all data values but one Translate from one representation of data to another (e.g., a bar graph to a circle graph) Determine the probability of a simple event Exhibit knowledge of simple counting techniques	Average hours and minutes or other mixed units in one system Solve problems that include a considerable amount of extraneous information Calculate using several steps of logic sometimes involving graphs, charts, or tables

Commonalities: Sample Test Questions

Further parallels in the levels of readiness for college and workforce training programs can be seen in the test questions used to assess the skills measured in the two tests. Table 4 contains examples from the ACT Reading Test and the WorkKeys Reading for Information Test. Although the contexts of the passages are unique—the ACT passage is a prose selection and the WorkKeys passage is a workplace communication—the underlying reading skills being measured are similar.

Table 4
Comparison of College and Workforce Training Readiness: Reading Test Questions

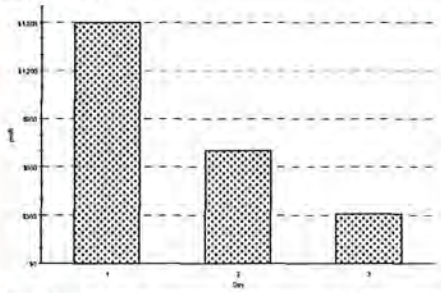
ACT Reading 20-23 Range [Order simple sequences of events]	WorkKeys Reading for Information Level 5 [Apply straightforward instructions to new situations]
Excerpt from passage:* Mr. Brook had come home early and lighted a fire in the little grate in his sitting room. He felt comfortable and at peace that evening. He sat before the fire in his stocking feet, with a volume of William Blake on the table by his side, and he had poured himself a halfglass of apricot brandy. At ten o'clock he was drowsing cozily before the fire, his mind full of cloudy phrases of Mahler and floating half-thoughts. . . . He had been walking across the campus that afternoon when Madame Zilensky stopped him and began some preposterous rigmarole, to which he had only halflistened: he was thinking about the stack of canons turned in by his counterpoint class. Now the words, the inflections of her voice, came back to him with insidious exactitude. Madame Zilensky had started off with the following remark: "One day, when I was standing in front of a *pâtisserie* (pastry shop), the King of Finland came by in a sled." Mr. Brook jerked himself up straight in his chair and put down his glass of brandy. The woman was a	*Passage:* **MEMO** **TO:** Publications Department Assistants **FROM:** Publications Department Manager Thank you in advance for helping the editors proof the Valve Adjustment manual and documents associated with the new line of valves. The following instructions are for proofing the manuscript copy of the manual scheduled for the beginning of next week. Additional instructions will be provided when the preliminary copy with typefaces, graphics, copy placement, and headings is proofed. **Team Proofing Stage** You will be paired with another proofer, the *reader,* and you will be issued two versions of the same section. One version is the marked-up copy, which contains modifications in handwritten red ink. The reader will read aloud each word, punctuation mark, and number on the marked-up section.

ACT Reading 20-23 Range [Order simple sequences of events]	WorkKeys Reading for Information Level 5 [Apply straightforward instructions to new situations]
pathological liar. Almost every word she uttered outside of class was an untruth. . . . Mr. Brook finished off the rest of his brandy. And slowly, when it was almost midnight, a further understanding came to him. The reason for the lies of Madame Zilensky was painful and plain. All her life long Madame Zilensky had worked—at the piano, teaching, and writing those beautiful and immense twelve symphonies. Day and night she had drudged and struggled and thrown her soul into her work, and there was not much of her left over for anything else. Being human, she suffered from this lack and did what she could to make up for it. . . . Through the lies, she lived vicariously. The lies doubled the little of her existence that was left over from work and augmented the little rag end of her personal life. * Adapted from Carson McCullers, "Madame Zilensky and the King of Finland." ©1955 by Carson McCullers.	The other copy is the new version, and it should incorporate all edits from the marked-up version. The proofer must mark in red ink any missed edits and any additional modifications. Most likely further corrections will be needed. **Single Proofing Stage** After the corrections have been made and checked from the team proofing stage, you should do a single proof on the new copy. Mark corrections in red ink. Continue to repeat this process until the materials are error free. During your single proof, read every word aloud. In this way you will both see and hear the copy, which will enable you to better detect a missing word or number. Reminder: Spell-check programs have reduced misspellings considerably, but you should be aware of specialized terms that the computer's dictionary does not know. Once the manual is ready to print, I will need you to follow the same instructions to proof the technical specification sheets for each valve type. If you have any questions, please speak to me or to one of the editors.
Question: The *first* insight about Madame Zilensky that came to Mr. Brook during his cozy evening was that she was a great: **A.** composer. **B.** teacher. **C.** performer. **D.** liar.	*Question:* You are an assistant. According to the memo shown, during the team proofing stage, what is the next step after you mark any needed modifications? **A.** Further clerical corrections will be made. **B.** The proofing stages will reveal no further corrections. **C.** The proofing time on the project will be reduced. **D.** The editors will meet the printer deadline.

The commonalities in mathematics skills are illustrated by the sample questions in Table 5. While the questions present problems in different contexts, the underlying mathematics skills each pair requires for their solutions are similar.

Table 5
Comparison of College and Workforce Training Readiness: Mathematics Test Questions

ACT Mathematics 20-23 Range [Evaluate algebraic expressions by substituting integers for unknown quantities; solve routine first-degree equations]	WorkKeys Applied Mathematics Level 5 [Look up and use a single formula; perform single-step conversions within or between systems of measurement]
The number of bricks, *B*, needed to build a wall of uniform length *L* feet and uniform height *H* feet can be found by the equation $B = 7LH$. A wall of uniform height that is 20 feet long is constructed using 350 bricks. What is the height, in feet, of the wall? **A.** 1.75 **B.** 2.5 **C.** 17.5 **D.** 50	A refrigeration system at your company uses temperature sensors fixed to read Celsius (°C) values, but the system operators in your control room understand only the Fahrenheit scale. You have been asked to make a Fahrenheit (°F) label for the high temperature alarm, which is set to ring whenever the system temperature rises above -10°C. What Fahrenheit value should you write on the label? **A.** -23°F **B.** -18°F **C.** 14°F **D.** 26°F

ACT Mathematics 20-23 Range	WorkKeys *Applied Mathematics* Level 5
[Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and *computing with a given average*]	[Calculate percentages, percentage discounts, or percentage markups]
The Sunrise Preschool held its annual book fair for 3 days. The total profit for the 3 days was $2,525. The profit, in dollars, is shown for each of the 3 days in the bar graph below.  Approximately what percent of the book fair's profit over the 3 days did the preschool make on Day 1 ? **A.** 25% **B.** 33% **C.** 50% **D.** 60%	As a dietitian, you help clients manage their sugar intake. A popular fruit drink contains a total of 28 grams of carbohydrates. Of that total, 19 grams are sugar. About what percent of the total carbohydrates is the sugar? **A.** 7% **B.** 9% **C.** 15% **D.** 68%

Summary

This study provides empirical evidence that the levels of readiness that high school graduates need to be prepared for college and for workforce training programs are comparable. These empirical results are also supported by commonalities seen in the types of knowledge and skills students need to be ready for college and workforce training programs, even though these skills are often taught and assessed in different contexts. All of these skills can be acquired through rigorous high school courses, regardless of the context (academic or career focused) within which they are taught. The results of this study underscore the importance of having a common expectation for all students when they graduate from high school: one that prepares *all* high school graduates for both credit-bearing entry-level college courses and workforce training programs associated with jobs that are likely to offer both a wage sufficient to support a small family and the potential for career advancement.

If we are to be competitive in today's global economy, it is critical for us as a nation to give every high school graduate the opportunity to live a meaningful and productive life and earn a decent wage. All high school graduates should have a sound foundation of knowledge and skills so that they can enter college or workforce training programs ready to learn.

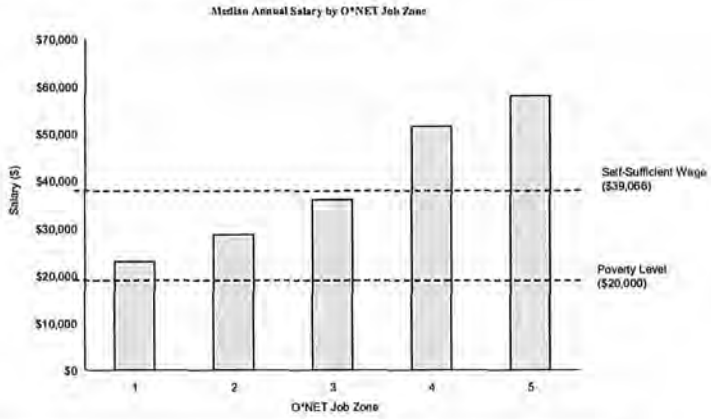
Action Steps for Policymakers

Following are recommended action steps that state policymakers can take toward achieving a common expectation that *all* high school graduates will be ready for college and for workforce training programs:

- Use the common expectation to establish a statewide commitment that all students will be prepared for college and workforce training programs when they graduate from high school.
- Require that all students take a rigorous core preparatory course program in high school.
- Hold schools and states accountable for preparing all students for college and workforce training programs through rigorous core courses.
- Ensure that state standards reflect the skills needed for college and workforce training readiness for all students.
- Provide funding for measures of college and workforce training readiness skills to be used as statewide high school assessments.
- Begin measuring student progress with aligned assessments as early as the eighth grade to monitor progress, make appropriate interventions, and maximize the number of high school graduates who are ready for college and workforce training programs.
- Use the common expectation of college and workforce training readiness as a prerequisite for entry into funded training or development programs (e.g., incumbent worker training) and offer remediation for those who do not meet this expectation.
- Communicate the common expectation of college and workplace training readiness to all stakeholders, including businesses, workforce and economic development associations, and educational institutions.

Notes

[1] Comparison of median wages for O*NET job zones was based on the following chart (*O*NET Consortium - Production Database,* n.d.):



Self-sufficient wage based on median recommended budget for a family of 4 (two parents two children) averaged across 2600 U.S. communities (EPI). Poverty level provided by U.S. Dept of Health and Human Services (2006)

A "self-sufficient" wage is typically defined as the money needed to meet basic needs such as food, housing, utilities, clothing, child care, and health care plus a small allowance for personal expenses and savings.

[2] ACT's WorkKeys is a standardized job skills and assessment system that businesses commonly use for employee selection and training. WorkKeys includes a job profiling/job analysis component used to identify the critical skills required to enter a job and perform it effectively. There are 120 O*NET Zone 3 jobs for which ACT has a WorkKeys profile estimate based on either the WorkKeys job profile database or expert

ratings. The WorkKeys profile estimates for these jobs were used to identify the reading and mathematics skills needed for a majority of the profiled Zone 3 occupations.

[3] To determine how workforce training readiness compares to college readiness, we analyzed data from 476,847 high school juniors in Illinois who took the ACT, the WorkKeys Reading for Information Test, and the WorkKeys Applied Mathematics Test between 2001 and 2004. These tests are administered as part of the Illinois Prairie State Achievement Examination program, a statewide assessment administered annually to all eleventh-grade students. We statistically aligned the scores on the two WorkKeys Tests (which represent workforce training readiness) to the scores on the ACT Reading and Mathematics Tests (which represent college readiness).

[4] The statistical concordance reveals that the Level 5 score on the Reading for Information test corresponds to an ACT score range that includes the ACT College Readiness Benchmark for Reading as its midpoint; the Level 5 score on the Applied Mathematics test corresponds to an ACT score range that is just one score point below the ACT College Readiness Benchmark for Mathematics. However, because WorkKeys and the ACT do not measure the same things and are not perfectly correlated, scores on the two tests are not interchangeable.

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Career Academy

Partnering Organizations

- Career Academy Support Network (CASN)
- National Academy Foundation (NAF)
- National Career Academy Coalition (NCAC)
- National Center for Education & the Economy (NCEE)
- High Schools That Work (SREB)
- Talent Development High Schools (CRESPAR)

I. Defined Mission & Goals.

The career academy has a written definition of its mission and goals. These are available to the administrators, teachers, students, parents, advisory board, and others involved in the academy.

II. Academy Structure.

An academy needs to have a well defined structure within the high school, reflecting its status as a small learning community.

III. Host District & High School.

Career academies exist in a variety of district and high school contexts, which are important determinants of an academy's success.

IV. Faculty & Staff.

Appropriate teacher selection, leadership, credentialing, and cooperation are critical to an academy's success.

V. Professional Development.

Since an academy places teachers and other adults into roles not normally included in their previous training, providing adequate professional development time, leadership, and support is critical.

VI. Governance & Leadership.

The academy has a governing structure that incorporates the views of all stakeholders.

VII. Curriculum & Instruction.

The curriculum and instruction within an academy meets or exceeds external standards and college entrance requirements, while differing from a regular high school by focusing learning around a theme.

VIII. Employer, Higher Education, & Community Involvement.

A career academy links high school to its host community and involves members of the employer, higher education and civic community in certain aspects of its operation.

IX. Student Assessment.

Improvements in student performance are central to an academy's mission. It is important to gather data that reflect whether students are showing improvement and to report these accurately and fairly to maintain the academy's integrity.

X. Cycle of Improvement.

No new academy functions perfectly. Even well established and operated academies benefit from self examination and refinement. Ensuring and improving the quality of a career academy requires engaging in a regular cycle of improvement.

Reforming High Schools: The Role for Career Academies

December 1, 2004

Why Change is Needed

- High School Dropout Rates 
- College Going Rates 
- Postsecondary Remediation Rates 
- Student Engagement 

What Are Career Academies?

- Small, personalized learning communities within a high school
- Rigorous academics embedded in a career theme
- Partnerships with employers, communities, and higher education

Framework for Reform

Rigor

Relevance

Relationships

Career Academies' Contribution to Rigor

- High expectations for all students
- Access to college prep curriculum
- Students get the help they need --
- From qualified teachers
- Curriculum meets or exceeds state standards, college entrance requirements, and industry standards

Career Academies' Contribution to Relevance

- Students are motivated by applied, contextual, project-based teaching and learning
- Students select program based on life goals & career interests
- Career themes linked to local workforce needs
- Workplace experience, community service
- Students develop skills important to success in careers, life, society, not just academic skills
- Programs provide pathways to postsecondary education

Career Academies' Contribution to Relationships

- Smaller settings allow for students and teachers to know each other well
- Students grouped together over several years with advisors, teachers
- Employers serve as role models, mentors, advisors

Career Academies Work

- Labor market outcomes (MDRC)
- High school graduation (CA)
- Entry to postsecondary education (CA)
- Attend four-year college (CA)

Challenge 4

Preparing Students for the World Beyond High School

In the days when graduating from high school ensured a decently paying job, high school principals and teachers could consider their work done if they succeeded in shepherding students through to graduation. Those days are past, and a postsecondary credential is now virtually indispensable for jobs paying middle-class wages. In the third quarter of 2005, the median weekly earnings of full-time workers with a bachelor's degree or higher were $1,014, while median earnings for workers with only a high school education were $583; graduating form college or attaining an advanced degree thus yielded a wage premium of 74 percent.[33] Moreover, nearly 76 percent of those with a four-year college education hold jobs, compared with only 60 percent of high school graduates.[34] There is widespread acknowledgment that high schools need to produce graduates who have the knowledge, experience, and skills needed to gain admission to college or, if students opt not to attend college, to find good jobs.

Teens attending large urban high schools face many disadvantages when it comes to getting into college. Aside from low incomes and marginal academic skills, they often do not know the courses they need to take to meet college entrance requirements, and overstretched guidance counselors do not ensure that students enroll in the required classes. Students also need to know how to go about researching and pursuing financial aid options available to them but may not receive the individual attention and "handholding" that they need to complete the college and scholarship application process.

When it comes to securing good jobs, teens in poor neighborhoods are also at a disadvantage. Many lack the social networks that would help them connect with higher-paying employers. And the problem-solving and teamwork skills employers increasingly demand are often not taught in the large comprehensive high schools that such students typically attend. According to the Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS), in 1991 fewer than half the youth in the United States had acquired the skills and knowledge required for meaningful and productive work in the labor market.[35]

A further problem is that, despite pressures to improve student achievement and to make all students ready for college, many high schools continue to offer two separate courses of

[33]U.S. Department of Labor, Bureau of Labor Statistics (2005b).
[34]U.S. Department of Labor, Bureau of Labor Statistics (2005a).
[35]U.S. Department of Labor, Secretary's Commission on Achieving Necessary Skills (1991).

Take-Away Lessons on Preparing Students for the World Beyond High School

- Earnings impacts for young men in Career Academies appear to be linked to career awareness activities and work internships during high school.
- The potential benefits of partnerships between high schools and employers can be more fully realized when these partnerships are more structured and when schools can designate a full-time, nonteaching staff person to serve as a liaison with employers.
- It may be necessary to improve the academic component of Career Academies in order to raise students' achievement on standardized tests and help them secure admission to college.

study: one featuring higher-level academic classes for students who are college-bound and another offering lower-level academic classes and vocational classes to those who are presumed not to be college-bound. This arrangement parallels and perpetuates class, racial, and ethnic differences in education and employment outcomes for students and in the larger society.

The Solutions

Among the initiatives considered in this report, Career Academies are most clearly oriented toward the goal of helping students prepare for a productive future after they leave high school.[36]

[36]Although the other program models were more immediately geared toward ensuring students' success in and graduation from high school than in helping them plan their post-high school future, it is worth recalling that ninth-graders in Talent Development schools were routinely scheduled for algebra — an important prerequisite for upper-level high school math classes and, ultimately, for college admission. The principal of one First Things First high school also helped ensure that students took courses needed for graduation and beyond by linking course counseling to the Family Advocate System: He made family advocates responsible for reviewing students' transcripts and helping them plan their future course-taking. This system relieved an overburdened guidance office. More important, perhaps, is that it required all those serving as family advocates — almost all the teachers in the school — to become thoroughly conversant with the requirements for high school graduation and for college admission, a topic about which many teachers had previously known little. The teachers were sometimes surprised to discover that students who believed that they were due to graduate on time were missing required courses or had an insufficient number of credits; the teachers' intervention helped ensure that students got back on track.

Consequently, the Career Academies program strategies and evaluation findings are the focus of this section.[37] Two such strategies are especially important: creating an integrated academic and occupational curriculum and establishing partnerships between high schools and local employers.

Creating an Integrated Academic and Occupational Curriculum

In keeping with their goal of offering high-quality preparation both for college and for entry into the workforce directly after high school, Career Academies require students to take a combination of academic and vocational courses. The curriculum each year typically consists of three or more academic courses and at least one occupation-related course that focuses on the academy's career theme. The occupational courses are broadly structured around whole industries: Health Academies, for example, try to expose students to diverse medical occupations in the areas of direct care, technology, and administration. Thus, enrollment in a Health Academy is intended to be as appropriate for a student who has ambitions of becoming a doctor as it is for someone who is interested in being an X-ray technician or an office assistant in a hospital.

Core academic courses (English, mathematics, and so on) are intended to reflect the theme of the Academy. In the schools participating in the evaluation, however, researchers found that academic courses in the Academies were virtually indistinguishable from courses in the rest of the school, in either content or mode of presentation.

Establishing Employer Partnerships

The partnerships that Career Academies forge with local businesses constitute a major program feature. The goal of these partnerships is to involve employers in sponsoring career awareness and work-based learning activities for students and, more generally, to ensure that the employers' perspective informs Academy decision-making.

Each Academy in the MDRC evaluation offered a variety of activities designed to enhance students' understanding of the world of work in general and their knowledge of occupations within the academy's broad career themes. Some career awareness activities — field trips and opportunities to "job-shadow" adults at work for a day — took place outside of school. Other activities typically occurred in school: researching jobs and their requirements as a class assignment or receiving instruction or counseling about how to find a job or act on the job. Academies also sponsored events at which adults came to the schools to talk about their work.

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[37]The Talent Development model calls for students in grades 10 through 12 to be enrolled in Career Academies. The Career Academies in the Philadelphia high schools where Talent Development was evaluated were highly variable, however, and did not necessarily adhere closely to the Career Academies model evaluated by MDRC. Thus, for example, some Philadelphia Career Academies were designated for higher-achieving, college-bound students, while others were not very different from traditional vocational education programs.

The businesses provided students with work experiences — summer internships and jobs during the school year — that were intended to teach practical skills, inculcate proper workplace behavior, and point out pathways to careers within the Academy's theme occupation. The broader goal of these work experience positions was to show students how their education fit into the world of work. Local employers also served, along with representatives from the Career Academy and the school district, on an advisory board that guided policy and created strategies for combining classroom- and work-based learning.

The Evidence

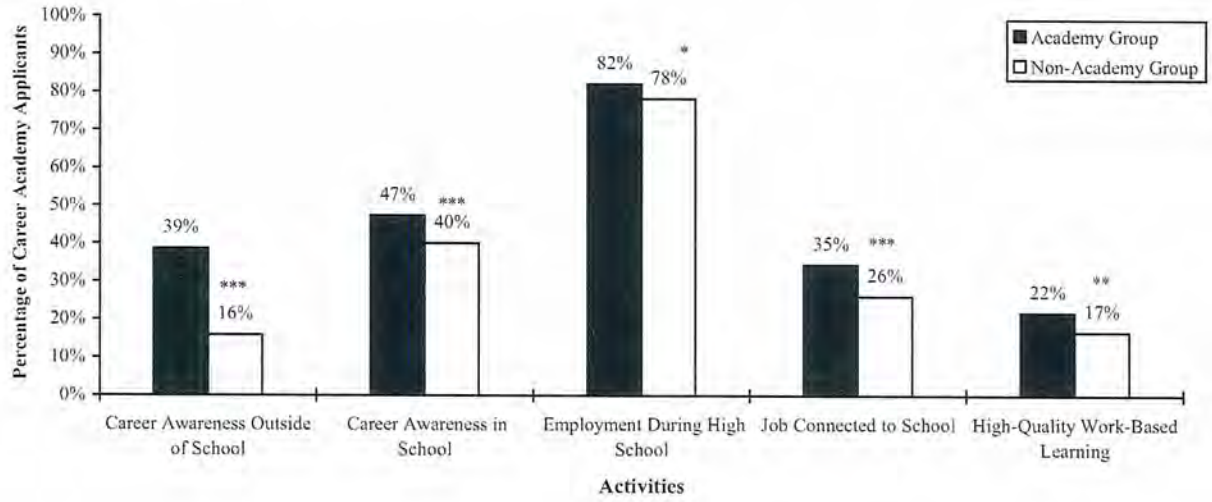
The Career Academies study provides powerful evidence from a random assignment evaluation that being in a Career Academy positively affected students' work-related experiences both in high school and beyond. Students who applied for admission to the Career Academy were randomly assigned to either the Career Academy group or a control group. Both groups completed surveys during their twelfth-grade year and four years after their scheduled graduation and were asked about a broad range of school- and work-related experiences during high school and afterwards. Because of the random assignment process, the comparison between Academy and non-Academy groups provides a reliable estimate of the extent to which the Career Academies increased participation in career awareness and work-based learning while students were in high school, as well as college attendance and labor force participation after high school. In interpreting the data, it is important to recognize, however, that students in the Academy group had varying degrees of exposure to the Career Academy programs: Some remained in these programs throughout high school; others enrolled for one or more semesters and then left; and some never enrolled at all.

Figure 3 presents the findings. The results indicate, first, that the Academies increased rates of enrollment in career-related courses but did not reduce students' academic course-taking. Furthermore, although some non-Academy students also participated in career awareness and work-based learning activities, the students who had an opportunity to attend an Academy participated more frequently and more intensively than non-Academy students.[38] Finally, and importantly, relative to students in the non-Academy group, students in the Academy group were also more likely to work while they were in high school, and they were more likely to work in jobs that were connected to school and that offered opportunities to learn new skills. The sobering flip side of these encouraging data is that over half the students who were selected

[38]In fact, Career Academy students were engaged in these activities at levels that were equivalent to or higher than participation rates found in other school-to-work initiatives.

Figure 3

Impacts of Career Academies on Participation in Career Awareness and Work-Based Learning Activities for the Career Academy Applicant Sample, by Research Group



SOURCE: MDRC calculations from the Career Academies Evaluation 12th-Grade Survey.

NOTE: Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

to enroll in an Academy never participated at all, left quickly, or did not take part in career awareness or work-based learning activities for some other reason.

The Career Academies study clearly illustrates the benefits of long-term follow-up in program evaluation. The research has continued to track the educational and employment experiences of members of the Academy and control groups after they left high school. During the first four years after their scheduled graduation, young men in the Academy group registered positive and sustained impacts on a range of labor market outcomes. Figure 4 shows that the Career Academies increased earnings for young men by an average of $212 per month, or more than $10,000 over the 48-month period — an 18 percent increase over control group members' average earnings. The higher earnings resulted from the combined impacts that the programs had on the number of months employed, hours worked per week, and better wages. In other words, Career Academies helped the young men obtain better-paying jobs and jobs at which they worked for more hours. The Career Academies' impact on earnings for young men is substantially larger than the roughly $100-150 difference in monthly earnings that has been found in other research comparing the earnings of young workers with one or two years of postsecondary education with those of their counterparts who have only a high school diploma or a General Educational Development (GED) certificate.[39]

Employment impacts were greater for students who entered the programs at high or medium risk of dropping out than for those at low risk. (Members of the low-risk group, in contrast, made a greater investment in postsecondary education during the follow-up period.) The Career Academies had no impacts on labor market outcomes for young women, perhaps because, relative to the young men, young women were also more focused on postsecondary education or on taking care of children.

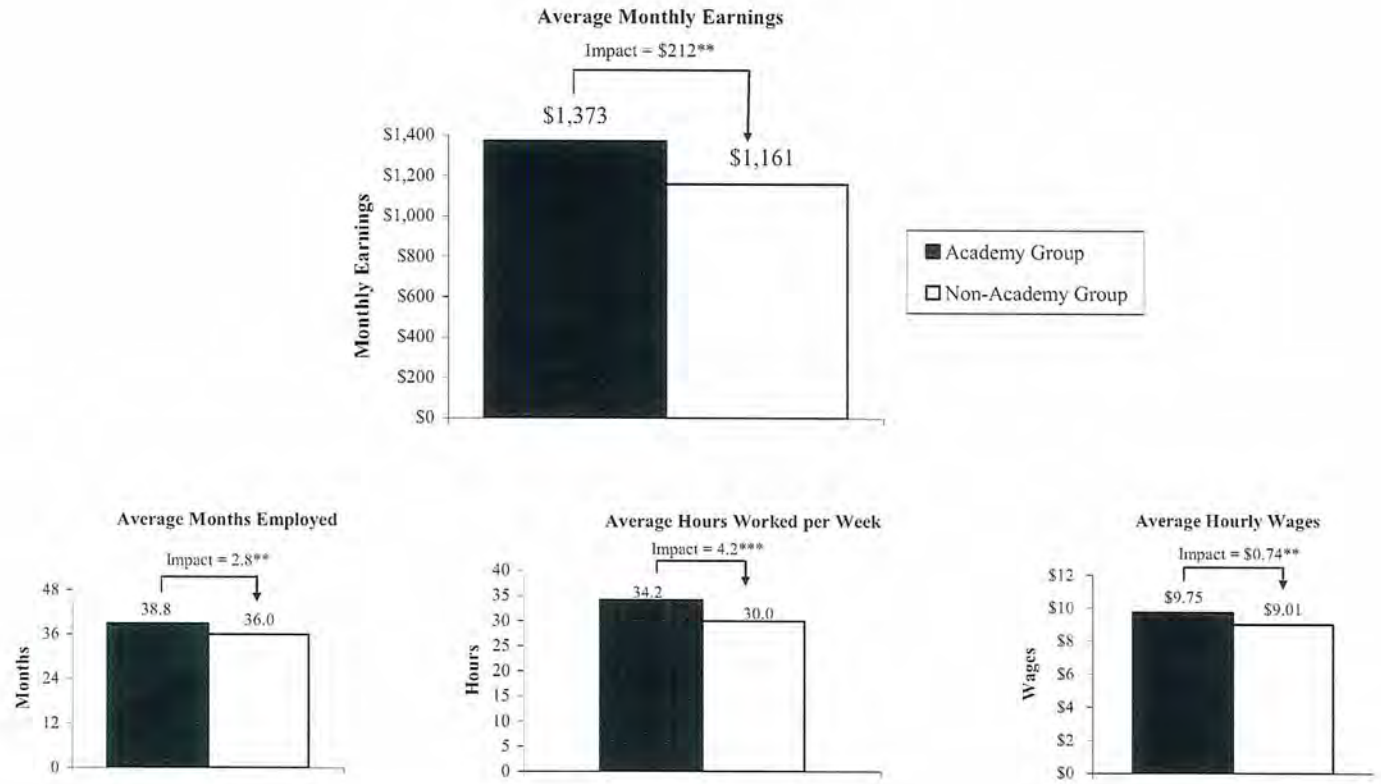
While there is strong evidence that the Career Academies improved work-related outcomes for many students, there is no evidence that they improved educational outcomes. They did not boost scores on achievement tests, nor did they have an impact on students' rates of graduation from high school or entry into postsecondary education. It should be noted, however, that, relative to similar students nationally, students in both the Academy and the non-Academy groups graduated at high rates. It may well be that, having voluntarily sought admission to the Career Academies, students in the study sample made up a relatively high-performing and motivated group, even though the schools they attended were relatively low-performing.

The data showing that Career Academies affected work-related outcomes but not educational ones — combined with the finding that academic courses in the Academies were very similar to courses outside the Academies — suggest that the program's academic courses did

[39]Pond, Sum, Mykhaylo, and Meredith (2002).

Figure 4

Impacts of Career Academies on Average Monthly Earnings and Components of Earnings for Men



SOURCE: MDRC calculations from the Career Academies Evaluation Four-Year Post-High School Follow-Up Survey.

NOTES: Measures reflect averages over the 48-month period following scheduled high school graduation for each sample member. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; and * = 10 percent.

not contribute much to program impacts. The Career Academies experience corroborates the conclusion that unless reform initiatives improve instruction, it is unlikely that they will register increases in student achievement. Rather, it appears that the vocational courses and employer partnerships were the critical contributors to the program's positive effects on employment. A reasonable speculation is that Academy students were able to parlay the job knowledge and additional work experience that they had gained in high school into better jobs after they left school.

Implementation Successes, Challenges, and Open Issues

Each Career Academy participating in the study was able to engage a group of local employers in an ongoing effort to support the Academy programs and to sponsor diverse work-related activities for students. To do so, the Academies used a wide range of strategies. Analyses indicate that, in combination, three broad sets of strategies were particularly important for generating student participation in a wide range of career awareness and work-based learning activities.

First, student participation was greater in those Academies with highly structured approaches to sustaining employer partnerships. Each of the Academy partners in these sites was required to make a concrete investment in the program by providing financial or in-kind support; the sites also established formal advisory boards that met regularly to focus and coordinate employer support for the programs. At sites that did not establish such structured relationships, the level of employer involvement was more likely to fluctuate from year to year.

Second, participation was also greater at sites that were able to support a full-time, non-teaching coordinator to be the liaison between the Academy and the employer partners and to manage the employer-sponsored activities. With no teaching responsibilities, the coordinator had a flexible schedule and could accommodate meetings with members of the employer advisory group, budget meetings, and fund-raising activities, along with other administrative work in the field. In contrast, at sites that relied on Career Academy teachers to serve as the primary liaisons with the employer partners, classroom and other responsibilities sometimes prevented the liaisons from engaging employer partners on multiple levels and from developing a wide range of high-quality activities.

