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NEW TECH HIGH SCHOOLS: Results of the National Survey of Project Based Learning and High School Reform conducted by the Buck Institute for Education

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In the fall of 2007, the Buck Institute for Education (BIE) conducted a national survey of high school reform and project based learning (PBL). The study included teachers from several major high school reform networks that emphasize PBL as an instructional approach: New Tech High, High Tech High, Edvision Schools, and Envision Schools. It also included a variety of other small high school reform sites and comprehensive high schools that were not formally associated with a particular reform model. These were sites where BIE conducted professional development workshops or that purchased copies of BIE's PBL Handbook.

The survey defined PBL as an approach to instruction that included extended student inquiry into a topic, some degree of student self-direction or choice, and presentation by students of their findings, results or conclusions. Previous reports from this study have shown how frequently PBL is associated with a variety of small school reform objectives including use of inquiry practices, personalization of instruction, community engagement, and student support for peer learning.

The study was limited to teachers in public high schools whose responsibilities included math, science, social studies or English. Out of over 1500 teachers sampled, over 400 teachers responded, representing approximately 35% of those who received the survey. Seventy-one teachers from New Tech schools completed surveys, representing a New Tech-specific response rate of 65%.

The current report presents two sets of results:

- Results comparing teachers in the four small high school reform models – New Tech High, High Tech High, Envision Schools and Edvision Schools – to teachers in the remaining schools in the study. The purpose of this analysis is to highlight how teachers in reform model schools are different from teachers in the other schools.

- Results comparing teachers in New Tech schools to other teachers in the study. The purpose of this analysis is to identify key characteristics of the New Tech model and how it is being implemented.

FINDINGS ABOUT TEACHERS IN REFORM MODEL SCHOOLS

The table that follows shows examples of how teachers in the small high school models differed from others in our study. One column shows the proportion of teachers in reform model schools giving each response. A second column shows the percent of teachers in the other schools in the study who gave the same response. As expected, in reform model schools there was a cadre of professionally engaged teachers who utilized PBL extensively and reported that conditions in their school were designed to support PBL. For example, 63% of teachers in the reform model schools said students spent ¾ or more of their time conducting projects, compared to 14% of teachers in the other schools.

Teachers in reform model schools in general more frequently reported that they…	Criteria	% of Reform Model Teachers	% of Other Teachers
Had taught for only a short period of time	5 or fewer years	47%	29%
Were 30 years old or younger	30 or younger	32%	17%
Were involved in professional activities outside the classroom (e.g., attending conferences, serving on committees, coaching, etc.)	involved 3 or more activities	91%	69%
Had professional development that supported PBL, over the past five years	more than 5 days	81%	34%
Used web-based technologies to support PBL (e.g., to design and manage projects to post work and get feedback, etc.)	have used at least 3 features	71%	33%
In the academic course that used the most PBL…			
Said they taught using PBL ¾ of the time or more….	¾ of the time or more	63%	14%
School structures or policies were in place that included…			
Teaching academic subjects as multi-subject (interdisciplinary) courses, lessons or projects	at least half the time	59%	27%
A school-wide emphasis on problem-based, project-based, or inquiry learning	always	78%	20%
A school-wide emphasis on skills beyond academics (e.g., collaboration, presentation, or other "21st century" skills)	always	74%	24%
School-wide rubrics for assessing student work across different subjects, grades, or courses	always	44%	11%
A grading and reporting system that included students' projects or portfolios	always	65%	16%
Team teaching, teachers of different subjects assigned to the same course or student groups	always	50%	14%
Multi-age groupings of students	always	37%	12%
Block or flexible scheduling allowed extended periods for working on projects or other activities	always	72%	39%
Using online teaching and learning strategies	always	24%	8%
During the previous semester….			
Student peer reviews were used to measure student performance	once or twice/week	23%	7%
Group projects were used to measure student performance	once or twice/week	52%	20%
During the previous semester, most students			
Formed close academic advising or mentoring relationships with a teacher	frequently or all the time	67%	33%
Met individually with teachers to reflect on their progress and receive support	frequently or all the time	53%	24%
Encouraged and supported their peers as learners	frequently or all the time	65%	36%
Made their own decisions about what to learn or how to learn it when conducting projects	frequently or all the time	47%	18%
Demonstrated that they were striving for in-depth knowledge, not just superficial learning	frequently or all the time	50%	25%
Gave their best effort and made the most of opportunities to learn	frequently or all the time	55%	35%
Worked on multidisciplinary projects	once or twice/week	42%	9%
Decided how to present what they had learned	once or twice/week	42%	22%
Participated in community- or work-based projects or internships	once or twice/month	33%	14%
Researched topics deeply enough to become subject matter experts	once or twice/month	54%	27%
Teachers in their school			
Took a major role in shaping the school's norms, values and practices	all the time	50%	13%
Were involved in leadership, setting policies or making important decisions for the school	all the time	45%	14%

All differences are statistically significant, $p < .001$. The margin of error for the study was +/- 4%.

FINDINGS ABOUT TEACHERS IN NEW TECH SCHOOLS

The rest of this report compares New Tech teachers to other teachers our study. These findings highlight characteristics of New Tech teachers that are different from teachers in other schools.

