

Parent Institute for Quality Education (PIQE) Students Outcomes

The Parent Institute for Quality Education (PIQE) provides parent engagement workshops to encourage and teach parents to support the educational attainment for their children. PIQE offered this workshop series in Visalia Unified School District during the 2006–2007, 2007–2008 and 2008–2009 school years.¹

To assess the effectiveness of these efforts, PIQE contracted the California Partnership for Achieving Student Success (Cal-PASS) to track the educational outcomes for students of the parents PIQE served.² The following report compares preliminary outcomes for students whose parents participated in PIQE and compares these outcomes to those of similar students in the matched comparison group.

This report provides a summary overview of the findings. Then, the report provides a description of the PIQE student cohorts and the comparison group matching process, followed by a detailed description of the high school level outcomes of interest. The report also includes postsecondary enrollment and success data. The report concludes with a discussion of the findings and caveats.

Summary

In the secondary and postsecondary analyses, PIQE students consistently outperformed comparison students, except on Early Assessment Program (EAP) performance. Postsecondary PIQE success was encouraging, but these findings should be interpreted with caution because the small number of students included in the analysis at this level.

A total of 278 students' parents participated in the Visalia PIQE program from fall 2006 to spring 2009.

High School Performance

- Of the PIQE students expected to graduate high school by 2009-10, 80% graduated with a standard high school diploma compared to 72% of students in the matched comparison group.

¹ There were five parent graduation dates, which included: June 15, 2007, December 15, 2007, June 15, 2008, December 15, 2008, and January 1, 2009.

² The evaluation was funded by the Walter S. Johnson Foundation.

- Of participants expected to graduate high school by 2009-10, 53% attempted a math course in high school that ranked at or above Intermediate Algebra, compared to 38% of students in the comparison group.
- The overall success rate in the highest level math attempted was 72% for participants and 60% for the comparison group.
- The grade point average (GPA) for the last high school English course³ was higher for PIQE students compared to similar students.
- The English Language Arts (ELA) California State Test (CST) scale scores were higher for PIQE students than for comparison students.
- The GPA in the last high school math course was higher for PIQE students compared to similar students.
- PIQE students⁴ participated in the 2008–09 Early Assessment Program (EAP) at about the same rate as the comparison group, and the two groups did not significantly differ on their college readiness status in English or math.

College Enrollment and Success

- Of participants, 63% enrolled in postsecondary institutions after 12th grade, compared to 47% of students in the comparison group.
- More PIQE students enrolled in higher-level math and English college courses than comparison students⁵.
- Preliminary data show that PIQE students are more successful in their college math courses than comparison students. However, no differences exist in college English course success.

³ The GPA analysis includes courses attempted during second semester of the last academic year on record.

⁴ The analysis was limited to students of parents who participated in PIQE during or prior to 2008–09.

⁵ This analysis included math and English course enrollment after high school completion. It does not include dual enrollment.

Introduction

Below is a description of the PIQE student cohorts and the matching process used in these analyses.

Description of the Cohort

The PIQE program staff identified 278 students whose parents participated in the PIQE program⁶. The majority of the students were enrolled in grade nine (38%), ten (42%), or grade eleven (14%) at the time of their parent participation. There also were a few students in grade eight (2%) and grade twelve (4%).

Description of the Matching Procedure

The Cal-PASS research staff selected the matched comparison group from a population of students enrolled in the same schools and academic years as participants but whose parents were not served by PIQE. This ensured that the comparison groups did not include students who were served in subsequent years and the comparison students had the same amount of time to exit high school. For example, a 9th grade student whose parent was served had four years until graduation was not paired with a similar student in the 12th grade who only had a year or less until high school graduation. The comparison students also matched PIQE students on key demographic variables (e.g., English Language Learner status).

The file containing all students (those whose parents participated in the program and those whose parents did not participate) in grades 8, 9, 10, 11 and 12 was split by cohort (meaning grade level and year of service) to ensure that the exact match was achieved on the district, last grade level, and the grade level in which students were enrolled during the time of their parent participation. The students in the participant group were matched to the students in the non-participant group within each cohort separately.

