RESEARCH

Prentice Hall Mathematics

Algebra 1

National Effect Size Study

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Summary

The following Effect Size Study monitors the school district achievement of *Prentice Hall Mathematics* users to support the efficacy of the program. Findings demonstrate that *Prentice Hall Mathematics* program users' test scores significantly increase. As a result, Prentice Hall users saw a statistically significant increase in the percentage of students meeting or exceeding state standards.

The study design examines longitudinal test results of closely matched user and non-user districts using other programs as a point of comparison across the same time periods and achievement tests. Districts are matched based on the following demographic characteristics: similar metropolitan location (i.e., urban, suburban, rural), enrollment, ethnicity (i.e., percent white/caucasian school aged children), and relative wealth (i.e., percent of school aged children receiving free or reduced priced lunch). A total of three states, 124 school districts, were examined during this study.

Overall, *Prentice Hall Mathematics* users outperformed their counterparts 59% of the time in pre- and post-implementation achievement level point gains, and 56% of the time for students meeting or exceeding state standards after one or more years of implementation.

Effect size studies examine the relationships between program use and student achievement at the district level across large geographic areas. The data for effect size studies is collected ex post facto utilizing naturally occurring groups, is non-intrusive, and can be completed more quickly than our typical experimental efficacy studies. The use of naturally occurring groups produces efficacy results that may be seen as more valid from a practical or ethnographic perspective as they are likely to be more representative of potential users.

Pearson Prentice Hall offers a wide body of research to support the effectiveness of our programs. Our study designs closely follow the criteria of No Child Left Behind. As NCLB specifies a minimum level of improvement that students must achieve each year, actual adequate yearly progress (AYP) is the basis of the research used to validate our programs.

For the most current research or more information on Pearson Prentice Hall's research initiatives in collaboration with PRES Associates, please visit our Web site at PHSchool.com/MathResearch.

Introduction

The main goal of this study is to quantify the comparative impact of *Prentice Hall Algebra 1 Mathematics* (PHALG1)[1] on district algebra achievement. This study examines relationships between program use and student achievement at the district level across the states of MS, TX, and VA using publicly available demographic and achievement data. The research team compared district level pre-adoption year scaled scores (SS) and percent district students meeting or exceeding state algebra standards (% Stand) to those of post-adoption years. All districts that adopted PHALG1 district wide were included in the study and all remaining non-user districts were considered for inclusion in a comparison group. Comparing the results of user districts to those of similar local districts using competitor products over the same time period provides context for achievement gains.

The study design employed here can provide evidence for both a temporal and statistical relationship as well as compare user district achievement gains to those of similar local districts. The results may be used to answer crucial questions for potential users such as: (1.) How likely are school districts that adopt PHALG1 to see immediate gains in algebra achievement on state sponsored criterion referenced tests? (2.) Are districts that adopt PHALG1 as likely to see achievement gains as similar non-user districts? (3.) How large are achievement gains likely to be?

Methodology

Study Design

The study described here may best be defined as causal-comparative research as data was collected ex post facto on a naturally occurring user group which was then compared to a group of similar competitor users[2]. A pre-post successive cohort matched comparison group design was adopted where baseline district level algebra achievement for several years prior to the introduction of PHALG1 was compared to post achievement. Additional sampling error is introduced into the design when comparing institutions like school districts across years because they do not remain constant. For example, though a district may maintain high academic standards, the teachers, administrators, and students that make up the district will change from year to year. This type of design is known as a successive cohort study. Averaging over data from multiple school years, when possible, will help minimize sampling error[3].

Only public school districts from the states of MS, TX, and VA were included in this study. The focus of the study was on these three states because they contained districts that started using PHALG1 between 2000 and 2002 and reported algebra achievement test scores for school years 1997-98 to 2002-2003. The achievement data for districts took the form of scaled achievement test scores (SS) and percent of district's students tested achieving at or above state algebra standards (% Stand). Each state's department of education was contacted for achievement data. Data was tested to ensure that all entries fell within acceptable ranges, entered in a single SPSS[4] file, and all entries were double-checked for accuracy. Table I (page 9) shows the available data for the states included in the study. Essentially, MS provided algebra SS for the SATP with TX and VA providing % Stand scores for the algebra strands of the TAAS and SOL.

