New Tech Network

Alumni Perspectives:
Exploring the Impact of New Tech High Schools
on College and Work Readiness

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Abstract

Educational research is increasingly focused on the preparation of high school students for the rigor and demands of college and the work force. While there is convergence around the types of skills students need to be competitive, researchers are emphasizing the need to study the school and classroom conditions that are effectively promoting these skills. This current study examined the experiences of graduates from New Technology High Schools to understand the impact of the model on their postsecondary experiences. An online survey was completed by 33 alumni and in-depth interviews were conducted with 10 graduates representing a span of 10 years since graduating from different New Tech High Schools. Overall, the graduates consistently articulated key aspects of the New Tech model that supported their learning of 21st century skills. The culture of New Tech schools was characterized as reflecting high expectations, developing caring teacher-student relationships, promoting self-directed learning, and incorporating student voice. Several classroom practices were essential to students' learning, such as project-based learning, an inquiry focused instructional approach, and ubiquitous technology. Lastly, key college and work connections, such as internships, dual enrollment, and college going environments, also assisted students with successfully transitioning to college after high school. The alumni consistently reported a range of impacted skill areas, including intrapersonal outcomes, such as self insight and resilience, as well as a range of skills for 21st century success, such as critical thinking, communication, collaboration, and technology skills.

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Introduction

"The New Tech style of teaching and the philosophy they incorporate as a school is a bright herald of light that can really be effective in so many levels for all schools."

- New Tech Alumni

Although the importance of preparing students for college and the workforce is not a new concept, there has been a resurgent focus on ensuring that students graduate from high school with the skills to successfully transfer to postsecondary educational institutions as well as the world of work. Given recent trends of economic instability, it isn't surprising that the Obama administration has articulated a vision that every high school student this year enrolls at a college after high school or pursues at least a year of job training.

As high school reform experts debate the most effective pathways to preparing students for college and work, researchers have relied on various metrics to assess the development of 21st century skills. While some studies have relied on traditional measures such as SAT scores, others have analyzed college going patterns, GPAs, and to some extent, assessments of higher order thinking, communication, and collaboration skills (Conley, 2007). With greater access to data from institutions of higher education, several researchers are also beginning to track college enrollment and retention patterns longitudinally.

However, few programs have examined the impact of school development models on students' lives after high school through ethnographically-informed means. That is, few explorations have been conducted whereby graduates retrospectively reflect on the instructional practices, curriculum, environment and relationships they experienced and the impact these have had at different points in their academic and professional lives.

The focus of the current project, then, was to gain insight into how prepared graduates of New Technology (hereafter referred to as "New Tech" in this report) high schools were for college and work through survey and interview methods. The data collected and the findings from the analysis are intended to provide the organization with learnings to inform program implementation but may also benefit other secondary reform educators with insights into strategies for more effectively preparing students for college and work.

Purpose

The purpose of this study was to examine ways in which implementation of the New Tech model impacted students in their postsecondary experiences. Specifically, the project aimed to investigate the following questions:

- *How has the New Tech model prepared students for the rigor and challenges of college and the work force?*
- *What knowledge, skills, or tools were most valuable to students in navigating college and the work force?*

o *How has the New Tech model impacted goals, career interests, and individual sense of self?*

Methodology

In order to answer the proposed questions, this study relied upon qualitative research methods, in particular survey and interview methods. The data sources, analytic procedures and organization of findings are presented below.

Data Sources

The primary data sources included 1) an online alumni survey developed to determine fundamental New Tech inputs and impacts on students' lives and 2) interviews with selected alumni representing different regions, academic backgrounds, and years since graduation.

- **New Tech Alumni Survey** – An online survey was created to ascertain graduates' 1) individual college and work status, 2) postsecondary histories, 3) impact of key New Tech model components (i.e., project based learning (PBL), 1-1 technology, internships, team work, and dual HS/college enrollment) on meeting the demands of college, and 4) impact of these components on meeting the demands of work.
- **Interviews/Focus Groups** – Ethnographic-informed, in-person interviews were conducted with selected alumni to more thoroughly investigate issues related to the areas delineated above.

The survey was disseminated through principals, staff, and coaches affiliated with New Tech schools which had prior graduating classes. In particular, 10 eligible schools were contacted. Staff were informed that the survey should be distributed to any graduate from their school, including students representing a range of academic levels while in high school. A total of 33 alumni completed the online survey in March-April 2010. These students represented 8 schools, as will be discussed in the Findings section.

In terms of the interviews, nominations were gathered from 4 schools (Napa New Tech HS, Sacramento New Tech HS, Akins New Tech HS and Student Empowerment Academy). The criteria for candidate selection included representation from 1) different gender, ethnic and cultural backgrounds, 2) different academic levels while in high school, and 3) different college and work pursuits.

A total of 25 alumni were contacted for possible participation. Ten graduates were selected based on alignment to the above criteria as well as availability to participate in the study. All interviews were conducted in person, audio and video taped, and lasted approximately 45 to 60 minutes.

Data Analysis

In the Data Analysis phase, all survey multiple choice responses were tallied and descriptive statistics were generated to identify patterns across respondents. Open-ended questions were coded based on concepts and themes. The audio recordings from all interviews were transcribed and coded for thematic patterns around key inputs of the New Tech model and impact areas discussed in the interviews.

Organization of Findings

This report will present findings as organized in the following manner:

- *Research Context:* Current research on 21st century skills is discussed to provide a context for this New Tech alumni study.

- *Survey Analysis*: Results are presented on the demographics, college and employment status, and perceptions of impact among New Tech HS graduates.

- *Interview Analysis*: Results are presented around the New Tech model components most valuable to graduates, including elements of school culture, classroom practice, and college and work connections. Areas of impacted skills are discussed, including a range of higher order, communication, and technology skills as well as adaptability and global awareness.

- *Conclusion*: The survey and interview results are related to the research on college and work readiness in terms of areas of similarities and differences, along with directions for future research.