Each student was matched on his/her demographic characteristics, such as gender, primary ethnicity, home language and age, socioeconomic status, level of parent education, English proficiency, participation on the National Free or Reduced Lunch Program (NSLP) and Special Education status. For students whose last grade level was grade 11 or 12, the 10th grade CAHSEE scale scores were added to the matching procedure in an attempt to control for pre-existing academic achievement differences. See the Appendix for more detail about the participant and comparison groups.

⁶ Two students had parent graduation dates that were after the date of the last academic year. These students were excluded from the analysis.

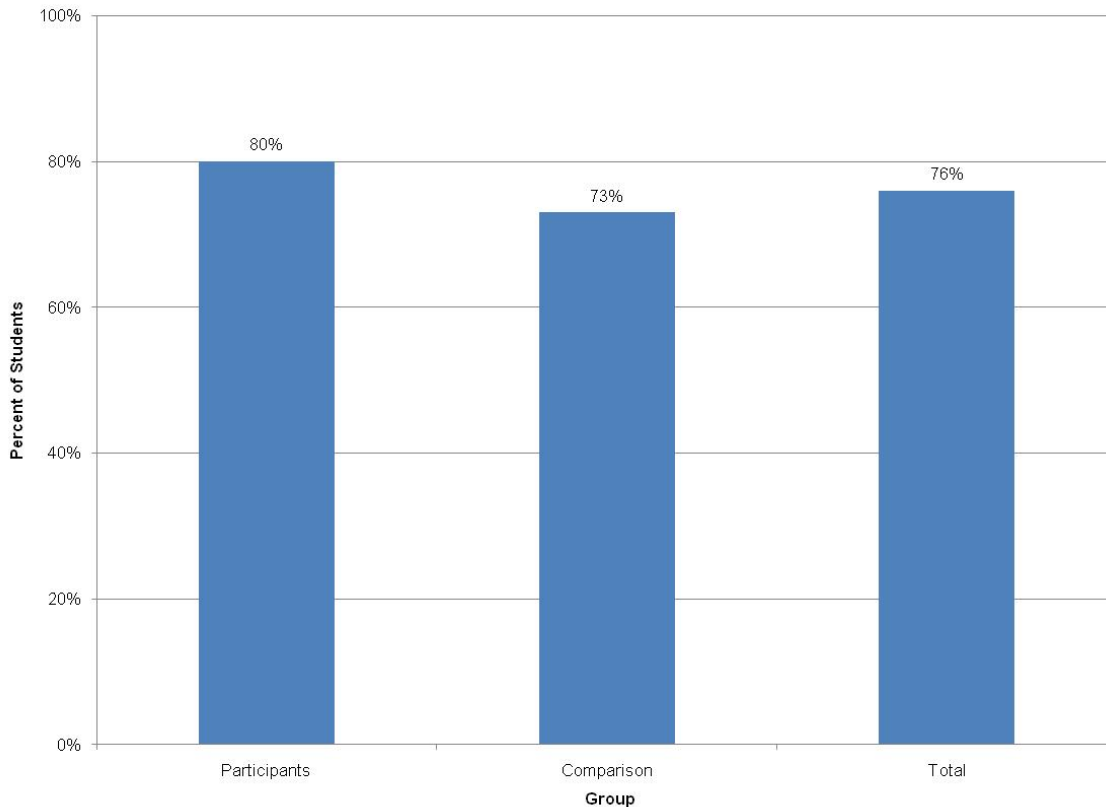
Findings

Below are the detailed findings about the PIQE student outcomes compared to similar students. The analysis begins with high school outcomes and finishes with college enrollment and course success.

High School

Figure 1 show the proportion of high school students who were expected to exit high school by 2009 – 2010 who actually graduated from high school with a standard high school diploma. Eighty percent of students whose parents participated in the PIQE program received a high school diploma, compared to 73% of the matched comparison group. This difference was statistically significant ($p < 0.01$).

Figure 1. Percent of Students Graduating with Standard High School Diploma (Participants N=138; Comparison N=138; Total N=276)



Of the students expected to graduate high school by 2009-10 who had a math enrollment record, 53% attempted a math course ranked at or above Intermediate Algebra, compared to 38% of students in the comparison group, Table 1.

