

ALBUQUERQUE PUBLIC SCHOOLS

Small Learning Communities Program Evaluation

Advanced Technology Academy
Albuquerque High School
2002-2003

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Debra Heath



ALBUQUERQUE PUBLIC SCHOOLS

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Executive Summary

Smaller Learning Communities Program Evaluation Advanced Technology Academy 2002-2003 Albuquerque High School

The Research, Development and Accountability (RDA) department of Albuquerque Public Schools conducted an evaluation of Albuquerque High School's Advanced Technology Academy (ATA) during two school years: 2001-02 and 2002-03. The ATA was designed as a multi-year career academy to improve rates of graduation and enrollment in higher education. In 2001-02 it served about 120 ninth graders and in 2002-2003 it served approximately 160 students, most of who were in 10th grade.

Evaluation findings suggest that the 2002-03 ATA increased the number of students who:

- Participated in classroom and extracurricular activities;
- Understood their educational and post-graduation options;
- Had career focus;
- Enrolled concurrently in college classes;
- Intended to graduate; and
- Planned to attend college or another post-secondary educational program.

Some of the ATA's most striking achievements in 2002-03 were:

- Eight percent of ATA students took college classes, compared to less than one percent of non-ATA students at AHS.
- The proportion of students saying they knew about technology jobs more than doubled, from 31 students at the beginning of the year to 70 at the end of the year.
- The proportion of students saying they knew "very well" which career they wished to pursue increased from 26% before joining the ATA to 42% by the end of the school year.

This evaluation also found that the 2002-03 academy was narrower in implementation than the 2001-02 academy. The ATA's second year provided a strong school-to-career focus. However, it lacked key elements of a small learning community, such as team exclusivity and separateness from the larger school. This diminished the ATA's ability (1) to expose all academy students to the ATA curriculum and (2) to provide students with the levels of social and academic support commonly associated with improved school engagement and reduced dropout.

RDA recommends the following considerations to strengthen the ATA and its impact on students:

1. Reestablish key SLC structures such as student and teacher teams;
2. Confine ATA class enrollments to ATA students and so that the ATA curriculum can be delivered more completely and consistently;
3. Schedule all ATA students into a core set of academy classes;
4. Maintain paid time for ATA faculty meetings and professional development;
5. Re-establish scheduled advisory opportunities between teachers and students;
6. Set measurable program and staff objectives; and
7. Implement the ATA program in a consistent form for multiple years in a row.

Introduction

A Small Learning Community (SLC) is a separately defined, individualized learning unit within a larger school setting. Groups of students and teachers are scheduled together and frequently have a common area of the school in which to hold most or all of their classes. Common preparatory periods allow teachers to collaborate, learn from and support each other and provide students with integrated, interdisciplinary learning experiences. The literature on SLC's defines the following ingredients as crucial for success:

1. *Student and Teacher Teams*: Students and teachers are scheduled together in interdisciplinary teams.
2. *Teacher Collaboration and Integrated Curricula*: Teachers meet regularly to discuss students and plan integrated curricula during common preparatory periods.
3. *Separate Space*: SLC staff and students share a common space, separate from the rest of the school.
4. *Distinctive Thematic or Curricular Focus*: Each SLC has a distinctive thematic or curricular focus.
5. *Autonomy and Flexibility*: Each SLC has autonomy and the flexibility to adjust scheduling, curricula, budget, personnel, and other operational factors.

A career academy is a small learning community with the following additional features:

1. Broad-based career theme,
2. Integrated sequence of courses,
3. Work-based experiences, and
4. Strong partnerships with business and community partners.¹

What are Small Learning Communities, Career Academies and Pathways?

A small learning community is a separate learning unit within a larger school. Students and teachers are scheduled together and frequently have a common area of the school in which to hold most or all of their classes. SLCs may or may not have a career theme or a set sequence of courses for their students.²

A career academy is a school-within-a-school that focuses on a broad occupational area. Teachers and students are self-selected. The career academy curriculum includes an integrated sequence of courses, work-based learning experiences and partnerships with businesses and community partners.³

A career pathway is a sequence of career-related and/or academic courses that lead toward graduation. Students in a pathway may or may not be scheduled together in a manner that creates a SLC.⁴

¹ Sammon, G (2000). *Creating and Sustaining Small Learning Communities: A Practitioner's Guide and CD-ROM Tool Kit for Career Academies and Other Small Learning Communities*. Upstream Press/GMS Partners, Inc, p. 13.

² Sammon, 2000, p. 13.

³ Sammon, 2000, p. 13 and Cotton, December 2001, p. 10.

⁴ Sammon, 2000, p. 14.

Between October 1, 2000 and September 30, 2003, Albuquerque Public Schools (APS) received funding from the U.S. Department of Education to implement small learning community programs in six high schools. Albuquerque High School used the SLC funds to create two small learning communities. In the fall of 2001, after one year of planning and professional development, AHS opened a career academy called the Advanced Technology Academy (ATA). In the fall of 2002, AHS launched a freshman academy. The freshman academy is described in a separate report.

ATA Goals and Program Theory

The vision of the Advanced Technology Academy was that all participating students would graduate with the knowledge, skills and discipline to succeed in life with a sense of responsibility, purpose and self-worth. Its mission was to help students understand and use technology as a tool to facilitate growth. More specifically, the ATA aimed to increase the proportion of students who:

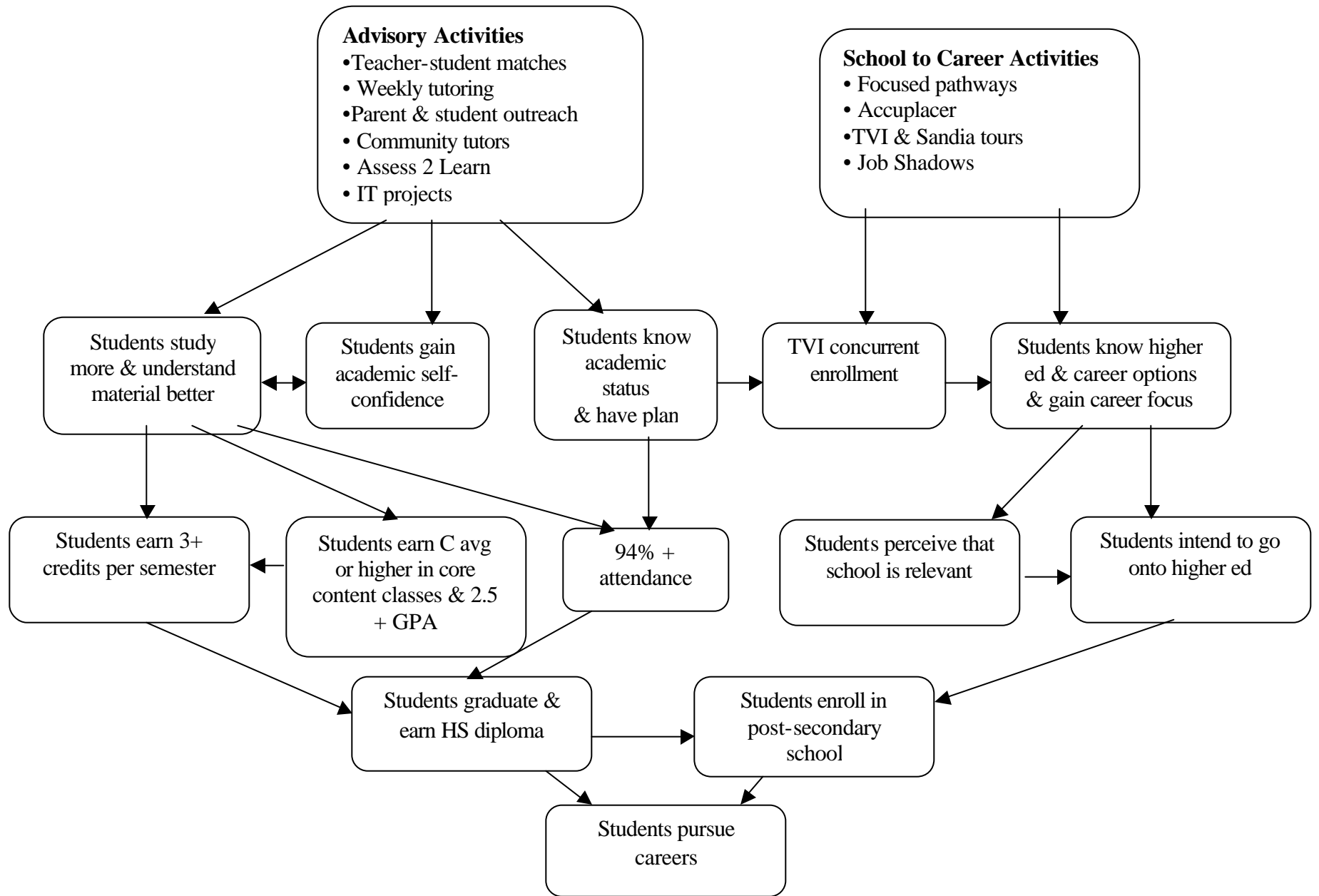
- graduated from high school;
- enrolled in higher education; and
- pursued careers, especially careers in information technologies and advanced manufacturing.