Research Context

Educational researchers have well documented the low levels of readiness of many young adults for the demands of both college and the workforce. Colleges have lamented the deficiencies of entering students in a range of skill areas, including oral and written communications, critical thinking, and problem solving. Employers have reported similar patterns, in addition to poor professionalism, work ethic, and information technology skills (Rand Corporation, 2004).

Educators report that while 90% of the fastest growing jobs in the U.S. require at least some postsecondary education, about a third of the nation's youth fail to graduate from high school (e.g., Alliance for Education, 2009). Among students of color, the statistics are more distressing. Studies have demonstrated that only 60% of students of color graduate from high school, about one third will enroll in college, and only one in seven will earn a 4-year degree. Moreover, only 17% of college students who are required to take a remedial Reading class will go on to receive their bachelor's degree (see Conley, 2007; Conley, Lombardi, et.al, 2009).

At the same time, there is confluence around the types of skills students need in order to attain 21st century success. Through analysis of college courses and employer job descriptions; interviews with college faculty, economists, and students; and job evaluations of professionals, researchers have identified key areas around college and career success, including core academic knowledge, citizenship knowledge, higher order thinking skills, information technology skills, and life skills (Partnership for 21st Century Skills, 2006).

David Conley's work in developing a more comprehensive framework for 21st century readiness is instrumental in framing this current alumni study. Conley (2007) defines college and career readiness as "the level of preparation a student needs in order to enroll and succeed – without remediation – in a credit-bearing course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program, or in a high-quality certificate program that enables students to enter a career pathway with potential future advancement."

Conley delineates four dimensions of college and work readiness:

- *Key cognitive strategies*, including strategies to learn, understand, retain, use and apply knowledge across disciplines
- *Key content knowledge*, including overarching academic skills in Reading and Writing, as well as subject area knowledge and skills in English, Math, Science, Social Sciences, World Languages, and the Arts
- *Academic behaviors*, including metacognitive processes of self-awareness, self-monitoring, and self-control in addition to study skills
- *Contextual and awareness skills*, including understanding of the context of college such as knowledge of entrance requirements and processes, norms and values for interacting in college, and coping skills to negotiate these unfamiliar contexts

This research provided the framework by which to analyze high schools' roles in facilitating the development of skills for the 21st century (Darling-Hammond & Friedlaender, 2008). Findings from the New Tech alumni survey and interviews will be presented in the next section followed by an analysis of the impact the New Tech model appeared to be having in relation to the aforementioned college and work readiness dimensions described.

Alumni Survey Findings

In order to gain insights into the impact the New Tech model has had on students' lives after high school, an alumni survey was developed around 3 areas: impact on college readiness, work readiness, and academic and professional goals.

As delineated in the Methodology section, a total of 33 alumni completed the survey.   The characteristics of the survey respondents reflect a diverse sampling. Overall, most (64%) were recent high school graduates (18-20 years of age), though more than a third were between 21-30 years old. A total of 55% self identified as White, with an additional 21% as Latino, 12% Asian, and 6% African American. This distribution is somewhat different from the current profile of students across the network (39% White, 28% African American, 27% Latino, 3% Asian). Lastly, a little over a third of the respondents were graduates from Anderson New Tech HS (36%), followed by Sacramento New Tech HS (27%), and Akins New Tech HS and Student Empowerment Academy (9% each).

Given these patterns and the small number of respondents, generalizations of these findings should be made cautiously. The data are intended to provide initial insights into the New Tech model and point to future areas for research.

In terms of academic pursuits, a total of 31 of the 33 respondents (94%) indicated having attended college or a training program after high school. Most (26 of 31, or 84%) enrolled immediately after graduating from high school.

The college majors and certificate areas pursued by survey respondents currently enrolled in college varied. The most common areas were in the Behavioral and Social Sciences (including American Culture, Internal Studies, Government, History and Psychology); Engineering (Chemical, Computer and Mechanical Engineering) and Physical and Biological Sciences (Biology, Environmental Science, Exercise Science) (see Table 1). Among these students, many were enrolled in a 4-year university (14 of 29, or 48%), while 21% attended a 2-year college (6 of 29) and 31% attended a training program (9 of 29).

Table 1:
College Majors/Training Areas Pursued by Survey Respondents

Behavioral & Social Sciences (incl American Studies, Government, History, Psych)	7	28%
Engineering (incl Chemical, Computer, Mechanical Eng)	3	12%
Science (incl Biology, Environmental, Exercise Sci)	3	12%
Computer Information Technology	2	8%
Business	2	8%
Art (incl Art History, Visual Arts)	2	8%
Certificates (incl technology, medical billing)	2	8%
Mass Communication	1	4%
Social work	1	4%

Among the seven respondents who have completed their postsecondary education or training, their field of study included Computer Science, Business, Graphic Design, Technology and Applied Science, Software Engineer, and Medical Assistance.

In terms of work status, just over half (52%) of the respondents (17 of 33) were employed. Most, 11 of 17 or 65%, were working full-time, while 6 of 17 (35%) were employed part time. Their positions varied with several in managerial or supervisory roles or service delivery positions (see Table 2).

Table 2:
Employment Positions of Survey Respondents

Manager/Supervisor	5	29%
Service delivery (catering, home repair, nanny)	3	18%
Computer programmer/software engineer	2	12%
Clerical	2	12%
Own business	1	6%
Production artist	1	6%
Sales	1	6%
Medical assistant	1	6%
Operations	1	6%

Impact on College and Work Readiness

Alumni were asked how valuable different components of the New Tech model were in terms of helping them to meet the demands of college. Overall, the majority of respondents indicated each component of the model was "extremely valuable" or "valuable" (see Figure 1). Most notably, a total of 97% of the alumni said that access to technology at their New Tech school was extremely valuable (75%) or valuable (22%) to them in college. Moreover, 88% said working in groups was extremely valuable (69%) or valuable (19%), while 85% said taking college level courses while at New Tech was extremely valuable (63%) or valuable (22%).