Table 1. Level of Last Math Completed in High School by Students Expected to Graduate from High School by 2009-10⁷

Math Rank	Participants		Comparison		Total	
	N	%	N	%	N	%
Basic Math	*	*	9	9%	11	6%
Pre-Algebra	-	-	*	*	*	*
Beg Algebra	19	19%	21	21%	40	20%
Geometry	26	26%	30	31%	56	28%
Intermediate Algebra	26	26%	19	19%	45	23%
Stats/ Finite	5	5%	*	*	7	4%
Pre-calculus	20	20%	12	12%	32	16%
Calculus	*	*	*	*	6	3%
<i>Total</i>	<i>100</i>	<i>100%</i>	<i>98</i>	<i>100%</i>	<i>198</i>	<i>100%</i>

Note percents may not sum to 100% due to rounding

* between 1 and 4 students; dashes (-) indicate 0 students

Table 2 shows success rates⁸ for the highest high school math course attempted by students expected to graduate high school by 2009-10. The overall success rate for the students whose parents participated in the PIQE program was 72%, compared to 60% of the students in the matched comparison group. McNemar’s chi-square statistic suggested that this difference was statistically significant ($p = 0.01$).

Table 2. Success Rate in Last High School Math Completed by Students Expected to Graduate High School by 2009-10

Math Rank	Participants	Comparison	Total	
			%	N
Basic Math	*	67%	73%	11
Pre-Algebra	-	-	*	*
Beg Algebra	74%	52%	63%	40
Geometry	69%	57%	63%	56
Int. Algebra	50%	63%	56%	45
Stats/ Finite	100%	*	100%	7
Pre-calculus	90%	67%	81%	32
Calculus	*	*	83%	6
Total	72%	60%	66%	
	100	98		198

⁷ Only high school math attempted during or after academic year of parent participation was included in the analyses.

⁸ Success rate is defined as the proportion of students earning a C or better in the course.

* between 1 and 4 students; dashes (-) indicate 0 students

PIQE students achieved significantly higher GPAs in their last high school math course than comparison students (1.9 compared to 1.6, respectively, Table 3). The difference was largest for participants enrolled in grade 9 when their parents participated in the PIQE program.

Table 3. GPA in Last High School Math Course⁹

Cohort Grade Level of Student When Parent Was Involved in PIQE	Participants		Comparison		Dif+/-
	Count	GPA	Count	GPA	
9	101	1.9	101	1.4	0.5**
10	62	1.9	62	1.6	0.4
11	38	2.0	38	1.8	0.2
<i>Total</i>	<i>201</i>	<i>1.9</i>	<i>201</i>	<i>1.6</i>	<i>0.3**</i>

*significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level

Table 4 shows the average GPA in English courses attempted during the second semester of the last academic year on record (see the Appendix for more details on the type of courses included). PIQE students achieved higher GPAs in their last high school English course compared to similar students (2.6 compared to 2.1, respectively). When PIQE students are divided by their grade level during which their parents were served, 9th grade and 12th grade PIQE students achieve a statistically higher GPA than comparison students.

Table 4. GPA in Last High School English Course¹⁰

Cohort Grade Level of Student When Parent Was Involved in PIQE	Participants		Comparison		Dif+/-
	Count	GPA	Count	GPA	
9	100	2.5	100	2.0	0.5***
10	60	2.5	60	2.1	0.4
11	55	2.6	55	2.3	0.3
12	28	2.8	28	2.4	0.4*
<i>Total</i>	<i>243</i>	<i>2.6</i>	<i>243</i>	<i>2.1</i>	<i>0.5***</i>

*significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level.

⁹ This analysis includes the GPAs for courses attempted during the second semester of the last academic year.

¹⁰ This analysis includes the GPA for courses attempted during the second semester of the last academic year.

PIQE students earned higher English Language Arts (ELA) California Standards Test (CST) scaled scores than the comparison students (322 versus 306, respectively, Table 5). When investigating grade level findings, the difference in ELA CST scores between PIQE and comparison students is significant for PIQE students whose parents were served when the students were in the 9th grade (332 compared to 312).

Table 5. Average CST ELA Scale Scores.