The ATA planned to accomplish its goals with the following strategies:

- Enroll students in articulated sequences of high school and college courses along two career pathways: Information Technology and Advanced Manufacturing;
- Engage students through career-themed interdisciplinary instruction, personal growth plans and work-site experiences; and
- Provide students with personalized instruction and support.

Figure 1 outlines the ATA's principal program strategies and intended short-term and long-term outcomes during 2002-2003. Arrows depict the anticipated flow of effects. For example, program staff expected that school-to-career activities would increase the number of students enrolling concurrently in college (TVI) courses. They also anticipated that TVI enrollment would increase students' knowledge of post-secondary and career options, which in turn would increase the number of students who graduated and enrolled in institutions of higher education. RDA designed this evaluation to provide information about selected intermediate outcomes.

Figure 1. ATA 2002-2003 Program Logic Model



Evaluation Purpose and Methods

In July 2001, APS' Research, Development and Accountability (RDA) department began a multi-site evaluation of the district's Small Learning Communities program. The Small Learning Communities Program Evaluation studied 8 SLC initiatives at 5 APS high schools. It resulted in seven reports: one district-level report which describes cross-site patterns and lessons learned, and six school-level reports. This report focuses on the Albuquerque High School Advanced Technology Academy. It provides an overview of the ATA's planning year and first year of implementation, and a more in-depth examination of the ATA's second year of implementation.

The purpose of the SLC Program Evaluation was to describe schools' SLC reforms and outcomes as well as identify the factors that supported SLC success. At both the district and the school levels, administrators wanted information that would help them decide whether to expand the SLC approach. They also wanted to know the best strategies for achieving positive results.

The SLC evaluation used a combination of qualitative and quantitative methods. Table 1 lists methods employed to evaluate the ATA. Using multiple methods allowed RDA to corroborate findings and validate conclusions. Throughout this document, bracketed codes are used to indicate data sources.

Retrospective Pretest Survey

RDA developed a "retrospective pretest" student survey in 2002-03. Retrospective pretest surveys collect pretest and post-test data at the same time. For example, the ATA survey, administered at the end of the school year, asked students how well they understood their career options both (a) before they joined the academy, and (b) at the end of the school year. One benefit to the retrospective pretest method is that it economizes time and effort. Research also shows that it can yield more reliable and valid results, because respondents use the same standards to rate themselves before the program and at the end of the program. In traditional pre-tests, participants often over-estimate their own knowledge and understanding. The traditional pre-posttest, therefore, may *under*-estimate knowledge gains. Retrospective pretests eliminate this "response shift bias" and may thereby produce more valid results.⁵

Limitations

With only two years of academy implementation to study, the Advanced Technology Academy component of the SLC evaluation was necessarily restricted to a formative purpose, i.e., to provide information for program improvement. Only after several years of consistent program implementation can an evaluation draw sound "summative" conclusions about outcomes. Typical of reform programs, the ATA's first year of implementation (2001-02) involved ongoing development and refinement. Major changes were made in the academy's second year, extending the process of program development and refinement.

⁵ Pratt, McGuigan & Katzev (2000). Measuring Program Outcomes: Using Retrospective Pretest Methodology. *American Journal of Evaluation.*, 21(3), 341-349.

Changes to the 2002-03 ATA program catalyzed changes in the evaluation's data collection strategies and instruments. For example, RDA developed a new student survey tailored to the revised program design. Consequently, RDA could not compare 2001-02 and 2002-03 survey results. Also, the ATA student survey was not administered to non-ATA students, so RDA could not compare ATA student attitudes and intentions with those of non-ATA 10th graders. To compensate for the lack of an adequate comparison group, RDA employed a wide range of methods and gathered data from many different sources in order to validate and confirm findings.

Table 1. Data Collection Methods Used to Evaluate AHS' Advanced Technology Academy.

Method	Code	Purpose	Date
Program Logic Model	lm	Delineate actual program activities/strategies, anticipated outcomes & presumed mechanisms of change.	Fall 2001 Fall 2002
Enrollment & Participation Log	el	Track student participation and enrollment in program activities, including concurrent college enrollment.	2002-2003
Advisory Log	al	Define the nature & frequency of advisory & tutoring activities.	2002-2003
Student Surveys	ss	Identify student knowledge, attitudes, intentions related to the academy and academy goals. Assess changes over the course of the year (Retrospective Pre-Test).	May 2002 May 2003
Teacher Recall Sheet	trs	Define the level and nature of teachers' instructional activities and contact with students.	Monthly, 2001-02
Teacher Interviews	ti	Define academy structures and processes, perceived impacts on teachers and students, and facilitators & constraints.	May 2002
Teacher Focus Group	tfg	Define level & nature of teaming & collaborative activities, instructional activities & school structures. Identify implementation facilitators & constraints and perceived student, teacher & school outcomes.	May 2003
Student Focus Groups	sfg	Define nature & level of SLC implementation from students' perspectives. Identify perceived outcomes.	May 2002 May 2003
Student Information System Records	its	Compare SLC attendance, test scores and dropout rates to school goals & prior performance.	Fall 2001- Spring 2002, Fall 2002 – Spring 2003
Administrator Interviews & Questionnaire	ai	Describe SLC features, school's vision & goals for the SLC, facilitators and constraints & perceived outcomes.	January 2002 June 2003 October 2003

Advanced Technology Academy Program Implementation

This section will describe ATA career academy reforms implemented by Albuquerque High School. A brief overview of the academy's development during its planning phase and first year of implementation is followed by a more in-depth description of the academy's second year of implementation (2002-03) compared to the five research-based components deemed crucial for SLC success. Each research-based component has its own underlined section heading. Appendix A provides a detailed review of what was implemented in 2002-2003 and how those accomplishments compared to the ATA's original program plans.