Finally, students reported benefiting more from their work internships when their Academies provided more preparation to both employers and students both before and during these work-based learning activities. Employers were encouraged to expose students to as many aspects of their industry as possible, while students were instructed on general expectations in the workplace, including dress codes, decision-making and accountability norms, and "unwritten" rules for advancement. In contrast, at Academies where employers and students received less formal preparation, there was more variation in the learning value that students and employers attached to these activities.

In short, one challenge confronting Career Academies was to allocate resources — time and personnel — for the planning and ongoing monitoring needed to make the Academies maximally effective.

A second challenge that the Career Academies faced was to build connections between learning in the classroom and at work and to strengthen instruction in the core courses more generally. Some students reported using math, reading, or computer skills in their work experiences, but these applications were seldom related to academic courses that students were taking. Several Academies developed school-based projects that asked students to solve work-related problems, but these problems were often theoretical rather than related to students' actual work experiences.

Encouragingly, the National Academy Foundation, which represents and provides technical assistance and support to a large number of Career Academies across the nation, has taken heed of these research findings and has used them to bolster its efforts to strengthen the academic component of the program model. The Foundation has provided support to Academies to increase the academic rigor of courses, so that students will be able to pass state assessments and high school exit examinations as well as to gain admission to college. The National Academy Foundation's work provides a powerful example of how evaluation can guide and improve practice.

CASN
CAREER ACADEMY SUPPORT NETWORK

Career Academies: Building Blocks

For Reconstructing American High Schools

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October 2000

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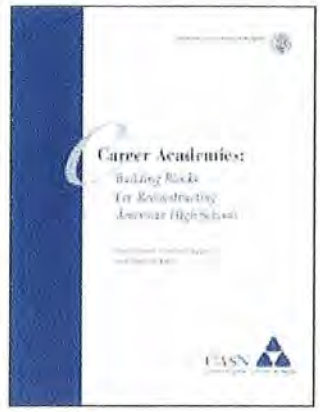

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If I hadn't gotten into the academy, my life would be so much different than it is now! It has helped me so much, because I didn't really talk to people that much, and I was very shy. I know it's hard to believe that but I was! I wouldn't be as active in school as I am now, so I just feel as though I'm glad I got into the academy because, you know, all the opportunity I have now, it would never have been possible. (Career academy senior, quoted by Poglinco 1998, p. 15.)

When I talk about the academy, I would very much highlight the fact that it sounds like all you do is work, you're college prep and everything like that, but actually it's not. Our first year, when we thought it was going to be very boring, we were hardly ever in the building because we'd go on field trips every two weeks, to get us more involved in what the academy is about. Instead of us just sitting in class and learning about it, they took us out and hands-on and said, 'Well, this is what we do and this is what you will do.' And that's one thing I can point out to them, it's not boring. It may be harder but it's not boring. They give you a lot of things to deal with and a lot of things to accomplish.(Career academy senior, quoted by Poglinco 1998, p. 13.)

Summary

Career academies, after more than three decades of development and two decades of evaluation, have now been found by a conclusive random-assignment study to be effective in improving the performance of students in high school. Career academies have therefore become the most durable and best-tested component of a high school reform strategy that includes dividing large schools into smaller units.

The number of career academies has been expanding rapidly, in part because academies have been found to be effective, and in part because they embody ideas promoted by several major high school reform movements. This paper describes the growth and evolution of career academies, reviews the evaluation evidence, explains how career academies reflect widely accepted principles of high school reform, and considers prospects for the future.

Growth And Evolution Of Career Academies

In the first two decades after their 1969 inception, the growth of career academies was steady but gradual. Since about 1990, growth in the number of academies has accelerated.

Accurate counts of career academies are available only from three organized networks. In Philadelphia, the nonprofit Philadelphia Academies, Inc., has supported career academies since 1969. In California, after two nonprofit-sponsored academies were established in 1981, the state began funding academies in 1985. The nonprofit National Academy Foundation (NAF) has sponsored academies since 1982, and now supports academies in more than 30 different states. Table 1 shows that the number of academies in these three networks together grew to about a hundred in 1990, then expanded to more than 700 in 2000.

Table 1

Growth of Three Career Academy Networks

Year	Philadelphia	California*	National Academy Foundation
When founded	1969: 1 academy	1981: 2 academies	1982: 1 academy
1980	approximately 5	--	--
1985	approximately 10	12	8
1990	approximately 20	29	54
1995	28	45	167
1998	28	200	289
2000	29	290	400

* Includes only state-funded academies. Approximately an equal number of academies operate in California in 2000 without state funding.

In addition to these three networks, Illinois, Florida, Hawaii, and other states followed California's lead and began funding career academies in the 1990s. Another academy-building network started in 1997 at the Center for Research on the Education of Students Placed at Risk (CRESPAR), which includes career academies as a major component of the Talent Development High School model (LaPoint et al. 1996). Apart from these organized initiatives, an uncounted number of unaffiliated academies have sprung up independently across the country. The total number of career academies operating in U.S. high schools in 2000 almost certainly exceeds one thousand, and could well be two or three thousand.

Until the 1990s, career academies existed only as separate, small units within larger high schools. For example, a career academy might serve 200 students in a high school containing 2000. In the mid-1990s, however, a number of high schools decided to convert themselves entirely into career academies, or into various kinds of small learning communities (SLCs), some of which are career academies. Lee, Ready, and Johnson (1999) conducted an informal national canvass to identify high schools divided entirely into some kind of small learning environments. They identified 55 such high schools, 80 percent of which were using career academies as the model for the SLCs. CRESPAR's Talent Development High School is an example of this approach; every student in grades 10-12 belongs to a career academy.

What is a career academy?

A career academy is a type of school-within-a-school that provides a college-preparatory curriculum with a career-related theme. A precise national count of career academies has not been attempted, and would be difficult because there is no single, authoritative definition. We coined the term "career academy" in 1992 to encompass the Philadelphia academies, California partnership academies, and the NAF academies (Stern, Raby, and Dayton 1992). Only the California academies are defined in legislation. Nevertheless, these and other career academies generally share three basic features, as identified by researchers at the Manpower Demonstration Research Corporation (MDRC) (Kemple and Rock 1996, p. ES-3):

- First, academies are **small learning communities**. An academy comprises a cluster of students who have some of the same teachers for at least two years, and who share several classes each year. A group of teachers from academic and technical disciplines are scheduled to have only or mostly academy students in their classes, meet with each other on a regular basis, and share in decision-making related to administrative policies, curriculum content, and instruction. One of these faculty members assumes lead responsibility for administrative tasks and usually serves as a liaison to the school principal and other building administrators, school district officials, and employer partners.

- Second, academies combine a **college-preparatory curriculum with a career theme**. Examples of common themes are health care, business and finance, communications media, and transportation technology. Academic courses that meet high school graduation and college entrance requirements are linked with technical courses that focus on the academy's field of work. Teachers some have shared planning time to coordinate course content and instructional strategies. Employability skills may be taught in the vocational courses and in one or more academic courses. Work-based learning opportunities for students tie classroom activities to internships with local employer partners. College and career counseling informs students about options and planning for employment and further education, which may or may not be related to the academy career theme.

- Third, academies embody **partnerships with employers**. An advisory group for the academy includes representatives from the local employer community, academy faculty, and the school district. Employer representatives give advice on curriculum, appear as guest speakers in classes, supervise student internships, provide financial or in-kind support, and some serve as mentors for individual students.

Origin and development of career academies

The first academies began with a focus on dropout prevention and vocational preparation, but academies soon evolved to include preparation for four-year colleges and universities. Philadelphia established the first career academy in 1969: an "Electrical Academy" at Edison High School, sponsored in collaboration with the Philadelphia Electric Company. The idea was subsequently applied to other fields — — business, automotive, health, environmental technology, law, horticulture, tourism, aviation —— and other high schools, growing to a network of 29 academies in 12 different career areas. The separate nonprofit organizations that had mobilized employer support came together in 1982 as one organization, which is now called Philadelphia Academies, Inc. Supported by corporate contributions and foundation grants, this organization continues to coordinate and subsidize academies in Philadelphia, while the city school district retains jurisdiction and supplies teachers and classrooms. Although the Philadelphia academies began as vocational training programs, today they send most of their graduates to college.

In 1981 the academy idea was introduced in California, starting with a "Computer Academy" at Menlo-Atherton High School and an "Electronics Academy" at Sequoia High School, near Silicon Valley. Based on a series of evaluations that demonstrated improved student performance, California passed legislation in 1984 that supported ten replications of the model. Evaluations of these academies continued the pattern of encouraging results, and in 1987 a second state bill was passed, supporting approximately 40 additional replications. The legislation was renewed again in 1993 and 1999, with continued expansion to a total of 290 in 2000. These academies range over some 25 career fields. Many others have begun on their own, and in many districts there are now several non-funded academies for every one receiving a state grant, with an estimated 500 in all (no one has a precise count). The California Academies formalized the involvement of three academic courses as part of the model, along with one career-related course, in grades 10-12. They also advanced the notion of preparing students for college and careers at the same time.

Also in the 1980s, New York City created the first "Academies of Finance," sponsored by the American Express Company. American Express subsequently joined with other companies, which now number more than 100, to create the National Academy Foundation (NAF). NAF added the field of "Travel and Tourism" in 1987, "Public Service" in 1990, and "Information Technology" in 1999. NAF provides curriculum, technical support, and professional development for teachers. The NAF academies usually include only grades 11-12, but some individual NAF academies are moving toward the Philadelphia and California models, adding both earlier years of high school and more coordination with academic classes. NAF academies have been college-oriented since their inception.

In the 1990s a number of states and cities began to sponsor career academies. For instance, the Illinois State Board of Education started 20 California-style academies in 1994-95, expanding to about 50 in 2000. Cities with growing numbers of academies include Atlanta, Chicago, Denver, Sacramento, Seattle, Oakland, and Washington, D.C.

Career academies have evolved from an initial focus on traditional vocational education to preparation of high school students for both work and college. According to federal law and historical custom, vocational education traditionally has been directed toward occupations not requiring a bachelor's or advanced degree. Thus it has often been viewed by students and parents as a less desirable option than college prep. Growth in the proportion of jobs that require at least some postsecondary education has further reduced the attraction of traditional vocational education. In contrast, career academies provide broad information about an industry, exposing students to a range of careers requiring various amounts of formal education, and building a foundation on which to add more advanced and specialized postsecondary preparation. Most academies offer a rigorous academic curriculum that qualifies students for admission to a four-year college or university. By linking academic coursework to career themes and workplace experience, academies motivate students to stay in school and attend to their studies —— as a number of evaluations have demonstrated.

Effects Of Career Academies On Student Performance

One good reason why growing numbers of states, districts, and schools have decided to start career academies is that they have been found to be effective in improving students' performance. This section summarizes the evidence to date, focusing on quantitative studies of student performance. The studies and findings are summarized in Tables 2 through 5.

Several studies in California have found that academy students perform better than similar students in the same high schools who are individually matched with academy students on demographic characteristics and ninth grade records of low grades, high absenteeism, and disciplinary problems. An evaluation of the first two academies in California in the early 1980s found that academy students in grades ten through twelve had better attendance, earned more credits, obtained higher grades, and were more likely to graduate than the comparison groups (Reller 1984; additional citations in Stern, Raby, and Dayton 1992; see also Raby 1995). From 1985 through 1988 a similar evaluation of the ten initial state-funded academies in California showed substantial and statistically significant advantages for academy students in attendance, credits earned toward graduation, grade point averages, and retention through high school (Dayton et al. 1989; Stern et al. 1989).

Annual data collected from state-funded academies in California continue to show improvement after students enter an academy and while they are in it (Dayton 1997). High school dropout rates in academies average about 7 or 8 percent over three years — about half the rate in the general population of California students, despite the fact that state-funded academies are required to recruit a majority of students who are economically or educationally disadvantaged. Although these data describe only the performance of academy students, without comparison groups, they are consistent with the comparison-group evaluations.

Table 2

Published Quantitative Evidence on Performance of Students

Who Participated in Career Academies

Author(s) and Date (s)	Data Source
Reller 1984, 1985, 1987	Data collected 1981-86 on students in 2 Peninsula Academies in California, and individually matched comparison groups in each school. Followup surveys 15 and 27 months after graduation.
Snyder & McMullan 1987a,b	1981 sophomores entering business academies in 3 Philadelphia high schools traced to graduation. Graduates surveyed late 1986-early 1987, and compared to random sample of all graduates, and all business program graduates, from those 3 high schools.
Stern, Dayton, Paik, Weisberg, & Evans 1988, 1989	Data collected 1985-90 on students in 10 academies funded by state of California, and individually matched comparison groups in each school.
Academy for Educational Development 1990	Followup of academy of finance students who graduated 1984-89. No comparison group.
Stern, Raby, & Dayton 1992	Followup surveys 10 and 22 months after graduation, of graduates from 10 state-funded California academies and comparison groups.
Hayward & Talmadge 1995	1989-92 data from 10 different programs using vocational education to promote high school success. Two of the sites are career academies. Evaluation used random control groups in some sites, non-random comparison groups in others, including the academies.
McPartland, Legters, Jordan, & McDill 1996; McPartland, Balfanz, Jordan, & Legters 1998	Reorganization of Patterson H.S. in Baltimore in 1995 included creation of 4 career academies for grades 10-12. Data analyzed from 1993 to 1998.
Kemple and Snipes 2000	10 career academies included in an experimental evaluation since 1993. This is the only evaluation of career academies (or other high school restructuring strategy) with students randomly assigned to academies and control groups.
Maxwell and Rubin 1997, 2000	1991-95 school records for 3 cohorts of students in grades 10-12 in an urban district, including 9 career academies. Also a followup survey in mid-late 1996.
Hanser, Elliott, and Gilroy, forthcoming	1994-96 data from 3 Junior ROTC career academies in large cities were compared with data from other career academies or magnets in the same or similar schools, JROTC students not in academies, and students not participating in any academy or magnet.

Table 3

Findings on Academic Performance and High School Completion:

Students in Career Academies Compared to Other Students

Author(s) and Date (s)	Main Findings
Reller 1984, 1985	Academy students earned more course credits than comparison group. One-year dropout rates 2 to 6% in academies, 10 to 21% in

	comparison group.
Snyder & McMullan 1987b	Graduation rate for 1981 sophomores in 3 business academies was 77%, compared to citywide average of 67% for freshmen.
Stern, Dayton, Paik, Weisberg, & Evans 1988, 1989	Academy students overall performed significantly better than comparison groups in attendance, credits earned, average grades, and likelihood of staying in school. 3-year dropout rate for cohort entering 1985 was 7.3% in academies, 14.6% in comparison group.
Hayward & Talmadge 1995	Academies showed generally better results than other programs, improving students' attendance, credits, grades, and likelihood of completing high school.
McPartland, Legters, Jordan, & McDill 1996; McPartland, Balfanz, Jordan, & Legters 1998	Attendance in first implementation year rose from 71 to 77% at Patterson, compared to districtwide decline from 73 to 70% in grades 9-12. Survey of teachers found big improvement in reported school climate.
Kemple and Snipes 2000	Academy students overall earned a larger number of course credits and were more likely to have positive developmental experiences. Among students at highest risk of school failure, academy students attended school more regularly, earned more course credits, were more likely to participate in extracurricular activities and volunteer projects, and were less likely to be arrested. Dropout rate for the high-risk subgroup was reduced from 32 percent in the control group to 21 percent among the career academy students.
Maxwell and Rubin 1997, 2000	District records show academy students received higher grades. Followup survey found higher grades increased the likelihood of graduation; result was 92% graduation rate for academy students, 82% for non-academy.
Hanser, Elliott, and Gilroy, forthcoming	Students in JROTC career academies, and in other career academies or magnets, generally received higher grades, had better attendance, completed more credits, and were less likely to drop out, compared to statistically similar students not in academies.

Table 4

Findings on Enrollment in Postsecondary Education:

Students in Career Academies Compared to Other Students

Author(s) and Date (s)	Main Findings
Reller 1987	15 months after graduation, postsecondary enrollment rate 62% for academy graduates, 47% for comparison group. 55% of academy graduates, 22% of comparison group expected to complete bachelor's degree or more.
Snyder & McMullan 1987b	18% of business academy graduates said school was main activity in 1986-87, compared to 35% of citywide sample. Of those enrolled, 14% of academy graduates, and 43% of citywide sample, intended to get bachelor's degrees.
Academy for Educational Development 1990	89% of finance academy graduates said they had attended 4-year college or university, 58% majored in business or finance, and 67% planned to complete a master's or doctorate.
Stern, Raby, & Dayton 1992	1989 and 1990 followup surveys found no consistent differences between academy and comparison graduates in postsecondary

	attendance or degree aspirations.
Maxwell and Rubin 1997, 2000	Analysis of followup survey found higher grades for academy students increased their probability of going to college, and 2 of 9 academies gave an extra added boost to college-going, resulting in 52% of former academy students going to 4-year colleges, compared to 36% of non-academy.

Table 5

Findings on Employment After High School:

Students in Career Academies Compared to Other Students

Author(s) and Date (s)	Main Findings
Reller 1987	No significant differences between academy and comparison students 27 months after graduation, in employment status, wages, or hours worked.
Snyder & McMullan 1987b	64% of business academy graduates said work was main activity in 1986-87, compared to 42% of citywide sample. Academy graduates employed a larger fraction of time since graduation.
Stern, Raby, & Dayton 1992	1989 and 1990 followup surveys of academy and comparison graduates found academy graduates working 3 more hours per week, but no consistent overall difference in hourly earnings.
Maxwell and Rubin 1997, 2000	Analysis of followup survey found no significant differences in wages or hours worked between former academy and non-academy students, but former academy students more often said their high school program had prepared them well for further education and work.

The California evaluations using individually matched comparison groups also followed students after they graduated from high school. Academy graduates were at least as likely to be enrolled in postsecondary education as their non-academy schoolmates one or two years after high school. At the same time, they had more hours of paid employment. Additional details are given in Stern, Raby, and Dayton (1992).

More recently, Maxwell and Rubin (1997) surveyed former high school students from a large California school district one or two years after their graduating year. They found that students who had attended career academies were at least as likely to be enrolled in four-year colleges as students who identified themselves as having been in the academic track in high school. Both the career academy and academic track graduates had significantly greater likelihoods of enrolling in four-year college than graduates who classified themselves as having been in the high school general track. Yet academy students had lower average scores on sophomore reading tests in high school, and they were less likely to be native English speakers, compared to students in the general track.

Maxwell and Rubin (2000) also analyzed school district records on academy and non-academy students. They found that students in career academies obtained significantly better grades. This was not due to easier grading standards within the academies: Maxwell and Rubin found that courses within most of the academies actually awarded lower grades than non-academy courses in the same subjects. Furthermore, when Maxwell and Rubin divided students into high, middle, and low groups according to tenth grade math and English test scores, they found in each group that academy students obtained higher grades than non-academy students. The higher grades of academy students appear to be the main reason for their higher rate of college attendance, compared to non-academy students.

Maxwell (1999) extended the Maxwell-Rubin study to follow graduates of career academies and other graduates from the same school district who enrolled at a nearby campus of the state university. She found that the academy graduates were more likely to come from high schools with large proportions of low-income minority students. After taking this into account, the academy graduates were less likely to need remedial coursework at the university, and they were more likely to receive their bachelor's degrees, compared to the other graduates from the same district. These findings suggest that academies help low-income students finish not only high school, but also college. They imply that the improvement in high school graduation rates was not accomplished by lowering academic standards in the career academies.

Outside of California, an earlier evaluation of business academies in Philadelphia (Snyder and McMullan 1987b) found a higher graduation rate compared to the citywide average, but a lower rate of enrollment in postsecondary education for academy graduates than for the general student population, and no significant differences in employment after graduation compared to graduates of other business programs. On the other hand, an early study of a NAF academy in New York City found high rates of postsecondary enrollment (Academy for Educational Development 1990). The difference apparently reflects the origin of the Philadelphia academies in traditional vocational education, while the NAF academies were designed as college preparatory from the outset. A subsequent study by Linnehan (1996) found that graduates from Philadelphia business academies reported better attendance while in high school, and that this carried forward into less reported absenteeism in their post-high school jobs.

Hanser, Elliott, and Gilroy (forthcoming) analyzed data from three career academies affiliated with the Junior Reserve Officers' Training Corps (JROTC). They found positive effects on attendance, credits earned, grades, and the likelihood of staying in high school.

Importance of the MDRC random-assignment study

An unresolved question in these evaluations —— even in studies using individually matched comparison groups —— was whether the positive results for academy students might be attributable to selection. Since students must take the initiative to apply to a career academy, it is possible that academy students have more motivation, ambition, get-up-and-go, parental support, or other unmeasured strengths than the comparison students. These unmeasured characteristics may have prompted some students to apply to a career academy and also made them more likely to succeed whether they enrolled in an academy or not.

The selection issue not only clouds previous research on career academies, but also bedevils evaluations of other high school reform efforts. For example, numerous studies have attempted to test the effects of reducing the size of high schools, either by creating separate small schools or by dividing large high schools into smaller units. These studies tend to find that students in small schools, or in smaller units within large schools, are relatively less alienated, more engaged, more likely to pass their courses and accumulate credits toward graduation, and less likely to drop out (Gladden 1998; Cotton 1996; Raywid 1995). However, it is possible that these patterns are largely attributable to pre-existing differences between students in large and small schools, or between students who are and are not enrolled in small units within larger high schools —— and these differences may not be measured by researchers. For example, students may differ with respect to individual characteristics such as motivation, or with respect to community characteristics such as homogeneity of values. Because of such differences, the students in small schools or schools-within-schools may have been more likely to succeed even if they had been in big schools.

For instance, several studies are frequently cited as demonstrating that students in smaller high schools are less likely to drop out (Pittman and Haughwout 1987; Franklin and Crone 1992; Fetler 1989; Howley and Bickel 1999). Each of these studies compares high schools in a state or national sample at one point in time. The smaller high schools therefore may include: schools in small, close-knit rural communities; magnet high schools or other schools of choice in big cities; and schools located in relatively homogeneous residential enclaves in small cities or various parts of metropolitan areas. The characteristics of those communities —— such as stronger personal connections and shared values between school staff and parents —— may account for the lower dropout rates, and these characteristics are not captured by the simple socioeconomic measures used in the studies as statistical controls. The available research, based on comparisons across communities, therefore does not demonstrate that replacing a large high school with smaller high schools would produce lower dropout rates or other desirable results in a given community. Like the previous research on career academies, the research on small high schools and other kinds of schools-within-schools is suggestive but not entirely conclusive.

The only way to eliminate the uncertainty due to unmeasured differences among students or communities is the experimental procedure of random assignment. This is standard practice in medical research, and is some used in classroom-level studies in education, but it is very rare in studies of school structure (see Mosteller et al. 1996). That is why the MDRC study of career academies was so significant (and expensive). MDRC began its 10-site study in 1993 by creating a list of students who applied to the career academy at each site, and choosing at random those who would be admitted to the academy and those who would not. The latter constituted the control group. Unlike the matched comparison groups in earlier studies, all students in the MDRC control group had taken the initiative to apply to the career academy. They therefore shared the same unmeasured motivation, ambition, or other traits that might characterize the academy student.

The results of the MDRC evaluation strongly confirmed earlier findings from the matched-comparison studies of career academies. MDRC found that academy students overall earned a larger number of course credits needed for graduation, and were more likely to have positive developmental experiences such as working on a volunteer project. The strongest and most pervasive differences were found among students at highest risk of school failure. Among this subgroup, the academy students attended school more regularly, earned more course credits, were more likely to participate in extracurricular activities and volunteer projects, and were less likely to be arrested. Most consequentially, the dropout rate for the high-risk subgroup was reduced from 32 percent in the control group to 21 percent among the career academy students (Kemple and Snipes 2000).

In sum, the MDRC evaluation has produced conclusive evidence that career academies improve students' performance in high school, especially for students at greatest risk. Because the MDRC study controlled for selection effects by using random assignment, the evidence on the effectiveness of career academies is stronger and clearer than for any other high school reform strategy. This provides an exceptionally solid basis for designing new policies and practices to improve high schools.

Two issues raised by the MDRC study: test scores and schoolwide effects

Despite positive results, the MDRC study raised a couple of troubling issues, one explicit and the other implicit. The explicit issue is about test scores. MDRC found that career academy seniors scored no higher than students in the control group on standardized tests in mathematics and language arts (Kemple and Snipes 2000). Furthermore, previous studies of career academies have not examined effects on standardized test scores. The absence of evidence that career academies improve standardized test scores is serious because such tests are some regarded as the best immediate measure of student learning.

It is important to recognize that the long-run benefit of career academies for participating students depends much more on reducing the dropout rate than on raising test scores. For instance, the additional earnings associated with completing one more year of high school are estimated to be four to ten greater than the additional earnings associated with one grade-equivalent year of test score gain (Levin 2000) —— and few if any replicable programs have been found capable of producing test score gains of that magnitude. Therefore, even if academy students' test scores are no higher than the control group's, career academies still provide substantial benefits by enabling more students to finish high school.

That said, MDRC's null finding about test scores raises questions about what kind of instructional improvement, if any, occurs in career academies. Poglinco (1998) analyzed interviews with students, teachers, and administrators from three of the academies in the MDRC study, to see whether academies were supporting students' college goals. One of the themes running through students' comments is that the atmosphere of trust and encouragement created within the academy, and with workplace mentors, bolstered their general self-confidence. College aspirations were seldom mentioned as a reason for entering the academy in grade nine or ten, but they became more explicit by junior year. This qualitative evidence amplifies results from surveys in which academy students reported more academic support from teachers and peers than the control group (Kemple 1997). However, none of these findings indicate whether the level of instruction in academies was more rigorous than in non-academy classes, or whether academy students actually learned more than the control group.

A second set of issues arising from the MDRC study and previous evaluations of career academies has to do with schoolwide effects. It is possible that an academy —— or any other program that serves only some of the students in a school —— attracts special resources, especially teachers who are highly committed, energetic, or talented. If so, students in the academy may gain at the expense of the rest of the school. The MDRC study did check on whether academy teachers were more experienced or better educated than their non-academy counterparts, and found no differences on average (Kemple and Rock 1996). However, because teachers were not randomly assigned to academies, there may well be unobserved differences in motivation, commitment, or other attributes related to good teaching. Furthermore, academy teachers had smaller classes (24 students on average) than non-academy teachers (26.7). It is possible, therefore, that the difference between the performance of academy and non-academy students is partly attributable to a shift of resources from the rest of the school to the academy.

Whether academy students' gains come at the expense of non-academy students can be determined only by comparing the schoolwide distribution of student performance before and after the academy is introduced into the school. Since it takes several years to get an academy up and running, this would mean monitoring trends in student performance over a period of years. During the study period, some students would leave the school, and new students would enroll. Changes in student performance might therefore be due to changes in composition of the student body, or to other changes occurring in the school —— not to the creation of the academy. In short, it may not be possible to determine with certainty how creating an academy —— or any other program serving only part of the students in a school —— affects student performance schoolwide.

A related question is whether the benefits of career academies can be generalized to a broader student population. The MDRC study was restricted to the sub-population of students who chose to apply to an academy, in schools where academies served only a small proportion of the total student body. What are the effects on student performance of dividing a school into career academies or other kinds of small learning communities, and requiring every student to choose one? The MDRC study does not answer this question.

As noted earlier, a number of high schools have in fact divided themselves into various kinds of sub-units, and a large proportion of these are using career academies for some or all of their small learning communities. McPartland et al. (1996, 1998) have produced the first reported results of subdividing a high school entirely into career academies in grades 10-12. Patterson High School in Baltimore was slated for reconstitution because "it was one of the two worst high schools in the state of Maryland in 1994." (1996, p. 1) For example,

> "Small groups of unruly students were constantly roaming the halls and stairways, and repeated faculty efforts to bring order to the building were unsuccessful. Teachers, unable to maintain peace in the halls, retreated to their classrooms where they tried to do their best with the students in their rooms. They kept the doors of their rooms closed, and many papered over their door windows to shut out the outside confusion." (1996, p. 2)

With help from CRESPAR, Patterson reorganized itself into a set of academies: one for ninth graders, and four career academies for students in grades ten through twelve. Results in the first year included better student attendance and a turnaround in teachers' ratings of the school climate. Subsequently, students' performance on math proficiency tests also improved (McPartland et al. 1998). These preliminary results suggest that career academies can improve student performance when combined with other elements in a schoolwide strategy.

The Role Of Career Academies

In Reconstructing American High Schools

Do American high schools really need reconstructing? We believe so. We are concerned that the proportion of young people who complete a regular high school diploma appears not to have increased since the 1960s —— while the economic penalty for not finishing high school has become more severe. We are concerned when we are in high schools and witness the palpable lack of engagement by students, even in affluent schools. We are concerned about the stubborn gaps between the achievement of students from different socioeconomic groups.

We realize that such a terse statement of concerns is not a diagnosis of the problems of high schools, and is not likely to change the mind of anyone who believes that American high schools are fine as they are, or as good as can be expected. Several of the sources cited in this paper provide more extensive analysis of high schools' shortcomings and proposals for fixing them (Sizer 1984, 1992; Fine and Somerville 1998; Grubb 1995; Steinberg 1998; Stern et al. 1992). We will not recapitulate those well-known arguments here.

Our purpose in this section is to describe several movements in which large numbers of teachers, administrators, parents, and students are working to change high schools. What matters is their concerns, not our concerns, because it is their concerns that drive much of the change that is happening in high schools. Our review of the evaluation evidence has shown that career academies are one of the most solid building blocks available for remaking American high schools. This is one reason why growth in the number of career academies has accelerated. Another reason is that these high school reform movements now are including career academies as elements of broader strategies. Three major initiatives in which career academies have played a role are the school-to-work movement, the Coalition of Essential Schools, and the small-schools movement. Although each of these initiatives emphasizes a distinct set of ideas and practices, career academies share important common elements with all three.

School-to-work

The school-to-work movement derives its impetus from various sources, including foundation-sponsored programs starting in the 1980s, legislation enacted by various states in the early 1990s, and the federal School-to-Work Opportunities Act which passed in 1994 and gave the movement its name (Urquiola et al. 1997). Although advocates and participants in the school-to-work (or school-to-career) movement espouse a range of different purposes, some of the central issues were succinctly stated by Olson (1997):

> Today we teach students academic subjects out of context and then are perturbed when they ask, "Why do I have to learn this?" We hire young people without glancing at their high school transcripts and then wonder why they do not work harder in school. We sequester teens in high schools that are too big for them and then express dismay when they succumb to an adolescent peer culture. We tell young people to attend college to "get a job" but then offer little in the way of career guidance. We convince students that we are preparing them for the "real world" but make their education as removed from the adult society as possible.

School-to-work programs generally have attempted to make the high school curriculum more coherent and meaningful for students by creating various kinds of curricular pathways with career-related themes. Connections between the classroom and the work world have been reinforced by providing opportunities for job shadowing, internships, and other kinds of work-based learning. Many school-to-work programs also have sought to articulate high school courses with subsequent studies in two-year or four-year colleges. Despite the name, school-to-work programs usually have not been designed to train students for entry-level jobs right after high school —— instead, they have attempted to prepare students for postsecondary education while also equipping them with work-related knowledge and skill.