Compared to the other teachers in the study, teachers in New Tech schools more frequently…

- had extensive professional development for using PBL
- increased their use of PBL compared to previous years
- gave reasons for using PBL that included teaching skills beyond academics
- conducted projects that specified content standards, used rubrics to guide student work, and created a need to know for students prior to teaching content
- conducted PBL without being limited by common challenges to PBL, such as lack of time or subject-specific models for conducting projects
- had access to a variety of web-based technologies to support PBL
- said teachers were involved in school decision making and leadership
- said school wide policies or structures were in place that emphasized and supported PBL use, including multi-disciplinary courses and team teaching
- reported that students were involved in a variety of inquiry activities, gave their best effort, and supported their peers as learners
- reported that students were assessed students using open-ended problems, group work, and student peer reviews

In the next table, one column shows the proportion of New Tech teachers giving each response. A second column shows the percent of teachers in the other schools who gave the same response, using the specified criteria. For example, 82% of teachers in New Tech schools said they had more than 5 days of professional development related to PBL use, compared to 45% of other teachers in the study.

Note. All results are statistically significant, $p < .001$. The margin of error for the survey was +/- 4%. No comparison to any single reform model, school, or school type is possible. Findings may vary by teacher or school.

Teachers in New Tech schools more frequently reported that they…	Criteria	% of New Tech Teachers	% of Other Teachers
Had professional development that supported PBL, over the past five years	more than 5 days	82%	45%
Increased their use of PBL compared to previous years	more or much more now	60%	47%
Were prepared to meet state or district standards using PBL	well or very well prepared	74%	63%
Taught academics as multi-subject (interdisciplinary) courses, lessons or projects	Most or all of the time	40%	13%
Also taught computers, media arts, or technology in addition to academics	yes	25%	11%
Assessed student performance using open-ended problems	at least once or twice/week	44%	29%
Assessed student performance using group projects	at least once or twice/week	56%	25%
Assessed student performance using student peer reviews	at least once or twice/month	68%	34%
Taught students from low income households (e.g., eligible for free or reduced lunch)	about half or more	74%	51%
Taught student who were of Hispanic descent	about half or more	32%	18%
In the academic course that used the most PBL, percent of teachers who…			
Said they taught using PBL ¾ of the time or more….	3/4 of the time, or more	68%	24%
Said they taught 100 or more students	100 or more	45%	28%
Used a flexible approach to content, depending on what students were doing	most or all of the time	58%	34%
Team taught, with another teacher	most or all of the time	35%	8%
Included use of interdisciplinary projects, internships, or service learning	most or all of the time	30%	19%
Used direct instruction (e.g., textbooks, whole class discussions, content lessons)	only sometimes	59%	35%
Especially important reasons for using PBL included…			
To teach skills beyond academic content (e.g., group work, presentations, 21st century skills, etc.)	especially important	63%	47%
To make teaching and learning more varied, challenging, or fun	especially important	59%	38%
When conducting projects, teachers…			
Assessed skills beyond academic content (e.g., group work, presentations, etc.)	almost always	57%	38%
Specified content standards that projects were designed to meet	frequently or almost always	88%	61%
Required students to create knowledge, answering questions or solving problems that had not already been solved or answered	frequently or almost always	75%	57%
Avoided teaching students what they would need to know before the project started	used only rarely, or never	49%	16%
Challenges that limited PBL use *less often* included…			
Lack of models or examples for using PBL with students	not a challenge	35%	18%
Lack of time in the curriculum to carry out projects	not a challenge	40%	18%
Lack of professional development or coaching in PBL	at most a minor challenge	85%	66%
Lack of funds, materials, or resources (e.g., technology, a library, art supplies, etc.)	at most a minor challenge	64%	46%
Availability of online features that support PBL…			
An online collection of high quality projects	have seen and used	77%	44%
An online collection of PBL resources (e.g., rubrics, templates, examples, suggestions, video)	have seen and used	86%	46%
Tools created to help teachers or students design and manage projects online	have seen and used	80%	34%
A way for teachers to get feedback from other adults on student projects or work	have seen and used	57%	18%
A way for students to post work to get feedback or be assessed by others	have seen and used	70%	25%
Tools for linking teachers and students to outside experts, mentors, or other schools	have seen and used	44%	17%
Teachers in their school overall…			
Took a major role in shaping the school's norms, values and practices	frequently or all the time	74%	59%
Were involved in school leadership, setting policies or making important decisions for the school	frequently or all the time	71%	52%
School structures or policies were in place that included…			
A school-wide emphasis on problem-based, project-based, or inquiry learning	always	67%	35%
School-wide rubrics for assessing student work across different subjects, grades, or courses	always	40%	19%
A grading and reporting system that included students' projects or portfolios	always	56%	28%
A school-wide emphasis on skills beyond academics (e.g., group work, presentations, etc.)	always	72%	35%
Students all taking the same courses	at least sometimes	87%	59%
During the previous semester, most students…			
Solved real world problems	at least once or twice/week	55%	35%
Worked on multidisciplinary projects	at least once or twice/week	34%	18%
Researched topics deeply enough to become subject matter experts	at least once or twice/month	51%	33%
Encouraged and supported their peers as learners	frequently or all the time	65%	42%
Gave their best effort and made the most of opportunities to learn	frequently or all the time	57%	38%
Demonstrated that they were striving for in-depth knowledge, not just superficial learning	frequently or all the time	48%	31%
Used student role-playing simulations based on the real world problems	at all, during past year	67%	45%
Had students create a computer-based product or program (web page, blog, games, etc.)	at all, during past year	65%	46%