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[1] *Prentice Hall Algebra 1* ©1998-2001, Pearson Education Inc., Upper Saddle River, NJ. http:\\www.phschool.com

[2] Gay, L. R. & Airasian, P. (2003). *Educational Research: competencies for analysis and applications, seventh edition*. Pearson Education Inc., Upper Saddle River, NJ.

[3] Linn, R. L. & Haug, C. (2002). Stability of school-building accountability scores and gains. *Educational Evaluation and Policy Analysis*, *24*, pp. 29-36.

[4] http://www.spss.com/

It was assumed that PHALG1 was adopted district wide in the instruction of algebra and that use of the program would cause an increase in district algebra achievement. Information as to which MS, TX, and VA districts adopted PHALG1 district wide between 2000 and 2002 was provided by the parent company, Pearson Education. The accuracy of this information is the responsibility of Pearson Education and the agents working on its behalf to supply this information to the principal investigator. The initiation year of the PHALG1 program for a user district was taken from the data entry with the earliest sales date.

Selection Of Matching Districts

As an added control for the study a non-PHALG1 matched comparison group was created to allow for a comparison between PHALG1 and similar districts along the same timeline. The closest matching non-PHALG1 school district was chosen to match each PHALG1 district with the same metropolitan location (i.e., urban, suburban, rural). Choosing matching districts with the same metropolitan location was considered to be the single most important matching criterion. Districts were then matched on the following variables listed in order of importance: enrollment, ethnicity (i.e., percent white/caucasian school aged children), and relative wealth (i.e., percent of school aged children receiving free or reduced priced lunch). To ensure demographic data was accurate and current, data for each district was taken from the National Center for Educational Statistics (NCES) 2001-2002 database. Traditional public school districts that did not purchase any amount of PHALG1 materials for copy right years 1998-2001 were included in the pool of potential matching districts.

Data Analysis

In addition to mean district and state outcomes, the study looked at two additional outcome measures: (ES1) percent of PHALG1 and matched districts showing a pre to post initiation year gain on achievement test scores (i.e., % Stand, SS) and (ES2) percent of PHALG1 districts with a larger pre to post initiation year gain over matched districts on achievement test scores. For ES1 a success was defined as a pre to post initiation year gain greater than zero and a greater pre to post gain for PHALG1 over the matched district was a success for ES2. The estimates for ES1 and ES2 are not sensitive to the varying achievement tests and proficiency standards across states; they simply compare districts to themselves and others from the same state. Estimates greater than 50% for ES2 indicate that PHALG1 districts more often had a larger pre to post initiation year gain than their matched districts. Achievement data was averaged over all available pre sales and post sales years for both PHALG1 and matched districts. Data for the initiation year was omitted from the analyses as a full school year of PHALG1 instruction was deemed necessary to impact achievement.

The unit of interest is district with comparison districts matched on district level variables and achievement outcomes aggregated to the district level. The *unit of analysis* is state since state is the *independent sampling unit*. The assumption of independence for district achievement outcomes was not deemed tenable as districts are nested within states. To adjust for the possible dependence of % Stand outcomes, naïve empirical standard error estimates were used in calculating confidence intervals. Naïve empirical standard errors are estimated from the data and no assumptions are necessary as to how outcomes are correlated, one only needs to know the level of the independent unit.

Ninety five percent Wald confidence intervals are provided for the comparison group estimates in keeping with the most recent recommendations from the American Education Research Association[5]. These estimates are subject to sampling error, as the comparison group is comprised of a random sample of districts. The results for the comparison group would be expected to vary for different samples and the intervals give an idea of how much the estimates would differ across repeated sampling. It should be noted that PHALG1 is not in direct competition with the estimates for the comparison group but rather the intervals provide context for the PHALG1 results by giving an indication of how districts using competitor products may vary on the outcome measures used in this study.