In terms of skill areas, the overwhelming majority of students also said the New Tech focus on critical thinking, written communication skills, and oral communications skills were all valuable to them. Specifically, 97% said that New Tech's critical thinking focus was extremely valuable (53%) or valuable (44%) to them in meeting the demands of college, as did 93% for oral communication skills (59% extremely valuable, 34% valuable). The rate for written communication skills was somewhat lower (88%), but still 41% indicated it was extremely valuable and 47% said valuable (see Figure 1).
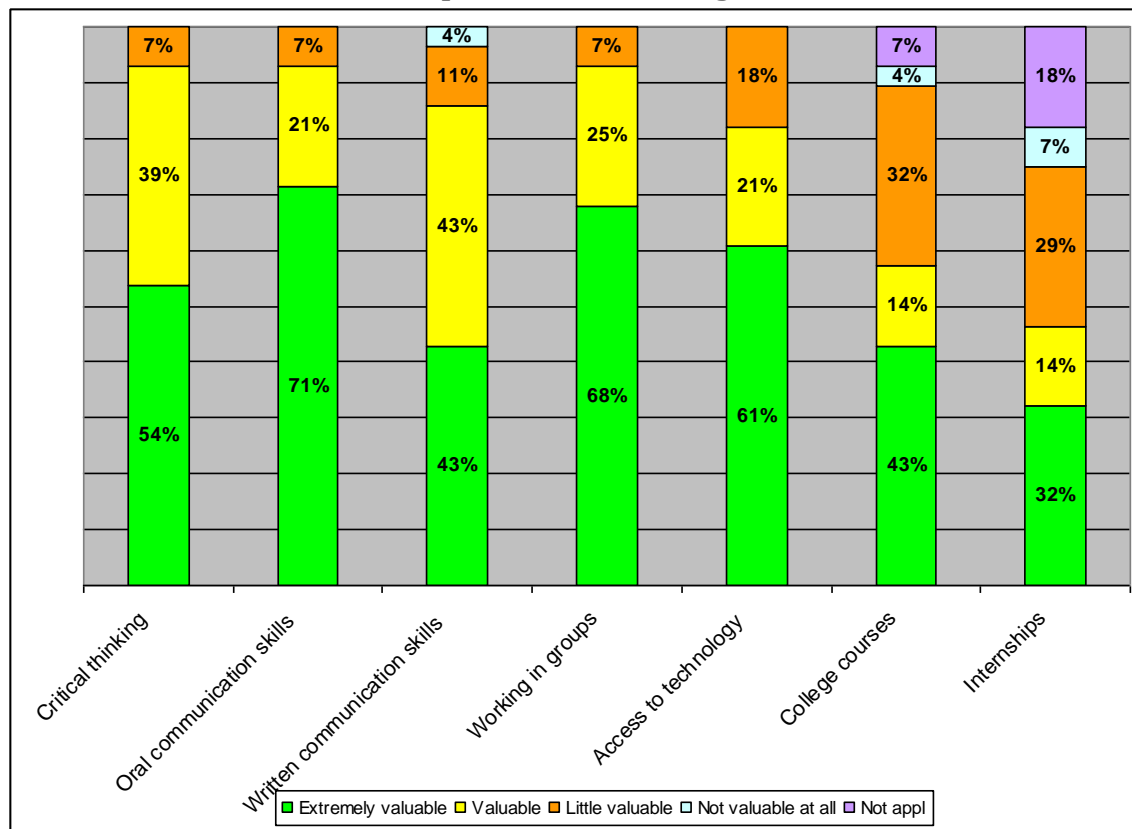
Figure 1:
New Tech Alumni Survey
Value of New Tech Model Components on Meeting College Demands
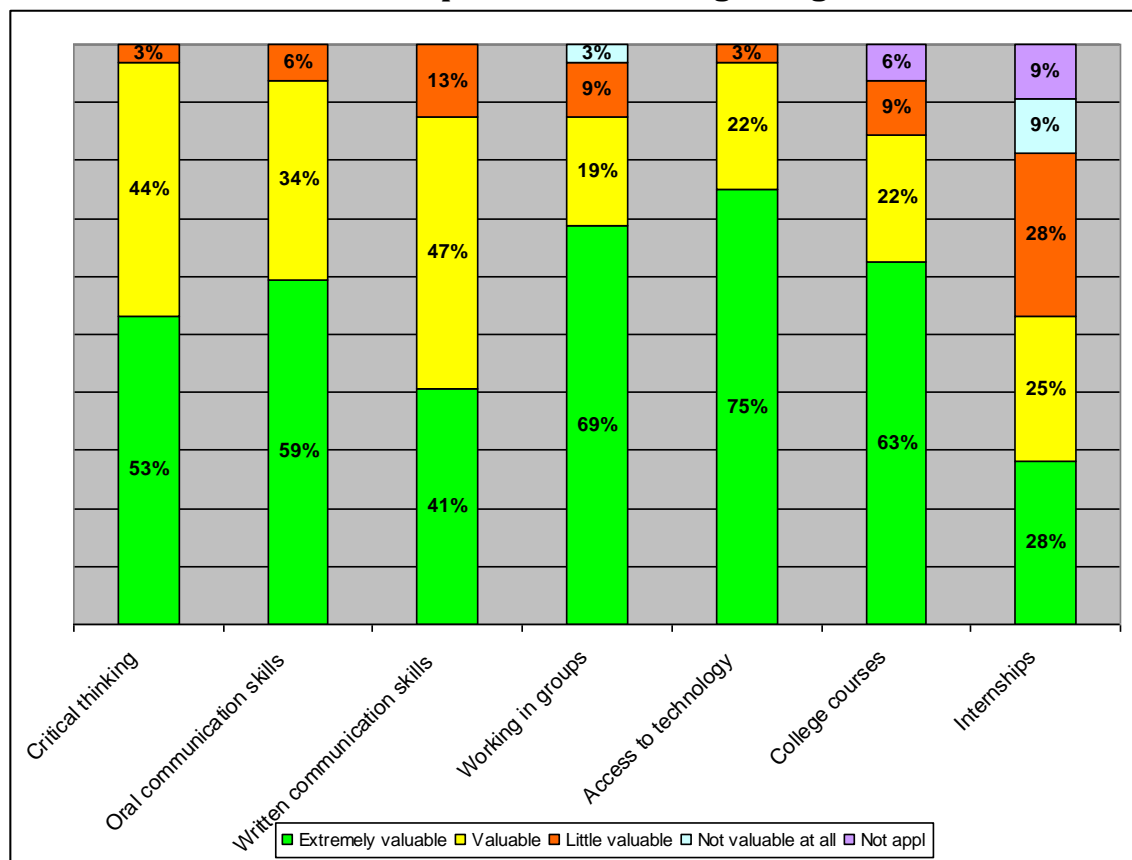
In terms of the value of New Tech model components in meeting the challenges of the work place, both similar and different patterns were exhibited (see Figure 2). The majority of alumni said the different New Tech components all helped them meet demands at work. The areas students felt were "extremely valuable" tended to be oral communication skills (71%), working in groups (68%), and access to technology (61%).