Career academies predated the school-to-work movement and exemplified ideas that the school-to-work movement sought to generalize: using career-related themes to increase the coherence of the high school curriculum; providing internships and other forms of workplace experience to connect classroom learning to the world beyond school; and preparing students for careers that include postsecondary education. For these reasons, the 1994 School-to-Work Opportunities Act explicitly named career academies as one of the "promising practices" for preparing all students both for further education and for careers that require a solid academic foundation. This was the first mention of career academies in federal legislation, and it helped stimulate interest in them.

The High Schools that Work (HSTW) project, which also predated the school-to-work movement and provided some of the basis for it, is another initiative in which career academies have played a part. Launched in 1987 by the Southern Regional Education Board with 13 states and 28 sites, HSTW had grown by 2000 to include approximately a thousand member high schools in 24 states. HSTW schools aim to combine challenging academic courses and modern vocational educational studies for the purpose of raising the achievement of high school students who are not enrolled in college-prep courses (Bottoms and Presson 1995). The HSTW initiative was originally designed to strengthen vocational programs, abandon the watered-down coursework associated with the general track, and rescue the "forgotten" students who make up more than half the population of most high schools in America (Southern Regional Education Board 1995). Over time, HSTW has evolved the concept of an academic, career, or blended major that contains an academic core and is connected to the world beyond school. Career academies are a natural means to accomplish these goals, and can be found in many HSTW member schools. Career academies have also been highlighted among the "best practices" recognized in HSTW schools (Southern Regional Education Board 1997).

In an attempt to broaden awareness of school-to-work principles as a basis for comprehensive high school reform, the U.S. Department of Education in 1996 began to identify a set of "New American High Schools." Additional schools have been recognized in subsequent years. Principles and practices represented in these schools have included preparing students for college and careers, learning in the context of a career major or other special interest, experiential learning in workplaces or community service, grouping students and teachers in small

schools-within-schools, extra support from adult mentors outside of school, and strong links between high schools and postsecondary institutions. Since a number of these New American High Schools contain career academies (Visher and Hudis 1999), academies have gained additional recognition as a result of this program.

The Coalition of Essential Schools

A second major reform movement that has had widespread influence on American high schools is the Coalition of Essential Schools (CES). In contrast to the more utilitarian and future-oriented emphasis of the school-to-work movement, which has been focused on preparing students for college and careers, the fundamental concerns of CES are to improve the intellectual, social, and ethical quality of life for students and teachers while they are in high school. Based on the work of its founder, Theodore Sizer (1984, 1992), CES has formulated 10 common principles: learning to use one's mind well; less is more, depth over coverage; goals apply to all students; personalization of the student-teacher relationship; student as worker, teacher as coach; assessment of student learning through demonstration of mastery; a tone of decency and trust; commitment to the entire school; resources dedicated to teaching and learning; and democracy and equity.

Although a narrow vocationalism would be considered inimical to the goals of CES, career academies can in fact be found in a number of Coalition schools, and the kind of education offered by career academies has been endorsed in CES publications. For instance, Cushman et al. (1997) have written:

> A career academy promises a meaningful context for students' academic work across disciplines, a culture of high expectations derived from real-world standards, and a structure and opportunity for exploring the world of adults. Ideally, in academic and real-world contexts, students explore and master equivalent sets of intellectual and practical skills. They may apply the analytic methods of different academic disciplines, for example, to the problems of the health care system, or they may study the physics of building an electric car. In the process, they also acquire a more real sense of the nature of different work roles than casual observation can provide. They come to appreciate the learning that happens in many work settings. (p. 16)

In Boston, specifically, the authors observe that "school-to-career pathways or academies tend to attract ambitious students looking for a way to gain the academic background, mentoring, and real-world connections that will help them find a path into and through college to a career." (p. 18)

Because of their basic design, career academies are likely to fulfill several of the intellectual and ethical principles espoused by CES. Career-related themes give focus and coherence to the curriculum, encouraging the analytical depth denoted by the CES dictum "less is more." Giving students opportunities to test and deepen their understanding of academic concepts through practical applications and work-based learning in career academies promotes the CES principles of engaging students as active "workers" and using demonstrations of authentic mastery to assess student learning. The effectiveness of career academies in improving the academic performance of high-risk students demonstrates their compatibility with the CES principle of justice and equity.

Most obviously, the organization of career academies as small learning environments within larger high schools enables students and teachers to form the more personal and caring relationships that CES considers necessary for good teaching and learning (Sizer 1984, 1992; Meier 1996). The MDRC evaluation did find, in fact, that students in career academies receive more personal attention and support from teachers, compared to non-academy students (Kemple 1997). Conchas (1998) has found that the feelings of affinity created among students in an urban career academy were strong enough to overcome animosities among different racial and ethnic groups which caused problems in the rest of the school.

Small schools movement

The enthusiasm for small schools or small learning communities within large schools is shared not only by members of CES. Prominent researchers and educational authorities now include this idea among their proposals for improving American high schools (Darling-Hammond 1996; Noddings 1992; Sergiovanni 1994; National Association of Secondary School Principals 1996). Advocates urge the creation of new small schools and the breaking up of large schools into self-contained subunits (Fine 1994; Fine and Somerville 1998; Raywid 1995; Oxley 1989). For example, Fine writes:

> Across the country there is a revolution happening within the field of schooling. In urban areas, as well as suburban and rural communities, educators and parents are demanding, creating, and struggling to sustain small, neighborhood-based schools as schools of choice. There is growing literature, both scholarly and popular, that substantiates the positive effects of such small schools. We know that big schools often have harmful effects on many students, teachers, and parents, and that given the right conditions ... small schools can create an academic climate in which a sense of belonging and rich teaching and learning can flourish. (Fine and Somerville 1998, p. 2)

The U.S. Congress boosted the small schools movement by earmarking $45 million in the 2000 Appropriations Act for the Department of Education to fund a new Smaller Learning Communities Program through section 10105 of the Elementary and Secondary Education Act. The intent is to help local school districts "plan, develop, implement, or expand smaller, more personalized learning communities in large high schools" (U.S. Department of Education 2000, p. 3). The Clinton Administration proposed expanding the expenditure for this program to $120 million in fiscal 2001. At the same time, the Bill & Melinda Gates Foundation announced $56 million in grants to promote small

schools or smaller learning communities within larger schools, especially secondary schools (Gewertz 2000).

The small schools movement gives additional impetus to the spread of career academies, since these are one type of smaller learning environment. Some new small schools located in their own buildings may choose to organize their curricula around career-related themes. And as large high schools are subdivided into smaller units, some of these may be career academies.

For example, in 1988 Philadelphia began a massive, multi-year effort to divide its 22 comprehensive high schools into small learning communities called "charters" (Fine 1994). The Philadelphia academies, which had been steadily growing since 1969, were regarded as one kind of charter. A study by McMullan et al. (1994) found that 1,214 ninth graders were enrolled in academies in 1992-93, out of a total of 7,417 ninth graders enrolled in all charters. As relatively well established charters, the academies had a relatively high degree of curricular coherence and enrollment stability. Although they enrolled a relatively small share of ninth graders who were two or more years over age, repeating ninth grade, or taking more than one fourth of their courses in special education, the academies enrolled more than the districtwide percentage of ninth graders who qualified for compensatory education under Chapter 1 of the Elementary and Secondary Education Act.

Career academies as one element in multiple strategies

None of these high school reform movements would view career academies as a complete strategy for remaking high schools. (Neither would we.) But all three movements have used career academies as one component of the changes they are seeking.

The school-to-work movement has attempted to create large-scale institutional change that entails not only high schools but also postsecondary institutions, middle schools, employers, and government regulation of labor markets. In this large-scale vision, explicit skill standards and agreements between employers and schools govern and guide the formation of work-related competence by individuals through multiple pathways. High schools are only one piece of this picture, but they are an important piece. And within the high schools, career academies are one of the clearest ways for students to obtain the kind of experience envisioned by the school-to-work movement: a curriculum that integrates academic and technical subject matter, work-based learning related to classroom studies, and explicit connections linking high school to postsecondary education and employment.

The Coalition of Essential Schools seeks to make high schools settings where students do serious intellectual work, while teachers endeavor to improve their pedagogical practices based on collective analysis of students' performance. Grouping students and teachers in career academies is neither necessary nor sufficient to produce this kind of learning community. But career academies have been recognized as one approach to facilitating the teacher-student relationships that make such a community possible.

Finally, the small-school movement is focused on creating new small schools or smaller units within large schools, in order to improve safety, sense of belonging, motivation, participation, and achievement. The thematic focus of a small school or school-within-a-school should emerge from the interests of teachers, students, and the local community. In some situations, high schools are being converted entirely to career academies, but this is not the most common solution. More often, career academies would represent only some of the options available in a high school that has grouped itself into small learning environments.

For these major ongoing movements aimed at transforming American high schools, career academies are not the whole answer. But increasingly they are seen as part of it.

What Are The Effects Of Transforming Large High Schools Into Sets Of Small Learning Communities, Including Career Academies?

If students and teachers in large high schools are grouped into career academies or other kinds of schools-within-schools, what will be the effects on student performance? The MDRC study evaluated career academies in schools where most students were not enrolled in small learning communities. The results of that study pertain to students who applied to career academies in that context, and the findings cannot necessarily be extrapolated to high schools where all students are enrolled in career academies or other small learning environments.

Only a few studies have attempted to measure how student performance is affected by dividing high schools into smaller subunits. As we have already mentioned, McPartland et al. (1996, 1998) found preliminary evidence that grouping high school students and teachers into career academies in grades 10-12, along with other changes, led to improved attendance, school climate, and proficiency scores in mathematics. Given high rates of student turnover at that school, however, it is not clear to what extent the improvements are due to changes in the nature and characteristics of the student population.

Findings from three other studies are summarized in Table 6. These studies were done in New York, Philadelphia, and Chicago --- three districts where substantial numbers of students have been enrolled in small learning environments within large high schools. The results are promising. In New York City, Oxley (1990) found small but consistent academic and social benefits for students in a large high school that had been divided into well-structured small learning environments (houses), compared to another large high school where the houses

were less tightly structured. In Philadelphia, McMullan et al. (1994) discovered that ninth grade students in small learning communities, called charters, earned a larger percentage of the credits required for graduation than ninth graders who were not in charters. After adjusting for differences between the characteristics of charter and non-charter students, the advantage to charter students became quite small —— on the order of one-fourth of one year-long course —— but it was still statistically significant. The Chicago study by Wasley et al. (2000) found that students in schools-within-schools had fewer absences, higher grades, and lower one-year dropout rates than students in "non-small" high schools. In "multischools," where all students are in small learning environments, the absentee rate was lower, but the dropout rate was higher, compared to non-small schools.

These results, though promising, are not conclusive evidence that dividing a high school entirely into small learning environments improves student performance. The Philadelphia study combined high schools where all students are in charters with high schools where only some students are in charters. But charters in part-charter schools may select students who have high levels of motivation or other unmeasured characteristics that would make these students more likely to succeed even if they were not enrolled in charters. In all-charter schools, some charters may recruit the more motivated students, but then the less motivated students will be enrolled in other charters, so the selection effects cancel out when the analysis is done schoolwide. Including part-charter schools therefore may not give an accurate indication of the effects of enrolling students in all-charter schools.

The Chicago study did distinguish between part-SWS and all-SWS schools, but found that students in the all-SWS multischools do not always perform better. In particular, their one-year dropout rate is high. However, the authors observe that, unlike SWSs located in part-SWS schools, "the vast majority of SWSs located in multischools were built around grade levels, not themes" (p. 11). The Chicago study, therefore, does not indicate what would happen if entire high schools were divided into career academies or other kinds of thematic subschools that enroll students for more than one year.

Table 6

Studies on Effects of Dividing Large High Schools into Smaller Subunits

Author(s), Date, and Data Source	Main Findings
McMullan, Sipe, & Wolf 1994. Data from Philadelphia's comprehensive high schools during the first 5 years of the city's charter school program. Analysis focused on comparing charter to non-charter 9th grade students in the 1992/93 school year (N=7417 and 7765 respectively).	The average percentage of necessary credits (for promotion to grade 10) earned by 9th graders in 1992/93 was 15.3% higher for the average charter student than for the average non-charter student. Using ordinary least-squares (OLS) regression to control for differences in student demographics and prior school performance, the difference in average percentage of necessary credits earned was 3.4%. Using two-stage least-squares (TSLS), the difference was 4.1%. Restricting the comparison to charter students who took at least 3 courses in their home charter, the unadjusted difference was 24.4%, which was reduced to 9.5% after OLS adjustment and 5.8% after TSLS adjustment.
Oxley 1990. Data on 311 9th and 10th grade students collected through survey and on-site records from four New York City high schools during the 1988-89 school year.	Compared to students in a large high school without a tightly structured house system, students in another large high school with tightly structured houses showed small but consistent differences: they reported a stronger sense of community, participated in more extracurricular activities, cut fewer classes, earned more credits, and were more likely to be promoted. Results for students in a small school without tightly structured houses were similar to results for the large school with tightly structured houses, except that students in the small school were less likely to report a strong sense of community.
Wasley, Fine, Gladden, Holland, King, Mosak & Powell 2000. School records and survey data from Chicago public schools between 1997 and 1999. High school sample of small schools consisted of 22 schools-within-schools (SWS) located in 8 schools, 27 SWS located in 3 multischools (all-SWS schools), and 3 freestanding small schools.	Hierarchical Linear Modeling (HLM) was used to adjust for students' 8th grade achievement and demographics. Average days absent per semester in non-small high schools were 13.56, compared to 9.72 in freestanding small schools, 10.45 in multischools, and 8.09 in SWS. One-year dropout rate in 1999 from non-small high schools was 10.3, compared to 5.14 from freestanding small schools, 12.26 from multischools, and 6.07 from SWS. Grade-point average in non-small high schools was 1.96, compared to 1.98 in freestanding small schools and 2.11 in SWS.

Comparison sample was 47 non-small high schools that did not contain any SWS.	

Since growing numbers of high schools are now grouping students and teachers into smaller learning environments, it is important to find out whether this really helps students improve their academic performance. There are several reasons why the benefits of career academies or other small learning communities may not generalize when applied schoolwide. As we have already mentioned, one or two academies or SLCs within a larger high school may recruit students with relatively high levels of motivation, but if all students are enrolled in SLCs this would not be possible. Similarly, a single academy or SLC in a larger high school may attract relatively innovative and enthusiastic teachers, but if such teachers are in limited supply the results of their work would not be generalizable to an all-SLC high school.

Even if an academy or SLC in a school with only one or two SLCs does not recruit students or teachers who possess any special qualities, the mere fact that students and teachers choose to join the academy or SLC tends to create an esprit de corps that helps boost student achievement. If all students and teachers are told they must join an academy or other small learning environment, the element of voluntarism may be lost. Naysayers within the SLCs may undermine their effectiveness. Rivalries among SLCs also may threaten morale (Muncey and McQuillan 1996).

For career academies or other SLCs that require the active collaboration of employers or other community members or organizations, expanding to the entire high school may overload local capacity to provide internships, service learning opportunities, or other experiences outside the classroom. This would dilute the effectiveness of the career academies or other such programs.

In addition to the possibility that applying career academies or other SLCs schoolwide would reduce their average effect, it is also possible that the effects would be inequitably distributed. Tracking of students could take a new form. For instance, students in the most advanced classes might gravitate to the same academy or SLC, creating a hierarchical ordering among the academies and SLCs in the high school. As in traditional forms of tracking, the potential danger is that students in the less prestigious academies or SLCs would be systematically short-changed as teachers expected less of them (Oakes 1985; Mosteller et al. 1996). On the other hand, schools could monitor enrollment trends and intervene to prevent such results. Moreover, the fact that career academies and other thematically defined SLCs recruit students and teachers who share some common interest may make it easier to ensure that each academy or SLC enrolls students who represent a cross-section of the entire school.

In sum, rigorous evaluations have found that individual career academies within larger high schools help improve students' academic performance and reduce the number of students who drop out of high school. Approximately 1,500 to 2,000 career academies are now operating in high schools around the country. Growing numbers of high schools are now grouping all students and teachers into career academies or other kinds of small learning communities. Whether subdividing an entire high school into career academies or other small learning environments improves students' academic performance and reduces the number of dropouts is not yet known. This is one of the main questions on the frontier of knowledge about how best to redesign American high schools.

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CAREER ACADEMY SUPPORT NETWORK

IMPLEMENTING CAREER ACADEMIES SCHHOL WIDE
Washington High School 1999

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WASHINGTON HIGH SCHOOL: YEAR ONE

Introduction

Washington, a pseudonym for a comprehensive high school located in an urban area of a western state, serves an economically and educationally disadvantaged student population that is 46 percent Latino, 39 percent African American, 14 percent Asian/Pacific Islander, and 1.0 percent other (Caucasian and Native American). Over thirty percent of the students have limited English proficiency and are enrolled in the English Language Development (ELD) program. Over ten percent of Washington's student body (261 students) are associated with the special education program. In January 1999 enrollment was 2025 students of which 637 were freshmen, 606 sophomores, 476 juniors and 306 seniors. (All student data is from school or district records.)

Washington students suffer from the problems that affect inner-city students and their condition is worsening. Many come from families that are contending with the effects of poverty, gangs, drugs and crime. They have many home responsibilities; some must work to help support their families, and others have responsibilities for younger siblings or their own children. In the past five years Aid for Families with Dependent Children (AFDC) rates have risen ten percent, single parent households have risen by seven percent and an increasing number of students are gang affiliated. Sixty-seven percent of Washington's students are on AFDC, fifty-three percent on free or reduced lunch, and seventy-nine percent come from single parent households. Twenty-three percent of the students have had contact with the juvenile justice system. Washington teachers are engaged in a continual struggle with high rates of student absenteeism, gang related violence, and the needs of immigrant students with limited English proficiency and low academic skills, caused in part by inadequate prior education.

Formerly a grade ten through twelve senior high school, Washington's problems were compounded by the addition of a ninth grade class in the fall of 1997. Seven hundred ninth graders were enrolled because of over crowding in the elementary and middle schools caused by a class size reduction initiative in grades K-2. The new ninth graders represented a 35 percent increase on a campus that is less than seven acres, one of the smallest sites of any comprehensive high school in the state. The school building was designed to serve 1000 students, yet over 2000 are presently enrolled. Thirty portable classrooms were installed to house the overflow. In the fall of 1998 Washington was classified as an impacted school because of the overcrowding. This means that unlike other district high schools, open enrollment into Washington is not allowed.

Washington's certificated staff consists of five administrators, 4.5 counselors, 93 teachers, a student activities coordinator, librarian, part time psychologist, part time speech therapist, full time academy liaison and a mathematics and science achievement coordinator. Ethnically the certificated staff is composed of 39 African Americans, 41 Caucasians, 14 Hispanics, seven Asians, one Native American and one other. Staff credentials include: 11 BA's, 39 BA's + 30, 10 MA's, 37 MA's + 30, and four doctorates. A nurse and part time physician operate a medical clinic on the campus. The 49 classified staff members include nine campus supervisors, eleven instructional assistants, nineteen clerical staff, nine food service employees and ten custodians. Because of the addition of the ninth grade students, almost 40 percent of the staff was new to the school last year and there are 22 new teachers this year.

Washington has a counseling ratio of 500 to one. Two new counselors were added this year, replacing departing staff and the school is still in need of one more counselor, as one retiree is helping two days a week with the large student load. Counselors are assigned to academies and work with the teachers and students in just their academies. The ninth graders are divided among the counselors alphabetically.

A vexing problem has been the high yearly turnover of staff. Washington High School has had three different principals in the past five years and eleven other administrative changes. For example, all 1996-97 administrators left except the vice principal who became principal. In February 1998, two of the new 1997-98 vice principals were replaced. Each principal has come in with their own style and ideas of what the school should try to accomplish. The present principal is actively committed to using the career academy model to help Washington achieve the highest possible standards.

Although Washington has a core of able, dedicated teachers, over sixty percent of the teaching staff has been at the school for two years or less. It is not easy to find qualified teaching staff especially in math, science, and the academy technical areas. Teachers are reluctant

to apply citing low wages, overcrowded classrooms, inadequate instructional materials and too many difficult students. Because of a lack of applicants, experienced teachers are sometimes replaced with unqualified long-term substitutes. No consideration was given to the fact that Washington was a restructuring school when the new teachers were assigned.

There are also major gaps in staff preparation that create serious problems. Some teachers and other professional staff members are on emergency certificates or inappropriately certified for their current assignments. Furthermore, certification does not necessarily mean strong preparation, especially in mathematics and science. Interdisciplinary curriculum is difficult enough to develop and implement with teachers who have strong academic backgrounds. New, inexperienced, and in some cases marginally qualified teachers exacerbate the problem. The computer labs are not fully utilized, because of lack of staff expertise. The district is aware that teachers who teach the technical courses should be qualified in the career field. The personnel office says they will attempt to address this problem before 1999-2000 hiring begins.

Restructuring

Preparation for the restructuring to an all academy high school has been taking place intermittently for the past ten years. It began in 1989 when teachers volunteered to start school ten minutes earlier each day to gain planning time. In 1997, the schedule was changed from the traditional 55 minute six period day to a 120 minute three period block schedule. Students and teachers have all of their six classes on Monday and three alternating two-hour classes on the other four days. Students are dismissed at 2:00 p.m. on Mondays to give ninth grade and academy teachers common planning time.

The collaboration required to change to a block schedule lessened the traditional isolation of a large faculty of diverse backgrounds and opened the doors for Washington teachers to begin to talk to one another. The faculty began to understand how their expectations for students can differ significantly depending on the presence or absence of problem solving structures at the school level. They realized that school governance was a crucial element in implementing academies. By 1993 the faculty was talking about how to set up structures to foster problem solving and planning. Their conversations led them to institutionalize their governance system as a s ite b ased m anagement t eam (SBMT) based on the Comer decision making model. (The Comer model, named after James Comer of Yale University, is based on principles that include parent involvement and site based management. Its decision making guidelines include no fault, collaboration and consensus. Expected outcomes are a school plan, focused staff development, and formative and summative assessment.) At Washington the SBMT's purpose is ito be the representative body that channels and spearheads a continuous cycle of inquiry and action research.i The SBMT includes representatives from the faculty, administration, students and parents.

Although the high administrative turnover created difficulties, the SBMT has continued to develop, refine and focus their decision making processes. Teachers were given an opportunity to use their expertise in arenas outside the classroom. For example, a math teacher who has always participated strongly in the SBMT took on the responsibility of data collection. She collects important academy data for the staff and makes presentations on data collection both in the district and at local conferences. A French teacher who lives near the school, took on the responsibility of mobilizing parents and other members of the community to become aware of and participate in school activities. A social studies teacher wrote the grant that allowed Washington to be the second school in the area to participate in the biotechnology education program.

In 1992 Washington applied for and received a State Demonstration of School Restructuring Initiative grant to support their nascent reform efforts. (These grants funded a five-year program of support for a small group of schools to demonstrate how school restructuring might result in imore powerful learning for all students.i) Washington's membership in this restructuring initiative and exposure to other schools engaged in improvement processes, helped the faculty see that fundamental changes could lead to significant changes in student performance. The staff's professional capacity was enhanced by their participation in the state restructuring initiative from 1992 to 1997. It was also helped by the discretionary resources that accompanied the initiative.

A Media Academy was established in 1985. For several years the faculty had been aware that students enrolled in the Media Academy achieved more than other students, not only academically, but also in terms of assuming student leadership roles and in the positive relations that they developed with their teachers and each other. The faculty began to explore the idea that the Media Academy's key components might be used as a model for the rest of the school. They observed how the teachers worked with the same students over a period of at least two years and how the students knew one another well because they had several classes together. The faculty was aware of how hard the academy staff worked, but they recognized the payoff for the students and admired the espirit de corps among the staff and students. Consequently, they decided to focus their restructuring efforts on building a system of career-based houses that were similar to the academy model.

The staff's goal was that each student would choose to enroll in a house that connected academic learning to a career option in which they would be interested. They focused on career orientation to put the curriculum into a meaningful context. This was an important insight. They were concerned that their loose house configurations could fail because of the lack of a strong organizing theme. To avoid this problem, career themes were chosen, teacher teams identified, and the houses designed so that groups of students would keep the same teachers. Teachers met with their house colleagues to plan and develop curriculum. The course of study was structured so that all of the core academic courses met University academic entrance requirements.

Consequently, in 1994 Washington High School was reconfigured into small learning communities that included two academies, four career oriented houses and the International House. Staff development was provided and teachers attended conferences, joined organizations such as the National League of High Schools, and shared their new perspectives. The faculty adopted the principles of the Coalition of

Essential Schools, and committed to personalizing the educational experience for all students. The counselors, previously assigned to students alphabetically, were made responsible for the students of a particular house or academy. Advisory periods were arranged by houses to provide students an opportunity to meet regularly to discuss areas of concern.

The average GPA at Washington has improved since 1992, even though the majority of students enter below grade level in core academic skills. Between 1992 and 1996 SAT scores rose 40 points in math and 89 points in verbal. Enrollment in geometry and the increase in students taking math classes above geometry is over 50 percent. Student participation in the senior project improved 100 percent. However, Washington teachers saw that their students need more support than the traditional school structure was able to provide and they were determined to provide that support.

Although the houses served as an interim remedy, they were too loosely organized and had insufficient support. The following data was compiled and analyzed in 1997.

Table 1
GPA by House/Academy

	Percent GPA < 2.00	Percent GPA > 3.00
Architecture Academy*	34	28
Business House	68	9
Health House	49	16
Humanities House	68	9
International House	36	24
Industrial Tech House	75	4
Media Academy	37	20
School Average	52	14

* The Architecture Academy was started in 1994

Tables two and three were compiled from student surveys conducted in November 1996, and given to 11th and 12th grade students only. Tenth grade students were not surveyed since they had only recently begun to participate in the House system.

Table 2
Do you know the other students in your academy / house?

	Percent Responding Yes
Architecture Academy	89
Business House	77
Health House	98
Humanities House	39
International House	94
Industrial Tech House	75
Media Academy	79
School Average	79

Table 3
Are you in the academy / house of your choice?

	Percent Responding Yes
Architecture Academy	74
Business House	60
Health House	35
Humanities House	32
International House	97
Industrial Tech House	50
Media Academy	79
School Average	61

In January 1998 Washington was selected to participate as a leadership site in a local school reform Collaborative. This Collaborative defines a leadership school as a school that is taking on an issue or challenge of significance for that particular school and for other teachers and schools in the region, and sharing what they are learning with others. Their leadership proposal was used as an anchor paper for other schools going through the application process. The principal and the four teacher implementation team are overseeing and coordinating Washington's improvement effort. Members of the team have clearly defined roles: curriculum and staff development, parent and community involvement, and data management and collection.

In the spring of 1998 the faculty decided that the principal's leadership and the technical and financial support from the DeWitt Wallace - Reader's Digest Fund to the Career Academies Support Network (CASN) and the Collaborative, would allow them to reconfigure the houses as full fledged career academies. In the spring of 1998, Washington's staff chose to implement academies schoolwide. Their goal in establishing these academies was to personalize teaching and learning to provide the support and motivation that their students need to graduate and go on to higher education and employment. The decision was made to have all tenth grade students enrolled in academies by the beginning of the 1998-99 school year. Students are given a choice of one of six academies. Limited English proficient students are enrolled in a special program required by the state's bilingual legislation that Washington has designated as an International Support House. When limited English speakers are reclassified as fluent English speakers they are enrolled in one of the six academies.

At present (1998-99), Washington is configured as six academies, an International House for the Limited English Proficient students, and three ninth grade clusters where teachers share students. The academies are as follows:

- **Architecture** for students interested in the construction trades and building design
- **Humanities/Human Services/Arts & Education** emphasizes the arts and teaching
- **Business and Government** covers business and government, computer applications and law
- **Electronics** concentrates on careers in transportation electronics and related fields
- **Health and Bioscience** for those interested in health careers and the emerging field of biotechnology
- **Media** for students interested in pursuing a career in television and print journalism

Students at Washington take two core courses regardless of academy. These courses are:

- Grade 10: English II, World Cultures
- Grade 11: English III, U.S. History
- Grade 12: English IV, Government/Economics

Although every student must complete three years of math and science, which subject is included in the academy core courses is dependent on the academy's career focus. For example, science is included in the Health and Bioscience Academy, while math is included in the Architecture Academy. All academy technical courses begin with an introductory course that is common to the same academies across the district. For instance, introduction to business is offered at each district high school that has a business academy.

Ninth grade program

Washington students experience a high rate of failure in ninth grade courses, a common occurrence in urban schools. The faculty realized that they had to halt the onset of the indifference and poor attendance that demoralizes teachers and makes effective teaching impossible. With the principal's guidance, they decided to divide the ninth graders that entered Washington in the fall of 1998 into three clusters to prepare them to be successful in the academies. Students in each cluster are assigned to interdisciplinary teams made up of teachers who share the same group of students and who represent the four core academic subjects (English, math, science, social studies). Emphasis is placed on developing positive attitudes and the skills necessary to succeed in high school. Ninth graders also take a career exploration technology class that allows them to learn about a variety of careers before choosing their academy.

The cluster arrangement provides students with a team identity, a group of adults who are looking after them and coordination among all their teachers in both instruction and discipline areas. A ninth grade coordinator was selected and charged with developing activities that create a strong sense of belonging. Cooperative learning, problem based curriculum, cross-disciplinary projects, multicultural content, and multidimensional assessment are being developed to ensure student success. Students are supported by peer mentoring and tutoring programs. The new portables that were placed at Washington to ease the overcrowding are being used for the ninth grade classes.

MANAGING THE ACADEMY IMPLEMENTATION

Governance

The Site Based Management Team is potentially a powerful institutional support for teachers' work. It is helping the staff develop a coherent, positive school-level professional learning community that is invested in best practices and problem solving. It is also beginning to play a major role in how teachers view their work and their students, by focusing on the conditions in the school that support ongoing learning opportunities, and stimulate such thoughtful practices as the senior project.

After receiving confirmation of support from CASN and the Collaborative in the spring of 1998, members of the SBMT held a retreat. Their purpose was to review and improve their by-laws and refine their decision making processes. The agenda included:

- What components of the Comer decision-making model did they want to use?
- Are Comer's gradients of agreement an effective precursor to consensus?
- What issues should be brought to the SBMT?
- What to do if consensus could not be reached?

Participants represented a cross section of the school. Each academy and house was represented. The meeting was ably facilitated by a young member of the faculty, and there was a spirit of cooperation among the participants.

The district's interest in schoolwide academies led the SBMT to consider what is required for the comprehensive implementation of an all school academy program. With the cooperation of the rest of the faculty, the SBMT developed a list of questions to determine why an all academy structure would work better than their present structure of two academies and four loosely organized houses. The questions included:

- How successful are the academies?
- What do they do right?
- Do they match the intentions that the staff had when they started them?
- What factors contribute to their successes?
- What adjustments need to be made?

Data Collection

Statistics from the district's testing and research office were used to provide data. In 1998 the data was analyzed both holistically and by appropriate sub-sets. The findings highlighted some sensitive issues and raised questions about some of the choices that had been made. Patterns that emerged were:

- Students were not distributed evenly among the academies. There were significant imbalances in ethnicity, gender, special education status and the number of 10th graders.
- There was an uneven distribution of academically strong and academically weak students.
- There was a wide variety between academies and houses as to whether they have their core courses in place.
- Students in academies with their core courses in place had higher average GPAs.
- GPA generally correlates to math level; students who have completed algebra, and certainly geometry, have higher GPAs.
- Students with low GPAs have a greater dropout rate, more attendance problems, and higher suspension and expulsion rates.
- When the SBMT began to look at how students were placed in the existing academies further questions were raised:
- What are the sources of the disparities between academies and houses in terms of success and failure?
- Why are the academies and houses distinguished by ability groupings?
- Is this what we want?
- If not, how do we change it?