Results

Figures Ia (page 10) and Ib (page 11) show that the PHALG1 and matched districts match up well on pre initiation year achievement for % Stand and SS. The Pearson Product Moment correlations between PHALG1 and matched district outcomes on pre sales year % Stand is r = .643 (r^2 = 41%) and r = .332 (r^2 = 11%) for SS. The average difference between pre initiation year achievement for PHALG1 and matched district outcomes for SS is 9.7 (s = 8.0, maximum = 27, median = 9.3, P_{75} = 13.7) and 11.0 (s = 6.6, maximum = 21.7, median = 10.6, P_{75} = 16.2) for % Stand.

Tables IIa (page 12) and IIb (page 13) display the pre and post initiation year SATP, TAAS, and SOL scores for PHALG1 and matched districts. For those districts that allow for a pre to post initiation year comparison, the PHALG1 and matched MS districts saw a 39 (percent of pre initiation year standard deviation = 337%) and 34 (362%) point increase in SATP scaled scores respectively. The PHALG1 and matched TX and VA districts saw a 19% (140%) and 18% (173%) increase in students meeting standard on the TAAS and SOL respectively. All PHALG1 and matched group districts showed a pre to post initiation year gain in both % Stand and SS (i.e., ES1). For ES2, 59% (Standard Error = 11.9%; 95% CI = 36%, 82%) and 56% (Standard Error = 14%; 95% CI = 29%, 83%) of PHALG1 districts saw larger gains than their matched districts for SS and % Stand respectively.

Conclusions

The PHALG1 user and matched groups both saw similar large average gains with all of their districts gaining in scaled test scores (i.e., MS SATP) and in percent of district students meeting or exceeding state algebra standards (i.e., TX TAAS, VA SOL). PHALG1 districts saw a greater pre to post sales year increase than their matched districts about 50% of the time indicating that PHALG1 districts saw similar gains when compared one on one to like local districts. If these results are generalizable, they would indicate that districts that adopt PHALG1 are likely to see sizable gains in algebra achievement test scores and are as likely as similar local districts to see these gains.

[5] Thompson, B. (2002). What future quantitative social science research could look like: confidence intervals for effect sizes. *Educational Researcher*, *April*, pp. 25-32.

Caveats

One must be cautious in attributing any achievement gains solely to the use of PHALG1 as data was collected ex post facto on a naturally occurring user group with no control over the implementation of the program in districts. The matched comparison groups are arbitrary in that results may differ for other comparison groups, though one is not likely to see a large deviation in results. Great care was taken in selecting these districts, however, they were selected using a limited number of key demographic variables that cannot account for all the variation in achievement for all school districts. Matched comparison groups of this type, though probably the best alternative, cannot substitute for random assignment to groups as a method of probabilistically equating pre-treatment groups on confounding factors. One must also be cautious in calling the study design **experimental** or **quasi-experimental** since the term experiment is usually reserved for designs with a controlled manipulation of treatment groups. This study may best be described as causal-comparative or ex post facto research as relationships between variables were observed and reported on naturally occurring groups[3,6]. The use of naturally occurring groups produces results that may be seen as more valid from a practical or fieldwork perspective since a "real user group" is likely to be more representative of potential users. Rather than attempting to rule out alternative causes for achievement gains by observing the program in an artificial experimental environment, the study attempts to quantify the likelihood districts will see achievement gains implementing the program in their own environment. For more information see Appendix A (below).

Appendix A

What The Prentice Hall Algebra 1 Effect Size Study Is, And Is Not

The objective of most comprehensive educational program evaluations is to paint a detailed picture of the effectiveness of a particular program. The painting would include a broad range of brushstrokes, or factors, such as program implementation, teacher and student satisfaction, student attitudes toward learning, as well as student achievement. The effect size study, as described in this report, examines relationships between program use and student achievement at the district level across large geographic areas. It may be likened to a broad-brush technique that is useful for applying large areas of color to the overall canvas. To complete the picture, it would be necessary to fill in the detail by observing students and teachers interacting with the educational materials in their own environments. *Detailed in-class observations and assessments of this kind are expensive, intrusive, limited in geographic scope, potentially biased by self-selection of schools and districts and, most likely, politically charged.*

On the other hand, effect size studies of the nature described in this report have relatively short timelines. They can be completed in months rather than years and may easily be updated to look at longitudinal trends. This timeliness is of increasing importance in an age of such sophistication where technology and best practice theory change rapidly creating the need to update educational materials every few years. Alternative research designs, ones that maintain the strictest possible scientific rigor but can quickly yield useful efficacy evidence, are currently being developed and utilized in rapidly changing fields such as bio-medical research, information science, and computer science.