Comparatively, a higher percentage of students noted a few areas as being of "little value" in impacting their work readiness. As mentioned above, alumni did indicate that dual enrollment in college courses while in HS prepared them for college, though 36% said these courses were of "little" or "no value" in preparing them for work. While these connections may not be too surprising, it was unexpected that 36% said internships were of little or no value in preparing them for work.

Figure 2:
New Tech Alumni Survey
**Value of New Tech Model Components on Meeting Work Demands**

Alumni were asked to reflect on their perceived level of preparedness for specific requirements and expectations upon entering college (Figure 3). The majority of graduates said they were either "extremely prepared" or "prepared" across subject areas, college course formats, and learning processes.

A total of 84% said they were extremely prepared to use technology and to work collaboratively in college. In addition, 81% indicated a similar level of preparation to work with diverse groups of people, while 63% said they were prepared for being an independent learner in college.

In slight contrast, the preparation levels across content areas was also high, but not at the same levels as noted above. While 100% of the students said they were "well prepared" or "prepared" for their college English courses, only 41% said they were extremely prepared. In Math and Science, more students said they were under prepared. Specifically, 34% said they were only "a little prepared" or "not prepared at all" for their Math courses, as did 17% for their Science courses.

Figure 3:
New Tech Alumni Survey
Level of Preparedness Upon Entering College
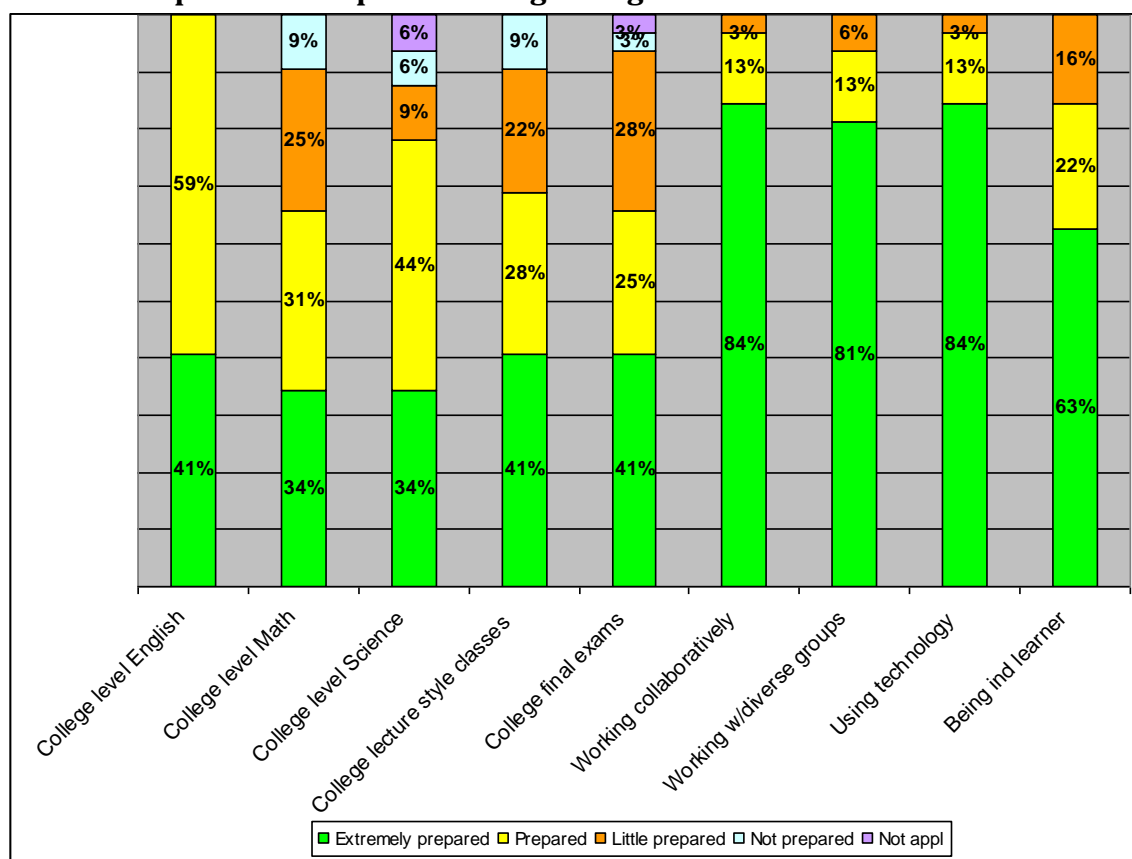
New Tech Model Impacts

Several open ended questions were posed on the Alumni Survey to provide students with an opportunity to comment on their high school experiences as they related to impacting their college and work experiences. Specifically, graduates described their development of

skills in critical thinking, communication, collaboration, technology, and global awareness, as described below:

Critical Thinking Skills - Projects were described as "rigorous" with "high standards" that pushed students to conduct research, think critically about multiple perspectives, connect learning across subject areas, and analyze different sources of information.