Washington identified several crucial factors as reasons for the improved performance in its academies. Students were kept in tight cohort groups for all of their core classes. They had a clearly defined core of dedicated teachers. The master schedule had not supported the houses in the same fashion. They did not have a strong set of core classes and students were often scattered among a number of teachers. The academies supported the purchase of needed supplies and technology, tutoring, manageable class size level, and important student motivational activities such as field trips and award ceremonies. Work-based learning was made available. Academy students had

mentors and internships. The houses had few resources for their students and no formal work-based programs.

The fact that the houses did not have the same levels of support as academies created Washington's focused effort to implement the academy model equally throughout the school. The faculty knew that their present configuration did not serve all students equally well. There was concern not only about the size, but the GPA and ethnic mix of the academies. The business house was disproportionately African-American and larger and lower performing than any of the academies. Most teachers felt strongly about practices that created substantially different student environments and teaching challenges for teachers within the same school and department. They felt that the program had suffered and caused problems among teachers, and more importantly, unfairness to students. In April 1998 the faculty decided to change the houses into academies and balance them in size, GPA and ethnicity, but at the same time allow students as much choice as possible. If left unchanged, inequities in these areas represented problems that could ultimately undermine the entire move to school-wide academies, and the cooperation among the staff.

1998 Washington High School Time Line of Progress

April 1998	May 1998	June 1998	Sept. 1998
Decision to implement academies schoolwide	Academy student recruitment and scheduling	Summer staff development	Ninth grade clusters and schoolwide academies implemented

Scheduling Multiple Academies

With the principal's strong support the SBMT decided to look closely at the recruitment of students for the different academies at Washington. They wanted the academies to serve as a strategy to reduce or eliminate tracking and to have students grouped heterogeneously in classes based on their interest. A committee was convened to collect and study the information available about the 1997-98 schedule and to use it to build a stronger master schedule for 1998-99. The previous pattern had been that individual academies competed to recruit the best students. As a result a disproportionally small number of students were concentrated in the academies with the best reputations and the most rigorous work.

In order to achieve an equitable distribution of students, the SBMT agreed that this practice must be changed. The recruitment process was redesigned to emphasize choice in students' selection of their academy. The SBMT proposed and the faculty agreed that ninth graders would select their academy through a process where all students were given equal exposure to the offerings of all academies. They could then choose based on their career interests. Limited access to certain academies would be eliminated. If the students' choices were widely disproportionate, counselors, teachers and the administration would try to balance the academies in terms of size, gender, ethnicity, and GPA. It was hoped that this new selection process would ensure a more equitable distribution of students across the academies.

The principal worked with teachers and counselors to improve the schedule. A master schedule was created where each academy had clear tenth grade cohort groups established. When students request changes, both academy directors must sign off on the change. This formality assures that students are not being coerced to switch. Less than ten percent of academy students have requested changes since the new schedule was implemented. Table 4 compares the size of each academy in 1997-98 before intervention by the principal and staff and in 1998-99 after the new method of scheduling was implemented.

Academy Size 1997, 1998

	Arch	Arts	Business	Electronics	Health	Media
1997	61	98	105	102	82	60
1998	75	78	90	76	79	79

In the Appendix, Figure 1 compares GPA by Academy from 1995-96 to 1998-99. Figure 2 measures distance from the average ethnicity of the 1998 10th graders as compared to the 1998 11th and 12th graders. Averages were taken only for African Americans (39 percent), Asians (16 percent) and Hispanics (41 percent). The percentage of Caucasians and Native Americans was too small to include. The 1998 numbers in the tables clearly show that the academies are more nearly balanced in size, GPA and ethnicity than they were before the new schedule was created. Washington has taken a giant step toward detracking and equalizing their academies.

Choices were found to be surprisingly equitable when students got their preference and were not pressured to join a certain academy. Even though GPA, gender and ethnicity were taken into consideration almost all of the new tenth graders received their first choice. Consequently registration was smoother and the 1998-99 school year began on a far better note than in previous years. At the end of the first grading period fewer than twenty-five students had asked to be moved to a different academy.

Although much improved, the master schedule remains a challenge. Washington's data shows that the established academies have been able to program their students more consistently in a greater number of core classes. During this first year of implementation the new academies are developing their courses. Their next step is to put together a master schedule where core courses for grades eleven and twelve are established and respected. The academies that already have these courses in place have succeeded where others have not. This is because they had the additional support of either money or of state regulations that require certain students to take certain courses with teachers with specific credentials (e.g., the International House which serves the ELD population).

There are other areas where much work also remains to be done. The present block schedule was adopted to support changes in a curriculum that called for more active hands-on project-based student work. Some teachers are more integrated into the academy concept than others by virtue of what they teach as well as by personal philosophy, commitment and personality. Staffing problems are further complicated by the latest teachers' union contract that limits teachers to two preparations. This contract limitation has created a situation where many teachers are teaching in two academies, and a few are teaching in as many as three. Teachers who are teaching in more than one academy are often disconnected from academy planning and activities which compromises one of the major strengths of the academy model, the small learning community.

Further improvement will increase the number of students having multiple classes with the same cohort group and staying with their teachers for more than one year. This will strengthen the foundation for all future master schedule work and could serve as a template for use by the other high schools in the district. Developing this schedule demands compromise, creativity, and commitment. Most teachers are willing to make the effort because of their own persistence and growing evidence that their work is paying off for their students. They have learned the hard way that discussions, even disputes, must occur before a satisfactory master schedule is crafted. They are also learning that scheduling six academies and a bilingual house may require a larger staffing allowance.

To enhance the sense of community for students, academy classrooms are being changed so that they will be in closer proximity to one another. The faculty agrees that now that they have their school governance and structure under control and their schedule in better shape, they can concentrate on improving teachers' commitment to teaching in an academy and students' motivation to learn.

TEACHING AND LEARNING

Integrated Curriculum

Washington's stated goal is to develop ïsustainable changes in curriculum that will improve teaching and learning for all students.î (Western Association of Schools and Colleges Accreditation Report 1999) The staff plans to achieve this goal by working together across academic and technical subject areas to demonstrate the importance of the relationship between school and work. Most faculty members are convinced that this form of interdisciplinary teaching provides motivation by giving students a context to understand why they are studying a particular subject and how to relate it to other subjects. Academy teachers work in teams to develop interdisciplinary curriculum to promote active learning and participation. They believe that contextual coursework is needed to raise academic achievement by making what is taught in school more meaningful and more relevant. Their ongoing challenge is to match the curriculum projects to district academic and industry standards.

Curriculum integration requires staff commitment and training. The faculty is organized into academy teams, the English Language Development team and ninth grade cluster groups. In June 1998 they were given concentrated staff time for training on interdisciplinary projects and rubric development aligned with the state and district standards. In September they presented the projects they developed over the summer and received feedback from their colleagues. In addition, coaching support, provided by a grant from a local foundation, is focusing and giving momentum to their efforts to develop curriculum that is both interdisciplinary and infused with industry specific themes.

Integrated project: How Can We Solve the Graffiti Problem at Washington High?

Washington has had serious problems with graffiti. It affects the entire high school community, by lowering self esteem and dividing students along ethnic lines and sometimes between gangs. The Media Academy felt that if they could reduce graffiti on campus, the school might better serve other student needs. A project was designed to use the resources of the Media Academy to define the problem and explore solutions. It combined telecommunication with media tools and skills to help students analyze and solve a real problem while integrating academic and technical skills. Industry partner, Pacific Bell, provided expertise and service. They installed voice mail, a direct line for faxing, and other lines for direct communication on campus between teachers and students via electronic mail through the CLASS LINKS program at Pacific Bell.

The goal of the project was to use collective critical thinking to solve the problem: what can the Media Academy, as a team, do about graffiti on campus? Media Academy students explored the historical, political, socio-economic, environmental, economic and media aspects of graffiti, and whether reducing graffiti on campus could make it possible to divert district moneys to the delivery of educational supplies and services. Cognitive skills included researching the pros and cons of a controversial issue and demonstrating critical thinking through use of persuasive writing and speaking. Academic content was integrated in English, US history and government classes. Cooperative learning was used to devise strategies for classes to work together to publish the results and record progress through the school

newspaper, a student magazine and a student produced video. Students broadcasted their results through teleconference facilities provided by Pacific Bell.

Work based skills included applying desktop publishing to writing skills in more than one style. The Pacific Bell partnership resulted in over 40 mentors. The academy initiated and maintained these one-on-one relationships primarily through telecommunications: phone, fax and e-mail. SCANS employability competencies were addressed by having students work together to produce multiple products and carry out individual and team roles according to a common timetable. Cross curricular activities were included in the school newspaper, magazine, radio and television productions.

The project also included a strong community involvement component. Students used telecommunication, primarily phones and faxes, to drive a press and public relations campaign. They were able to unite varied groups behind the common theme iTake Back Our School and Rid Our Campus of Litter and Graffiti.i Nearly two hundred people - students, faculty, politicians, community activists, parents and other members of the community - painted over graffiti, cleaned bathrooms, picked up garbage and united to do something positive and active to improve the school's environment. The project was evaluated on the effectiveness of the vocational and academic integration and alignment, the degree of success of telecommunication inclusion, and the quality and process value of each individual project and product. Each teacher was responsible for evaluating and grading the individual and group work of their students.

(Note: The district installed cameras on campus in the fall of 1998 resulting in a noticeable reduction in graffiti. Also, the district paint crew now comes within days of an attack of graffiti.)

Senior Project

The senior project is a major component of Washington's integrated curriculum effort. It began in 1993 as an effort to push students to demonstrate what they had learned and encourage teachers to prepare students for an exhibition of their mastery. The senior project represents a culmination of student learning and an authentic assessment of student achievement. Washington's senior projects have three parts: 1) research paper, 2) product, and 3) presentation. A public exhibition is required. All students, including upper level ELD students, are required to complete a project. Business partners, parents and other members of the community serve on panels that judge the projects. In January 1998 the district's Board of Trustees made successful completion of a senior project a graduation requirement for all high school students.

Improving the senior project is an important part of Washington's staff development. The faculty aims for a rigorous exhibition of mastery in the senior project and feels that evaluation must be uniform in each academy. Teachers are working to fully develop the needed curricular scaffolding across all subjects that will enable all students to meet the challenge of a senior project. There is a need for a commonly understood rubric. The staff realizes that expectations around exhibitions of mastery and the senior project must be clarified and anchored in a common vision. Previous senior project presentations (from videotape) and research papers are presently being studied by the Senior Project Committee to improve scoring rubrics and to make the judging of the final presentations more consistent. Rubrics that clarify the standards for students and staff have not yet been completed and other problems such as submission deadlines and finding enough evaluators have yet to be solved.

Funding has been made available to provide additional teacher training in such areas as writing across the curriculum, and developing rigorous exhibits of mastery for their classes. Washington hired consultants to work with teachers to develop methods to prepare students for the senior project and sent teachers to a senior project conference. At the conference they attended sessions on iCurriculum and the Senior Project, Building Benchmarks to Senior Project Successî and iSenior Projects and School to Work.i They shared results with the staff at the September staff development meeting and will be involved in planning and participating in a district-wide senior project institute.

The staff is attempting to provide a project mentor for each senior and plans to ask English majors in area colleges to serve as mentors and support personnel. The school's exhibitions coordinator is responsible for the organization of the senior project exhibition. The school to career link with the senior project is being strengthened by academy directors, the school to work liaison and the exhibition coordinator. They are trying to match students with outside business mentors to help them with the development of their projects. Parents are encouraged to attend meetings and be involved in developing and assisting in judging senior projects.

The exhibitions coordinator, along with a representative committee, is continuing the work of coordinating and implementing the senior project and preparing students in the ninth, tenth, and eleventh grades. This committee will develop and disseminate benchmarks and instructional materials for students as well as assign the staff to mentoring positions for seniors. The coordinator is also developing the schedule for senior project presentations by the end of the first semester. Staff training where previous student work is examined in relation to a rubric created by the committee is ongoing. These rubrics will be developed and anchored by the end of the first semester, so students can begin their senior project work with the rubrics in mind. Washington teachers are willing to share their students' work and agree that work will not be hidden, but exchanged and evaluated so that others can build upon it. One teacher said, iexamining and sharing student work is like a mirror. It is both scary and wonderful.i

When asked,i Is the senior project achieving its goals?i teachers answer, ipartially, in that students are participating and are proud of their work. They bring their parents and other family members to see them and invite other special guests who may have helped them with their projects.i Student writing continues to be poor, largely because skills need to be improved in earlier grades. The addition of the ninth grade is providing one more year for skill development. The difficulties students have finding mentor relationships for their projects must be addressed. Students are often forced to work on their projects without the benefit of other adults except their English teachers. Improving mentor relationships will help students not only produce higher quality projects but also strengthen their ties to the community.

Technology

Student use of computers at Washington has increased markedly in the past five years. Computers are available throughout the school. Eighty percent of the teachers have computers in their classroom, and there are full size computer labs in three different areas of the school. There is also a fully equipped computer lab in the Media Academy. Almost all students use technology at some time throughout the school year. They are supported in their efforts on the senior project, and other exhibitions of mastery, by Washington staffing at least one computer lab during lunch time and before and after school. This is an interim plan as the district proceeds towards its goals of staffing all the computer labs at the high schools . In February 1999, the library received fifteen satellite computers that have immediate Internet access. These computers have been greatly used by students, some of whom stay after school to work on them. Most of Washington's students do not have computers at home and the library has become an important source of access for them.

The presence of computers has led to a real change in what teachers can do. Many teachers have redesigned their curriculum to encourage students to use the computers. Most require papers to be written on computers, something low income students would be unable to do without their presence in school, since few of them have computers at home. Students use word processing, spreadsheet and other applications in classes besides their computer class. They use computers for their integrated projects and many have become quite proficient in basic computer applications. Computers are also being used in academies, such as business, that prepare students for jobs and occupations that are either centered on or strongly affected by the use of computers. The labs are frequently filled with students doing work for different classes. Previously, the only students using computers regularly were in the Media Academy.

Although there are still teachers who do not use computers regularly, the number is decreasing. The district has a well-equipped training lab at the district office and offers workshops for teachers both in the summer and during the school year. Attendance at technology workshops is creating a demand for more creative software and other technology for classrooms. They want to promote problem solving by using computers as integrated learning tools throughout the curriculum in each academy. The emphasis will be shifted from training in routine mechanical skills to conceptual understanding and problem solving. Priority is given to developing intelligent use of various technology assisted methods such as graphing; numerical approximation and computer symbol manipulation; and mathematical skills and software tools such as graphics, spreadsheets and databases. Implementing such programs requires a long and sometimes difficult effort. It also will require substantial curriculum planning and the development of in-depth understanding and appreciation of technology and how it provides the basis for work for a large segment of society.

Work-based Learning

Although Washington students presently participate in work-based programs at local businesses, hospitals and biotechnology companies, a significant expansion of work-based learning experiences is being planned. Job shadowing and mentoring programs are already in place in the Architecture, Health and Bioscience, and Media Academies; but work based learning opportunities are not made available across the school equitably. There is a critical need for paid internships from the private sector. More partners are needed to sustain the program by providing training facilities with equipment used in the workplace. Resources are concentrated on students who have been under-represented in previous work-based learning. This is being done by developing mentoring, job shadowing, service learning and internship opportunities within each academy. At the end of this school year, each academy is expected to document the placement of their students in work-based learning situations such as job shadowing, internship or service learning.

The district school-to-career office coordinates program services training with business, labor, and industry, and is a strong partner in the effort to provide high quality work based experiences for students. Academy directors, district school-to-career liaisons and the special education vocational coordinators oversee the development of sites, contacts and partnerships with the business community. Mentors and internships are crucial in motivating Washington's students and helping them understand the connection between school and work. Instruction in developing a mentor program and finding internship sites are provided to academy directors as needed by the district school-to-career office. Training for appropriate personnel to help with this effort is conducted at summer institutes. The school-to-career liaison and special education vocational coordinator are responsible for monitoring the number and success of students placed in work-based learning. Teacher participation in work-based learning is being monitored. Business partners are also needed to evaluate students.

The Health and Bioscience Academy

In 1996, members of Washington's Health Academy submitted a successful proposal for Washington to become part of a non-profit science education program that promotes biotechnology education. Students are enrolled in a rigorous curriculum that includes courses in chemistry, microbiology, biochemistry and physiology. They are considered to have achieved mastery in these courses when they earn a grade of B or better. The curriculum meets industry standards and is reviewed frequently. Industry protocols describe what will be included in each course and what students are expected to learn. The program provides:

- paid internships for enrolled students to practice skills required for getting and keeping a job in positions similar to those that they might get after completing the program
- community college programs with appropriate state-approved curriculum and hands-on experiences guided by educators and industry, and articulation between high school and community college curricula
- paid teacher internships in the biotechnology industry to address their lack of experience with industry needs and issues
- job placement
- support services for students that include mentoring, tutoring and counseling
- evaluation of all program components and data collection on participant outcomes

An extensive and successful work-place learning program is provided. Students are placed in summer jobs between their junior and senior years. Funds to pay for these internships comes from the local biotechnology companies. The internships are skilled biotechnology jobs with opportunities for advancement. Students have been employed in over twenty different work locations. Workers are enthusiastic about the interns. Several local biotechnology companies support their employees continuing education by helping to fund their college course work.

The program is articulated with a nearby community college where students in their senior year can take advanced biology. Funds are made available for tuition and books for any student to continue at the college. A lab assistant who tutors students who need extra help in their math and science courses is also funded. Students who successfully complete the biotechnology program at Washington and enter community college are eligible for a co-op position. Students sign a contract stating that participating in the college's co-op jobs program is conditional on their success in both the work and school experience. Some of the positions pay over $25 per hour. The only students who have not taken this option have chosen instead to attend a four year college.

Teachers at both the college and Washington say this is a tremendous opportunity not only to help students, but to allow the faculty to get a reality check on their curriculum. Washington's two biotechnology teachers have had summer internships. Both agreed that the experience was outstanding. The summer internship introduces teachers to the reality of working in the industry and shows them how courses can be better integrated for the next academic year. Companies in the biotechnology industry are eager to involve teachers for they realize how important it is for them to be current in their curriculum. Seeing the industry from the perspective of an employee allows teachers and students alike to gain experience that can be applied in the classroom.

The Health and Bioscience Academy also develops and maintains contacts with parents in many ways. Parents must sign a copy of the Health and Bioscience Academy expectations at the beginning of each year. They are invited to a number of school events during the school year: an academy open house in October, a dinner in the spring, meetings with employers in June and an exhibition of student work especially for parents and the wider school community. A parent said, ìpeople say knowledge is the key to life and this academy is giving our children that key.î A senior said iyou don't just read but you get hands on training. Its a great challenge, but I like challenges. The work is really interesting. Adults say that those of us in generation X are lazy. I say generation X in our academy stands for generation excellence. After all, I didn't learn how to parallel park (drive) from a book. You get better by doing it. By following the protocols you get the same skills that the other workers have. I have confidence! I am not even intimidated by 30 year olds.î

Safety Nets for Academy Students

Teachers at Washington say iour students are as capable as any. They simply lack background and confidence and must be given the time needed for mastery.î Tutorial services are provided on campus to build safety nets for students who are experiencing academic difficulties. There are tutoring programs in math, science, English and social studies. Students have access to peer tutors, both after school and at lunch time. Peer tutoring gives participating students class credit and other rewards. Teachers also help students by counseling, mentoring and after class tutoring. The on-site literacy coach works with students across the curriculum on reading, writing, speaking, and listening skills. Assistance is also offered by identifying community resources for tutoring and coordinating their efforts on campus.

STANDARDS AND ACADEMIC ACHIEVEMENT

Although the implementation of academies has not yet caused dramatic increases in overall academic achievement, data clearly shows that students who are in the best organized and most supportive academies have the highest rates of achievement. Results vary for other teachers who are just beginning to rethink their strategies in terms of the academy model and make changes in their classroom activities. The majority of Washington's staff feels that their original intention of developing academies to provide more personalized and contextual learning is correct and that low scores are largely due to the poor preparation of entering students and should improve.

Part of the problem in providing high quality standards based curriculum is the trade-off in power between the academy directors and the traditional subject matter department heads. When academies are seen as supplying the standards and the goals, authority over curriculum shifts from the departments to the academies. Professional roles are altered. New responsibilities are being placed on academy teachers. They have flexibility in methods of achieving student outcomes and are given freedom to manage curriculum, pedagogy, scheduling and resources. They are experiencing the meaningful relationships academies can create between teachers, and how academies can change ways of teaching and attitudes toward colleagues. At present most of Washington's faculty finds this approach more appealing than the previous practice.

However, there is concern about ignoring the impact of these new relationships, largely because the nationwide standards reform effort centers on subject matter knowledge. An important, but contentious, meeting to address this issue was held in the fall of 1998 at the district office. Afterward, some teachers said that the meeting was an important one and that it helped to clarify the change in traditional roles. Others were not satisfied. They wanted more evidence that the new all academy system is more effective than the traditional way of configuring schools. Some teachers felt strongly that when department leadership is lacking, academic leadership is diminished. They asked that responsible action be taken throughout the high schools to ensure that required course material is covered.

Washington has developed a structure to try to resolve this issue. Teachers began by asking what is the significance of departmental

structures and their traditional allegiance to subject matter. They agreed that departments have served important purposes over time and should not be dismantled and replaced. They feel that schools are not likely to do much about underachieving students until teachers are empowered to use their professional judgment. The question was then asked who will take on these roles if both the academies and departments are to be strengthened. The faculty decided that departments are to be considered as home groups and academies as focus groups. Focus groups cut across curriculum areas in the same way as academies and bring together teachers with different subjects who share students. The faculty is presently engaged in planning how these specialized concerns will be coordinated and reconciled in the best interest of the school as a whole.

PROFESSIONAL DEVELOPMENT

Washington is conducting a carefully planned professional development program that is aligned with the larger goals of the district. The faculty is receiving intensive training in the teaching of reading and writing, interdisciplinary planning, rubric development, integration of technology, and learning styles. Washington's staff development is driven by a coherent plan that dovetails with the district's professional development activities. New constructs in teaching and learning require time and commitment for educators to adapt to them. The curriculum coordinator and her committee are conducting afternoon extended activities and schoolwide staff development days. Weekly academy staff planning sessions are conducted as a forum where teachers meet and discuss their efforts to coordinate curriculum integration, the senior project and state and district standards. Collecting data and examples of student work is ongoing. The goal is to adopt this process as routine and required to make meaningful decisions.

The newly formed curriculum committee planned the professional development for the first two inservice days in the spring of 1998. On the first day a series of workshops was presented by the Washington staff in an effort to make certain that the entire staff understood academy vocabulary and requirements. The workshop topics included integrated curriculum, computer technology, writing, diversity, and classroom management. The second day was allocated to the senior project with presentations given by consultants from Oregon. Eight more professional development days were conducted over the summer: three in June immediately after school ended and five days in late August and early September before school began. During this time the staff refined its vision, and decided to broaden its focus to include a literacy initiative for the 1998-99 school year. Teachers also conducted seminars to share what they had learned at conferences they attended during the summer.

Washington's curriculum coach is making a special effort to help the twenty-three new teachers adjust to the academy structure. He has initiated discussions with teachers to clarify their vision, goals, and ideas; developed coaching agreements; and is planning strategies to support these agreements. Most teachers will be expected to develop at least one new project that integrates academic and technical curriculum by the end of this year. He is also providing demonstrations of effective instructional practices such as curriculum alignment and project based learning. His classroom serves as a learning lab for the staff.

Washington's professional development is based on the premise that the more teachers know, the more their students will learn, and that effective schools are judged by the attitude of its teachers toward learning. Through the concerted effort of the principal and the curriculum committee the entire staff is engaged in ongoing professional growth. Their theory of action is that teachers cannot teach what they do not know. In addition to knowing their subject matter they must know how to motivate students and contextualize learning, so that economically and educationally disadvantaged students can understand and achieve. They are proving their commitment by continuing to attend professional development seminars on Saturdays and after school. By the end of the first semester of this year they had attended ten workshops, five of them on Saturdays.

PARENT, STUDENT AND COMMUNITY INVOLVEMENT

Parental participation , while low, is increasing. Even though the number of single parent households has increased in the last five years, more parents are participating in school events involving their students. Washington's principal is eager to strengthen home/school partnerships and is working with her community group involvement coordinator, to develop more direct engagement between the school and home: one that reflects the tenets of the academies.

Parents are interested in the work their students are doing in the academies. They support strong academy programs that offer opportunities to their students not available in other schools, and certainly not provided for them when they were in school. Each academy is encouraged to develop a parent involvement plan. A primary effort for the 1998-99 school year is to conduct a campaign to increase awareness of the academy initiative among parents and the community. There were 105 family members at the May 1998 Health and Bioscience Academy dinner. Washington is identifying parent leaders so that they can influence events at the school. A parent contact to support dissemination of information about academy programs and activities has been identified.

The SBMT's effort to expand student and parent participation continues to grow. There was some participation with the focus groups and several parent discussion groups addressed the school's vision. Students began working with focus groups last year. It was sporadic and they are continuing to build on their involvement. This year there is a team of students representing the academies, the International House and the 9th grade clusters. They are working and giving input on the direction the school is going with regard to student learning.

Students have a voice on the SBMT, although there is presently very little effective student government at Washington. Students are involved in planning social events and providing leadership for clubs, but most have not ventured beyond these traditional areas. The faculty feels this must be changed. Academy leaders have taken on more responsibility to work with their colleagues and collaborate around student participation. Yet students continue to have very low levels of participation on school committees such as the SBMT.

It is the community involvement coordinator's responsibility to ensure that parent, student and community voices are included in all aspects of Washington's work. She is responsible for planning and implementing a program to bring students, parents and community support groups into the decision making process at Washington. Two community awareness days where parents are informed of the on-site and community services available to Washington students were held in 1998; one in the spring and one in the fall. Support agencies provided parents and students with information concerning health, colleges, vocational education and city and county services. Agencies represented included the mayor's office, Private Industry Council, local colleges and universities, and the Spanish Speaking Citizens League. In attendance were the district superintendent and other officials, representatives from several community support agencies, as well as parents, faculty and support staff.

Both affairs familiarized parents, students and the community with the various agencies that support Washington, and increased their understanding of the roles of the different community organizations. They sparked conversations about how students could use the community as a learning laboratory, the importance of participation in community service activities, how teachers could integrate community issues into their curriculum, and how teachers and students might develop school based enterprises that addressed community needs. The affairs helped the participants understand that the organizations must be brought together in one cohesive whole. In several cases, organizations that were doing similar work for Washington High School had never met. This reinforced the fact that community partnerships need formal agreements with schools to make relationships sustainable and that they should not be dependent on individual relationships. An effort to coordinate these groups has high priority on Washington's school improvement agenda.

Other plans for community involvement include a newsletter, use of the campus as a center for community activities, and the sponsorship of an accountability event in the spring of 1999. The monthly newsletter began in April 1998 to enhance communication by improving the quality of the information passed between the school and the home. Recent issues included such topics as a discussion of Washington's plan for implementing academies school wide, a description of Washington's support providers, information about Washington's staff development plans and an invitation to participate. A calendar of events is enclosed to inform parents of important dates.

Another Washington goal is for the high school to become a hub of the community by making the school available to groups to meet in the evenings and the weekends. At present, Washington is locked down after school. It is hoped that better lighting for night activities and a reduction of vandalism will be byproducts of increased community involvement.

An accountability event is being planned for the spring of 1999 to make school data public and begin a dialogue with parents, students, teachers and business partners. All will be invited to participate in this meeting where Washington's progress on its academies and other reform goals will be shared. State and district standards will be discussed and student progress toward meeting them will be examined. Washington feels obligated to report to parents and the community not only when students are doing well, but also when they are not, as this will allow them to mobilize assistance. The staff hopes that addressing the full range of academic performance will be extremely productive and encourage the community to feel that they are members of a problem solving team. Solutions are more likely to be successful if they are created with an awareness of the multiple aspects of student performance, and a clear understanding of students' academic strengths as well as their weaknesses.

CONCLUSION

Washington is a prominent participant in the growing number of schools that are trying to increase their students' academic and technical achievement through career based education. Clearly their attempt to raise academic achievement by providing career academies for all students has broad implications, especially for public inner city high schools. Their attempt to motivate students by providing a career related context for learning is an ambitious agenda that incorporates the tenets of school reform. The staff is convinced that academies with their real life incentives will provide the motivation and the sense of community that their students must have to achieve.

Word of Washington's progress in developing a format for school governance, academy scheduling, and senior projects is beginning to spread throughout the district. Other district schools are starting to ask for advice and help, and in some cases sending staff members to observe Washington's practices. Their master schedule is being shared with the counseling staff district wide. Washington teachers attribute their success to the principal's unwavering support and to the district's school-to-career director for making explicit the criteria academies had to meet. However, they remind their colleagues in the other schools that so far only grade ten has been addressed. They know that they will have to make tough choices and commit to many more hours of hard work to complete this effort so that it impacts all three years of the academy program equally.

Washington's staff is in a process of continually examining what is not working well so that identified shortcomings can be overcome. They show obvious caring for their students regardless of ethnicity and socioeconomic status and are developing strong relationships with them. Their attempts at interdisciplinary curriculum and personalized attention is making a difference in the lives of many students and earning the appreciation and support of their parents. Washington is not just complying with the district's interest in academies, they own it. A veteran academy teacher said iWe see our academies as a great opportunity. We don't sugarcoat our problems. We are up against every

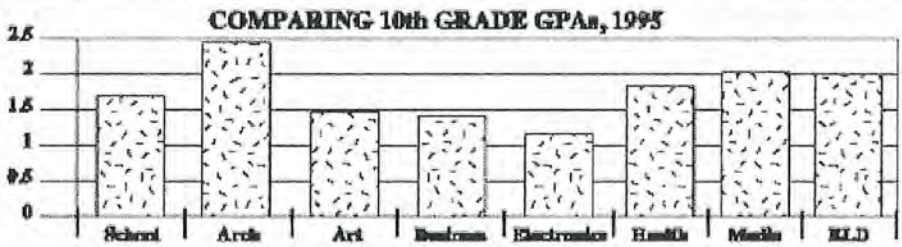
obstacle in a crowded urban school, but people are working toward change. We are going to be much observed and often studied. We're ready for the challenge and ready for the work.†

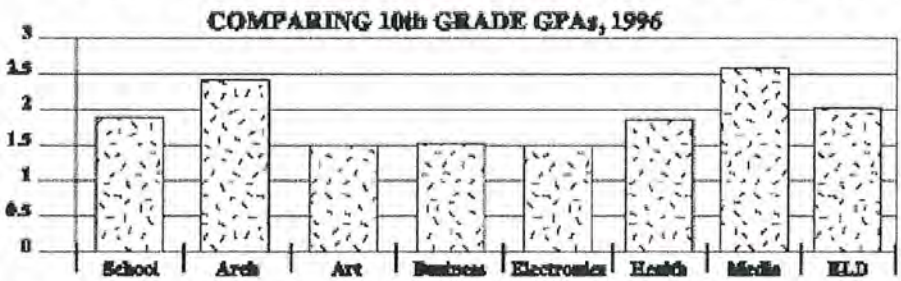
APPENDIX

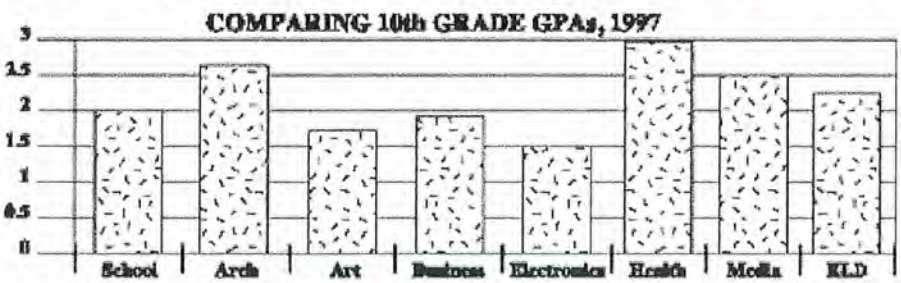
FIGURE 1

Washington High School
Comparing GPA by Academy 1995 - 1998

Year	School	Arch	Art	Business	Electronics	Health	Media	ELD
1995	1.72	2.48	1.5	1.39	1.2	1.83	2.1	2.07
1996	1.84	2.42	1.5	1.52	1.5	1.82	2.6	2.04
1997	1.99	2.68	1.7	1.85	1.5	2.98	2.5	2.19
1998	1.89	2.69	1.8	1.84	1.6	2.31	2.2	NA







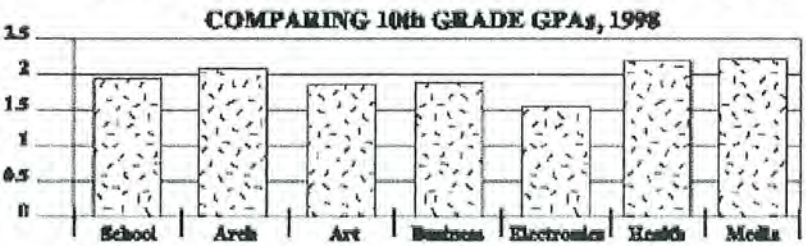


Figure 2: Ethnicity distribution in the academies.