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[6] Cook, T. D. & Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Boston: Houghton Mifflin Co.

The effect size studies are completely non-intrusive and free from the potential biases that result from in-classroom observation (i.e., Hawthorne effect, John Henry effect, novelty effect, experimenter bias, etc.). These studies use publicly available demographic and achievement data sanctioned by local, state, and federal authorities with no need to obtain permission to collect and analyze data. It is not necessary to impose additional testing burdens on teachers and students or for the researchers to accrue testing related financial and time burdens. Students are not at risk of harm from observation and additional testing and there are no review boards to wrestle with or legal liabilities.

Effect size studies are not geographically limited and may include districts from the entire United States, or wherever program users are found. Any valid user district may be included in the study, and any non-user district may be used for comparison purposes. The ability to include the entire population of users, or an adequate random sample, can eliminate bias from self-selection of districts to the study sample.

One of the most useful aspects of the effect size study is its capacity to review the achievement trends of an entire set of program users, over multiple years, across the entire country. To this end, the research team compared district level pre-adoption year achievement test scores to post-adoption year scores across grade levels, states, and district enrollment for both criterion- and norm-referenced achievement tests. Positive district outcomes were defined as pre to post adoption year gains in achievement. Such outcomes are not sensitive to the varying achievement tests, norming groups, grades tested, and proficiency standards across states, they simply compare districts to themselves and others from the same state. When analyzed in the effect size study framework these outcomes may be used to answer crucial questions for potential users such as: (1.) How likely are school districts that adopt program X to see immediate gains in achievement on both state sponsored norm referenced and criterion referenced tests? (2.) Are districts that adopt program X as likely to see achievement gains as similar non-user districts?

Achievement scores were collected for user districts as well as matched competitor user districts to allow for a pre-post successive cohort matched comparison group study. The type of study described here may best be defined as causal-comparative research as data is collected ex post facto on a naturally occurring user group which is compared to a group of similar competitor users[7]. Allowing a naturally occurring user group to implement the program normally in its own environment produces results that may be seen as more valid from a practical or fieldwork perspective since a real user group is more likely to be representative of potential users. The effect size study design can provide evidence for a temporal relationship (i.e., observe pre to post adoption year gains in achievement), a statistical relationship (i.e., statistically significant number of achievement gains), and it can compare user district achievement gains to those of similar local districts. Comparing the results for user districts to those of similar local districts using competitor products over the same time period provides context for achievement gains.

Careful matching of districts can create a comparison group that is equal to the user group on specified variables relevant to district achievement. Matching after the fact can't replace careful control over the implementation of treatment during the experiment nor can it substitute for the use of random assignment as a method of probabilistically equating pre-treatment groups. Designs that strictly control the treatment and randomly assign districts to user or comparison groups (i.e., *true* or *randomized* experimental design) provide the strongest and most efficient causal evidence for achievement gains because alternative causal factors may be ruled out over repeated experimental trials[8]. In classroom control and random assignment of school systems to programs can be difficult

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[7] Gay, L. R. & Airasian, P. (2003). *Educational Research: competencies for analysis and applications, seventh edition*. Pearson Education Inc., Upper Saddle River, NJ.

[8] Cook, T. D. (2002). Randomized experiments in educational policy research: A critical examination of the reasons the educational evaluation community has offered for not doing them. *Educational Evaluation and Policy Analysis*, *24*, pp. 175-199.

and expensive to implement. Such cost may be justified for important educational policy matters; however, it is difficult for publishers of educational materials to justify such expense for each revision of their numerous products. Rather than attempting to rule out alternative causes for achievement gains by observing the program in an artificial environment, the effect size study attempts to quantify the likelihood districts will see achievement gains implementing the program in their own environment.