Academy Development

Albuquerque High School used its first year of SLC funding (2000-2001) to plan and establish the academy's organizational infrastructure, curriculum, staffing, and scheduling, as well as to develop partnerships with businesses, post-secondary educational institutions, parents and community groups. A planning team led by the ATA program director researched SLC and career academy models, consulted with national SLC experts, and developed a comprehensive academy plan. Starting in the spring and continuing into the summer of 2001, the academy recruited students and conducted professional development for its newly chosen staff.

In its first year of implementation (2001-02), the ATA contained most of the essential features of the SLC and career academy models, although some features were not completely implemented. ATA students and teachers shared a set of classes separate from the rest of the school. Teachers had regular paid opportunities to meet and collaborate, and they also served as student advisors. Finally, the ATA offered students a unique career-based curricular theme, school-to-career activities, and links to concurrent enrollment in institutions of higher education.

In the ATA's second year of implementation (2002-03), its program focus narrowed. Perhaps most importantly, the separateness of academy classes and students from the rest of the school was lost. The main features that distinguished the 2002-2003 ATA from the regular high school program were:

- Teacher advising, tutoring & academic support activities;
- School-to-career activities;
- Teacher collaboration; and
- Information technology and advanced manufacturing themes.

Table 2. Advanced Technology Academy Program Features 2001-02 and 2002-03.

ATA Program Features	2001-2002	2002-2003
Total Student Enrollment ²	123	160
Grade Levels	9 th and 10 th	10 th
Student Selection Methods	Self-selection	Self-selection & counselor placement (30%)
# Teams	1	1
# Teachers	11	18
# Common Prep Periods	1 per week, after school	1 per week, after school
Teacher Caseload (average)	120	160
Separate Classes	Yes	No
Separate Space	No	No
Distinctive Curricular Focus, Broad-Based Career Theme	Technology Advanced Manufacturing	Technology Advanced Manufacturing
Integrated Sequence of Courses	Yes	Yes
Work-Based Experiences	Work-site tours, job shadows & internships	Work-site tours, job shadows & internships
Partnerships with Business and Community Partners	Yes	Yes
Academy Director has course-load	Yes	No
Special Education Inclusion	Yes	Yes (10%)

Student and Teacher Teams

The academy served a total of 123 students in 2001-02, 105 ninth graders and 18 tenth graders.⁶ In 2002-03, enrollment increased to 160 students, mostly in tenth grade or repeating ninth grade.⁷ About one-quarter (27%) of the ATA's 2002-03 students had been in the 2001-02 ATA.

All ATA students and teachers constituted one SLC team. In 2001-02, ATA classes were enrolled almost exclusively with ATA students, and ATA students shared classes with each other throughout each school day. The team lost its exclusivity in 2002-03. ATA staff reported the following problems:

- ATA students took as few as 2 classes with ATA teachers, resulting in incomplete exposure to the ATA curriculum.
- Students had to miss their non-ATA classes in order to attend ATA field trips and special events.
- Some ATA teachers had as few as 13 ATA students in their entire 160-student caseload.
- Delivering the ATA curriculum in mixed classes was difficult, because non-ATA students hadn't covered the same material and gained the same skills as ATA students.

⁶ 144 students enrolled in 2001-02 but 21 did not take any ATA classes. 73 students were enrolled for the entire 2001-02 school year.

⁷ Ninth graders were enrolled in AHS' newly created freshman academy.

One of the main concerns expressed by academy students was that poor scheduling prevented them from benefiting fully from the ATA. This concern is highlighted in the following comments:

“A lot of classes don’t even have access to computers. Like my [non-ATA] English class, all year we have not even touched a computer, or even seen one.”

“Four of my classes aren’t part of the academy, so when I got back [from the field trips] I was missing work from a day, and it stacks up and I’m lazy so I get behind really easily.”
[sfg]

Scheduling and staffing problems undercut the academy’s attempts to enroll a diverse and motivated student body. According to interviews with program staff, high school counselors enrolled students in the ATA without systematically confirming their interest and choice. In addition, the ATA was unable to secure the participation of a bilingual teacher and the support of special education resource teachers. As a result, relatively few students with limited English proficiency enrolled. Approximately 18% of the ATA’s enrollment had limited English proficiency, compared to 28% school-wide (See Appendix B). Similarly, the ATA had a relatively low proportion of special education students (10% compared to 17% school-wide).

Scheduling problems also limited ATA enrollment to lower performing students. Compared to Albuquerque High School students as a whole, ATA students had lower average scores on their 9th grade state achievement exam. Only 4 ATA students (3%) enrolled in advanced level English or Math courses. Teachers explained that one of the ATA’s core classes conflicted with electives popular among higher performing students. They said the ATA gained a reputation as the program for low achievers. Furthermore, the absence of higher performing students deprived ATA students of peer role models and gave teachers more challenging classroom conditions [tfg].

Table 3. Average Spring 2002 9th Grade Terra Nova test scores: ATA students compared to Albuquerque High School students as a whole.

Sub-Test	9 th Grade Average Terra Nova Scale Scores 2002	
	ATA	AHS
Math	689	704
Reading	674	688
Science	683	696

Advising, Tutoring & Academic Support

ATA strategies to personalize education and raise student visibility included teacher advising, tutoring, personal growth plans, portfolio activities and student recognition certificates. Each ATA teacher was assigned a group of students to advise, and the ATA program director also provided one-on-one guidance. They advised students about course schedules, graduation requirements, post-secondary education opportunities and prerequisites, career options, job preparation opportunities, and concurrent college enrollment. They helped students create

Personal Growth Plans to guide their education, and arranged meetings with parents to inform and involve them. The program director used an on-line assessment program (Assess2Learn) to diagnose students' academic needs and track progress. ATA teachers and business partner volunteers also provided tutoring during a weekly study hall.

During the 2001-02 program year, ATA teachers had ATA-only class enrollments and a regular time in the master schedule to meet with their advisory student groups. In 2002-03, both the exclusivity of ATA classes and the regular meeting time were lost from the master schedule. The program director compensated by performing an extraordinary amount of one-on-one advising and tutoring. Teachers reported that the academy's advisory component was one of its most directly beneficial and distinguishing features, as seen in the following comments:

"I think the children feel like they're significant. I think because of what we do as a team, the children *are* more visible. Even those little knuckleheads that aren't doing what they're supposed to be doing, we care about them. And I think they know that."

"I feel really bad for my kids that aren't in the academy, because I don't know a lot about them. I don't know what their situations are. I don't know how they do in their classes. Compared to my academy kids, they're almost like strangers. And I don't get that information because I don't know the rest of their teachers, I don't know anybody who's spoken to their parents, or has been to their home or has talked to them about stuff."

About half (55.4%) of students responding to the 2002-03 student survey agreed that they had experienced more attention from their teachers compared to students in the regular school program. Almost two-thirds of ATA survey respondents (61%) reported attending tutoring sessions offered during a weekly study hall. Just over half (55 %) said they engaged in portfolio activities with their advisory teacher [ss]. Students in the 2003 focus group also reported that they had extra academic support compared to other students at Albuquerque High School:

"They help you out, keep your grades up more. They talk to you when your grades are falling so they kind of help you out more than if you're not in the academy."