Schoolwide Averages

Ethnic Group gr 10-12

Asian 16%

Black 39%

Latino 41%

Ethnicity by Grade and Academy

	Architecture			Arts & Letters			Business			Electronics			Health			Media		
	10th	11th	12th	10th	11th	12th	10th	11th	12th	10th	11th	12th	10th	11th	12th	10th	11th	12th
Asian	14%	16%	30%	12%	5%	9%	24%	9%	10%	15%	7%	4%	22%	27%	23%	13%	11%	23%
Black	30%	8%	21%	35%	66%	91%	46%	59%	54%	48%	47%	27%	34%	43%	42%	40%	18%	21%
Latino	50%	70%	43%	43%	17%	6%	30%	19%	31%	33%	42%	64%	39%	28%	31%	48%	71%	55%

How far off the schoolwide breakdown for ethnicity is each academy?

	10th	11th & 12th
Architecture	20	35
Arts and Letter	14	77
Business	28	46
Electronics	18	33
Health	18	30
Media	18	30
Average	19	43

Note: larger number indicates farther from the school average. New selection process only affects 10th graders

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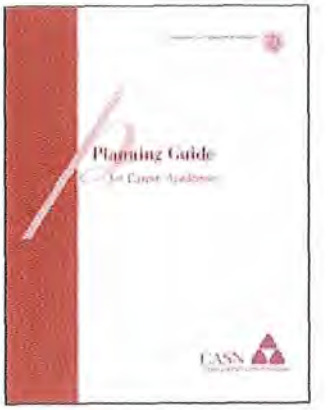
CASN
CAREER ACADEMY SUPPORT NETWORK

PLANNING GUIDE FOR CAREER ACADEMIES



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- Who says?

II. Why start an academy

- Reasons *not* to start an academy

III. How do you begin?

- A taxonomy of industries
- Schedule of planning tasks
- Related costs, sources of support

IV. Who needs to do what

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V. Are you making progress

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- CASN websiteóa brief tour
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- Career academy materials
- Career academy conferences

References

WHAT IS A CAREER ACADEMY?

The first career academy began in 1969 at Edison High School in Philadelphia. It enrolled 30 students, was called the "Academy of Applied Electrical Science," and was supported in part by the Philadelphia Electric Company. From that small beginning has grown an estimated 2,000 ñ 3,000 academies today, with more starting each year, all across the country. Several states have academy networks, among them California, Florida, and Illinois. Many individual districts have networks in their various public high schools. And there are now several agencies working at the national level to support career academies.

While the U.S. Departments of Education, Labor, Justice, and Health and Human Services have all shown interest in career academies, there is no federal agency that officially oversees them. This means there is no agency with a precise definition for them, or even a complete list of them. In addition, as academies have moved from one location to another they have often taken on new variations. While such innovation can be healthy, this has created some confusion about exactly what constitutes a career academy.

In 1999 the Career Academy Support Network (CASN) at U.C. Berkeley gathered the various definitions of career academies from the states and organizations supporting them and merged these into a "common definition." CASN then sent this back to each of the contributors for refinement. Eventually we all agreed on the definition below. This definition has three features:

- a small learning community within the larger high school
- a curriculum that combines a career focus with meeting college entrance requirements
- partnerships with supporting employers, community members, and institutions of higher education.

A Small Learning Community

A career academy is a small learning community within a high school, which selects a subset of students and teachers for a two-, three-, or four-year period. Students enter through a voluntary process; they must apply and be accepted, with parental knowledge and support. While academies vary in size, they usually have from one to three sections of students at each grade level, or 100-300 students in all. Academy classes are usually blocked back-to-back in the daily schedule, and students attend as a group, what is often referred to as "cohort" scheduling. Students are able to complete academy requirements within the regular school day, with the exception of work internships and possible college classes.

A career academy involves teachers from different subjects working together as a team. This team manages the program, with one member usually serving as the coordinator or lead teacher. Teams usually participate in professional development, particularly in implementing the key features of the model and gaining exposure to the career field. Team members have shared planning time, usually a daily common planning period, and often release time. The joining of a group of students for several periods each day with teachers who they come to know well provides a family-like atmosphere, nurturing close student-teacher ties. An academy functions as a small learning community within the larger high school and requires administrator and counselor support. Academy students may also participate in required and elective classes outside the academy, as well as other activities such as clubs and sports.

College preparatory curriculum with a career theme

Students in a career academy have a mixture of career (usually one) and academic (usually three or four) classes at a time. These classes meet entrance requirements for four-year colleges and universities. They are linked to academic and industry standards, encourage high achievement, and show students how their subjects relate to each other and the career field.

The career classes develop knowledge in a broad field. They are designed to expose students to the full range of careers in that field. Special projects require students to bring together academic skills across their subjects and apply these to community and work settings outside the school. Usually the junior year includes a mentor from a supporting employer, and the summer following the junior year and/or senior year includes work experience, a paid or unpaid work internship or community service assignment. During the senior year students are provided with college and career counseling, forming a post-graduate plan which may include college, a mixture of work and college, or full-time work.

Partnerships with employers, communities, and higher education

The academy career theme is selected locally, based on an industry that is healthy and can provide a cadre of partners interested in supporting the program. Employers from a group of companies in the selected field work as partners in the academy, serving on a steering committee (along with teachers, administrators, and often parents and students) that governs the program's development and operation. This committee helps to plan the various activities in which employee volunteers participate: as speakers at the school, informing students of the industry and career options; as field trip and job shadowing hosts at their companies; as individual mentors, career-related "big brothers and sisters"; as work internship supervisors during the summer or part-time during the school year; and as community service coordinators. The employer partners may also hire graduates. Postsecondary educational institutions are often included as well, providing course articulation and concurrent enrollment options.

This three-part definition can be viewed in either chart or graphic form by visiting CASN's website: casn.berkeley.edu. While there are still

variations and gaps in the way this approach is implemented in various places around the country, this is an agreed upon definition of what a successful career academy should include.

Who says?

Following are the organizations that have agreed on this definition.

- The California network of academies, called the California Partnership Academies, in the California Department of Education
- The Career Academy Support Network (CASN), based in the Graduate School of Education, University of California, Berkeley
- The Center for Research on the Education of Students Placed at Risk (CRESPAR), sponsors of *Talent Development High Schools* , a schoolwide application of academies, based at Johns Hopkins University, Baltimore
- The Illinois network of academies, called the Illinois Partnership Academies, in the Illinois State Board of Education
- Manpower Demonstration Research Corporation (MDRC), a leading national evaluator of academies, based in New York City
- The National Academy Foundation (NAF), with the largest network of academies nationally (over 500), focused in finance, travel & tourism, and information technology, based in New York City
- The National Career Academy Coalition (NCAC), associated with the Philadelphia Academies, a membership organization that sponsors an annual national academy conference
- The Philadelphia Academies, Inc., now with 29 academies in 12 career fields in 19 high schools, and nearly 7,000 students
- The Southern Regional Education Board (SREB), sponsor of *High Schools That Work* , the largest high school reform effort in the country, with over 1,000 high schools, based in Atlanta, Georgia

WHY START AN ACADEMY?

One reason why growing numbers of states, districts, and schools have decided to start career academies is that they have been found to be effective in improving students' performance. Studies of several different types have been done. What follows is a brief recap. This information is taken from a longer summary of the research findings entitled Career Academies: Building Blocks for Reconstructing American High Schools (Stern, Dayton, & Raby, 2000), and available to view and print from the CASN website (casn.berkeley.edu).

Several studies in California have found that academy students perform better than similar students in the same high schools who are individually matched with academy students on demographic characteristics and ninth grade records of grades, absenteeism, and disciplinary problems. An evaluation of the first two academies in California in the early 1980s found that academy students in grades ten through twelve had better attendance, earned more credits, obtained higher grades, and were more likely to graduate than their comparison groups (Reller 1984; additional citations in Stern, Raby, and Dayton 1992; see also Raby 1995). From 1985 through 1988 a similar evaluation of the ten initial state-funded academies in California showed substantial and statistically significant advantages for academy students in attendance, credits earned toward graduation, grade point averages, and retention through high school (Dayton et al. 1989; Stern et al. 1989).

Annual data collected from state-funded academies in California continue to show improvement after students enter an academy and while they are enrolled in it (Dayton 1997; Warren 1998). High school dropout rates in academies average about seven or eight percent over three years ñn about half the rate in the general population of California students, despite the fact that state-funded academies are required to recruit a majority of students who are economically or educationally disadvantaged. Although these data describe only the performance of academy students, without comparison groups, they are consistent with the comparison-group evaluations.

More recently, Maxwell and Rubin (1997) surveyed former high school students from a large California school district one or two years after their graduating year. They found that students who had attended career academies were at least as likely to be enrolled in four-year colleges as students who identified themselves as having been in the academic track in high school. Both the career academy and academic track graduates had significantly greater likelihood of enrolling in four-year college than graduates who classified themselves as having been in the high school general track. Yet academy students had lower average scores on sophomore reading tests in high school, and they were less likely to be native English speakers, compared to students in the general track.

Maxwell and Rubin (2000) also analyzed school district records on academy and non-academy students. They found that students in career academies obtained significantly better grades. This was not due to easier grading standards within the academies: Maxwell and Rubin found that courses within most of the academies actually awarded *lower* grades than non-academy courses in the same subjects. Furthermore, when Maxwell and Rubin divided students into high, middle, and low groups according to tenth grade math and English test scores, they found in each group that academy students obtained higher grades than non-academy students. The higher grades of academy students appear to be the main reason for their higher rate of college attendance, compared to non-academy students.

Maxwell (1999) extended the Maxwell-Rubin study to follow graduates of career academies and other graduates from the same school district who enrolled at a nearby campus of the state university. She found that the academy graduates were more likely to come from high schools with large proportions of low-income minority students. After taking this into account, the academy graduates were less likely to need remedial coursework at the university, and they were more likely to receive their bachelor's degrees, compared to the other graduates from the same district. These findings suggest that academies help low-income students finish not only high school, but also

college. They imply that the improvement in high school graduation rates was not accomplished by lowering academic standards in the career academies.

MDRC began a 10-site study of career academies in 1993 by creating a list of students who applied to the career academy at each site, and choosing at random those who would be admitted to the academy and those who would not. The latter constituted the control group. Unlike the matched comparison groups in earlier studies, all students in the MDRC control group had taken the initiative to apply to the career academy. They therefore shared the same unmeasured motivation, ambition, or other traits that might characterize the academy student.

The results of the MDRC evaluation confirmed earlier findings from the matched-comparison studies of career academies. MDRC found that academy students overall earned a larger number of course credits needed for graduation, and were more likely to have positive developmental experiences such as working on a volunteer project. The strongest and most pervasive differences were found among students at highest risk of school failure. Among this subgroup, the academy students attended school more regularly, earned more course credits, were more likely to participate in extracurricular activities and volunteer projects, and were less likely to be arrested. Most consequentially, the dropout rate for the high-risk subgroup was reduced from 32 percent in the control group to 21 percent among the career academy students (Kemple and Snipes 2000).

While this body of research (and other studies not cited here) provides good evidence of the effectiveness of career academies, there are certain results they have *not* been shown to accomplish. For example, no study has yet shown an academy effect on standardized test scores. A follow-up study of academy graduates showed reduced differences over time between academy and non-academy comparison students (Kemple, MDRC, 2001). Most of the differences found in high school have reflected motivational and academic differences (attendance, credits earned, GPAs, graduation rates), with few differences found in levels of employment or earnings. Thus while there is much supportive evidence for academies, it is not universally positive.

Reasons *not* to start an academy

With the evidence in support of career academies, and their rapid growth, this may seem like a strange question. Yet there are good reasons not to start an academy. In fact, one path to avoid is to get caught up in the enthusiasm of this approach thinking it will solve every problem in high school, without looking at the difficulties involved in launching academies or what they probably won't accomplish. Here's a brief summary of what to be cautious about.

Academies are a great deal of work . They require substantial changes in the way high schools operate internally. Administrators, counselors, and teachers all have to be ready to change their practices. Scheduling has to be done differently. Curriculum needs to change. Employers, parents, and other community members need to be involved, and have a stronger role in the way the school functions. All this requires substantial work and involves going through a difficult and sometimes contentious change process.

Not all academies succeed . On average, academies cause improvements in student performance. Within these averages are academies that were failures. It is a complex approach, and if poorly implemented, may cause more problems than it solves. Academies that are well implemented account for the positive results that have been found, but the quality of implementation and the results for students are correlated. Simply deciding to go this route, without doing the hard developmental work and carefully monitoring results, probably won't help.

Academies can cause new problems . While academies have positive effects on student performance, and most students and teachers like them better than more traditional high school structures (Kemple 1997), they often cause new problems. Scheduling becomes more difficult, due to the need to group students together across several classes. Including AP, honors, and special education classes in the schedule is more difficult. Teachers who teach upper level classes and don't want to relate their subject to other subjects or a career field may not like academies. Teachers who like being a "sage on the stage" rather than a "guide on the side" may not like academies, which tend to be student centered. Parents are likely to become more involved, bringing pressure on teachers for high quality instruction. Employers are likely to become more involved, bringing pressure on administrators for better prepared graduates.

Academies probably won't change standardized test scores . If you're under pressure to improve such test scores, academies may not help. Evidence to date suggests they have little impact on such scores, although many believe they have this potential if teaching and learning methods truly change within their small learning communities. Academies can improve motivation, and the indicators that reflect that, such as attendance, retention, and grades, but there is little evidence that they will improve test scores. Their effects also seem to fade over time, after students leave high school, which while understandable, may lessen their appeal.

There are lots of good reasons to start career academies, but they are not a panacea for all the problems of high school. They should be approached cautiously, and if attempted, implemented carefully and thoroughly. There is guidance and help available in this process, some of it covered in the next three chapters, but don't begin an academy expecting quick, easy, sure-proof results.

HOW DO YOU BEGIN?

Academies usually start with one or a few teachers or administrators learning about this approach and deciding it would be a good idea for their high school. This leads inevitably to the question: what next? How do we get from thinking this is a good idea to actually starting one?

While there is no pat formula for this, usually the next step is sampling interest more broadly in the school and community. Share the information that has made you interested with other teachers, the principal and other administrators, and members of the school board. Others to talk to, because they too will have a stake in an academy, are employers, institutions of higher education, parents, and students. Experience suggests that while an excited teacher or two can provide good leadership, they cannot make an academy successful by themselves. All the stakeholders listed above need to be on board.

One of the first and most important decisions in starting a new academy is the choice of career field. Academies draw on the inherent interest students have in learning about some feature of the world of work to motivate them to take seriously their core academic subjects as well. Thus the field needs to be one that holds interest for students. It also needs to be one with interested employers in the community who will provide the support needed for an academy: Steering Committee members, speakers, field trip hosts, mentors, and internships. And it needs to be an industry that is healthy and growing, so there will be jobs available when academy graduates are ready for them.

The career field also needs to be well defined in terms of breadth. Too narrow a career field will limit employers and stunt student interest. "Radiation technician" is too narrow; "health" is better. On the other hand, too broad a career field may make it impossible to identify relevant employers or curriculum. "Computers," for example, is too broad; they have applications in all fields.

Economists usually categorize economic activity into industries. While there is no universally agreed upon taxonomy of industries, the one below works pretty well in identifying a workable career field for an academy. These are also the 16 clusters into which the U.S. Department of Education suggests organizing instruction related to careers. Standards and curriculum are being developed for each. More information can be obtained about this at www.careerclusters.org. Variations on these, such as "biotechnology," "environmental science," and "public service" are common.

A Proposed Taxonomy of Industries

Agriculture & Natural Resources	**Arts, A/V Technology, and Communication**
Business and Administration	**Architecture & Construction**
Education and Training	**Finance**
Health	**Hospitality and Tourism**
Human Services	**Information Technology**
Law and Public Safety	**Manufacturing**
Government and Public Administration	**Retailing / Wholesale Sales and Service**
Scientific Research / Engineering	**Transportation, Distribution & Logistics**

Once the stakeholders to be affected by an academy have been involved and the career field identified, a more precise set of planning tasks can be undertaken. It usually takes from eight months to a year to effectively plan a career academy from this point. The set of planning tasks and schedule below define the key steps in this process and the time frame in which they need to be carried out. It can be elaborated and varied to fit individual circumstances.

Schedule of Planning Tasks

Form a Steering Committee — **January-February**

Identify school, business, community, and parent representatives; establish a regular schedule of meetings to provide oversight

Identify Academy Staff — **January-February**

Select Director/ Lead Teacher, other teachers, both a career field teacher and several academic teachers; school administrator; counselor; and district representative

Form Steering Committee Task Forces — **January-June**

Some examples: curriculum development, staff preparation, employer support, facilities preparation, and equipment needs and acquisition.

Coordinate the Academy with the High School — **March-June**

Inform the entire high school staff of the plan, orient the counselors, arrange cohort scheduling/ schedule the academy classes, meet with the instructional leadership council, union leaders, reaffirm district support

Develop Curriculum (in detail for grade 10, at outline level for grades 11 and 12) — **March-August**

Have the teachers lead, draw on employers for career field input, examine state standards/ map academic curriculum accordingly, conduct internet search, visit other academies, develop project based learning/ integrated curriculum ideas

Recruit and Select Students — **March-May**

Distribute information on the academy to all freshmen, accept and screen applications, hold interviews and parent meetings, identify and schedule students, welcome them into the academy, plan summer activity

Identify Postsecondary Education Partners — **March-August**

Develop plan for articulation agreement and/or concurrent enrollment

Prepare Facilities and Equipment — **April-August**

Adapt a classroom as "home base," prepare necessary space, obtain and install necessary equipment

Plan Motivational Activities — **June-August**

Identify activities that will make the academy appeal, types of student monitoring and rewards to be used

Plan Business Speaker and Field Trip Program — **July-August**

Explore what companies will participate, topics of most interest, schedule for the year. Develop a calendar of events for these activities.

One of the best aids in the planning process is to visit successful operating academies. Each of these tasks has many details to consider, and discussions with those who have gone through this process can be immensely useful. There are directories of academies in various places. Membership agencies (NAF, NCAC), states, and districts with career academies each have their own directories. CASN maintains a national directory of academies on its website.

Related costs, sources of support

Career academies do require additional work, and therefore entail additional expense. The biggest expense comes from the time needed to coordinate the various elements of the program: for the team of teachers to meet regularly, develop integrated curriculum, coordinate employer involvement and the program elements they support (particularly the mentor and internship programs), and organize links to college programs.

These costs can be covered by reallocating existing funds, securing additional funding, or a combination of the two. The lead teacher(s) need to be provided release time, usually somewhere between one teaching period and half-time for one or two teachers, or by paying them for additional time outside their regular schedules. Coordination can often be assisted by a high school administrator. Employers that support an academy can often help with coordination of the speaker, field trip, mentor and internship programs, by assigning a liaison to the academy. They may bring other resources that can support the cost of the academy also, such as equipment, materials, and curricular expertise. Often an intermediary can play an important role, such as a chamber of commerce or other education-business alliance.

Most high schools have funding outside their mainstream support, such as Title I funds, or those for vocational education, technology, staff development, or district initiatives. Often some part of these may be used to help support an academy. There are also state and federal grant initiatives that can sometimes be used for academies. And there are many private foundations interested in educational improvement, sometimes applicable to career academies. A listing of possible sources of funding for academies is included in CASN's *Getting Connected: A Resource Guide for Career Academies,* one of the documents at the website (casn.berkeley.edu). The academy steering committee can often be helpful in identifying and seeking outside funding for the program.

WHO NEEDS TO DO WHAT?

There are many stakeholders involved in establishing a successful career academy. A stakeholder is anyone with an interest in the success of the academy. Among the central ones who need to play a role are the administrators at the district and high school level, the teachers to be involved, and the employers who will provide support. There are several roles each of these groups will have. There are also other stakeholders who have a role. What follows is a summary of each and what they need to do.

Roles and responsibilities of each stakeholder

Board of Education. The Board should know of the developing academy and be in support. There will be a number of necessary changes in the way the high school functions, and implications regarding the directions the school is taking. Questions may be raised in the community. If Board members are informed and knowledgeable they can be supportive of these changes and directions and able to respond to any concerns raised. The Board can also set policies that will support student success, such as with scheduling, facilities, and graduation requirements.

District superintendent. The superintendent is the CEO of the educational "company" in which the academy will be housed. As such, he or she can play a very helpful role by making initial contact with high level representatives of the companies the academy would like involved. Such initial contacts are most successful if they are "CEO to CEO" rather than through individual teachers with counterparts at their level in these companies. Someone who can make commitments and send the message down the line that this is something the "company" is behind is far more effective than requests from below. Further, the superintendent can play a very constructive role by giving strong public support to the academy and the principles it fosters. While the superintendent rarely has time to follow up on all the details or be a member of the academy Steering Committee, he or she may appoint another district administrator for this role.

High school principal. The high school principal needs to be the "project leader," the administrator who provides the variety of support academies needs. She or he can be a spokesperson to the entire staff; encourage support from other administrators, as well as counselors and teachers; commit funding, equipment, and materials; oversee adaptations of classroom space; help remove impediments and resolve problems; encourage teachers; and ensure that the academy has a chance to succeed.

Other administrators. Usually the principal identifies a vice principal or other administrator to handle the day-to-day matters related to implementing the academy. This person can join the academy teachers in relevant meetings; attend Steering Committee meetings when the principal can't; make sure adequate supplies are provided; help in coordinating the involvement of those from outside the school; ensure that scheduling is done properly, including cohort scheduling for students and a common prep period for teachers; and make clear to the academy teachers that the school administration is behind their efforts.

Lead teacher(s). Usually one or two teachers are identified to be the lead for the academy. This gives them the responsibility for organizing meetings of the staff; orienting new teachers; coordinating the roles other teachers will play (beyond their teaching); overseeing curriculum development; helping to manage contacts outside the school; overseeing the budget; helping with student recruitment and scheduling; sitting on the Steering Committee; serving as liaison to the school administration; and being the chief trouble shooter(s). While an academy can't be successful without support from all the positions discussed here, the lead teacher is the single most important actor in the academy drama.

Other teachers. An academy requires teachers across several academic subjects (usually English and social studies, often science, and occasionally math) and a career field to work together as a team. They need to meet regularly to plan cross curricular projects, discuss problem students, plan special activities, and provide one another with support. Usually each teacher also takes on responsibility for certain activities beyond their teaching. Examples:

- Student recruitment and selection
- Coordination of the speaker/ field trip/ mentor/ internship program
- Parent contacts
- Student monitoring, rewards
- Special activities (e.g., social events, graduation ceremony, summer events)

Counselors. Counselors help in handling students' academic and personal problems, advising them about post-graduate options, and helping seniors apply for college and/or work. They can hold meetings with students and their parents to help in such planing. Counselors

are also usually responsible for scheduling students into their classes, and have a critical role to play in a career academy in this respect. It is impossible to have an academy unless students are grouped together in their classes, and these classes are restricted to academy students. As simple as this sounds, it is a frequent problem, partly because this isn't easy to do, and partly because too often counselors are not part of the academy team and don't understand the essential role they play.

Employers. While all the above roles are essential and require new forms of behavior, it is where employers and others outside the high school community become involved that academies cause the biggest change in high schools. Employers play a number of essential roles:

- As members of the Steering Committee
- As speakers, teaching sophomores about their company, jobs, and training
- As hosts of field trips, and perhaps job shadowing, usually for sophomores
- As volunteer mentors, usually for juniors
- As managers of internships, usually summers after the junior year or for seniors

In addition, employers can help develop the career field curriculum, showing teachers current technology and what new employees need to know; provide "externships" for teachers, summer positions that let them learn about the field; host special events such as Steering Committee meetings, social events, and graduation ceremonies; recruit other companies; provide equipment and materials; and lend their credibility to the academy. Often an involved employer will identify one employee to be the liaison to the academy.

Community representatives. Often others from the community can support the academy as well as private employers, such as: public officials (e.g., mayors and other city officials, employees of federal and state government agencies); organizations with relevant missions (e.g., Chambers of Commerce, Rotary/ Soroptomists/ other service clubs); quasi public businesses (e.g., power/ phone/ water/ waste companies); and organizations of retirees. Sometimes leading citizens who don't fall into any of these categories get interested and lend their energy, resources and contacts to the program.

Higher education representatives. Successful academies usually develop ties to local two- and four-year colleges. This lets them develop their career related curriculum to fit with post-secondary programs, and often to offer courses for juniors or seniors that grant credit at the college as well as the high school. Such ties also provide opportunities for students to tour college campuses and learn of their entrance requirements and application procedures. College representatives usually sit on the Steering Committee.

Parents. Parents are usually more involved in a career academy than in ordinary high school structures. They need to be involved in the student's decision to apply for the academy, attending an orientation and declaring their support. They need to be available when problems occur, discussing these with academy teachers and their son or daughter, and agreeing on a course of action they will monitor along with the teachers. They are also often involved in relevant academy activities, serving as chaperones on field trips, organizers of social events, and attendees at reward and graduation ceremonies. Often one or two parents sit on the Steering Committee.

Students. Students, of course, are at the center of an academy. They should be canvassed before the career field is selected to determine their interests. They often form an academy student government to help in its functioning. Upper class members can help in the recruitment of new students and serve as "buddies" to the "newbies." Successful graduates can come back and provide inspiration to younger students who follow. And often one or two students sit on the Steering Committee to be sure their concerns and viewpoints are represented.

ARE YOU MAKING PROGRESS?

Mention program evaluation and a lot of people's eyes glaze over. Who wants to deal with questionnaires, student records, columns of data, statistical analyses? Everybody knows you can lie with statistics anyway. If the teachers and students are happy, if they're coming to school regularly and seem engaged, what more do you need to know?

In a simpler world that attitude might fly. In today's schools, given their reputation for doing more poorly than schools in other countries, the high drop out rates of many high schools, and the often poor quality of graduates (at least in the view of many colleges and employers), numbers are important. They're especially important for an approach that is new and claiming to improve student performance, and that will cost more in terms of work and energy, if not actual dollars.

But evaluation need not be hopelessly complex and onerous. The simple theory behind high school reform in general and career academies in particular is that if you change to a new approach, and implement it well, student performance will improve. So what do you need to measure? On the most basic level, you want to know whether you've implemented the academy well, and whether student performance is improving.

These two questions are fundamental to assessing your progress. And it's important to focus on both from the start. You can't measure student progress if you don't have a baseline against which to measure it. That baseline is best determined before you begin to implement the academy. And you can't expect success if you don't gauge how well the academy is implemented. That also needs to happen from the

start.

	Stages of Evaluation	
Academy Start-Up	**Academy Implementation and Refinement**	**Academy Fully Operative**
Supplying useful information to program developers to guide strengthening program: early focus on attitudes, objectives and perceptions of clients.	Shift to "harder" data about what is working for whom, ideas clients have for modification	Suggestions for "fine tuning" based on all evidence
Determine measures that will be used, collect baseline data	Continue collecting data while building system for ongoing monitoring of effectiveness	Final collection analysis, and reporting of outcome data to measure effectiveness. Monitoring system intact.
Documentation		
Record start-up efforts, concerns, obstacles, lessons learned	Systematically document the implementation process and strategies selected	Produce guide for managers who might want to replicate in other locations

These two forms of evaluation are sometimes called "process" and "outcome." Another way of stating them is as "means" and "ends." Implementing an academy is a process. Improved student performance is an outcome. The first is a means to the second. While it is important to assess both, the emphasis changes over time. Initially the most important matter is high quality implementation. Over time the focus becomes whether this leads to improved student outcomes. The chart on the previous page illustrates this relationship. It also shows that documenting as you move through this process is important.

How do you assess how well you're implementing the academy? One method is through a guide that has been developed for this purpose, called the *Self-Assessment Guide for Career Academies* . This *Guide* lists the key elements under each of the three defining structures of an academy (small learning community; college prep curriculum with a career theme; and partnerships with employers, community, and postsecondary education). There are a total of 20 such elements. A scoring guide accompanies each element, indicating what should be in place. Each can be rated along a five-point scale, with a perfect score being 100 (rarely if ever achieved). Thus teachers can go through this guide and determine where their academy is strong or weak. This can lead to a plan for improving the weak aspects. This guide is available to view and print from the CASN website (casn.berkeley.edu).

How about student data? What should you collect, and how should you analyze it? At the back of the above guide is a section on *Analyzing Student Data* . This suggests three types of student data to collect:

- Demographics
- Academy experience measures
- Outcomes

The first of these lets you assess the student makeup of the academy, and whether it reflects the profile of the host high school. The evidence suggests that academies do best when they do reflect this profile, rather than focusing exclusively on students at one or the other end of the spectrum. The second category lets you assess whether academy classes are restricted to academy students, and whether academy students are taking the full complement of academy courses. Experience suggests that academies do better when they meet these goals. These are both measures of implementation available through use of student data.

The third category pertains to student outcomes, or using student data to measure whether the academy has had an impact on student performance. Suggested indicators, categories of such data, offered in the *Guide* include: attendance, retention in school, credits earned toward graduation, grade point averages, standardized test scores, on-time graduation rates, and college admission. This is followed by a section of ways such student outcome data can be analyzed. Three suggestions are offered:

- Compiling snapshots over time, for an individual academy. This indicates whether the *program* is improving from year-to-year.
- Comparing year-to-year changes for individual students or cohorts of students. This indicates whether *students* in the academy are improving over time.
- Relating academy program characteristics to student performance. This indicates whether variations in the program elements lead to improvement or not.
- Fuller explanations of each of these are offered in the *Self-Assessment Guide* , as well as additional categories of data that might be collected.