Effect size studies take the hierarchical nature of educational data into account when calculating confidence intervals for effects. If the unit of interest is the school district but the *independent sampling unit* is the state, the assumption of independence is not likely to be tenable and traditional statistical techniques will produce biased results. Basically, districts within a state tend to be more alike in their achievement outcomes than districts from different states thus outcomes are not independent of one another. To adjust for the possible dependence of outcomes robust standard errors are used. Standard errors are reported for all effect sizes in keeping with the most recent recommendations from the American Education Research Association. Keeping in mind that all estimates are expected to be erroneous to some degree (i.e., because they are based on a single random sample), standard errors are useful because they provide a reasonable range for the true effect size (i.e., standard errors may be used to calculate confidence limits about effect sizes).

Table I. Available Algebra Achievement Data for *Prentice Hall Algebra 1* Districts

State	Districts	PHMGM Initiation Year	Achievement Tests	Data Available For Years	Comments
MS	17	2001 – 2002	SATP (SS, %)	(%) 02 – 03 (SS) 1999, 01 – 03	Available pre and post data for 2001 – 2002 initiation years (SS n=17, % n=0).
TX	11	2000 – 2002	TAAS – Exit Level (%)	1998 – 2002	Available pre and post data for 2000 & 2001 initiation years (n=7).
VA	3	2000 – 2002	SOL (%)	1998 – 2002	Available pre and post data for 2000 initiation year (n=2).

% = Percent district students meeting state algebra standards, SS = Scaled achievement test score

Figure Ia. Pre-Initiation Year Mississippi *Prentice Hall Algebra 1* by Matched Districts Scaled Algebra Achievement Test Scores