Cohort Grade Level of Student When Parent Was Involved in PIQE	Participants		Comparison		Dif+/-
	Count	Scale Score	Count	Scale Score	
9	101	332	101	312	20**
10	61	315	61	308	7
11	52	309	52	292	17
<i>Total</i>	<i>214</i>	<i>322</i>	<i>214</i>	<i>306</i>	<i>16**</i>

*significant at 0.05 level; **significant at 0.01 level; ***significant at 0.001 level.

Although PIQE students outperformed comparison students in math, English, and ELA CST exams, the percentage of students who participated in the 2008–09 Early Assessment Program (EAP) was about equal for PIQE¹¹ and comparison students (Table 6). Furthermore, no significant differences exist between the groups on the CSU readiness scores for English or math (Table 7 and 8).

Table 6. Participation in the Early Assessment Program (EAP) for College English and Math in 11th Grade

	Participants		Comparison		Total	
	N (155)	%	N (147)	%	N (302)	%
No EAP English	56	36%	57	39%	113	37%
Participated in EAP English	99	64%	90	61%	189	63%
No EAP Math	118	76%	114	78%	232	77%
Participated in EAP Math	37	29%	33	33%	70	23%

¹¹ This analysis only included students whose parents participated during or prior to 2008–09.

Table 7. The EAP English Results

	Participants		Comparison		Total	
	N	%	N	%	N	%
Not Ready for CSU English	94	95%	87	97%	181	96%
Ready for CSU English	5	5%	*	*	8	4%
<i>Total</i>	99	100%	90	100%	189	100%

Table 8. The EAP Math Assessment Results

	Participants		Comparison		Total	
	N	%	N	%	N	%
Not Ready for CSU Math	20	54%	18	55%	38	54%
Ready or Conditionally Ready for CSU Math	16	43%	14	42%	30	43%
Ready for College	*	*	*	*	*	*
<i>Total</i>	37	100%	33	100%	70	100%

Postsecondary Enrollment

A higher proportion of PIQE students enrolled in a post-secondary institution than comparison students (63% versus 47%, respectively; Table 9).

Table 9. After High School Postsecondary Enrollment for 12th Grade Students

Participants			Comparison		
Grade 12 by 2008-09	Postsecondary Enrollment		Grade 12 by 2008-09	CC Enrollment	
N	N	%	N	N	%
72	45	63%	72	34	47%

A majority of these students enrolled in community college, while a handful of PIQE and comparison students enrolled in a university (Table 10).

Table 10. After High School Postsecondary Enrollment for 12th Grade Students

College Name	Participants	Comparison
Community College	38	28
Community College and University	*	*
University	6	5
<i>Total</i>	45	34

* between 1 and 4 students; dashes (-) indicate 0 students

Among community college students, a higher proportion of PIQE students enrolled in English and math courses than comparison students. This difference was particularly large among math course enrollment (77% of PIQE students compared to 48% of comparison students). In addition, 43% (13) of first math courses attempted by the PIQE students were at the Intermediate Algebra level or above, compared to 29% (4) of comparison students. Further, the majority of first English courses attempted by the PIQE students (71%; 22) were either transferable or degree applicable, compared to 50% (9) of English courses attempted by comparison students. These findings suggest that PIQE students are attempting more rigorous courses than comparison students.

Table 11. Students who Enrolled in Community College English and Math Courses

Subject	Participants (N=39)		Comparison (N=29)	
	Postsecondary Enrollment		CC Enrollment	
	N	%	N	%
English	31	79%	18	62%
Math	30	77%	14	48%

We have limited data about how students are performing at the postsecondary level. However, we found a difference between the PIQE and comparison students in math course success. While only 36% (14) of comparison students succeed in their first community college math course, 43% (30) of PIQE students succeeded ($p < 0.02$). Among the students who enrolled in English courses, there was no difference in course success between the PIQE and comparison students.

Conclusions

Students of parents served by PIQE are performing better than similar students in high school. For example, significantly more PIQE students are achieving a higher GPA in high school English and math courses. In particular, students whose parents were served when the students were in the 9th grade are showing more positive outcomes compared to similar students. A possible reason for this difference is that there is more time for parents to use what they learned in the PIQE classes to help prepare their children for college. PIQE staff may provide context for this finding, or future research may focus on this difference.