WHERE CAN YOU GET HELP?

The short answer to this question is many places. The issue is sorting through all the information to find what you need. Since this *Planning Guide* was developed by CASN, we'll start with what CASN has to offer. This section then offers a list of the other state and national organizations that support career academies, a brief summary of what materials they have, and a list of the annual conferences each sponsors. *All* are linked to the CASN website (casn.berkeley.edu) if you want more information.

CASN website--a brief tour

The best place to review CASN's materials is at this website. On the home page you will see several options you can click on:

- Clearinghouse of Materialsówith several sections, detailed below
- Definition of Career Academiesóin three formats, including a graphic one
- National Career Academy Directoryóhow to find academies other places
- Project Descriptionówho we are, what we do
- Teaching and Learning Resources Guideódirect links to the best 75 websites we've found for academy friendly curriculum, with commentary on each

Also, at the top of the home page you'll see several boxes you can click on:

- Sponsorsówho pays for our work
- Partnersóthe other organizations with which we work
- Related Linksóadditional organizations with information of interest
- What's Newóa guide to the latest additions to the website
- Contactsóhow to reach us by phone or e-mail if you have questions

Most of this is self explanatory. The one section that needs some elaboration is the *Clearinghouse* . There is a *lot* of stuff here, much of it directly viewable and printable, some of it downloadable, the rest obtainable through an on-line order form, at what it costs us to duplicate and mail it. We're not a for profit organization, which will be clear. One of our central missions is to collect materials of use to career academies and make them available to anyone interested. There are several Clearinghouse sections:

- General Documentsóhandbooks, guides, papers we've written
- Research Documentsóacademy research reports
- College-Prep, Career-Related Curriculumóhelp with academy curriculum
- Partnerships with Employers, Communityóinformation to help with this aspect
- Forms Bankóover 100 commonly used forms for operating an academy that can be downloaded, adapted, and stolen outright

Here's a list of some of our most popular documents (almost all viewable and printable from the website):

- *Career Academies: Building Blocks for Reconstructing American High Schools* (their history, growth, a summary of research findings, current issues)
- *Self-Assessment Guide for Career Academies* (discussed in Chapter V)
- *Scheduling Guide for Career Academies*
- *Mentor Handbook for Career Academies*
- *Internship Handbook for Career Academies*
- *Teaching and Learning Resources: Curriculum Guide for Career Academies* (internet guide to academy friendly curriculum)
- *Getting Connected: A Resource Guide for Career Academies* (internet guide for everything but curriculum)

CASN also has a series of professional development workshops for academy teachers. Unfortunately, we cannot send someone to your site free. But we can talk with you, send you materials, and direct you to others who may be able to help.

What other help is there? There are *many* organizations devoted to supporting the development of career academies. CASN has been working to bring together information on all these organizations. The list below is at least a good start. All are linked to the CASN website if you want more information.

National and State Career Academy Support Organizations

- The National Academy Foundation (NAF), New York City
- The Southern Regional Education Board (SREB), Atlanta, GA
- The National Career Academy Coalition (NCAC), Philadelphia, PA
- The Center for Research on the Education of Students Placed At-Risk (CRESPAR), Johns Hopkins University, Baltimore, MD
- The National Center on Education and the Economy (NCEE), Washington, D.C.

- The National Network of Health and Human Services Career Academies, U. S. Department of Health and Human Services, Washington, D.C.
- The Technical Assistance Group for Law, Public Safety, and Security Academies, National Association of Partners in Education (NAPE), Alexandria, VA
- GMS Partners, Inc., Silver Spring, MD
- The California Department of Education, Sacramento, CA
- The Illinois State Board of Education, Springfield, IL

Many of these organizations have materials of use to career academies also. Here's a quick overview.

Career Academy Materials

NAFóFull technical curriculum/ lesson plans in its three career fieldsófinance, travel & tourism, and information technology. Director's handbook, internship guide, promotional materials.

SREBóMaterials to support its ten key practices, plus standardized tests in math, science, and communication, and student and teacher survey forms, which it scores for its sites.

NCEEóA full set of performance standards, K-12, in four fields, plus approximately 100 days of icore assignmentî curriculum in English, language arts, and math, benchmarked to these standards.

CRESPARóA series of materials related to its iTalent Development High School with Career Academiesi model, including for its Ninth Grade Success Academy, with curriculum for its Freshman Seminar and double dosing in math and English.

GMS PartnersóMaterials related to workshops on academy development, plus a guide, *Creating and Sustaining Small Learning Communities: A Practitioner's Guide to Career Academies and Small Learning Communities* .

CDE/ISBEóPartnership Academy Handbooks for their states, materials related to their staff development workshops, evaluation forms and systems.

NCACó *Career Academy Toolkit: Planning Guide for Career Academies and Other Types of High School Small Learning Communities* (Sandy Mittelsteadt).

MDRCóSurvey forms for students and staff; a series of reports on their national, longitudinal, random selection evaluation of career academies.

The NCAC (Sandy Mittelsteadt) and GMS Partners documents listed are longer and more detailed career academy/ small learning community planning guides. The California Department of Education and Illinois State Board of Education also have planning guides for their academies, available at their websites.

There are also many academy relevant conferences. Most of the national and state organizations that support academies have conferences at some point in the year, and some have several. Here's a quick summary of these.

Career Academy Conferences

NAFóWorks with over 500 academies in 40 states, sponsors two major conferences each year, one for all NAF representatives in July and smaller iDirectors Conferencesi at other times for lead teachers.

SREBóWorks with over 1,000 high schools in a majority of states, a subset of which have academies. Sponsors a conference open to all in early July each year, plus a series of smaller regional and state workshops.

CDE-CASN--Sponsor an annual conference in March for California's academies, open to representatives from other regions of the country.

NCACóA membership organization, sponsors a national career academy conference each fall.

NCEEóWorks with several dozen high schools implementing career academies. Sponsors an annual winter conference and smaller regional workshops.

CRESPARóSponsors a conference each August for representatives from its Talent Development High Schools that are implementing career

academies schoolwide.

DHHSóSponsors a summer conference for representatives from six pilot sites supporting the development of academies.

NAPEóA developing network of law, public safety, and security academies, sponsors an annual fall conference.

ISBEóHolds several staff development institutes per year for its Illinois Partnership Academies.

While this may seem overwhelming if you're coming to it for the first time, the key is to seek out what you need now and file the other information for future use. Career academies take time to plan, and to implement. You can't learn it all at once, or do it all at once. But you can find help for almost any aspect of an academy and almost any problem, from others who have preceded you down this path. Often the best source of information is another academy in a nearby high school and/or similar career field. The real experts are the teachers, administrators, and employers working every day to deliver an improved high school education through their academies.

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Visitation Presentations

Denver School Visits

Jim Sutfin, Barb Waller, Melissa Byington

General Program Overview
CEC Middle College of Denver

- Middle college is a full time program based on four year attendance that combines college and high school courses.
- Years one and two are high school core requirements and career electives, years three and four students attend both on the Community College of Denver (CCD) campus and the CEC campus. Their courses can be dual enrollment and they may continue to participate in career electives.
- Open 9-12 – full time students begin as 9th graders
- Half time program, open to all DPS students. PT students are enrolled on a first come, first serve basis, capped at 400 students.

General Program Overview
Southwest Early College

- **Students take the first two years (for the most part) on the SEC campus.**
- **Second two years, most students take nearly all of their classes at the neighboring CCD campus adjacent to the SEC building, but remain part of the SEC school by attending advisory period (at the end of the day) and lunch.**

Programs

Middle College

- Teaching multiple levels at once in career classes.
- Applied core credit available in some career fields.

Southwest Early College

- They are placed in courses based on developmental readiness level (030 – beginning, 060 – average, 090 – highest developmental level – 120 first dual credit/college level course numbers).
- Offer English, Math, and Science. No Social Science.
- Extremely limited electives, PE, only Spanish for language.
- Testing for accountability grades 9/10 have state testing (CSAP) all juniors in state of Colorado take ACT as their accountability measure.

Extra and Co-curriculars

Both Schools

- **No extra or co-curriculars, some limited club offerings. Students return to home schools for co-curricular participation.**

Application/Enrollment/Recruitment

CEC Middle College

- **For middle college program, students are admitted on application/interview basis**

Southwest Early College

- **Lottery enrollment – no application**

Scheduling

CEC Middle College

- **75 minute classes,**
- **Career courses meet in 2.5 hour blocks every day.**
- **All Denver High Schools have "compatible" schedules to accommodate student transportation**

Funding

- **Post Secondary Enrollment Option Program**

Building Design

- **Flexible use environment, portable walls, large open area**

Transportation

- They transport during the day from building to building for part-time students.

Demographics

- Low discipline incidents – only one fight last year, most incidents deal with students cutting class – more likely to cut a core class than career classes.

Students

- Students very articulate, enthusiastic, focused and able to explain what they were doing and why.

Teacher Perspective

- **Very important that CTE teachers and core teachers collaborate all the time and make connections in the courses to career areas.**

	Middle College	Southwest Early College
General Program Overview	• Only in its 3rd year CEC operates a two component school – middle college and career training. • Magnet school as part of DPS • Originally opened as a vocational high school in 70's, added academic component in 90's, facing closure after 2000 they converted to magnet school concept combining dual credit and career education. • **Middle college is a full time program based on four year attendance that combines college and high school courses.** • If they complete all high school requirements by end of junior year they can "fast track" and spend their entire senior year taking college credit on CCD campus at no expense to the student under Post Secondary Enrollment Option Program (see state law enclosed) • **Years one and two are high school core requirements and career electives, years three and four students attend both on the Community College of Denver (CCD) campus and the CEC campus. Their courses can be dual enrollment and they may continue to participate in career electives.** • **Open 9-12 – full time students begin as 9th graders** • Career education program is defined by career fields. Students select career areas and take one to four semesters of courses in that area. They may receive applied core credit for some of the elective classes. • Career education programs – **half time program, open to all DPS students, not to exceed 400 students. PT students are enrolled on a first come, first serve basis.** Students select one career field and take courses in lieu of electives at their home school.	• Also in its 3rd year. • Charter school as part of DPS • Their initial goal was to recruit high academic achievers who were focused and wanted a head start on college. • However, what they ended up with was an inner-city, at-risk, challenging population that was not successful in their neighborhood school because of its size, their behavior or academic issues. • Program appeals to a low socio-economic population that has need for economic advantage of first two years of college for free. • One of their early focuses was for students to have pathways to Associate of Arts or Associate of Science degree. They saw themselves as the first two years and a transitional program for students moving toward a bachelor's degree. Their focus is not nor ever has been career development. • **Students take the first two years (for the most part) on the SEC campus.** • **Second two years, most students take nearly all of their classes at the neighboring CCD campus adjacent to the SEC building, but remain part of the SEC school by attending advisory period (at the end of the day) and lunch.**

	Middle College		Southwest Early College
Programs	○ Executive internship ○ Fashion Design ○ Fire science ○ Fitness Trainer ○ Medical careers ○ Multimedia Graphic Design ○ Nail Tech ○ Photography ○ Teaching careers ○ Welding ○ Architectural Technology	○ Athletic training/sports medicine ○ Audio engineering ○ Automotive technology ○ Business management ○ Construction Technology ○ Criminal Justice/Forensics ○ Culinary Arts ○ Digital film production	• Narrowly focused academic curriculum. • Entering 9th grade students take Accu-placer in English and Math. The test indicates their developmental level for each area. • **They are placed in courses not based on age, but on developmental readiness level (030 – beginning, 060 – average, 090 – highest developmental level – 120 first dual credit/college level course numbers).** • Courses are based on semesters with the exception of math 030 level which a pilot group will be taking a one year long course.
Programs	• Occasionally, students may move from one career field to another. • Very low enrollment in some career areas at the expense of very large class sizes in 9th and 10th grade core classes (for example: fire science 10, music 5, geometry 29 ,algebra 23, English II 26) • **Teaching multiple levels at once in career classes.** • **Applied core credit available in some career fields.** • Double blocking of students in core areas – second block of a student in a core area is for a 35 minute period later in the day (English and Math only)		• They had fewer courses but their courses did align to state standards. • **Extremely limited electives, PE, only Spanish for language.** • Average class sizes 21-24 in English classes, smaller in math. • **Testing for accountability grades 9/10 have state testing (CSAP) all juniors in state of Colorado take ACT as their accountability measure.**
Extra or Co-curriculars	• **No extra or co-curriculars, some limited club offerings. Students return to home schools for co-curricular participation.**		• Did have some developed after school activities – intramural soccer, Y league basketball, clubs, cheerleading.
Application/ Enrollment/ Recruitment	• **For middle college program, students are admitted on application/interview basis** • Enrollment cap 800 students total – 400 FT /400 PT – goal to have 125 ft freshmen every year. • One counselor who is half time recruitment		• **Lottery enrollment – no application,** • First year w/ a waiting list – 60 students • 360 students, • Do one mailing to the area middle school students (8th grade). The school has grown on word of mouth.

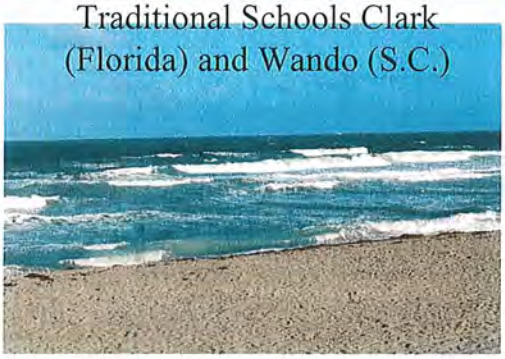
	Middle College	Southwest Early College
Scheduling	• Alternating block for core courses – **75 minute classes,** • **Career courses meet in 2.5 hour blocks every day**. • Career programs are based on semesters, ranging from 1-4. • No college classes on Friday, all students on campus on Friday? • Offered some enrichment courses (PE, art, study hall) for those students who are not in double block support courses for English and Math.	• 4 -75 min block periods, • 8:20-2:30 after that they have "seminar" which is 2:30-3:30 and is used for advisory and tutoring. • 181 contact days, 184 day teacher contract, 5 prof dev. days
Administration and support services.	• Three security guards, • three counselors (one of which was a half time admission coordinator/recruitment) , • dean of students, • 2 assistant principals, • and principal • 7 custodians, • 6 secretaries	• Principal, • Asst. principal, • Registrar, • dean of students, • Community college counselor • counselor and funding for a second one, • two special education teachers, • health para. Overtly stated that they believe in heavy student support.
Teacher responsibilities and staffing	• Teachers taught equivalent of 6 out of 8 with no duty or 5 of 8 with duty – no teachers on this campus had duty. (DPS negotiated agreement on 8 period day.) • Shared some staff with CCD (need more info) • Teachers were categorized as either core or CTE (career and technical education) (in CO that is non-endorsed educator). • 185 day contracts for teachers – no extended contracts. Always paid as DPS employees, might be teaching on CCD campus.	• Taught 3 blocks/day had 1 plan every day. • Academic teachers only. • Shared some staff with CCD • FT and PT 25 teachers., some employed by CCD as part of exchange agreement • Some staff are employed by DPS some by CCD.

	Middle College	Southwest Early College
Certification	• Two groups – endorsed and non-endorsed teachers, • Elective classes have applied core credit therefore they have a teacher of record to fulfill NCLB. • All special education was inclusion. They had 14 full time sped students that they maintained IEPs for. • Certification in career areas is an issue they are working on. Many are industry certified and work experience certified but not certified teachers. • Very much a gray area in state education. • **All Denver High Schools have "compatible" schedules to accommodate transportation of students.**	• All teachers are certified or highly qualified by national definition – (24 credits in designated area or degree in their field). • Some teachers employed by CCD.
Funding/ state laws	• **Post Secondary Enrollment Option Program (see state law enclosed)** • Students have to reimburse district for college courses earning d/f • Gain substantial funding from Perkins – 2 avenues of Perkins funding (DPS and CCD – tech prep) • Multiple grant funds – Gates small schools • CEC is funded as a department and not a separate school, therefore student allocation rates are not equivalent to other schools.	• Same state law in use, they get flow through state funding minus 3% for administrative costs.
Building Design	• Using an existing building that was originally built in 1976 as a vocational high school. • **Flexible use environment, portable walls, large open area**	• Used 2 floors of existing traditional building, building bleak, limited supplies, resources, classrooms very traditional with makeshift materials.
Transportation	• DPS does not transport any students to/from school (no busing). • **They transport during the day from building to building for part-time students.**	• Not an option, students either self transport by walking or driving or take city transportation.

	Middle College	Southwest Early College
Demographics	• 57% FRL, • Predominantly Hispanic, second most common cultural group was African American, • Gender stereotypes in place with respect to career area choices. • **Low discipline incidents – only one fight last year, most incidents deal with students cutting class – more likely to cut a core class than career classes.** • 93% attendance	• 60% FRL, • 85% Hispanic, • 55-60% ESL Spanish, • 15-20% parent attendance at conferences, • Daily attendance rate in high 80%.
Student Perspective	• **Students very articulate, enthusiastic, focused and able to explain what they were doing and why.** FT students more focused, goal oriented, PT students more passive.	No students in school today (school out- power outage due to snow storm.)
Teacher Perspective	• Cautioned by veteran teacher that selection of students is very important to avoid developing an "elitist reputation". • Concern about combining core credit with some of the electives as applied core credit – some combinations questionable – should core credit be taught from perspective of career field (for example: medical science in history) There are some natural fits for example applied math, applied physics, business writing. • **Very important that CTE teachers and core teachers collaborate all the time and make connections in the courses to career areas.** • Must consider both rigor and RELEVANCE.	Limited teacher perspective available due to absence of staff.

	Middle College	Southwest Early College
Notes, Perceptions, Concerns, and Questions	• Four year full time students were much more focused and motivated. • We think that transportation must be provided to students. • Math books (algebra) were consumables (Carnegie Learning) with student homework help workbook and very good applied examples. • Did service learning through PRIDE time – juniors have 6 hours of service learning each month. • What do they do on Fridays? (no college classes, all students on campus, blocks alternate MW and TT • Seems to lack strategic planning. No apparent goal setting, site building plan, etc. • Potentially too many career field offerings • Rationale for having some staff teaching core classes on CCD campus is to get the students in the atmosphere of a college campus which makes them more likely to transition to the regular college classes	• We realize that one thing is very important before we get too far into the conceptualization of this new school. We need articulate the vision, mission, guiding principles, etc. to keep us balanced and centered as development and negotiations progress. • How do their salaries stack up? • How do you work with the issue of teachers teaching dual credit working for two institutions and who pays them? • As a team, we were not sure of the validity of the program they were offering. The concept is viable but too narrow. The school, as it has been developed, is not as credible as the concept portends it to be. • They are not serving an educated constituency that would know to demand more. Their offerings seem dangerously narrow – don't offer social sciences. • A disconcerting point made by the assistant principal: "We need to counsel low performing students back to traditional school because they need some "fluff" to graduate."

East Coast Journey: Non-Traditional Schools Clark (Florida) and Wando (S.C.)



Clark Advanced Learning Center

Clark Advanced Learning Center

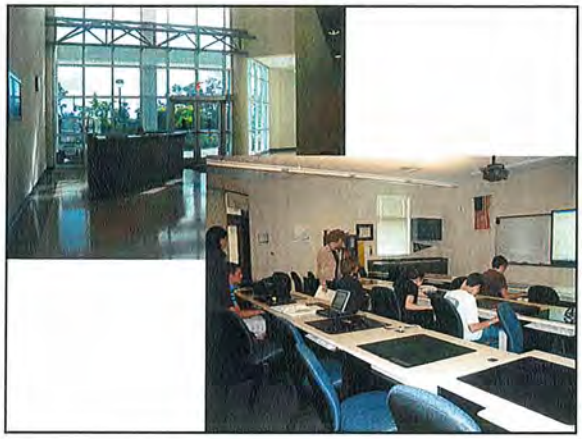
- Located on Indian River Community College, Chastain Campus
- Called a "Collegiate High School"
- Original mission was to prepare juniors and senior to work in today's fast changing, information-rich, technologically advanced society.

Clark Advanced Learning Center

- Students may earn a minimum of 24 college credits at no cost with the possibility of earning a full Associate degree while still in high school.
- Admission requirements:
  - Be a 10th, 11th, 12th grader
  - Have overall GPS 2.0 or higher
  - Have completed Algebra I
  - Have passed all state tests for 9th (and 10th) grade
  - Complete 300 word application essay.

Clark Advanced Learning Center

- Curriculum closely ties to economic outlook for Martin County. Specific programs:
  - Info Technology/Internet Security
  - Digital Media
  - Entrepreneurships/E-Commerce
  - Medical Professions
  - E-Technology
  - Customized Multi-Disciplinary Option



Clark Advanced Learning Center

- Free public charter high school of 200 students.
- Students each have individualized educational programs.
- Each student receives a laptop.
- Students can participate in extra curriculum activities at home high schools.

Wando High School (S.C.)

- Located in Charleston (Mt. Pleasant) South Carolina.
- Very large high school (3000 students) with a 9th grade academy and 4 "schools" for students in grades 10-12.

Wando High School

- Students attend Wando as their home school.
- The school is growing by 200 students a year.
- The "High Schools That Work" model drives the school.

Wando High School "Schools"

- Math, Science, and Engineering
- Arts and Humanities
- Business and Information Systems
- Health Sciences; Human and Public Services

Culinary & Hospitality

- Culinary and hospitality is #1 job need in county.
- The School "Health Services; Human and Professional Services" includes a culinary program that serves meals for special occasions.

Wando Warriors Store is part of the Marketing Program (Business)

Wando High School

- The 9th grade Academy and the 4 Schools are designed to make a huge school into smaller learning communities.
- Teacher leaders serve as "deans" of the schools.

	Clark Advanced Technical Center, Stuart Florida	Wando High School, Charleston, South Carolina
General Program Overview	• Charter school. Didn't start out that way. • Small school learning environment. Built for 200 students. • Students come from 3 other high schools. • District: 18,000 students. 3 high schools, little smaller than ours. • Community college partnership. Use building at night. • Students graduate college ready. Minimum 24 college credits. 9 graduates last year had associates degree. • Third year in operation. Graduates: 05 – 60; 06 – 110. Big graduating class caused problems. Then allowed sophomores. (Initially only 11th and 12th grade.) • Came from legislature who wanted to build this special school. Gave $3 million over 3 years. • Strong tech prep going prior. • Project based learning. Apply to real life problems. • Internships in 12th grade. 60 hours plus. (6 hours a week with Monday class taught by adjunct.) • Character Counts program. Some sort of rewards for behavior. • 6 areas of study. Most recent on is internet security development.	• Wando was formerly a different high school that was built in circles. Had a capacity of 1200 with 1800 students attending, so it had 40 portables. Growth in the area was extremely high. Consultant Rick DuFour studied it and said the new school would have 2800. Knowing that the new replacement school would need to be big (huge) the school sought to form smaller learning communities. • Currently 3000 students, with anticipated growth of 200 per year. • Used the "High Schools That Work" model. They qualified because, although they were very high achieving, they had noticeable gaps in achievement. • There is a 9th grade academy with 4 schools for grades 10-12: (a) Arts and Humanities, (b) Business and Information Systems, (c) Math, Engineering and Science, and (d) Health Services and Human and Professional Services. • Going into 10th grade, students select their school. Honors and AP students are "wild cards" (i.e. in multiple schools) because they have their own small community. Students choose school (color coded in Wando) and cluster. • School had been department driven. Now driven by schools or clusters. • Decided programs based on needs. Public services (culinary, hospitality) is #1 in region for jobs. Health services selected because they have 2 major hospitals. • Students complete career inventories in 9th grade – such as SCOIS and KUDER. • South Carolina passed EEDA for the future (Education, Economic Development Act. Wando is ahead of that plan. Students in state must choose major in a year or so. Wando already does.

		Wando High School, Charleston, South Carolina *(continued)*
General Program Overview ***(continued)***		• Schools in the Charleston District can select what they wish to offer from the district curriculum or can ask to do a field study for a new course. • There is a voluntary summer academy. Teach skills such as research, MLA. Provided free to students. There are 2 weeks they may select. Over 90% of students (freshmen?) came last year. Many benefits. • They have internships, but currently only 75 students participate. Students must complete 125 hours for one Carnegie Unit (equal to 5 credits in MPS). One teacher oversees. • There is a Freshman Focus class that provides some of the "soft skills." • Recommended other sites to visit: Lexington, South Carolina, and South Grand Prairie, Texas, which have small learning communities. All students in South Grand Prairie can answer the questions, "What will you do after high school."
Extra or Co-curriculars	• No competitive teams. May go back to home schools to compete. Prom. Student Council. • Boys and Girls Clubs offer programs. • Honors Society	• Traditional activities and athletic programs present.
Application/ Enrollment/ Recruitment	• Originally 11th and 12th graders only. Had to pass FCAT test (300) and Algebra I, 2.0 or higher. • Conceptualized for middle majority. • Now allow 9th graders. Must have passed 9th grade FCAT. • Already have a 2nd grader on waiting list. • There is no waiting list. They market to middle schools, low SES neighborhoods. Also targeted private school and home school kids. • SPED kids "are accepted" but must meet requirements, so they probably don't have many. No self contained. 3 ELL kids.	• Traditional enrollment processes.

	Florida	South Carolina
Scheduling	• 4 x 4 block, usually 85 minutes. Adjusted to meet IRCC class schedule. Open campus. • Scheduling individualized per students. • They have "majors". Next year, state says all must have majors. • Students go back and forth to IRCC classes. • Opened 7:55 to 2:20. Opens again at 3:30 to 10 for community college classes. • 2:30 to 3:30 common planning time for all teachers. • 10th graders have e-mentoring program; 11th graders have job shadowing; 12th graders have internships and a capstone project. • Florida virtual schedule available. • Adult high school available to add credits.	• One idea they've taken from HSTW: Every teacher has office hours 2 20-minute periods a week. • Schedule is extremely complex. There is a 4 x 4 framework, but some classes are all year, some are a semester. Some are A day, some B day, some both. There are some embedded classes (skinny classes) of 50 minutes. • Schedule can be independent and different than other schools because students don't transfer between schools throughout the day. • The school anticipates listing certificates and endorsements on student's transcript, but they haven't gotten to the senior class yet. • There is a 5th block each day from 3:45 to 5:00. Certified teachers provide tutoring. Students can be referred by teachers, parents, themselves. Snacks and transportation are provided. • Advisement period meets weekly. Last year, monthly. Still trying to find best method.
Administration and support services.	• 1executive director (principal). Also assistant director, program director (worked with grant), technology specialist, one counselor and one career specialist. • College is involved by having provost highly involved. • District has assistant superintendent involved. • Business reps involved as mentors. • Food service, transportation, special education services brought in from district.	• Traditional administrative and support structure. • Teacher leaders serve as "deans" of the schools.

	Florida	South Carolina
Teacher responsibilities and staffing	• 5 teachers, one for each core area. All are community college employees. Master's degree or higher. Not necessarily teacher certification. (Get around NCLB because they are teaching college classes.) • Pay scale is different from District since it's a charter school • 2 week extended schedule for "boot camp" at beginning of year. • 180 school days, matching district. • Thematic program related to Everglades because they got a grant. Hope to have all the teachers involved. (See Water's Journey.) • High technical expertise. • Have many adjuncts teaching classes to add to the 5 teachers they have.	• Building is staff as a large high school would be. • Staff development is generally optionally but well received. • Technology expertise is expected. • 4 teachers are located on Main Street where they have demonstration classes. They do best practice teaching, and other teachers are invited to visit to observe. • Teachers do 2 peer observations per semester.
Certification	• All employees are from IRCC. Master's degree or more. • Charter school gives some freedoms. • Department of Ed funding to IRCC then to CALC. • There was no problem having students get high school and community college credit at the same time. No need for DOE certification.	• Some technical college teachers come to the school to teach. Kids get high school and college credit. There seem to be no certification issues. • Teachers can be certified in "critical needs areas" by taking 30 college hours in the area and passing the Praxis test. They receive a letter of eligibility to apply for a job teaching in a critical needs area. • Statewide there is a program for alternate certification… the PACE program, which has the highest number of participants taking this path to teaching. • There is a vocational endorsement for teaching. Such teachers do not get a "bonus" or higher salary.

	Florida	South Carolina
Funding/ state laws	• DOE funding on FTE student numbers goes to IRCC and then to CALC. Fund their teachers through that. • 3 year funding for new charter school. • Hugh endowment from Clark (Avon family.) • Chamber paid for Character Counts through United Way. • Multiple grants. • Everglades grant (NSF) is going to have huge impact on curriculum. • Note: state law on losing drivers' license if 15 unexcused absences. • Lots of in-kind support for internships.	• SC law requires (beginning next year) that there be a conference every year that includes student, counselor, parent. All will sign the student plan.
Building Design	• Lots of windows. $10 million dollars on 34,000 square feet. Light fixtures to flooring were high quality. Seemed to be top dollar. • Business-like. • 8 classes open onto common areas. • "Knowledge room" served as study hall, assembly hall, student gathering area. • Plasma screens (welcoming) everywhere. • Smart boards in "dome," all classrooms, knowledge room. • Technology is excellent. • All students have laptops (3 year contract cycle.) • Does not look like a school. Design the building to look like a business, but that is problematic for supervision of a school. • Staff ids. Student ids not noticed. • Lunch is brought in for students, served in lunch room. • Some cameras. Security in parking lot. Students come and go. • Community college classes on site. Community college continues until 10. • Located on a college campus. • Building cost $12 million.	• This is not a small school! This is a building for 3000+ students. It was built for $40 million +. At today's rates, could cost $60 million. • School has separate section for 9th grade academy. They tend to have all classes there. • 10th through 12th grades attend classes I "schools" that are color-coded: (a) Arts and Humanities, (b) Business and Information Systems, (c) Math, Engineering and Science, and (d) Health Services and Human and Professional Services. • Main corridor is called "Main Street" and has access to all needs from general public ("anything a guest would need"). They have placed two "newer" programs on Main Street for higher visibility: Pre Engineering and Health.
Transportation	• Transportation provided from 3 high schools to CALC by District. Only 25 students used district transportation. • Students could also drive.	• Transportation is provided to school and to allow students to be tutored after school. There were many (!) busses at the school. No transportation between buildings during day.