"They'll cut you deals for extra credit."

"They'll tutor you." [sfg]

However, students also missed having special time set aside for meeting with their advisors.

"We just don't have the meetings like we did last year. We'd always take time out of class just to come talk to them, just to see how we're doing and if we needed help in anything."

"Yeah [I miss it]. They helped me keep my grades up, just telling me what grades I had in classes, what can I do to keep them up, and things like that." [sfg]

Teacher Collaboration and Interdisciplinary Activity

ATA faculty met together weekly, after school, in what they called “Teacher Talk.” They discussed curricula and instructional practices, shared student work and talked about student needs, learning styles, and accomplishments. Once a month they participated in academy-specific professional development. Teachers said they developed a “connectivity” and “consistency” that allowed them to tailor their instruction to individual student abilities and needs, as illustrated in the following comment:

“The other teacher will tell me what one student’s doing in a class, and I’ll be able to look for it in my class. Or knowing that they have her I’ll expect them to have a bit more ability.” [tfg]

Teachers reported that collaboration expanded and deepened their understanding of their students and helped distinguish between problems inherent to the individual student and problems confined to a particular teacher-student relationship.

“She brings in samples of her work – I get to see another side of my students through her graphical design.”

“We’re talking about kids who are having difficulty across the board, or if they’re only having problems in my classroom, I’m wondering why my classroom and not everyone else’s, what is happening.” [tfg]

Faculty had planned to develop Information Technology standards and interdisciplinary curricula during another weekly timeslot, however these plans were displaced by mandated school-wide professional development sessions.

Separate Space

Providing staff and students with their own space, separate from the rest of the school is key to a small learning community’s ability to foster a sense of community, visibility, collaboration and safety. The ATA did not have a separate space within the larger school in 2001-02 or 2002-03.

Distinctive Curricular Focus & Broad-Based Career Theme

Small learning communities research shows that SLC’s need a distinctive thematic or curricular focus in order to develop a clear sense of identity and purpose. The ATA had a clear focus on the career themes of Information Technology and Advanced Manufacturing. It supported these themes with an applied curriculum, partnerships with technology and manufacturing employers, concurrent enrollment opportunities in related TVI departments and work-site experiences.

Information Technology and Advanced Manufacturing Theme

The ATA offered classes in web publishing, computer graphics and computer applications. The ATA purchased laptop computers with wireless connectivity for use by ATA teachers and offered at least one professional development session on their use.

Students confirmed that ATA students had more access to computers than their classmates in the regular school program [sfg]. The program director reported, however, that the actual integration of computers into classroom instruction was less than anticipated. The person assigned to manage the mini computer lab did not maintain the laptops and distributed them to non-ATA teachers. Another problem was that portable buildings did not have connectivity, so the laptops could not be used in some ATA classrooms [ai].

School-to-Career Activities

The academy provided a range of career-related activities and opportunities, including job tours, job shadows, career presentations and tutoring by community professionals. It also offered students opportunities to take the Accuplacer college qualifying exam and tours to the Technical Vocational Institute (TVI).

Program records and student survey results suggest that many but not most students took advantage of school-to-career opportunities.

- Almost half of ATA students participated in tours of TVI and Sandia National Labs.
- One-third took the Accuplacer exam to pre-qualify for TVI classes, resulting in 14 TVI enrollments – more than half of AHS’ total number of enrollments (25).
- A smaller number of students participated in job shadows; these students spent a full day “shadowing” employees at a worksite matching their career interests.
- According to self-reports, almost all students used computers and other technologies.
- Slightly fewer than two-thirds reported participating in the ATA’s “focused pathway” and career presentations.

Table 5. Student Participation in ATA School-to-Career Activities, 2002-2003.

ATA Program Activities	Student Participation Logs		Survey Self-Report
	Number Students	Percent of Total ATA Enrollment	Percent Respondents
TVI course enrollment	14*	8.3	
Accuplacer	56	33.1	
TVI &/or Sandia tours	72	42.6	
Job Shadows	19	11.2	
Personal Growth Plan	99	58.6	
Computer/technology use			92.8
Focused pathway presentations			61.4

*Some of these 14 students enrolled in more than one TVI course.

Students were clear that they had received exceptional career-related opportunities, as exhibited in the following comments:

“The best thing is that we have more opportunities than everybody else in the school. The fact that they can get us internships and just help us out more, get into the real world more than other students have a chance to.” [sfg]

“You’re more exposed to a lot of things. I know a lot of people who aren’t in the academy don’t know as much about things that are going on, as people who are in the academy. Like job shadows and concurrent enrollment.” [sfg]

Student survey results confirmed that almost all students saw the ATA’s school-to-career activities as an important advantage over the regular school program. Most respondents reported that they had unique opportunities to take college classes, participate in activities outside the classroom, get information about their future, and have their education lead to something.

Table 4. Percent Student Survey Respondents Agreeing with Specified ATA Program Advantages, Spring 2003.

Survey Items	Percent Agree n = 83
<i>Things I got from the ATA that I would not have gotten as a student in the regular school are:</i>	
Chance to take college classes.	80.2
Chance to do activities outside the classroom.	75.6
Information that helped me get clearer about my future.	73.2
Have my education lead to something.	67.5

Teachers emphasized that school-to-career activities were unique advantages for ATA students:

“Their peers who are not in the academy have no idea that there’s a nursing certificate that you can take a test for as a high school student, or that there’s a Mars Project you can work on, or get a mentorship at a hospital, that they can take geometry this summer...”

“I think even though they’re always like, ‘oh, that assembly was cheesy,’ or ‘part of that field trip was boring,’ it shows them that there’s something out there. There’s something past this week or this month, or even graduation. Because even if they feel that not in a million years would they put on a clean suit and work little micro-machines, at least they know now that that’s something that they don’t want to do. Which is a whole lot more than what the other kids get. They don’t even know that exists.” [tfg]

Autonomy and Flexibility

Autonomy in the areas of budget, schedule, staffing, curriculum, leadership, governance, assessment and space maximizes the ability of a SLC to “personalize” education to meet the particular needs of its student body, and to make changes throughout the year as needed. Most small learning communities take multiple years to develop autonomy.⁸ The academy had a small measure of autonomy, however basic functions such as scheduling and staff selection and supervision were managed by the larger school.

⁸ *The Learning Network* (2003), Small Schools Project, University of Washington College of Education, 4(2).

Advanced Technology Academy Program Results

Academy results are presented in three sections. The first two sections describe students' and teachers' satisfaction with the freshman academy. Students provided their opinions about the freshman academy through surveys and focus groups. Teacher opinions were gathered through team interviews. The third section summarizes the academy's impacts on students' career awareness, career focus and post-secondary intentions. Results are drawn from student surveys, student focus groups, and teacher interviews and focus groups.

Consistent implementation of an ATA-specific curriculum, and multiple years of data collection and analysis, would be necessary to evaluate the ATA's impact on student performance. As explained in the previous section, the ATA lost critical SLC features in 2002-03. Students did not receive an integrated, ATA-specific curriculum because classes were populated with non-ATA students and because many ATA students were enrolled in non-ATA classes. The 2002-03 academy focused on school-to-career and advisory activities that occurred outside the classroom. It is not surprising, therefore, that analyses of student attendance, grades, credits, and dropout did not show any clear effects.