Communication Skills – Several students described how they developed vital oral communication skills in high school. Through classroom presentations and leadership opportunities, they cultivated strong public speaking abilities. They also gained the confidence and comfort level to communicate in a variety of situations with different audiences.

Collaboration Skills – Graduates said one of the most invaluable skills they acquired was learning how to work with others. They learned not only how to work with students from diverse backgrounds, personalities and work styles, but also to identify individual strengths and weaknesses.

Technology skills: Several graduates commented on entering college with proficiency in a variety of applications as well as being adept in using technology to conduct research. For some students, the focus on technology was also instrumental in developing related career interests.

Global Awareness: Alumni described their HS teachers' instructional styles as promoting global awareness and through supportive relationships. Several graduates characterized New Tech as an environment that exposed them to many different cultures and perspectives that they might not otherwise have encountered. This passion for learning extended beyond high school for many and influenced their personal and professional pursuits.

Self Directed Learning: For many alumni, New Tech teachers were also characterized as explicitly focused on fostering self directed learning. That is, graduates talked about structures for conducting independent research, expectations for managing their time, and the freedom to be creative in assignments and projects.

Goals for the Future: The survey respondents articulated a range of career interests related to science, technology, engineering and mathematics (STEM), social services, environmentalism, and entrepreneurship. Many credited their teachers with both instilling a sense of confidence to pursue postsecondary educational options, and the perseverance to face challenges in college and work. Several also said the exposure they received in high school directly shaped the fields they're currently pursuing. Through projects and internships, many alumni discovered their passion which established the foundation for their college, work and personal goals.

These categories strongly aligned to the impact areas the interviewed graduates articulated.   Detailed findings related to these areas are presented in the alumni interview section.

Areas for Improvement

When asked if they had to experience high school all over again, virtually all of the respondents emphatically said they would return to a New Tech high school. Citing the skills they acquired, the supportive relationships they developed, and the exposure to diverse people, cultures, and careers, alumni said New Tech has well prepared them for college and work.

Still, it should be noted that some respondents did identify areas for improvement within the New Tech model which they felt needed to be addressed. Specifically, some students expressed concerns around 3 areas: 1) the math instruction they received, 2) the need for more attention to written communication skills, and 3) transition issues upon entering college.

For example, a few students noted aspects of PBL in their HS math courses:

> *"I don't know how things have changed since I left NT, but mixing math with projects has always seemed difficult. I felt left behind when I got to my college level math courses (though to be honest, math was never my string point and I never tried very hard with that in high school)."*

Another student echoed a concern about her/his math courses as well as transition issues encountered upon entering college:

> *"Although I believe that New Tech did help me to become a better student, I also believe that I did not learn my mathematics in an effective manner. It has been difficult for me to adapt to a non-technology based learning curriculum."*

New Tech Alumni Interviews

Interviews were conducted with New Tech graduates to further explore the patterns and themes that emerged from the administered survey. Specifically, 10 alumni were interviewed who represented four New Tech schools (Napa New Tech HS, Sacramento New Tech HS, Student Empowerment Academy, and Akins New Tech HS) and graduated from their respective high schools over a 10-year span from 1999 to 2009. The alumni were asked about the level of value of the New Tech model and the ways different components have impacted their college and work experiences. The following sections summarize the findings that emerged around inputs and impacts.

Key New Tech Model Components

New Tech alumni conveyed a consistent model of the mechanisms by which their New Tech schools positively impacted their readiness for college and work. Specifically, the graduates' reports of their experiences at New Tech, and the elements of that experience that they perceived as persistently valuable, demonstrate how the school culture and classroom experience reinforce and reflect each other. This indicates a strong congruence between the messages that students were given about their education, and the day-to-day practices that shaped their experiences.