	Florida	South Carolina
Demographics	• High. 3rd highest in state. Tiger Woods lives nearby. • 3 ELL children. 2 or 3 SPED students who had met standards. • Student teacher ratio 25:1. • Went from 1% last year to 9% minority students this year.	• 76% white, 20% African-American; 4% other. • 16% on subsidized lunch program • 11% receive special services • 33% of students identified as talented and gifted.
Student Perspective	• We were given any access to students. Principal told us she was protecting students from interference. One girl greeted us. She liked smaller school and fact she could get college credit. • Very little or no security except in the parking lot. • Some issues with students in classes. Main discipline: being off task. 3/13 students doing something else on computers.	• There was a panel that included teachers, administrators, and students. The students selected were very positive about the opportunities provided.
Teacher Perspective	• We only talked with administrators. • Teachers "performing" in classes we visited. • There are only 5 teachers, all new last year.	• Staff development is generally optional but well received. They have "Tech Tuesday" where training is provided. Teachers have smart boards, clickers, lap tops.
Notes, Perceptions, Concerns, and Questions		


Salt Lake
Non-Traditional
High School
Visit


Granite Education Center

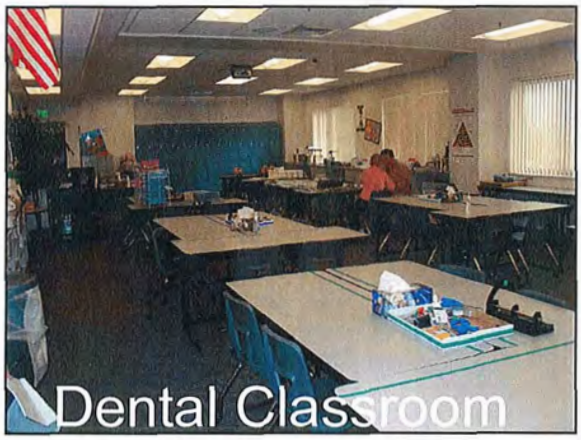

COTTON WOOD

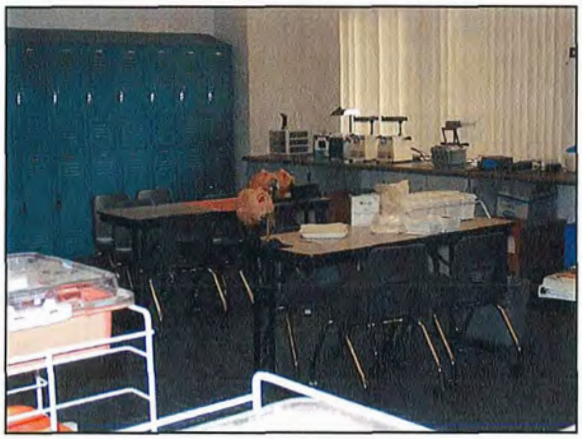
CAREER CLUSTERS

- Health Science
- Engineering
- Information Technology

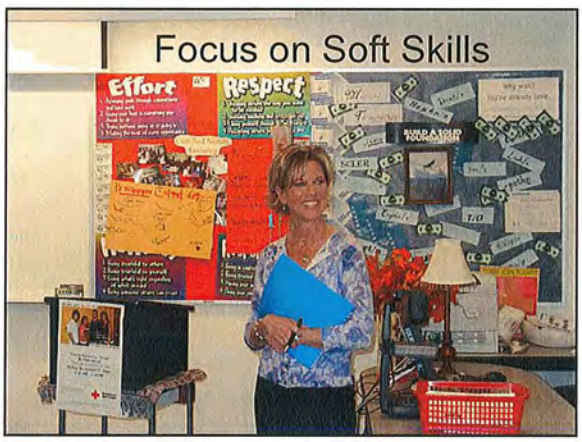

Bio-Manufacturing


GTI-404A
DENTAL
OPERATORIES


Dental Classroom



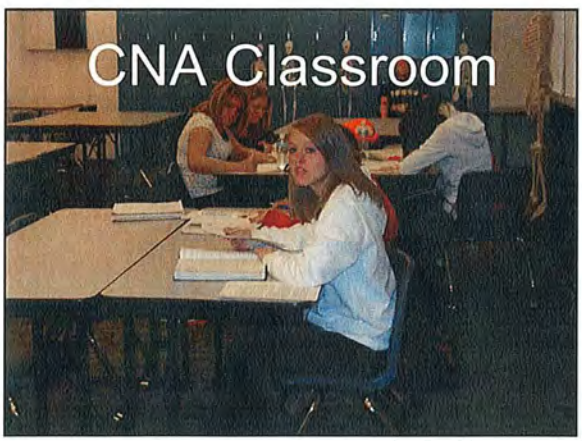

Dental Reception


Focus on Soft Skills
Effort
Respect


GTI-405D
PATIENT
ROOM

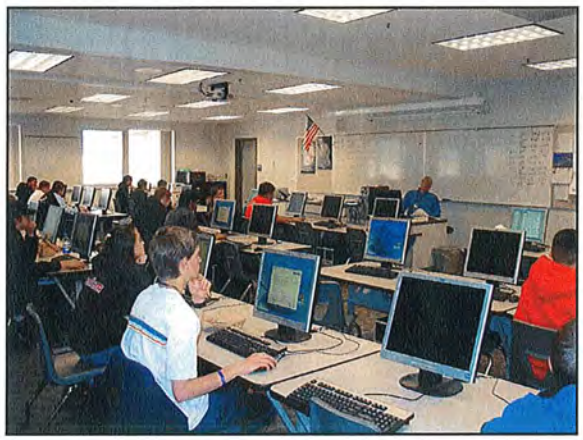

Patient Room

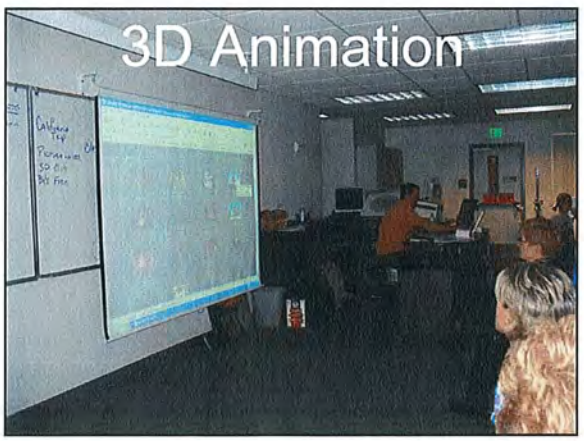

Dental Lab

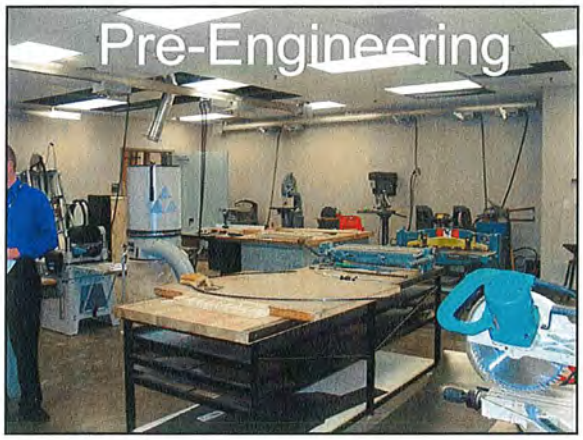

CNA Classroom

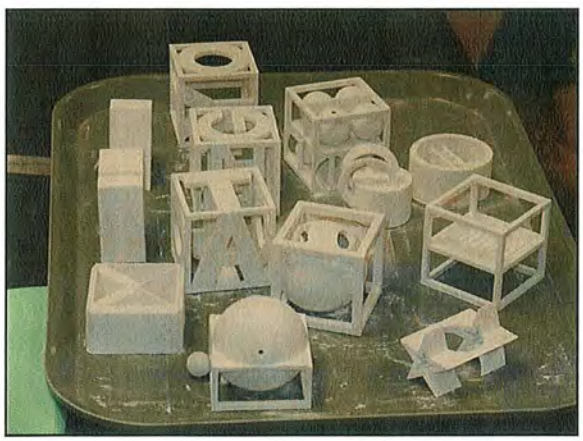

Gift Store

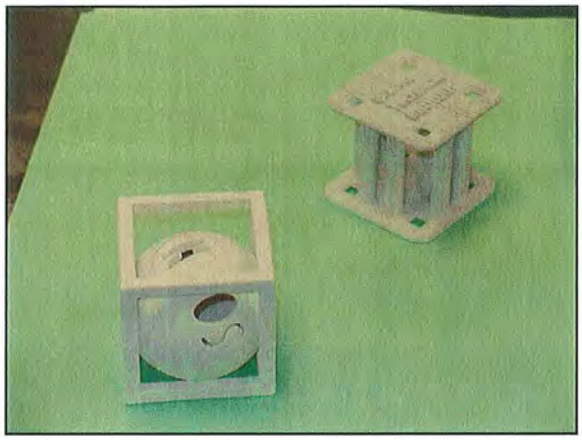

GTI-307
DIGITAL
ELECTRONICS
Just for the Health of it!
GTI Staff & Students
Saturday
November 18, 2006

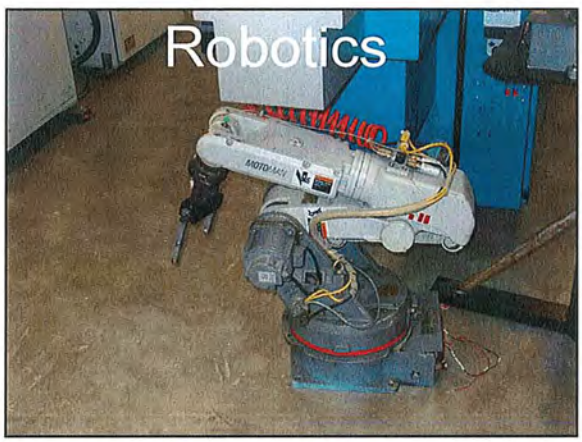


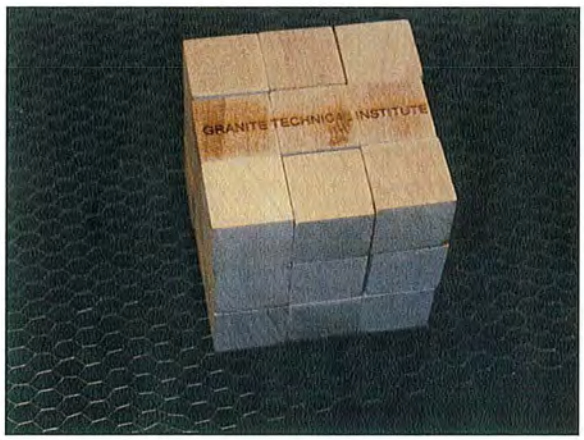

3D Animation

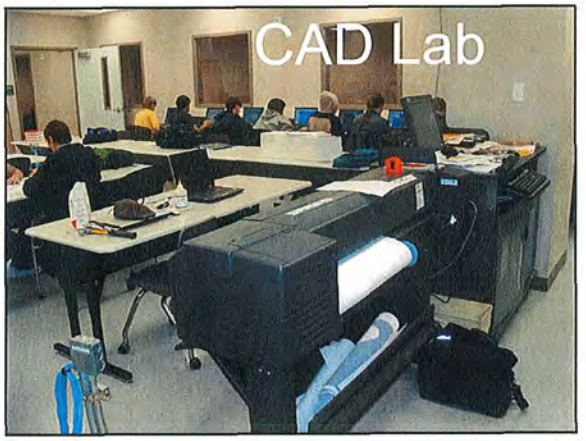

Pre-Engineering






Robotics

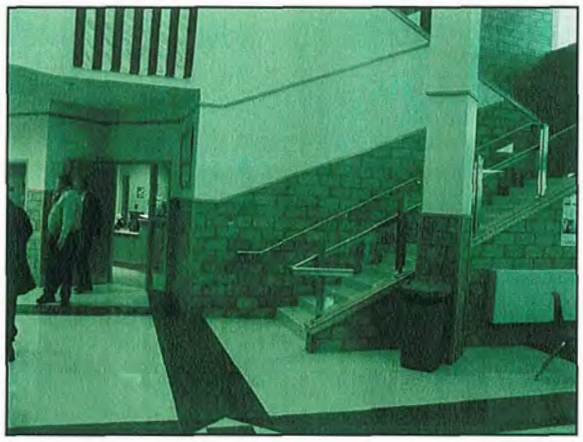

GRANITE TECHNICAL INSTITUTE


CAD Lab

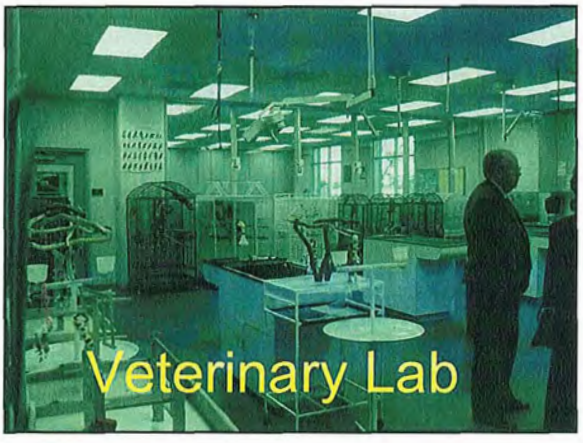

TOSHIBA

CAREER CLUSTERS

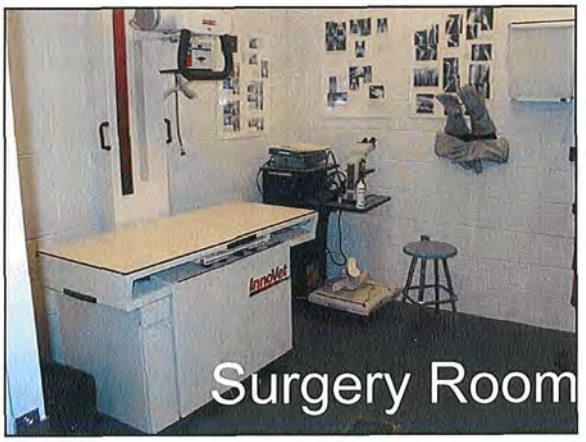
- Health Science & Technology Education
- Technology & Engineering Education
- Aviation Program
- Academy of Information Technology
- Agriculture Education
- Business Education
- Technology Trades




COPPER HILLS
RIVERTON
BINGHAM
MINERS

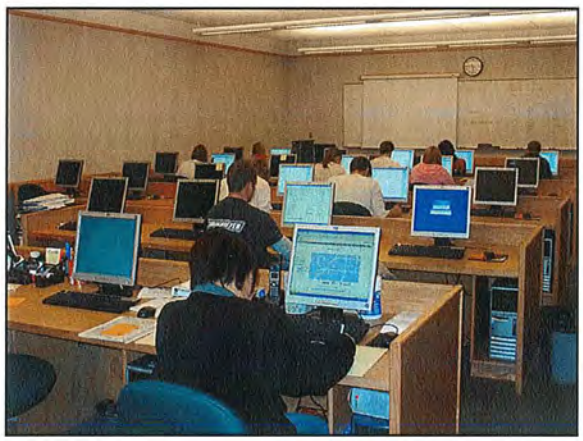

Veterinary Lab


Vet Classroom


Surgery Room

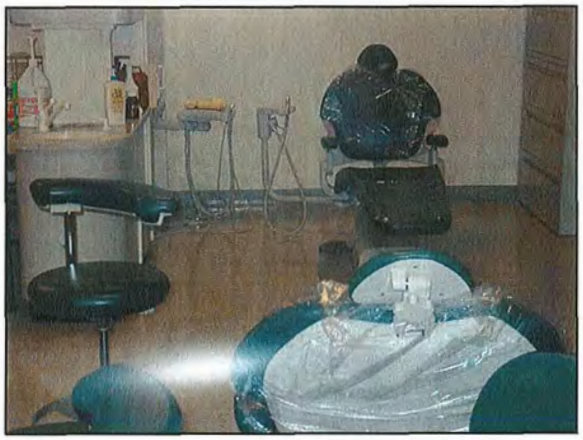

Mountain La
REHABILITATION
Physical Therapy
Occupational Therapy
Speech-Language Pathology
In cooperation with Jordan School District & Salt Lake Community College
A partnership in learning!

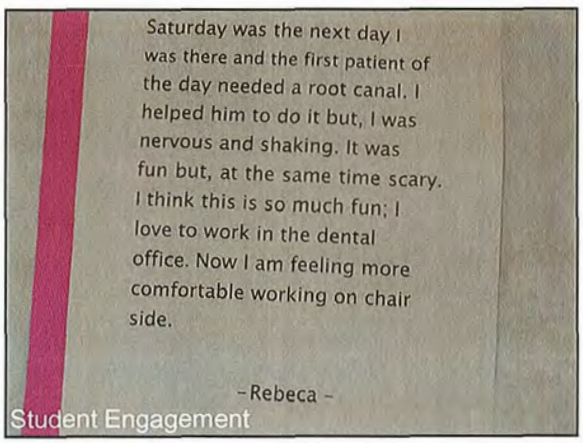

INNOVABiO
INNOVATIONS IN CONTRACT RESEARCH AND SERVICES




Biotech Lab


Dental Classroom



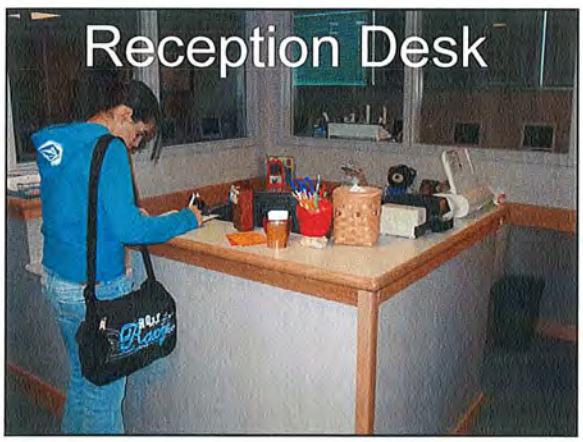

Saturday was the next day I was there and the first patient of the day needed a root canal. I helped him to do it but, I was nervous and shaking. It was fun but, at the same time scary. I think this is so much fun; I love to work in the dental office. Now I am feeling more comfortable working on chair side.
-Rebeca -
Student Engagement

Yesterday was a fun day. They were doing surgery! It was very neat, but there was a lot of blood. The patient needed lots of shots and she also was put under with gas. I thought I'd be grossed out with the blood, but I was o.k. We also had a family of six come in and they needed cleaning! I got to do three of the six; I was told I helped out a lot.

- Kehly-

The most interesting thing I learned this week was how to properly perform a procedure on a child. Learning how to properly suction and since their mouths are so little, that's important.
The aspects of Dental Assisting that I like the most are that I can keep busy in this profession and the time goes by real fast. I feel professional and satisfied with this choice of career.

-Danielle-




CNA


Surgery Lab


Welcome
TO
Introduction to
Engineering Design


TV
THE WORLD WITHOUT ENGINEERS

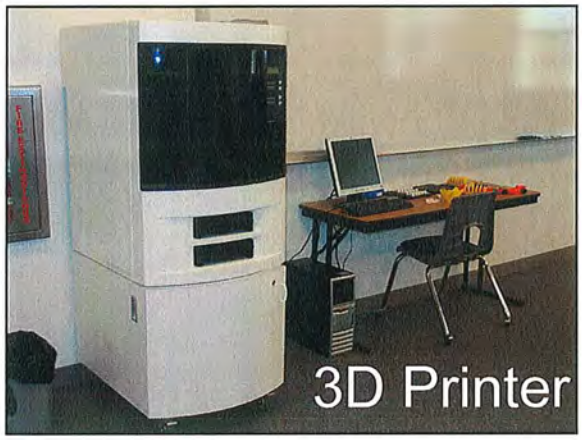

Applied Technology
132

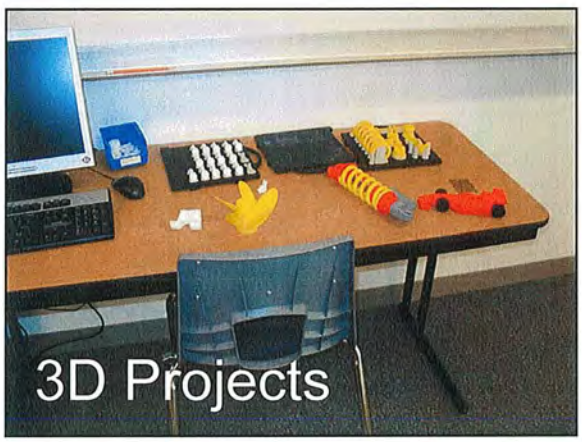

Binary Counter
To Decimal
Conversion
Binary Electronics


Electronics Classroom

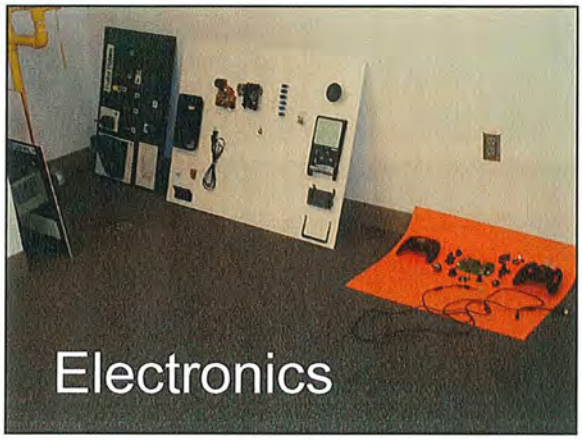

Pre-Engineering
Classroom


Pre-Engineering
Projects

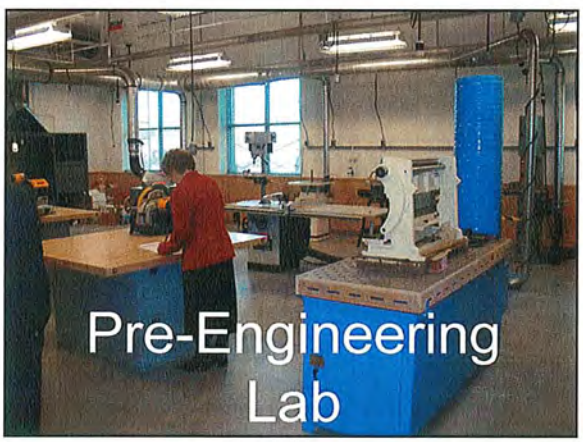

3D Printer


3D Projects


Meet Jack the Scorbot


Electronics


Storage


Pre-Engineering
Lab


Cafeteria

SALT LAKE CITY NON-TRADITIONAL HIGH SCHOOL VISIT

Granite Technical Institute/Jordan Applied Technology Center

Granite Technical Institute
- -Granite School District
- -9 high schools
- -2nd year in existence
- -27 acres
- -former hospital—16 million

Jordan Applied Technology Center
- -Jordan School District
- -8 high schools
- -5th year in building
- -land leased from SLCC ($1)
- -10 million

Common Characteristics of these Programs

Purpose
- Provide career pathways for students with jumping off places
- High end programs with stepping stones into higher education opportunities

Curriculum
- Career Technical Education highly developed in state of Utah
- Career clusters based on industry demands—shortage areas and high salary positions
- Work based learning—work closely to analyze partnerships in community for internships/externships
- Soft Skills emphasized
- Specialty programs not comprehensive high schools

Students
- Travel from all high schools in the district
- Transportation provided by district
- Attend half days every other day or half days every day
- Schools in district have comparable "bell" schedules
- Students take core classes at home schools and earn elective credits at GTI or JATC
- Concurrent enrollment with community college
- Students earn high school diploma from home school and may earn associate's degree and/or certification (for ex: CNA)
- Primarily juniors and seniors with variety of academic background

Funding
- Variety of sources including state and Perkins $
- Teachers employed by district and/or community college

	Granite	Jordan
General Program Overview	• Career clusters selected by community/industry demand due to shortage and high salary prospects. Current themes: health science, engineering, information technology. Each of these lead to various jobs. Goal is to create pathways with several jumping off places. They encourage students to keep going. (Example: dental can go dental assistant, dental hygienist, dentist, orthodontist. • Teachers come from industry professions. • This is a program, not a comprehensive high school. • Teachers care about what they teach and who they teach. Philosophy" hands and heart, sharing, showing the distance, Symbol = lighthouse. (Video was shown to depict the theme.) • Representatives are fighting the idea that the school is only for non college bound. • Every high school has counselor paid by CTE. Not all are equal. Some schools support GTI better than others. Some sense that upper SES shouldn't go there. • Security minimal. Started ID cards recently. Trying to find a way to encourage through positive reinforcement rather than punishment (their suggestion: candy bars.) Security was only discussed when we mentioned it. • Ed net distance lab in all but one high school. We witnessed two girls in psychology course (Utah State) – others from other schools were tuned in. • In another room next door, there was a community college biology (pre nursing) course. No high school students just because of scheduling issues. Goal to schedule some community college courses in double blocks even though they don't seem to want to. • They are on track to offer some applied science related to engineering and health. 3-D was approved as high	• This is one of two Applied Technical Centers. The other, in Sandy, is on the East side of district and serves some same and some different career themes. The Sandy campus has been operational since 1981 (?). The Jordan campus has been opened for 5 years, with a second building opened last year. • 600 students attend the Jordan campus (300 each in morning or afternoon.) 800 to 900 students attend the Sandy campus in similar arrangements. • The 8 high schools in the district also have some career tracks. For instance, Culinary Skills are in a few high schools. One high school even has a restaurant. • Career clusters affected by community/industry demand due to shortage and good salary prospects. Current themes: _____ • District has over 80,000 students. There are partnerships with other districts: Granite, Tooele, Murray. • School admits by application by no interview. Prerequisites are recommended. Marketing begins in junior high school. Students need to (attempt to) finish general ed requirements so they can take half a day to attend this campus. • Programs h require internships or externships. (The difference in the two relates to whether paid or not paid but the terms are sometimes used interchangeably.) Hours for the practicums range from 60 to 170 hours. • Most programs are designed to be a year long, but at least one (CNA) is semester and few are longer than year. Staff recommended having at least one semester offering. • Students get community college concurrent credit for

	school art class. • Much concurrent enrollment was evident. This occurs when students enter dual enroll in SLCC and GTI. No cost for students except initial application fee. • We were amazed to discover that it's four years (18) and you're out. No free public schooling after 4 years. However this was supported by Peaks Granite Community Adult Education Center. • They face issue that funds only support during regular school day and school year. We need to find a way to support all day and night, all year.	much of the work. Cost is almost free. After payment of $35 application, tuition seems to be free to high school concurrently enrolled students. • Students seem eager to attend and to do well. Truancy and tardiness are not problems. • Very important key is partnerships with community college and with industry. • One are yearly has outside group come in to oversee program. Previous day, the information tech (?) committee had met. Included representatives from all high schools and teachers in the field. 10 business persons listened to curriculum, program discussion and made significant recommendations (i.e. curriculum was excellent but there needed to be more attention to "soft skills" such as team work. This review is district driven rather than state or federal. Areas are generally reviewed every 6 to 8 years. • As with Granite, it's four years (18) and students are out. No free public schooling after 4 years.

	Granite	Jordan
Programs	• High schools retained same FTE with opening of GTI. • Having a neutral site is a good thing. Kids retain own schools identity, but it didn't seem to make any difference. • If programs don't fly, teachers know that they will be out of the job at GTI.	
Extra or Co-curriculars	• HOSA, Skills USA Clubs. Trying to start a radio broadcast club. • No athletic teams or traditional activities, but students may participate in activities at home schools.	• HOSA, Skills USA Clubs that support school programs. • No athletic teams or traditional clubs, but students may participate in activities at home schools.
Application/ Enrollment/ Recruitment	• Generally no prerequisites for admission. If student is less than 2.0 in a few programs, they are admitted provisionally. • Students register in their own schools with counselors. • Recruitment is a big deal. They must market to get students to notice them.	• Marketing begins in junior high schools. Students realize that they need to complete general ed requirements in order to be allowed to participate in these offerings at other sites. • There are some "at risk" students here, but students who are significantly behind in credits are usually not allowed to attend. • There are requirements for several programs, but prerequisites are sometimes recommended rather than required. • Some age requirements for some programs. (Some hospitals will not hire CNA students until 18.) • In some programs there are many more applicants than seats. Example: Veterinary courses admitted 70 this year. Should have only let in 60. Had 170 applicants.

	Granite	Jordan
Scheduling	• Block A/B at all high schools in the district. • Students generally attend am or pm every other day. • Some programs are half day every day. • Courses are generally semester in length. • Classes are set, then students register when things are offered.	• Block A B at all high schools except one that is trimester. Representatives stated that the trimester schedule caused numerous problems in providing these outside programs. Not insurmountable. • Students generally attend am or pm every day. • Courses are generally semester in length. • Most courses of study are one year in length, although CAN is one semester and there is the possibility of more than a year in a program area.
Administration and support services.	• One administrator, one secretary, one counselor, who did work based learning, soft skills, arranges for speakers and field trips, sets up mock interviews, etc. • Curriculum is state developed and approved. • Director of CTE for district seems heavily involved.	• One administrator (principal), one CTE director/counselor, one counselor. There appears to be additional secretarial support. • Director of CTE for district is very involved. • Much of the administrator's time (as well as CTE counselor) is developing and maintaining relationships with businesses and post secondary institutions.
Teacher responsibilities and staffing	• 25 teachers (some are part time.) Off site teachers (home builders, aviation, agriculture, cosmetology are included in this number.)Some growth in this second year.	• Didn't learn the number of teachers. • Teachers are responsible for finding and overseeing externships, although some students find their own if they have connections (for instance, working at their dentist's office.) Teachers are not given release time to do this, but are paid extra for hours worked outside of school day. • If program is deemed unnecessary in community or if there is not deemed to be a need for the program area, it would be dropped. • There was some territoriality among teachers when the programs began…a belief that this program would minimize electives on home campuses.

	Granite	Jordan
Certification	• There is some sort of alternate route licensure program in which a teacher is approved by state, gets provisional, and must work toward certification as agreed. Not all of them take traditional college courses. • CTE (Career technical education) are not held to high NCLB standards (highly qualified) since not in core areas. • Salary is given based on prior experience not necessarily teaching experience. Career teacher may be brought in on high step based on his / her experience in the work field.	• There is some sort of alternate route licensure program in which a teacher is approved by state, gets provisional, and must work toward certification as agreed. Not all of them take traditional college courses. • CTE (Career technical education) are not held to high NCLB standards (highly qualified) since not in core areas. • Salary is given based on prior experience not necessarily teaching experience. Career teacher may be brought in on high step based on his / her experience in the work field. It was noted that CTE teachers are not paid MORE than other teachers, but they may be jumped up on step(s) when first hired. • Teacher association seems to support different routes to certification. • There seems to be some agreements with others to provide teachers. Some of the teachers serve as classroom teachers as part of agreements with the school. (Example: one or more physical therapists (MD) served as teacher for small pay, with understanding that clinic could exist in the building.)
Funding/ state laws	• Much funding comes from grants and from state financial support of CTE. • There is a lot of in-kind support for internships, etc. from local businesses. • Much collaboration with SL Community College. • Curriculum is written and mandated by the state. • Assessment based on state. Some are skill sets. • State requirements have moved to 4,3,3,3 for class of 2011. (4 language arts, 3 each math, science, social studies.)	• Much funding comes from grants and from state financial support of CTE. • There is a lot of in-kind support for internships, etc. from local businesses. • Much collaboration with SL Community College. In fact, Jordan had found a way to host more concurrent classes in core areas on this campus. Time schedule did not appear to be a deterrent. • Curriculum is written and mandated by the state. • Assessment based on state. Some are skill sets. • State requirements have moved to 4,3,3,3 for class of 2011. (4 language arts, 3 each math, science, social studies.)