Student Satisfaction

Almost three-quarters of ATA students who responded to the 2002-03 student survey said they were satisfied with the academy (74%). Most said they felt fortunate to be in the ATA (84%) and almost all (92%) said they would recommend the academy to their friends.

Students said they liked "working on computers," and that they appreciated "the experience they give us, taking us out into the real world, just teaching us new things every day." [sfg] About half of the student survey's respondents thought that they had more interesting classes and assignments than they would have had in the regular school program [ss].

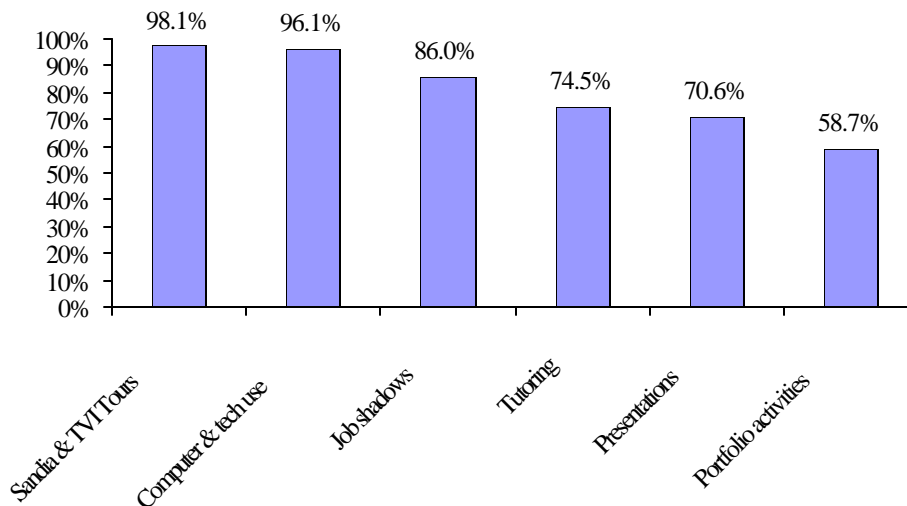
Table 6. Percent Student Survey Respondents Agreeing with Specified ATA Program Advantages, Spring 2003.

Survey Item	Percent Agree (n = 83)
<i>Things I got from the ATA that I would not have gotten as a student in the regular school are:</i>	
More interesting classes.	54.9
More interesting assignments.	43.9

As depicted in Figure 2 and confirmed in focus groups, most participants appreciated the ATA's school-to-career and academic support activities. [sfg, ss]. Students said they benefited from being in the ATA even if they didn't have an explicit interest in technology, as demonstrated in the following comment:

"I think a lot of people think you need to be interested in technology. Because I'm not really all that into that, but I'm still in it and I'm still gaining." [sfg]

Figure 2. Percent Student Survey Respondents⁹ Expressing Satisfaction with Key ATA Program Components, Spring 2003.



Students said they missed aspects of the 2001-02 program, such as interdisciplinary collaboration among teachers, sharing classes and teachers, and having scheduled time with advisory teachers, as highlighted in the following comments:

"The year before we were all grouped together away from everybody else. So it felt like it was something a little bit different than the rest."

"Everybody had the same teachers, same students in the class. We had guru [advisory] teachers and time to tell you about what you were supposed to do."

"Yeah, if you didn't know something you could just ask somebody and they're going to know. You didn't have to ask them what teachers they had."

"I remember like last year, my math teacher and my science teacher got together and we worked on the same thing. And so for math we were graphing the same things as whatever we were doing in science. We were actually doing things in one class that helped in another class." [sfg]

⁹ Figures only include students who had actually experienced each ATA program component.

Students from both program years expressed a desire for more rigorous standards to govern enrollment and participation in the academy. For them the most important standard would have been a demonstrated interest in the ATA and its curriculum. They said disruptive students should be expelled from the academy so that others can focus on learning, as demonstrated in the following quote:

“They need to start weeding out the people who want to be in it and the people who don’t want to be in it so we can separate them...if they’re not really serious about it...so we can be a little more serious about everything.” [sfg]

Other student suggestions for improving the academy were:

- Scheduling that permits all ATA students to enroll in all ATA core classes;
- Bilingual teachers, so students with limited English proficiency can enroll;
- More integration of computers into each class; and
- More field trips/job tours.

Teacher Satisfaction

Results of teacher focus groups and interviews indicate that teachers had mixed feelings about the 2002-2003 academy. As benefits, they cited their weekly meetings and professional development sessions. However they were extremely frustrated about scheduling problems, which hampered their ability to collaborate and to develop relationships with individual students.

One of teachers’ most valued program components was the opportunity to meet together on a regular basis. It connected them with one another and created a web of support. Teachers said they learned from each other and came to understand their students from a variety of perspectives. They felt that their collaboration resulted in higher quality teaching as well as increased visibility for their students.

Teachers expressed appreciation for ATA professional development sessions, which they felt had been well tailored to their needs. ATA faculty and staff also volunteered that the Albuquerque High School administration had been highly supportive of the academy, as seen in the following discussion:

“Aside from the scheduling problems that we had this year, I think the administration has been exceptionally supportive of us.”

“They have really given us free reign to do what we felt was best. I felt like they respected us as professionals.”

“Every time we’ve gone to them, like would you be willing to help us pay for this or help us do this, they’d always come through for us.” [tfg]

The program director added that ATA faculty, in turn, had helped the academy succeed by maintaining an open, collaborative attitude with the administration when scheduling and other challenges arose.

On the other hand, teachers expressed frustration with scheduling problems that had derailed plans for interdisciplinary instruction. Among teachers' wishes were:

- More off-site retreats;
- Attendance at a national technology conference;
- More professional development workshops;
- Smaller classes; and
- Improved scheduling.

Students' Career Awareness, Focus and Post-Secondary Intentions

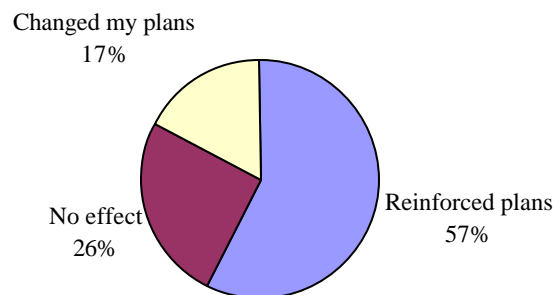
The Advanced Technology Academy aimed to raise students' career-related awareness, motivations and intentions, and thereby increase the likelihood that students would graduate, pursue higher-level education, and develop successful careers. Evaluation findings suggest that the ATA achieved short-term goals. According to student survey and focus group results, the ATA helped students gain career focus, enhanced their understanding of post-graduation options, and influenced their future plans. Among the ATA's most striking outcomes was enrolling 8% of its students in concurrent college classes, compared to 0.7% of non-ATA students. The ATA also increased the number of students reporting intentions to graduate and attend college or other post-secondary educational programs. Detailed results are described below.

Influences on Students' Future Plans

Student survey and focus group results indicate that the ATA influenced the future plans of many students.

- Over half of students surveyed said the ATA reinforced or made them more confident about plans they already had.
- Fourteen out of 82 students said it changed their plans.
- Only one-quarter of respondents said the ATA had no effect on their future plans.

Figure 3. Student Perceptions of the ATA's Influence on Their Future Plans, Spring 2003.