Figure 4 below illustrates the aspects of New Tech schools that students found most valuable – including elements of school culture, classroom practices and structures for college and work connections – and the array of skill areas positively impacted.
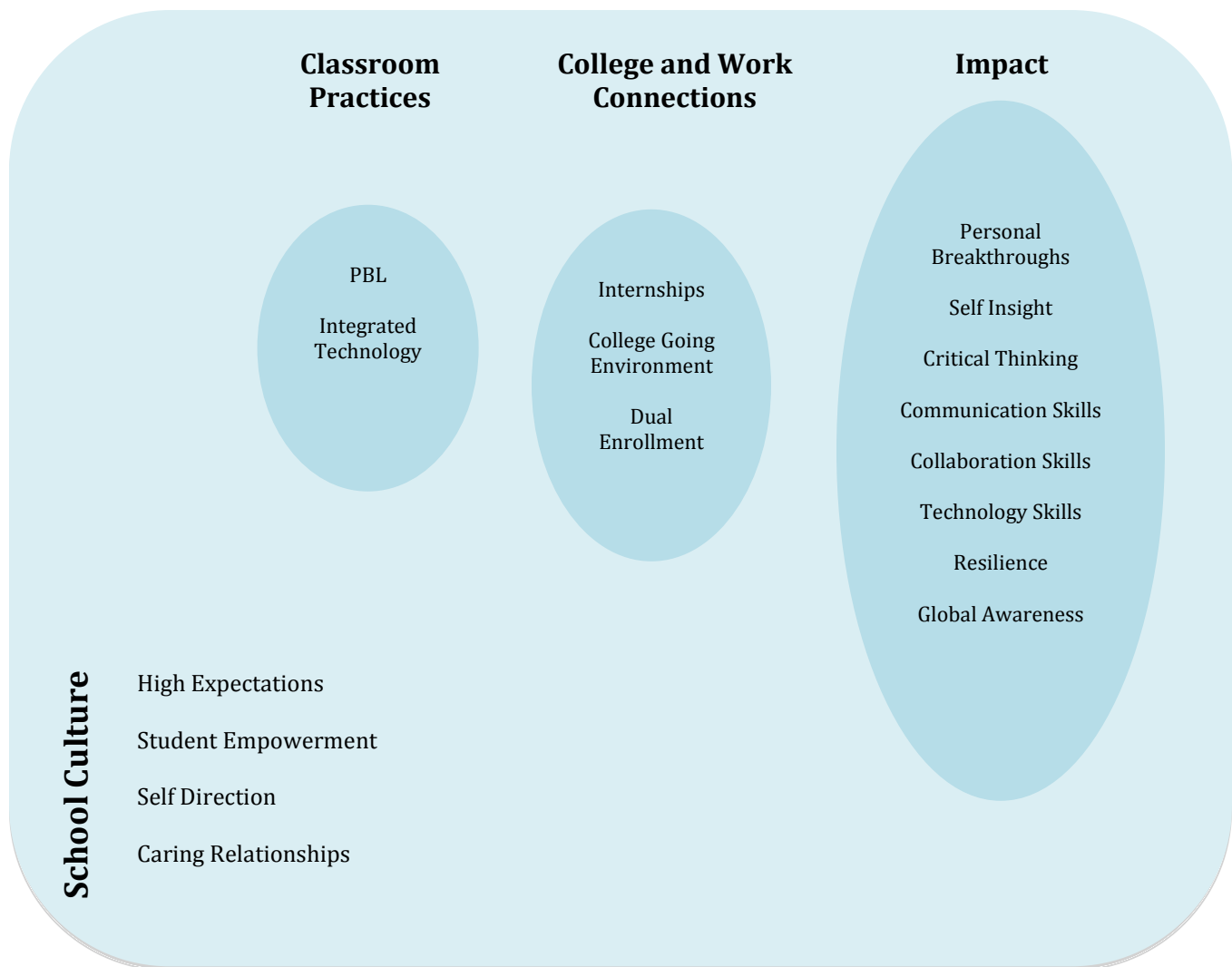
School Culture
This section discusses the dimensions of NT school culture the alumni addressed, that is, high expectations, student empowerment, self direction, and caring relationships. The culture of New Tech high schools was consistently described by interviewees as communities that emphasized high expectations, self direction, student voice, and caring relationships.

High Expectations
The teachers and staff across New Tech schools maintained high academic and personal expectations for students. In addition to rigorous projects and standards-based assignments, the alumni discussed expectations to explore new areas, conduct extensive research and use a range of critical thinking skills.

New Tech alumni said they were not only held to high academic expectations, but also to constantly "push to better ourselves", that teachers "never gave us the easy way out," and "encouraged us to be leaders."

Figure 4:
New Tech Inputs and Impact Areas

Classroom Practices
- PBL
- Integrated Technology

College and Work Connections
- Internships
- College Going Environment
- Dual Enrollment

Impact
- Personal Breakthroughs
- Self Insight
- Critical Thinking
- Communication Skills
- Collaboration Skills
- Technology Skills
- Resilience
- Global Awareness

School Culture
- High Expectations
- Student Empowerment
- Self Direction
- Caring Relationships

Student Empowerment

Another important aspect of New Tech's school culture was student empowerment. The alumni talked about multiple ways in which they informed school policies and activities and were engaged by staff when challenges arose in the school.

> *"So we really had an influence on what we wanted in a school. The school really shaped itself to fit the students that it was housing and it was really great because I felt like my voice was always heard."*

Self Direction

The alumni consistently reported that New Tech, while providing intensive supports, also expected students to be independent and self directed in relation to their own learning.

They described themselves as "maturing," "learning for myself," and being "active listeners" in order to meet the schools' expectations.

Caring Relationships
Overwhelmingly, students consistently referenced the positive teacher-student relationships at their New Tech schools as being of tremendous value in shaping their high school experiences. New Tech teachers were continual sources of academic and personal support, often beyond high school and into college. At the same time, many graduates said they felt comfortable seeking out assistance from any adult in their high school, including other teachers, the administrators, and staff members. They felt personally known, cared about, and supported in a myriad of ways:

> *"Definitely, my experience at New Tech was very memorable because I had such close relationships with a lot of my teachers. And they really helped me through college. My teachers were really all there for me and they were really the ones who helped me."*

Classroom Practices
In addition to the contextual factors described, the alumni pointed to several classroom practices that were impactful. Challenging, meaningful project-based learning, inquiry driven instruction, and technology were most often cited as key to developing a range of skill sets.

Project-Based Learning
Project-based learning at New Tech schools integrated team work, communication skills, and technology around real world issues. Each alumnus was able to readily discuss memorable projects they worked on, which typically involved extensive collaboration, research skills, and class presentations.

> *"At New Tech, we couldn't get around being professional and working in teams and holding up your end of the project. We were graded by peers and we had to give presentations. You had to speak, you had to get that (nervousness) out of your system. You had to learn how to be a professional speaker and it really helped…me when I was in the workplace."*

Several graduates noted the congruence of PBL and their own learning styles. Having attended a large comprehensive high school before a New Tech site, many interviewees drew comparisons and noted how PBL in particular gave them structures to demonstrate their knowledge and skills.