	Granite	Jordan
Building Design	• 5-story former hospital on total of 27 acres purchased for 16 million 3 years ago. GTI on 3rd and 4th floors. 2nd floor is Granite Peaks Adult / Community Ed, ELL Center, and new 9th grade academies (engineering and info tech). Curriculum offices on 2nd floor. Administrative offices part of the complex. • Pre school. • Community college classes on site. • "New" elementary ed school on site. • Negotiating with Utah State University to be part of 5th floor. • True community center. • Dental center scheduled to open in January – to provide services to SES qualified students and families – with high school students doing on the job (in the mouth) training.	• Beautiful, specially built facility houses all related programs. The original Jordan building was opened 5 years ago. A second building was opened 2 years ago. • Built on campus of SLCC. Land was given for $1. Plans are underway to continue to build the campus community college needs. There appears to be the possibility of additional growth for Jordan Schools. • Facility houses an "early college," and the special needs program. Community college courses seem to occur somewhat throughout the day and after the traditional high school day. • When asked about security, representatives said they don't do too much to ensure security, although they are aware that it could be a problem. Students are asked to wear identification. There ARE community members throughout the building often. (Example: Physical therapy office had 5 non-school-related patients when we visited. That is normal.) • "Patient" parking spaces were in evidence in front of building.
Transportation	• Students picked up from all nine home high schools and transported from home high school and back. No cost. Two runs a day. • Students may drive to GTI. Students may attend any school for any part of the day, but transportation is not provided.	• Students picked up from all nine home high schools and transported from home high school and back. No cost. Two runs a day. • Students may drive to JATC. Students may attend any school for any part of the day, but transportation is not provided.

	Granite	Jordan
Demographics	• District probably 30% diversity, mostly Hispanic, then Polynesian. • All kinds of students – from best and brightest to those who have no use for school. • High schools are 10-12, but this year, 9th graders are allowed in two academies. • 9 high schools, 15 junior high schools. Total of 90 schools in district. • 900 students enrolled this year plus 300 off site (4 off sites). Usually about 200 at a time each half day. • Student teacher ratio considerably smaller at GTI than other high schools. • Drop out rate is 12-15% in district.	• Students were generally those who were driven to succeed in these special programs. While there were some "alternative ed" students, they were not the norm or the target population. • High schools are 10-12. No sophomores attend this school. • There seem to be excellent partnerships with other districts, primarily Granite. Students from Murray and Tooele are also enrolled in JATC. • 600 students enrolled at this time, generally 300 in morning and 300 in afternoon. • Student-teacher ratio is mixed. Some programs are more filled than others.
Student Perspective	• Students positive, engaged, excited. NO discipline issues (6 incidents in 1.5 years). Students want to be there. • Bus trip is just part of the day. • Very well behaved. Very little (no?) security. • Kids ate lunch, had drinks at computer stations. • Students had ipods in ear at times – working at computers.	• Students seemed engaged. They were extremely well behaved. • Principal indicated there were NO discipline problems. Not one fight in last 4 years. There are some students who use drugs or alcohol, as in all schools. • Very little (no?) security obvious throughout the building. • We didn't get opportunity to speak to individual students. We were told that students felt this was a privilege. Some came back after school for additional lab time. • Some students were dressed in "scrubs." Representative said that some teachers require appropriate dress or lab coats at times.
Teacher Perspective	• Dental teacher was thrilled by facility. • Pre-engineering teacher was giddy about resources and about work ethic of kids. • Teachers seemed thrilled to be teaching there. Gave us lunch to talk with us. Were eager demonstrate what they and their students were doing.	• We didn't have opportunity to talk with many teachers. Some who were engaged in conversation with principal seemed happy to be there. One teacher (former businessman) said he was glad to be here at the school rather than in industry he used to practice. • Although he joked otherwise, principal expressed extreme satisfaction with the staff. • There was some visible collaboration between college and high school staff (example was in biomedical research.)

	Granite	Jordan
Notes, Perceptions, Concerns, and Questions	• My oh my did we learn about GPS and our colleagues "strengths." Need to get one for Dave.	

Olathe and Dallas School Visit Summary **October / November 2006**

Olathe attendees – Keith Lutz, Martha Bruckner, Angelo Passarelli, Jon Lopez

Dallas attendees – Judy Porter, Barb Waller

	Olathe	Main points from Dallas Conference
General Program Overview	• Olathe (Kansas) District has 4 high schools and one alternate center. Each site has specific career cluster instruction available.	• Sequence of study • Number of courses • Dual credit opportunities • Multiple exit points • Employment data driven (Nebraska, region, nation) • Marketing and promotion - Middle School
Programs	• At all schools: Business/Entrepreneurship Fine Arts International Studies • At Olathe East: Environmental Design Leadership Studies • At Olathe South Computer and Software Engineering (CaSE) Professional Careers Academy (PCA) • At Olathe North Culinary Arts Health Careers Landscape Science Biotechnology/Life Science e-Communication Geoscience Sports Medicine & Athletic Training Distinguished Scholars • At Olathe Northwest Computer Systems Networking Graphic Design Aerospace & Engineering e-Communication	• STEM (Science, Technology, Engineering and Math) • Medical professions • Education • Chamber initiatives • Culinary/Hospitality • Entrepreneurship • State Initiatives

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Dallas attendees – Judy Porter, Barb Waller

	Olathe	Main points from Dallas Conference
Extra or Co-curriculars		• HOSA • FCCLA • DECA • FTA • Related to courses
Application/ Enrollment/ Recruitment		• Interest • Interviews • PLP's • Demonstration or intent of growth in life skills (soft skills) • Grade level(s) • Identify possible pre-requisites per career path
Partnerships		• Community Colleges • Post Secondary (Public and Proprietary) • Trade Associations • Affiliated businesses • Civic Groups
Scheduling		• Length of day • Calendar • NonTrad and home school
Administration and support services.		• Transportation • Governing Structure • Conferencing • Sustainability • Longevity of opportunity externally and internally
Teacher responsibilities and staffing		• Instructors • School Business Liaison • Counselor Roles • School Support (custodians, food service, para) • Secretaries
Materials Needed		• Books • Software • Hardware • Equipment

Olathe and Dallas School Visit Summary **October / November 2006**

Olathe attendees – Keith Lutz, Martha Bruckner, Angelo Passarelli, Jon Lopez

Dallas attendees – Judy Porter, Barb Waller

	Olathe	Main points from Dallas Conference
Certification		• Teacher of record • NCLB • Business Specialist
Funding		• Innovation funds for partnering agencies(Grant) • Partner institutions • Grants • Affiliated businesses
Building Design	• Traditional School concepts with special designs for career clusters	
Transportation		• To and From home school once a day • District cost
Assessments		• To be developed • What should be added/abandoned – cycle of change • How do we know what has worked? - Placement - Perception data - Industry/business driven data - Enrollment - Cost/Benefit - Student performance in school
Demographics		
Student Perspective		
Soft Skills		• Standard industry/business expectations • Consistent between clusters and staff • Building wide emphasis • Partner with affiliated agencies for instructional delivery and reinforcement
Implications for existing high schools		• Career planning (stakes are higher for everyone) • Shared staff • Can students come and go? • Integrated/applied credit for graduation requirements

Occupation

uglas, Sarpy -- 31055, 31153

Code	Name	2005	2016	New Jobs	Replace-ment Jobs	% New	% Rep.	% New and Rep.	Earnings	Unemploy-ment
11-0000	Management occupations	28,158	32,896	4,738	5,799	17%	21%	37%	$40.73	290
13-0000	Business and financial operations occupations	23,876	28,431	4,554	4,527	19%	19%	38%	$24.46	150
15-0000	Computer and mathematical science occupations	14,913	19,261	4,348	2,210	29%	15%	44%	$29.10	221
17-0000	Architecture and engineering occupations	5,752	6,334	582	1,301	10%	23%	33%	$31.10	61
19-0000	Life, physical, and social science occupations	4,796	5,649	853	1,256	18%	26%	44%	$25.54	21
21-0000	Community and social services occupations	5,688	7,649	1,960	1,139	34%	20%	54%	$15.63	71
23-0000	Legal occupations	3,320	3,877	557	424	17%	13%	30%	$37.28	27
25-0000	Education, training, and library occupations	22,575	27,135	4,560	4,956	20%	22%	42%	$19.10	307
27-0000	Arts, design, entertainment, sports, and media occupations	9,531	9,759	228	1,934	2%	20%	23%	$16.59	188
29-0000	Healthcare practitioners and technical occupations	21,545	26,968	5,424	4,555	25%	21%	46%	$28.76	159
31-0000	Healthcare support occupations	8,730	11,733	3,003	1,462	34%	17%	51%	$11.89	210
0000	Protective service occupations	6,904	7,844	940	2,289	14%	33%	47%	$15.59	170
35-0000	Food preparation and serving related occupations	30,662	34,873	4,211	13,038	14%	43%	56%	$8.56	1,230
37-0000	Building and grounds cleaning and maintenance occupations	16,290	19,341	3,051	3,526	19%	22%	40%	$10.05	515
39-0000	Personal care and service occupations	16,288	19,389	3,102	4,468	19%	27%	46%	$8.94	254
41-0000	Sales and related occupations	54,255	56,129	1,874	18,296	3%	34%	37%	$16.15	1,473
43-0000	Office and administrative support occupations	80,502	83,343	2,841	21,884	4%	27%	31%	$13.54	2,705
45-0000	Farming, fishing, and forestry occupations	1,005	878	-126	312	-13%	31%	18%	$11.79	<10
47-0000	Construction and extraction occupations	22,865	25,648	2,783	5,139	12%	22%	35%	$17.42	709
49-0000	Installation, maintenance, and repair occupations	19,971	22,154	2,183	4,978	11%	25%	36%	$17.41	226
51-0000	Production occupations	27,353	28,662	1,309	8,159	5%	30%	35%	$14.15	838
53-0000	Transportation and material moving occupations	37,906	44,711	6,805	8,923	18%	24%	41%	$15.11	764
55-0000	Military Occupations	10,088	9,114	-974	2,675	-10%	27%	17%	$35.57	<10

Occupation

braska -- 31

Code	Name	2005	2016	New Jobs	Replace-ment Jobs	% New	% Rep.	% New and Rep.	Earnings	Unemploy-ment
11-0000	Management occupations	104,234	114,596	10,362	21,670	10%	21%	31%	$31.82	1,106
13-0000	Business and financial operations occupations	48,572	58,219	9,646	9,313	20%	19%	39%	$23.22	316
15-0000	Computer and mathematical science occupations	23,512	30,555	7,043	3,569	30%	15%	45%	$27.25	356
17-0000	Architecture and engineering occupations	13,068	14,691	1,623	3,084	12%	24%	36%	$27.24	137
19-0000	Life, physical, and social science occupations	11,189	13,140	1,952	2,877	17%	26%	43%	$22.89	54
21-0000	Community and social services occupations	16,692	21,744	5,052	3,460	30%	21%	51%	$14.31	222
23-0000	Legal occupations	6,933	7,915	981	884	14%	13%	27%	$31.38	57
25-0000	Education, training, and library occupations	61,089	73,121	12,032	13,958	20%	23%	43%	$17.63	920
27-0000	Arts, design, entertainment, sports, and media occupations	21,805	24,389	2,584	4,490	12%	21%	32%	$15.04	419
29-0000	Healthcare practitioners and technical occupations	54,684	67,916	13,232	11,552	24%	21%	45%	$27.24	406
31-0000	Healthcare support occupations	26,880	35,674	8,793	4,467	33%	17%	49%	$10.74	667
0000	Protective service occupations	16,026	18,322	2,296	5,450	14%	34%	48%	$14.65	412
35-0000	Food preparation and serving related occupations	80,984	91,587	10,603	34,646	13%	43%	56%	$7.82	3,431
37-0000	Building and grounds cleaning and maintenance occupations	45,719	56,167	10,448	10,020	23%	22%	45%	$9.15	1,485
39-0000	Personal care and service occupations	41,530	51,232	9,702	11,103	23%	27%	50%	$8.33	663
41-0000	Sales and related occupations	128,228	138,261	10,032	44,396	8%	35%	42%	$14.60	3,611
43-0000	Office and administrative support occupations	182,388	189,372	6,984	50,353	4%	28%	31%	$12.36	6,354
45-0000	Farming, fishing, and forestry occupations	14,832	13,529	-1,302	4,684	-9%	32%	23%	$10.11	122
47-0000	Construction and extraction occupations	60,689	69,901	9,212	13,471	15%	22%	37%	$15.27	1,961
49-0000	Installation, maintenance, and repair occupations	55,389	62,919	7,531	13,836	14%	25%	39%	$16.14	639
51-0000	Production occupations	87,043	93,094	6,051	25,718	7%	30%	36%	$13.30	2,748
53-0000	Transportation and material moving occupations	94,615	107,769	13,154	22,365	14%	24%	38%	$13.82	1,740
55-0000	Military Occupations	14,935	13,494	-1,442	3,997	-10%	27%	17%	$29.50	<10

Occupation

A -- 0

Code	Name	2005	2016	New Jobs	Replace-ment Jobs	% New	% Rep.	% New and Rep.	Earnings	Unemploy-ment
11-0000	Management occupations	13,344,726	15,564,945	2,220,218	2,727,987	17%	20%	37%	$37.22	289,837
13-0000	Business and financial operations occupations	7,841,892	9,180,111	1,338,219	1,474,519	17%	19%	36%	$26.09	119,205
15-0000	Computer and mathematical science occupations	3,645,637	4,632,977	987,340	520,653	27%	14%	41%	$30.79	123,289
17-0000	Architecture and engineering occupations	2,844,864	3,068,670	223,806	674,470	8%	24%	32%	$29.57	47,075
19-0000	Life, physical, and social science occupations	1,651,133	1,855,404	204,271	424,658	12%	26%	38%	$26.57	35,697
21-0000	Community and social services occupations	2,217,693	2,789,519	571,826	452,648	26%	20%	46%	$17.10	50,561
23-0000	Legal occupations	1,439,749	1,603,367	163,618	182,066	11%	13%	24%	$37.22	38,214
25-0000	Education, training, and library occupations	9,206,805	11,132,393	1,925,589	2,064,276	21%	22%	43%	$20.22	243,369
27-0000	Arts, design, entertainment, sports, and media occupations	3,754,498	4,290,427	535,929	761,934	14%	20%	35%	$18.42	97,008
29-0000	Healthcare practitioners and technical occupations	7,682,211	9,457,575	1,775,364	1,559,297	23%	20%	43%	$29.14	85,592
31-0000	Healthcare support occupations	3,747,238	4,956,499	1,209,261	632,472	32%	17%	49%	$11.24	153,091
0000	Protective service occupations	3,350,221	3,842,707	492,486	1,042,944	15%	31%	46%	$16.60	123,546
35-0000	Food preparation and serving related occupations	11,657,985	13,599,829	1,941,844	5,011,562	17%	43%	60%	$8.50	575,304
37-0000	Building and grounds cleaning and maintenance occupations	6,913,777	8,479,246	1,565,469	1,494,342	23%	22%	44%	$9.69	280,969
39-0000	Personal care and service occupations	5,774,600	7,329,620	1,555,020	1,493,928	27%	26%	53%	$9.29	299,130
41-0000	Sales and related occupations	19,525,391	22,022,884	2,497,493	6,583,346	13%	34%	47%	$16.63	787,800
43-0000	Office and administrative support occupations	26,982,235	28,391,417	1,409,182	7,417,071	5%	27%	33%	$13.78	862,293
45-0000	Farming, fishing, and forestry occupations	1,161,223	1,198,115	36,892	377,687	3%	33%	36%	$9.43	248,046
47-0000	Construction and extraction occupations	9,072,023	10,250,423	1,178,400	1,879,376	13%	21%	34%	$17.22	517,483
49-0000	Installation, maintenance, and repair occupations	6,708,029	7,559,830	851,801	1,675,817	13%	25%	38%	$17.32	197,427
51-0000	Production occupations	11,064,858	11,039,899	-24,959	3,468,693	0%	31%	31%	$14.18	597,863
53-0000	Transportation and material moving occupations	11,479,782	12,703,873	1,224,091	2,864,199	11%	25%	36%	$13.37	669,563
55-0000	Military Occupations	2,119,859	1,915,238	-204,621	562,314	-10%	27%	17%	$28.54	25,657

Millard Public Schools Small School Brainstorming Session, December 19, 2006

The following are summarized notes taken from the full day (December 19) retreat to do initial planning for the Millard non traditional/small high school.

Participants included:

Keith Lutz	Superintendent
Martha Bruckner	Assoc. Supt. Educational Services
Angie Mercier	Millard Learning Center, Principal
Barb Waller	Millard Education Program Facilitator
Dave Patten	Millard North HS, Teacher
Jim Sutfin	Director, Human Resources
Jon Lopez	Exec. Director, Planning & Evaluation
Judy Porter	Director, Secondary Education
Julie Kemp	Millard North HS, Teacher
Kathy Ryan	Millard West HS, Asst. Principal
Linda Brewer	Millard West HS, Counselor
Melissa Byington	Andersen MS, Asst. Principal
Mark Feldhausen	Asst. Supt. Technology
Nick Argyle	Millard North High School, Student
Jeff Petersen	Millard Learning Center, Student
Sheri Rogers	University of Nebraska – Omaha Acting Vice Chancellor, Academic & Student Affairs
B.J. Reed	University of Nebraska – Omaha Dean, College of Public Affairs & Community Services
Randy VanWaggoner	Metropolitan Community College Vice President, Academic Affairs
Rich Katt	NE Dept. of Education Career & Technical Education/Perkins Project Leadership
Wendy Boyer	Greater Omaha Chamber of Commerce Vice President, Education & Workforce Development
Robert Mabrey	Beringer Ciaccio Dennell Mabrey Associates Architect

The group summarized **strengths** of the schools that were visited:

- Students were focused/engaged; courses were highly relevant; learning was contextual.
- Schools met the needs of a special segment of the student population.
- Schools provided career relevance.
- Transportation was provided to encourage students to move between centers.
- There was little or no cost to students even for earning community college credits.
- There was a community/economic match to courses taught.
- Schools had reduced red tape between high schools and post secondary agencies.
- There was flexible credit that transferred to community college or university.
- Students were expected to excel to the point of completing college level work.
- There was evidence of partnerships with business, industry, post-secondary institutions.
- There were viable career paths with multiple exit points.

- Most states had alternate certification methods to encourage industry-trained professionals to work with high school students.
- Life long learning was modeled with a broad spectrum of learners, sometimes pre-K through 16.
- Facilities were used – often from morning to late evening - to meet needs of high school students as well as (at times) pre-school students, adult learners, community college students.
- There were models for concurrent education of kids and adults in the same settings.
- Funding was often accomplished through inter-local agreements.
- There was obvious support from the community in multiple ways.
- Several schools relied upon grants, adding an additional layer of accountability.
- There were structures of internships and partnerships in place as part of the guarantee to kids that these career paths were viable for the future.
- There were opportunities for all at some sites, although most included some sort of additional alternative education program.
- Partnerships with higher education institutions provided access to cultural affairs, a world perspective, potential teachers, adjunct instructors.
- The learning environment seemed to be more or a college environment than high school environment. The small size changed the "feel" of students passing in hallways; the lack of bells at most centers provided a more professional sense.
- Partnerships, sharing faculty, early entry programs, etc. seemed to be working well in models visited.
- Instructional approaches often had an interdisciplinary focus. General education classes (English, social studies) sometimes matched with students' career cluster choices.

The group summarized **weaknesses** of the schools that were visited.

- Some programs were not always linked to high demand areas and changes in equipment were or would be expensive or difficult to change. (For example, two sites located near each other had a high number of dentistry classes in an area where admission to post secondary education was limited.)
- There was little reliance on electronic or distance learning.
- There was limited history for most of the institutions, and even less assessment of the value of the programs.
- There was the possibility of a "disconnect" between traditional and non-traditional sites if students were attending both. Different cultures in the two types of schools might make it hard for students to exist in "two worlds" and succeed in both.
- The cost of some of the facilities was higher than the funding that is available in MPS.
- Having students make career path selections too early in their educational career may cause some problems for some students if the system were not flexible enough to encourage easy transfer between programs.

Some members suggested related **issues** that might arise in MPS:

- The proposed MPS non traditional school planning budget seems "austere" when compared to other sites.

- In most districts that were visited, schools all operated on the same schedule to allow students to move easily from school to school, so site-based decisions on schedules might be limited.
- There was a need for significant staff development to prepare alternate credentialed teachers to work with high school students.
- There would be a need for significant staff development to prepare traditionally credentialed teachers to work in a career preparation setting.
- Funding sources often came from the state or from grants, some of which are not in place in Millard or Nebraska.
- There would be a need to create an attraction for students to want to leave their home schools tp attend another site for some or all of the day.
- NCLB, as currently operational in Nebraska might limit the ability to provide an alternate credentialing process that is easily accomplished.

The participants discussed the concept of **non-traditional students**. Whom are we talking about as potential students for this new school? Some varying suggestions are shown here:

- The original population for the school was mentioned as non-traditional students who find comprehensive high schools overwhelming and disengaging.
- Participants could include all grade levels nine - twelve, or 10^{th} through 12^{th} grade students or 11^{th} through 12^{th} grade students. Recruiting would need to begin early.
- Participants could come for a full day experience, calling this their home school, or they could come for a part day experience, officially attending a different "home" school (MS, MN, MW).
- It was noted that Perkins defines non-traditional as those minority-gendered participants in any career field where there are less than 25% of the gender represented in the field

Participants wrestled with the overall concept of "non-traditional kids": Perhaps they are…

- Children of parents who did not attend college?
- Students who do not perform well in traditional academic settings?
- Learners who do not fit in traditional classrooms because their learning style is more kinesthetic than linguistic?
- Learners who consider current high school as lacking in relevancy?
- Learners who may demonstrate adult learning characteristics, and problem-solving skills, who desire to avoid the traditional school structure?
- Students who seek high relevancy, who want to solve problems for themselves, who are self-directed in high interest areas.

The participants (in 4 small groups) were then asked to develop **possible school designs**, perhaps to suggest programmatic topics such as what subjects will be stressed at the school, what schedule will be followed, what design implications are important, how many sessions will be held, etc. The group suggestions are shown here.

Group A:

Group A defined the non-traditional learner as "A student not engaged in the comprehensive high school; one who might fall through the cracks; self-selected for the school, from the middle majority; a student for whom career orientation would significantly enhance their passion for learning and serve as a springboard for future education. The group summarized their target audience as: "Students who are interested in career immersion opportunities in a small, focused setting with highly interactive programs, which will provide advancement in career paths and post secondary education."

Attendance at the school / Programs at the school:

- School would allow both full time and part time students – full time students participating in the full program including core requirements and part time students focusing on career courses/electives only.
- Students would complete an application to be a full time student; career classes would be opened to part time students on a first-come, first-served and/or application process.
- The application should include an opportunity to express career interest area (either in writing or orally in an interview or both) and to talk about where the students see themselves going in the future (goal-setting).
- The school must include internship experiences.
- The school must encourage early- entry programs and/or dual or concurrent enrollment.
- The school must build on a foundation starting at the elementary and middle school levels.
- The school could be opened to 9-12 grade students, possibly with a freshman academy,
- Core classes should combine some core requirements with career focus areas. MPS should collaborate with Metro and UNO to develop courses that will meet dual or concurrent enrollment requirements through an articulation agreement.
- The school must include a global perspective course (as a core req/elective) in each focus area. The course could be a free-standing course or integrated within the focus area.
- The school should include lots of technology through out all aspects of the school.
- The building design should include components of large central, common, collaborative area as well as flexible space (large spaces) with modular components. The school may need some specialized areas that will be identified with career strands. There should be some ease to changing these areas as needs change.
- Each student will complete a personal learning plan that indicates a major and minor area. Metropolitan Community College and UNO should help to tailor courses to student needs and focus areas.
- **Areas of focus for the school:**
    - Health and Human Services
    - Business and Finance
    - Engineering, Science, and Technology

Group B

Group B identified the aspects of the new school that they would like to see.

Attendance at the school / Programs at the school:

- School would be a 9-12 building.

- Students would need to apply to the school, including the completion of an application essay.
- School would be opened 7 am to 10 pm.
- High school students would attend school as full time students. Part time students are primarily higher education students or potentially adult learners. Note: There was much discussion about whether the school should be full time or part-time for high school students. Group recommended full time in order to create a venue for full time placement for students who are disengaged in traditional school
- Students would have multiple learning opportunities, including internships, service learning opportunities, interdisciplinary learning opportunities, problem-based learning, and online learning.
- Students would be aware of the value-added capacity of the school from their initial entrance.
- Experience would be capped with a senior project led by a core teacher, and including a community member.
- The physical plant would include open and flexible areas.
- Core teachers (math, science, social studies, English teachers) will work together to make core areas interdisciplinary and related to career clusters.
- **Areas of focus for the school:**
    - Banking and Finance
    - Medical
    - Pre-engineering
    - Entrepreneur

Group C

Group C wanted to be sure that we provided equitable access to students, and they addressed that by recommending a self selection and application process. They identified the aspects of the new school that they would like to see.

Attendance at the school / Programs at the school:

- Students apply to attend the school.
- Transportation from home school to this site would be available.
- Dual credit would be available at no cost to the student (although this might be a potential cost to the district).
- School would be a combined school for both fulltime and part-time students. The school would be opened 7 am – 10 pm to facilitate both types of students.
- Full day program would be a limited core program (core subjects) that would combine with cluster programs
- Planning for the school should include a pragmatic discussion about how we could have programs available here that might be cost prohibitive in other high schools.
- We would need to restructure other three high schools based on which programs go into the new school.
- There would be multiple opportunities so that students could earn dual credits and progress toward a degree of their choice.

- **Areas of focus for the school:**
  - Business and business mgmt (includes hospitality industry and culinary arts)
  - Digital Media, Communication and information technology (digital media)
  - Health science and health occupations.
  - STEM (science, technology, engineering, and math)

Group D

Group D identified major aspects of their new school.

Attendance at the school / Programs at the school:

- MPS would have 9th grade academies at all schools, offering some focus on career preparation.
- The new school would be an all day program for 10-12 graders. There was much discussion about whether it should be an all day school or a part time school. The recommendation for a full time school was based on recent research that successful high schools encourage relationships as well as rigor and relevance. The group also discussed an earlier comment about the disconnect between the two worlds of traditional high school and a "career" high school.
- Students would apply to attend the school.
- The school would provide afternoon and evening classes for all MPS Students as well as for Metro Community College students and UNO students. Students from the school could also return after 3:30 for additional courses.
- If courses have extra seats, other high school students could enter part time.
- The school would allow students to begin or complete an associate's degree.
- The school would use teams of teachers within each cluster area to incorporate core areas within each cluster.
- MPS should develop additional career partnerships at the other schools.
- **Areas of focus for the school:**
  - Science and engineering
  - Business and manufacturing (TDWL)
  - Health and human services
    - Education
    - CNA
    - BioScience
    - MedTech
    - Food service/culinary arts

The participants then listed other ideas that could be categorized as **YEAH, BUT's**

- We don't want the school to be seen as an alternative school in the traditional sense of the word.
- Common scheduling would be needed if this is a come and go school.
- If it's a full day program, you don't have to deal with it multiple schedules at other schools.
- This should not take the place or in some way limit career opportunities in the three existing high schools. This needs to be an enhancement.
- This shouldn't preclude systemic change in other Millard schools that would lead us in the same direction.

- This school may affect enrollment in AP classes or in dual enrollment or early entry programs.
- This school concept would force students to make career choices very early, when even college students have not made that choice. It seems more like the European model that US schools have long avoided. It may end up with students not as well rounded if they focus too early. There needs to be flexibility to adjust or change within the program.
- We don't want the clusters to be so tracked that if they take their core requirements in line with one cluster that it does not relate at all to other career requirements.
- Needs to be designed with flexibility in mind for students changing career clusters. Need to have some foundation building to help students identify their career areas.
- Our schools started with career exploratory activities at middle schools 20 years ago, (yeah), but how long do we explore?
- Will a student be able to get any one of the current [new] diploma paths from this school or will it be limited?
- Will 1024 and the Learning Community influence this school and vice versa?
- What about transportation? When/how often would you run buses? Could we do mid-day transportation? How can we provide equity for 9th and 10th graders if we don't transport?
- We need to ensure that students are viewing opportunities that are free of bias (especially gender role) so they can see many opportunities as being open to them.
- On the red tape/instructor credentials/tuition model: All of the described schools had outside entities that are supporting them breaking the mold. Who will support this school?
- How will we staff it? Metro teachers? UNO teachers? Millard teachers?
- This really takes business/school partnerships to a new level. They will be working in a different way than they ever have been. Education has a role and business has a role. Are we really ready to involve business this seriously in education?
- Senior projects are part of this and internships are part of this. Businesses must step up at this point.
- One of the pieces that we need to look at is the marketing. In the parent community, it already looks like a more traditional "alternative school." Marketing will have to be communicated very clearly what this school is and is not.
- Naming of the school will be important in marketing the school.
- We may need to review the pace of our curriculum process currently and how it will have to change and speed up to address the work we need.

The participants then listed other ideas that could be categorized as **WOULDN'T IT BE NICE IF . . .**

- This high school rendered an alternative school obsolete.
- The Omaha work task force helped drive the curriculum
- This new school would end up changing all of our schools
- This fundamental change (measured by multiple measures of success) ends up having students be much more successful.
- To have teachers get on the same page to help kids dream again to be successful?
- This school leads to more effective integration between schools and post high school agencies and institutions.

- This school creates a model, that influences state level policy so change can occur on a larger level across the state (and nation).
- All of our students would see themselves as college graduates, either 2 year or 4 year.
- This leads to more effective integration between the higher education community and MPS and leads to the benefits of the students.
- This school helped build a model to lead the work force to help the economy of the city.
- Students could still participate in their home school extra-curriculars.

Technical Memorandum regarding the Student and Parent Surveys for information in planning of the Non-Traditional High School.

The Millard Public Schools will be conducting a survey of students and parents in order to provide information to the superintendent and the board of education during the development stages of the district's planned non-traditional high school.

The survey will be designed to gather quantitative data that can be categorized into the following three areas, answering the following guiding questions:

1. From a selected group of career paths (derived from the 16 identified Career Cluster recognized by the Nebraska Department of Education and recommendations from the Omaha Chamber of Commerce), which career clusters gain the most interested as a courses of study in this new school?

2. What career preparation activities would gain the most interest at this new school?
   Subcategories Include but are not limited to:
   Professional Certification
   Gaining Credit toward or completion of an Associates Degree
   Professional Mentors
   Internships
   Dual High School/College Credit

3. What time and attendance structure is best suited for this school?
   Would there be a preference for students to attend full days?
   Would there be a preference for students to attend half days?
   Would there be an interest in evening and night classes?
   Would students want to participate in activities at their "Home School"?

Survey Construct

The survey will serve both as an informative document as well as a data gathering instrument. Wiese Research Associates are consulting on the development of a document that has a general concept and program description at the beginning of the document and a brief mixed response survey instrument at the end of the document.

The program description will inform the survey participant about the construction of the new facility, and will describe for them the location and anticipated start date. The survey portion will include three to four selected response items with space availability for open ended responses.

Sample/Population

The target population for the student survey is students who are currently in grades seven through ten. A total population survey would involve approximately 6000 students. A stratified (Representative) sample of 1,200 students would also garner statistically valid data. The same population versus sample decision will need to be made regarding the parent survey.

Methodology

The survey will be administered to students in their homerooms. Parents will receive the by phone. The anticipated time for completion of the survey for all participants including parents is five to ten minutes. Weise Research Associates will conduct the parent phone interviews. The data sheets, both student and parent will be collected by the Office of Planning and Evaluation where the sheets will be scanned and the selected response answers formatted. The surveys will then be sent back to Weise where the open ended responses will be categorized and added to the data. The district will in turn receive a detailed report of results.

Time line

Following the Board of Education Committee of the Whole meeting on Monday, January 15, the Office of Planning and Evaluation will take any final recommendations into the development process so that the survey may be administered within the next 30 to 45 days.