Although PIQE students achieved higher GPAs than comparison students, they did not outperform comparison students on the EAP college readiness tests. On the other hand, preliminary evidence shows that PIQE students are enrolling in postsecondary institutions at higher levels than comparison students, are enrolling in higher level community college courses (less remedial courses), and are succeeding more often in community college math courses. However, this evidence is preliminary and should be

interpreted with caution. PIQE may be increasing student interest in college, but more work may be necessary to prepare them for success in college level coursework, particularly in English. More research is necessary to understand the nuances of these findings and to better understand how PIQE students are performing at the college level.

Study Limitations

Although the results found in this investigation are generally positive for the PIQE program, this study does not include specific data on services rendered, differences in services by year, or differences among parents (e.g., those parents who participated in PIQE compared to those who did not). Future studies could strengthen the evidence of PIQE effectiveness by including implementation data or by using a randomly assigned design.

Appendix

Matched Comparison Group

The matching procedure was conducted using MatchIt, a software package for a statistical program called R. In cases of missing 10th grade CAHSEE scores, the scores were imputed prior to matching using Multivariate Imputation by Chained Equations (MICE) software package.

	Participant		Comparison	
	N	%	N	%
All Students	278	100%	278	100%
Gender				
Female	119	43%	118	42%
Male	159	57%	160	58%
Ethnicity				
Black	*	*	*	*
Hispanic	253	91%	260	94%
White	*	*	*	*
Other	21	8%	14	5%
Home Language				
English	46	17%	44	16%
Spanish	232	83%	234	84%
English Proficiency				
English Only	46	17%	43	15%
I-FEP	11	4%	15	5%
EL	100	36%	95	34%
R-FEP	121	44%	119	43%
Missing/No Data	-	-	6	2%
Parent Education Level				
Not a high school graduate	148	53%	131	47%
High school graduate	58	21%	71	26%
Some college (includes AA degree)	19	7%	24	9%
College graduate	21	8%	20	7%
Graduate school/postgraduate training	12	4%	5	2%
Declined to state or unknown	20	7%	27	10%
NSLP				
Y	197	71%	190	68%
N	81	29%	83	30%
Special Education				
Y	22	8%	21	8%
N	256	92%	252	91%
Missing/No Data	-	-	5	2%
10th Grade CAHSEE				

Average Scale Score*					
English	364	NA	366	NA	
Math	371	NA	377	NA	
		Participant		Comparison	
		N	%	N	%
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Last School					
El Diamante High	69	25%	69	25%	
Golden West High	62	22%	62	22%	
Green Acres Middle	*	*	*	*	
Mt. Whitney High	65	23%	65	23%	
Redwood High	75	27%	75	27%	
Sequoia High	5	2%	5	2%	
Visalia Charter Independent Study	*	*	*	*	
Last Grade Level					
Grade 8	*	*	*	*	
Grade 9	76	27%	76	27%	
Grade 10	65	23%	65	23%	
Grade 11	64	23%	64	23%	
Grade 12	72	26%	72	26%	
Last Academic Year					
2006-07	*	*	*	*	
2007-08	14	5%	14	5%	
2008-09	263	95%	263	95%	
Migrant Education					
Y	31	11%	23	8%	
N	247	89%	248	89%	
Missing/No Data	-	-	7	3%	

Note percents may not sum to 100% due to rounding

Type of English Course Attempted.

Group of English Courses	Participants	Comparison
Advanced composition	28	26
American literature	79	71
AP - English Language	17	8
AP - English Literature	9	8
Composition	*	*
Comprehensive English	257	259
English 12	21	33
English Language Development	27	32
Journalism	5	5
Language structure/language arts	-	*
Other English course	68	77
Other literature	*	*
Reading improvement/developmental reading	21	29
Speech	*	*
World literature	69	47

* between 1 and 4 students

Data Sources

High school data are from the Visalia Unified School District. Postsecondary data in this report are from two regional community college districts and one university, where Visalia PIQE students were found in the Cal-PASS data system.