> *"I feel the academics of Tech High prepared me better than a traditional high school would have, simply based on my learning style…I fail miserably at the thought of testing. I don't learn well out of books. I don't learn well when people are dictating to me. Tech High, in general, and their project-based learning style, really worked well with how I am as a student because I am very tactile. I'm a kinesthetic learner. I learn*

with my hands. I learn by doing. And Tech High was the perfect place to do that - I excelled. "

Embedded across classroom projects, activities, and assignments was a consistent inquiry focus.   For example, some of the alumni said their teachers were explicitly focused on teaching beyond preparation for state tests, but instead were developing a sense of curiosity, question driven perspectives, and strong research skills in the classroom. As one student described:

"One of the most defining moments here at New Tech was when we had to be attorneys. And it's really interesting to bring everything going on in our world, especially in our government, and be able to sit back and question authority and the decisions authority figures made…"

Integrated Technology
One-to-one access to computers, where teachers deploy a variety of applications as part of classroom practice, was often cited as an extremely important aspect of the New Tech experience.

Graduates said they gained important exposure to technology at New Tech while also gaining proficiency in specific programs, and using technology to access information, research, and other resources to support their learning.

"My experience with technology was amazing… They didn't always make us use a computer, but they helped us understand what it can do for us, how we can use it.

College and Work Connections
While the classroom practices described were of critical importance to the interviewed alumni, the college and work connections created at New Tech schools were also significant elements towards preparing students for life after high school. In particular, internships, a college going environment in high school, and dual enrollment in college courses afforded valuable opportunities to learn about career options and college requirements.

Internships
Although not all of the interviewed alumni completed an internship at New Tech, those who did said it assisted them with identifying careers they wanted to explore and ultimately pursue.   Internships were often structured to provide exposure to related fields, in addition to insightful shadowing opportunities, as noted below:

"I was lucky because I found out that I love design when I was at New Tech High. I got an internship with this place called NetFlow in Napa. It was required that we had an internship in order to graduate and luckily I had a great boss who helped me foster my creativity… After that, I went to college and chose to go into computer science, and then I switched into Graphic Communication. I got my degree in Electronic Publishing."

Dual Enrollment

Because students were required to enroll in college level courses while in high school, the New Tech alumni were at a distinct advantage over their peers upon entering college. Many had completed several General Education college course requirements by the time they graduated from high school and were already familiar with the formats and requirements of college classes.

College Going Environment

The alumni consistently reported that they benefited from the college going environment in their high schools, which typically included early exposure to college entrance requirements, college visits, support with application forms, and guidance on selecting a college.

Impact of New Tech

There was a range of skill areas the graduates reportedly developed due in large to their experiences at New Tech high schools. The particular outcome area can be grouped into 2 primary areas – 1) intrapersonal impacts of personal breakthroughs, self insight, and resiliency, and 2) skill areas around critical thinking, communication, collaboration, technology, and global awareness.

Personal Breakthroughs

For many students, descriptions of their time at NT included an example in which they faced and conquered a personal challenge, that is, lack of confidence or fear of public speaking. Such experiences yielded multiple values for students, such as confidence from overcoming a personal barrier, development of new skills or habits of mind, or learning a model for positive future behavior changes.

Self Insight

New Tech graduates seemed to develop important metacognitive insights around their own strengths and weaknesses. Several stated that working on projects in a PBL environment helped them gain awareness of their own skills, learning styles, and preferred modes of working as they took on different roles and responsibilities within assignments.

Global Awareness

Graduates were encouraged to understand the wider world, and appreciate global issues and impacts. This gave them a connection to the world that may go well beyond their previous experiences. Several alumni conveyed a sense of larger societal and global perspectives and a sense of agency in their ability to impact the world.

> *"There was this one major project that I just loved… We were separated into groups into different countries around the world and we had to come up with a plan to unite them, bring peace. My hardest part was that we were the PLO. We didn't actually have a country, but we have to make it seem like we have a country, with Israel. And*

with that, I think it helped us to just learn about the world and learn about our generation and what's actually happening and what we can contribute…."

Resilience

The graduates reflected a sense of flexibility, adaptability and resilience in describing the ways in which they've met the challenges of college. For many of them, they were the first in their family to attend college and had to learn first hand about navigating through complex higher education rules and norms. They talked about effectively adapting to large college campuses, proactively meeting with professors and pursuing other learning supports, and reframing difficulties into personal challenges.

Critical Thinking Skills

Several graduates reported that the inquiry focus of PBL propelled them in cultivating higher order thinking abilities, including strong analytic and problem solving skills. They were often presented with challenges or problems to investigate and were typically involved in conducting research, weighing evidence, constructing arguments, and defending their positions. These were all noted as essential skills the alumni drew upon in succeeding in their college courses.

Communication Skills

Most alumni talked about New Tech's impact on the development of their oral communication skills. Due to the number of presentations they had to complete, most said they overcame any fear of speaking early on. They further developed their speaking skills through leadership opportunities, such as participating in student government, serving as tour guides for their school, and organizing various campus activities. For some of the interviewees who were English Language Learners, they noted that New Tech's focus on oral communication skills accelerated their acquisition of English.

Collaboration Skills

Graduates acquired important collaboration skills, including effective ways to work with peers as well as adults, how to identify strengths and weaknesses in others, and how to effectively manage others. Several explained that these skills in particular have been critical in their role as managers and supervisors in the work place, in addition to forming study groups, lab partners, and project teams in college.

> *"The most valuable thing for me at Tech has to be the collaboration that I got with my students and teachers. It wasn't a level thing where the teachers were higher than us and the students were just kind of hanging out with our noses in the books. It was a business environment versus a high school environment… And it really, I think, made the biggest difference in my life because it taught me how to interact with adults. It taught me how to interact with my peers."*

Technology Skills

The embedded nature of technology across New Tech classrooms developed both a high level of familiarity and comfort with technology and an understanding of how to use

technology to support their learning. The alumni reported being at an advantage over their peers in college having already developed skills in a range of applications (e.g., Power Point, Excel, Photoshop, etc.).

Conclusions

Collectively, New Tech's pervasive school culture, classroom instructional practices, and college going environment were all viewed as essential aspects of these alumni's high school educational experiences. There was tremendous consistency across the alumni's views irrespective of the individual school, region, or length of time since graduation.