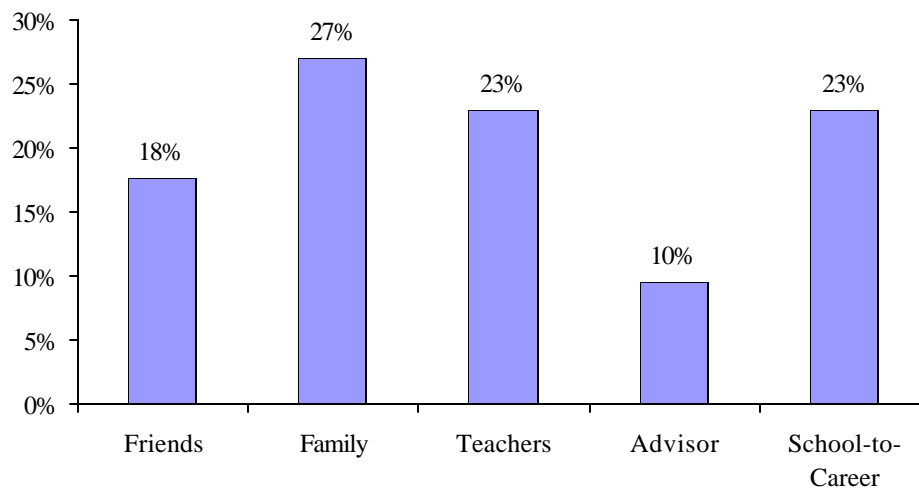


Students explained that the ATA’s focused pathway presentations, job shadows and other school-to-career activities helped them see the relevance of their high school education and motivated them to pursue additional educational opportunities. As one student commented:

“It makes me think more that some of the classes that I’m taking now I can actually use to my benefit to do those things, instead of having to wait until I finish high school or go to college and then take all those things, do it here now or at TVI.” [sfg]

Asked who had the biggest influences on their attitudes about school, college or careers, students were most likely to name family members, teachers and school-to-career activities.

Figure 4. Most Important Sources of Influence on ATA Students’ Attitudes About School, College or Careers: Percent Student Survey Respondents Agreeing, Spring 2003.



Career Awareness & Focus

One of the ATA’s primary objectives was to help students gain career focus, especially related to information technologies and advanced manufacturing.

Student survey results suggest that over the course of the school year ATA students significantly increased their knowledge of future career options in general and, specifically, their understanding of technology and advanced manufacturing jobs.¹⁰

- The proportion of students saying they knew about technology jobs “very well” or “pretty well” more than doubled.
- The number of students saying they knew nothing about technology jobs declined from 8 before the ATA to zero by the end of the year.

ATA students also gained focus about *which* career they wanted to pursue.¹¹

- The proportion of students saying they knew “very well” which career they wished to pursue increased from 26% before joining the ATA to 42% by the end of the school year [ss].
- Students cited job shadows as one of the activities that helped them gain focus, explaining “It gives you a taste of a day in a career that you might be looking into.” [sfg]

Table 7. Students’ Pre-Post Changes in Career Understanding & Career Focus: Before the ATA Compared to the End of the School Year, Spring 2003.

Survey Item	Number Responding <i>Very Well</i> or <i>Pretty Well</i>		
	Before ATA	End of School Year	Aggregate Percent Increase
<i>How well did/do you:</i>			
Understand your future career options?	38	57	50%
Understand the kinds of jobs that exist in technology and advanced manufacturing?	31	70	126%
Know which career you wish to pursue?	51	62	22%

¹⁰ p < .0001. Retrospective pre-post, paired samples t-test. A “p-value” of less than .05 provides confidence that the differences between groups were real rather than due to chance.

¹¹ p < .0001. Retrospective pre-post, paired samples t-test.

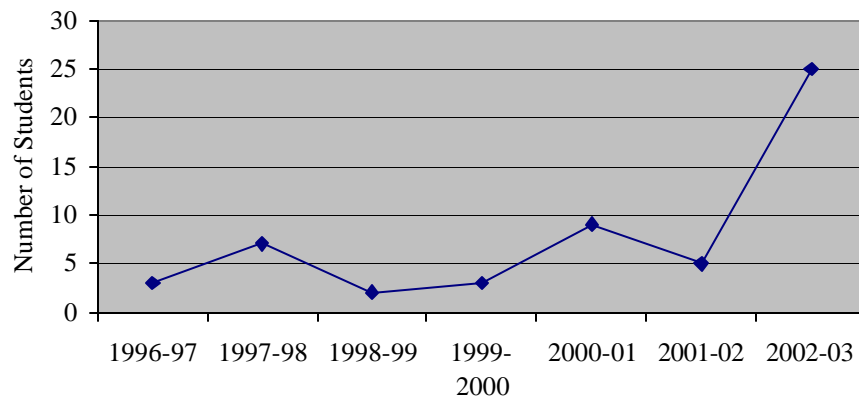
Post-Secondary Education Awareness & Intentions

The ATA aimed to increase the number of students who intended to pursue post-secondary education and who understood their post-graduation options.

Toward these ends, the ATA encouraged students to enroll concurrently in college classes. TVI enrollment reports suggest that the Advanced Technology Academy helped AHS achieve a five-fold increase in concurrent college enrollments compared to its historical average.

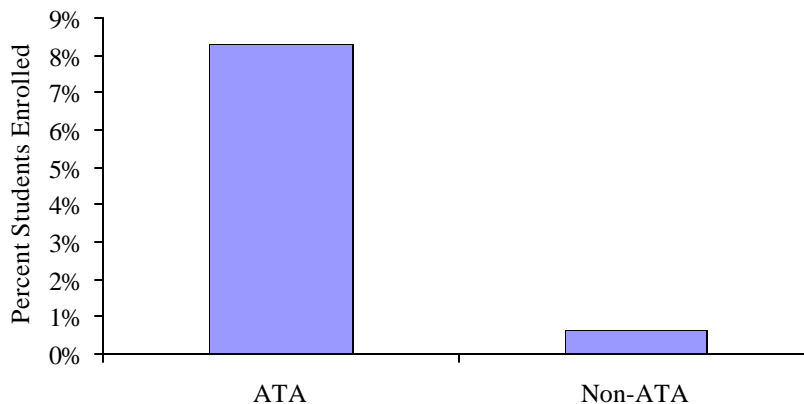
- Between 1996-97 and 2001-02, an average of 5 AHS students per school year enrolled in TVI courses.
- In 2002-03, the number of AHS students enrolled at TVI jumped to 25.
- More than half (14) of the AHS students enrolled at TVI in 2002-03 were ATA students.

Figure 5. Albuquerque High School Enrollments in Technical Vocational Institute Classes, Fall and Spring Semesters, 1996-97 to 2002-03.



- The proportion of ATA students (8.3%) enrolled at TVI during the 2002-03 school year was 12 times higher than the proportion of non-ATA students (0.7%).

Figure 6. Proportion of AHS Students Enrolled in TVI Courses in Fall 2002 and Spring 2003: ATA (n = 169) Compared to Non-ATA (n = 1669).



Student survey results provide evidence that the academy increased the number of students intending to continue their education after graduating from high school.

- Before joining the ATA, 19 students did not plan to pursue post-secondary education. By the end of the school year, this number was reduced to six, a 68% reduction.
- Furthermore, the proportion of students planning to go to college or technical school increased by 26%.

Table 8. Aggregate Changes in Post-Secondary Education Intentions: Before the ATA Compared to the End of the School Year.

Survey Item	Number Agreeing		
	Before ATA Count	End of Year Count	Aggregate Percent Change
<i>How far did/do you think you will go with your schooling?</i>			
Not go onto more schooling after high school.	19	6	68% ?
Finish high school and go to a college or technical school.	58	73	26% ?

Survey results also indicate that the ATA helped students understand their post-secondary options. Most ATA survey respondents indicated that they were at least somewhat aware of their options for continuing their education beyond high school (80.5%). However, many students remained only somewhat confident that they knew their options. Only one-third of students surveyed said they were “very sure” about post-secondary options, and 19% expressed uncertainty.

Similarly, survey results indicate that the ATA helped most students gain some awareness of the courses and grades they needed to get a high school diploma, get into college, and prepare for their future career. However, only a minority of students felt *very* secure in their understanding. [ss]

Table 9. ATA Students’ Confidence in Understanding Requirements for Graduation and Beyond, Spring 2003.

Survey Item	Percent Very Sure	Percent Pretty Sure
<i>I’m sure I know what:</i>		
courses & grades I need for a high school diploma.	40.2	41.5
class credits & grades I need to get into college.	25.6	41.5
high school courses I should take for my future career.	24.4	46.3
my options are for continuing my education.	32.9	47.6

Student Motivation and Participation

Teacher and staff reports suggest that the academy may have had an impact on student motivation and participation. One teacher reported that her ATA students completed homework more consistently than non-ATA students in the same classes. She said students were motivated by a comparatively strong future orientation and clarity about what they needed to do to graduate, as seen in the following statements:

“I really saw a huge difference between my kids who were in the academy and my kids that weren’t in that class. They had better attendance. They had better turning in of homework. Their test scores and grades are better overall. And I think it’s because they have a better idea of what it takes to get through school. And that there is some goal in mind, they do know that they’re working towards graduation. Where I know for a fact that some of my other kids that are in that same course, that aren’t in the academy, I don’t know if graduation is a goal for them, and I don’t even think anyone’s ever talked to them about it. They have no idea what kind of courses they have to take next year, or what they can take, or what they’re capable of doing, or anything. There’s really a big difference.” [tfg]

Teachers reported that academy students displayed future orientation, initiative and planning through actions such as taking college classes, enrolling in summer school classes to catch up to grade-level and pro-actively seeking out summer mentorship opportunities. One staff member illustrated this point with the following example:

“One of the rewarding things was to have 10 or 15 students taking college classes, even after their freshman year. Little Shelly, she’s going to take a licensed test to be a technician at a hospital. It’s a big deal!”

Teachers also described seeing growth in their academy students’ academic self-confidence as well as a higher level of classroom participation compared to non-ATA students. They attributed this to a comparatively strong sense of safety and relationship of trust with teachers, as illustrated in the following comments:

“Those that were real quiet, now they’re just kind of blossoming, they’ll look you in the eye when you talk to them now.”

“They’ll answer questions, whereas my other kids who aren’t in the academy – oh my gosh, to get them to answer a question in class is like pulling teeth. But the [ATA students] I think maybe because they do feel safe or they do feel like I know who they are, they’re more willing – even if it’s the wrong answer – at least they answer, or participate.” [tfg]

Facilitators and Constraints

The evaluation revealed a range of factors facilitating and constraining the successful implementation of Albuquerque High School's Advanced Technology Academy. Elements that facilitated the academy's success included strong program leadership, informed school leadership, targeted professional development, and strategic focus. Constraints to fully implementing the ATA's original vision stemmed largely from master and student scheduling.

Facilitators

Strong Program Leadership

The program director's vision, skills, persistence and leadership were at the heart of the academy's success. He spearheaded the development of community and business partnerships, oversaw the development of detailed academy plans, coordinated staff development and teacher collaboration meetings, and championed the academy within the school, district and wider community. He also helped develop information technology standards and curricula, provided extensive academic and career-related support to individual students, and maintained a monitoring system to track student participation and achievements.

Informed School Leadership

School administrators attended workshops and worked hard to understand the best ways to support small learning communities.

ATA-Specific and Frequent Professional Development

The program held a summer institute and monthly professional development sessions. The director brought in experts, including national experts, to provide training in areas most useful for meeting ATA goals.

Strategic and Pragmatic Focus

After accepting that scheduling problems would hamper the academy's ability to provide students with an integrated, career-themed curriculum, ATA faculty and school leadership chose to focus on three goals in 2002-03. The narrowed focus allowed the academy to do a small set of things very well and to plan strategies for widening its focus the following year.

Constraints

Master Schedule

The master schedule forced students to choose between enrollment in the ATA and electives attractive to honors students. This resulted in an ATA student body that over-represented lower performing students. The master schedule also assigned ATA teachers to non-ATA classes, preventing most from sharing a core group of students.

Course Scheduling and ATA Enrollment

School counselors enrolled many ATA students in non-ATA classes and enrolled non-ATA students in ATA classes. Results included:

- The ATA curriculum could not be delivered completely and consistently.
- Teachers could not collaborate to develop and deliver interdisciplinary lessons.
- The ATA did not have a separate and distinctive identity within the school.
- Students did not develop an overarching sense of community.

Absence of Bilingual and Special Education Staff

Bilingual and special education resource teachers refused to participate in the ATA and never met with ATA teachers to support ATA students. This may have prevented bilingual and special education students from enrolling in the ATA.

School-Wide Professional Development

The school held mandated school-wide professional development activities in the weekly time slot that the ATA had planned to use for faculty meetings. This interfered with teachers' ability to plan interdisciplinary lessons and develop information technology standards.

Conclusions

Albuquerque High School's Advanced Technology Academy implemented key components of the career academy model during 2001-02 and 2002-03, and achieved notable improvements in students' career awareness, career focus and intentions to pursue post-secondary education.

Evaluation findings suggest that the 2002-03 ATA increased the number of students who:

- Participated in classroom and extracurricular activities;
- Understood their educational and post-graduation options;
- Had career focus;
- Enrolled concurrently in college classes;
- Intended to graduate; and
- Planned to attend college or other post-secondary educational programs.

Some of the ATA's most striking achievements in 2002-03 were:

- Eight percent (14) of ATA students enrolled in concurrent college classes, compared to 0.7% (11) of non-ATA students.
- The proportion of students saying they knew about technology jobs "very well" or "pretty well" more than doubled, from 31 students at the beginning of the year to 70 at the end of the year.
- The proportion of students saying they knew "very well" which career they wished to pursue increased from 26% before joining the ATA to 42% by the end of the school year.

The ATA's outcomes were sizeable despite the fact that fewer than half of ATA students participated in core school-to-career activities. Keys to the academy's successes were strong program leadership, supportive and informed school leadership, paid faculty collaboration time, ATA-specific professional development, and a strategic and pragmatic program focus.

This evaluation also found that the 2002-03 academy was narrower in implementation than the 2001-02 academy. It provided a strong school-to-career focus but lacked key elements of a small learning community. The most important SLC features missing from the 2002-03 academy were teaming and separateness from the larger school. Students did not have a consistent team of ATA teachers or a set of classes they all shared in common. ATA classes had non-ATA students. Teachers were therefore unable to deliver ATA-specific curricula and interdisciplinary lessons. They also were limited in their ability to conduct core ATA program activities, such as personal growth plans, advising and tutoring.