The impact of the NT model, then, directly aligns to development within the four dimensions of college and career readiness that David Conley (2007) articulates and that education reform support organizations are similarly focused upon (e.g., Hewlett Foundation's *Deeper Learning* strategy, Council of Chief State School Officer's *Next Generation Learning* initiative). In terms of cognitive strategies, New Tech alumni said they developed critical thinking and problem solving skills across content areas due to the PBL focus in their high schools classes. They also reported development of other cognitive strategies that have impacted their college performance, such as creativity, evaluation, and perspective taking abilities.

New Tech graduates also reported being prepared academically for college level courses. Most said they were not only prepared for the format and requirements, but also the rigor. Still, it should be noted that some students felt under prepared in Math, and to some extent, with their written communication skills.

In terms of academic behaviors, self direction was a strength many developed. Although college freshmen often need a period of adjustment upon entering college, New Tech students were able to adjust quickly to the new demands through their abilities to determine and set goals for themselves, manage their time and study patterns, and to proactively ask questions and seek assistance from their professors.

Finally, New Tech schools seem to well prepare students for the world of college, providing them with support around requirements, applications, and selection of majors. In addition to learning about college norms through dual enrollments, most of the graduates seemed to have the confidence, resilience, and social skills to navigate the challenges of being on a college campus. Several New Tech teachers continued to serve in a support role even when their students were attending college. Nonetheless, some of the challenges the alumni did report were largely around limited financial resources, difficulties in selected impacted classes, and adjusting to learning environments with less integrated collaboration and technology.

New Tech Network Alumni Interviewees

Rola Abduljabar
Sacramento New Tech HS, Class of 2006
Student, University of California at Berkeley
"Because I am going to med school, you have to have a lot of things on your resume that are social, professional clubs, internships...So definitely New Tech really prepared me to go out and be competitive. When I graduate in a month, I am going to have a really full resume compared to other students."
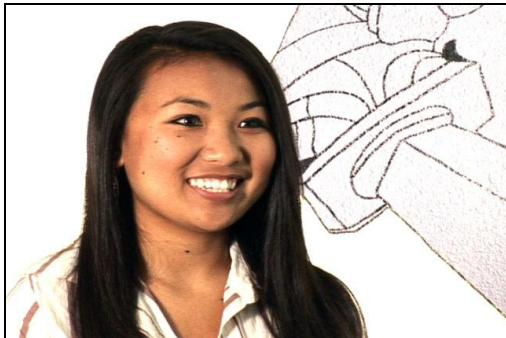
Stephanie Chu
Napa New Tech HS, Class of 1999
Web Designer for Revision3.
"I found out that I love design when I was at New Tech. We had our multi-media class where we learned PhotoShop, and I got an internship…with a great boss who helped me foster my creativity."

Tenzin Dickyi
Akins New Tech HS, Class of 2009
Student, University of Texas at Austin
"Since I (grew up in India), I don't know exactly perfect grammar. Here, it helped me out speaking with adults better and having a better vocabulary. When I have to speak to my professors or my TAs and ask for help the proper way, (I communicate) what I actually need…"

Guillermo Gonzales
Student Empowerment Academy, Class of 2009
Student, Los Angeles Trade Technical College
"Once I transfer, I hope to study chemical engineering. There are several job opportunities, not only here but also different areas, so it may give me a chance to travel, to leave my hometown for while helping my community with things such as finding fossil fuel, perhaps finding ideas for CO_2 usage."
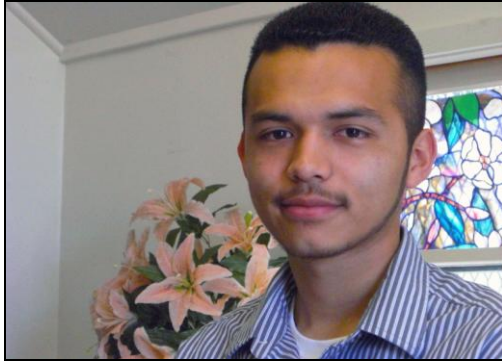
Jeffrey Hernandez
Student Empowerment Academy, Class of 2009
Student, University of California, Riverside
"New Tech did help me with my leadership skills. (The teachers) want the students to get better, they push them. They make them do extra learning hours, extra things around the school so you get really involved. They helped me talk in front of people and just build that confidence within me."

Mary Ann Munoz
Akins New Tech HS, Class of 2009
Student, University of Texas at Austin
"My goals for the future would be to become an occupational therapist. At New Tech, I was exposed to the medical field...I want to help mothers, soldiers, etc. rehabilitate themselves."

Katie Ridgeway
Akins New Tech HS, Class of 2009
Student, Austin Community College
"When most of us started here, we were so used to being like 'Here's your book, here's your information, go pass the (state) test." But here at New Tech, its like, 'This is what you need to know... how you're going to use it in the real world, here's what you're going to need for college and life after college.' "

Omar Salem
Napa New Tech HS, Class of 2004
Police Officer with the Napa Police Department
"At New Tech, project-based learning was very, very important to learn how to work in groups. You do that in the real world. In my profession, everything is a project... No one does anything by themselves. Just to learn and work with other people and how to accept their weaknesses and strengths (was valuable)."

Narcisa Sanchez
Student Empowerment Academy, Class of 2009
Student, East Los Angeles Community College
"For me, I am the first one to graduate high school, go to college, get a degree and mostly make my family proud because all my cousins, family didn't graduate. They graduated from middle school, but not high school or getting their Bachelors."

Alison Tuthill
Napa New Tech HS, Class of 2002
Product Artist for Walmart.com. Graduated from the Art Institute of San Francisco
"I would definitely go back to Tech if I had to do school again. Tech High saved my scholastic career and it definitely gave me a professional career to look forward to. Without Tech High… I don't know where I would be right now if I didn't go there."

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