Research suggests that SLC structures such as exclusive student and teacher teams are key to providing students with integrated curricula, a personalized education and a web of social support. These strategies, in turn, are associated with increased student engagement, greater school attachment, and reduced dropout.

In order for AHS to add these outcomes to its list of ATA achievements, it will need to reestablish key SLC components, such as student and teacher teams, and implement the ATA program in a consistent form for multiple years in a row.

Recommendations

RDA recommends the following considerations to strengthen the ATA and its impact on students:

1. Reestablish key SLC structures, such as student and teacher teams.

By increasing the separateness of ATA classes and students from the rest of the school, teachers will be able to provide students with a more powerful web of academic and social support. Without changes, the ATA will function more as a career *pathway* than a small learning community or career academy.

2. Provide teachers with exclusive enrollments of ATA students.

Confining ATA class enrollments to ATA students would:

- Allow teachers to deliver an ATA-specific curriculum more completely and consistently (permitting, for example, greater integration of computers and interdisciplinary activities into classroom instruction); and
- Give teachers a common “team” of students to teach and support.

3. Schedule all ATA students into a core set of academy classes.

Giving all ATA students a complete core set of academy classes, with ATA teachers, would allow all students to fully experience the ATA curriculum. It also would facilitate students’ participation in school-to-career, advisory & Personal Growth Plan activities.

4. Maintain paid time for teachers to meet, collaborate and participate in academy-specific professional development.

The ATA’s regular faculty meetings and professional development sessions were critical opportunities for teachers to share information, learn from each other and collaborate in supporting students and achieving program goals.

5. Re-establish scheduled opportunities for teachers to conduct advisory activities with students.

Giving ATA students and teachers regularly scheduled opportunities to meet, as provided in 2001-02, would allow more students to receive guidance and academic support, and to receive those services consistently.

6. Involve staff in setting measurable objectives for the program and their own activity.

Engaging staff in the process of defining program objectives and monitoring progress could help the ATA achieve its goals. Staff could help set measurable objectives for the program (such as: “At least 40 sophomores (25%) will take the Accuplacer exam this year.”) and for their own activity (such as: “Each teacher will meet individually with 10 students to encourage their participation in Accuplacer.”).

7. Implement the ATA program in a consistent form for multiple years in a row.

Consistent implementation will allow the ATA to perfect its practices and build upon short-term gains to achieve longer-term outcomes.

Appendix A. ATA Fidelity to SLC & Career Academy Models and 2002-2003 Program Plan.

SLC & Career Academy Model Components		ATA Program Plan 2002-2003	Actual Implementation	Implementation Level
Distinctive Identity	Physical separateness	No physical boundaries or contiguous space	No physical boundaries or contiguous space	0
	Exclusive assignment of students & teachers	The ATA will have a clear group of students, pre-registered and in ATA classes. <i>All</i> ATA students and <i>only</i> ATA students will be enrolled in ATA classes.	Students not scheduled to preserve program separateness. Some teachers only had 13 ATA students. Teachers shared very few students in common.	LOW
	Majority of student's day is SLC-related	ATA students will be in all ATA core classes.	Varied by student (2 to 4 ATA classes per student)	MEDIUM
	Distinctive thematic or curricular focus	Focus on Information Technology and Advanced Manufacturing	IT and AM classes, worksite tours, job shadows, presentations, etc.	HIGH
Choice & Inclusiveness	Self-selection of teachers & students	Students & teachers will choose to be in the ATA out of genuine interest.	Counselors placed many students into the ATA without systematically assuring interest.	LOW
	Academy population and classes mirror the demographics of the overall school population.	ATA students will reflect the full spectrum of students in terms of academic ability, ethnicity, language proficiency, special education status, etc. Differentiated instruction.	ATA enrollment was only 3% advanced level, 18% LEP & 10% Special Education. No bilingual teacher agreed to work in the ATA.	LOW
Personalization & Visibility	Interdisciplinary Teaching Teams & Teacher Collaboration (share groups of students, discuss students, share/review student work)	Teacher Talk meetings will occur weekly after-school & teachers will receive stipends. Teachers will develop integrated curricula during weekly Thursday morning sessions. Student recognition certificates.	Teacher Talk meetings weekly, as scheduled. One of these meetings per month used for PD. Shared student work, discussed students & curriculum. Integrated curricula not developed because mandated school-wide PD took Thursday morning time. Student recognition certificates every 9 weeks.	MEDIUM
	Students share classes throughout the day	Teachers agreed to break students up, partly to discourage "pack" mentality.	On average, ATA students shared no more than 2 classes with each other.	LOW

SLC & Career Academy Model Components		ATA Program Plan 2002-2003	Actual Implementation	Implementation Level
	Teacher-advisories or mentoring	Every ATA teacher will provide academic support to 5 – 30 students, supervise a weekly 55-minute tutoring period & help students develop a Personal Growth Plan (PGP). Assess to Learn (A2L) will be used to diagnose & address individual learning needs.	Weekly tutoring. 1-on-1 guidance counseling by program director. No separate structured time for advising. A2L with program director.	MEDIUM
	Continuity of curriculum, teachers and students over 2-4 years	10 – 12 grade curriculum	10 – 12 grade curriculum	HIGH
Autonomy	SLC has authority to make decisions re space, schedule, curriculum, budget, instruction & personnel.	Administration makes decisions on all matters with consultation from ATA staff and faculty.	Administration made decisions on all matters with consultation from ATA staff and faculty.	0
	SLC-specific staff development & team-building	Summer Institute ATA PD sessions will be held regularly during weekly Thursday morning meetings.	Summer Institute (3 days) Monthly PD during Teacher Talk meeting time. PD tailored to ATA staff needs.	HIGH
School-to Career Activities	College prep & career related curriculum	Min. 25% of students will take Accuplacer. TVI tours TVI concurrent enrollment	33% students took Accuplacer 21% participated in TVI tours 8% enrolled in TVI courses	HIGH
	Applied curriculum with project-based learning	Information Technology standards will be developed collaboratively during common prep periods & technology will be integrated into all ATA classrooms. IT projects with grade & award incentives Portfolios	ATA provided PD on IT integration yet teachers rarely used the media carts. Mandated school-wide PD & other demands on teachers' time distracted from IT standards development & implementation.	MEDIUM
	Partnerships with businesses, employers & higher education	Tutoring by community professionals (goal of 20 tutors).	9 tutors from 6 organizations/depts. served as tutors (fall semester)	MEDIUM
	Work-based activities & events	At least 60 students will do a TVI or Sandia Lab tour At least 100 students (63%) will do a job shadow Focused pathway presentations	59 students participated in Sandia Lab tours alone. 19 (11%) did a job shadow.	MEDIUM

APPENDIX B

Table B-1. Demographics of ATA Survey Respondents, ATA Student Body, and AHS School-Wide Enrollment, in Percents, 2002-2003.

Demographics	ATA Survey (Spring 2003)	ATA Enrollment (40th Day)	AHS Total Enrollment (40th Day)
Ethnicity			
Hispanic	78.0	78.5	66.6
Anglo	8.5	7.4	20.9
Native American	3.7	6.1	5.1
Black	6.1	5.5	4.7
Asian	2.4	1.2	1.5
Other	1.2	1.2	1.1
Sex (% Male)	53.7	57.1	50.6
LEP	21.7	17.6	27.7
Special Ed*	13.3	9.8	16.5
Below 40th Percentile on 2002 Terra Nova	37.8	38.0	NA

*Not including Gifted