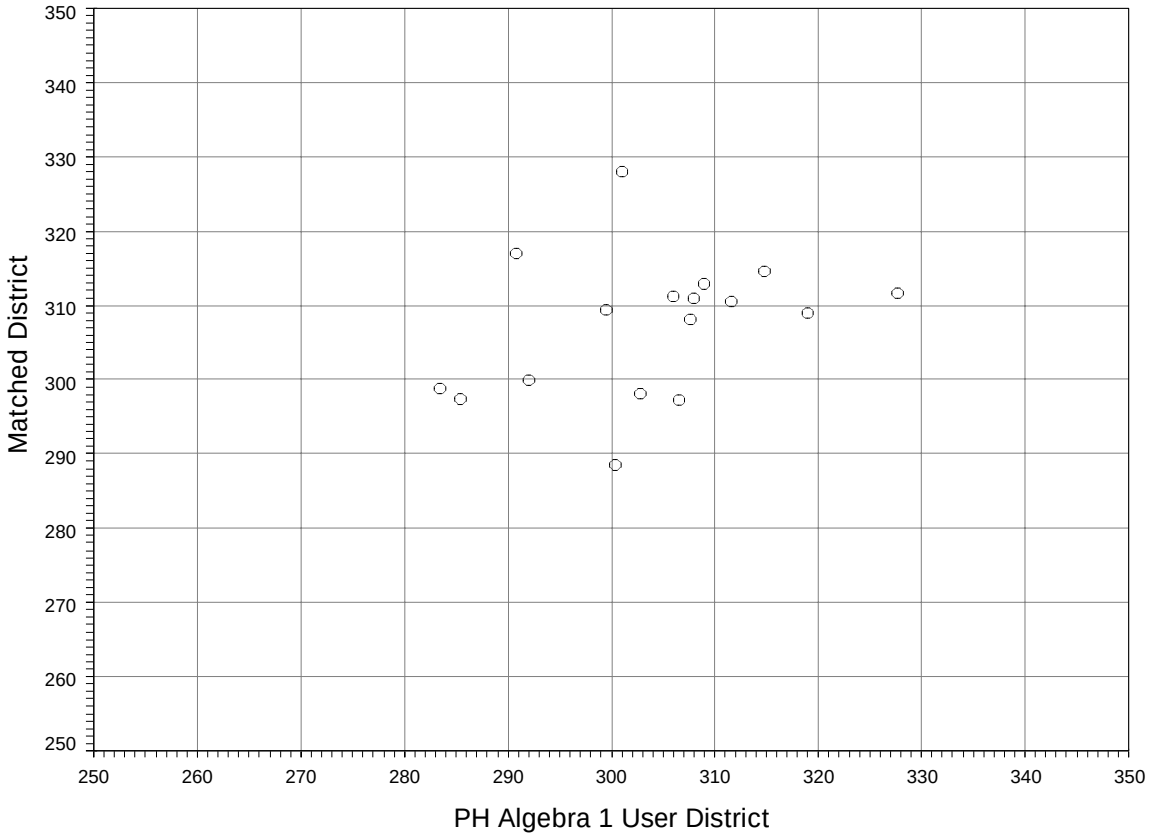

Figure Ib. Pre-Initiation Year *Prentice Hall Algebra 1* by Matched Districts Percent Students Meeting State Algebra Standards

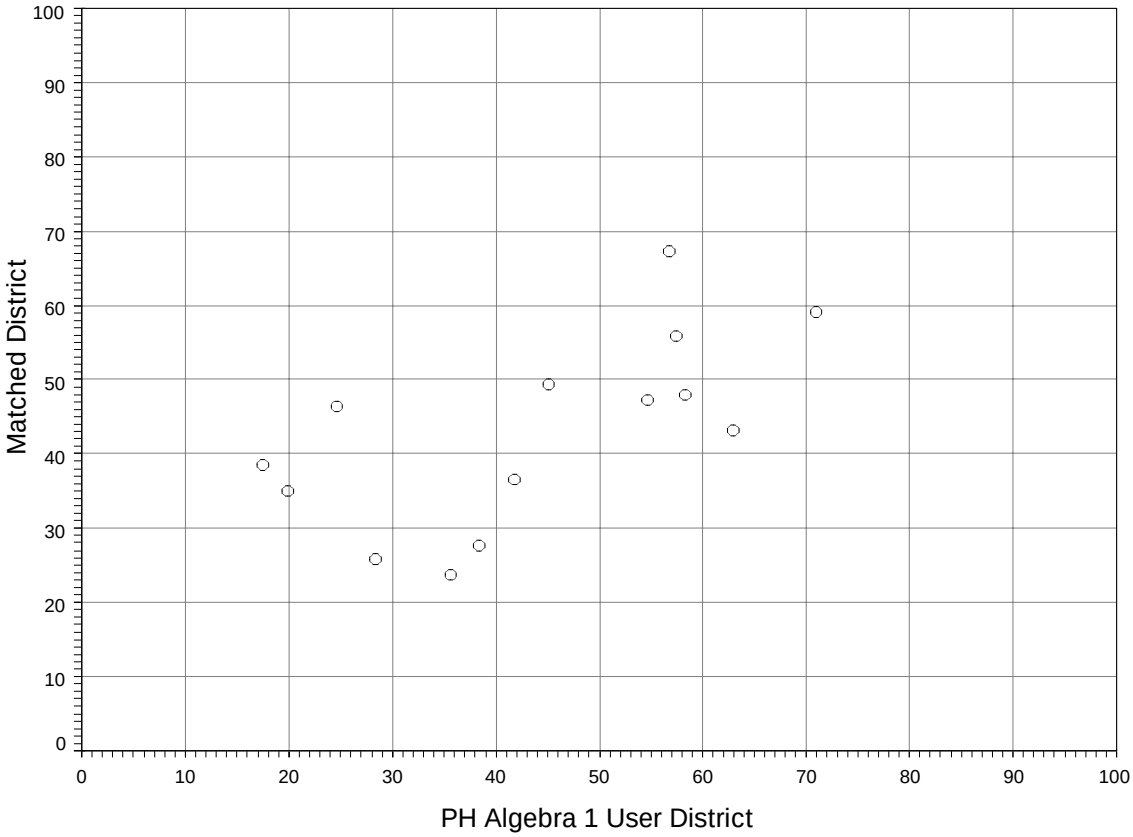

Table IIa. Pre- and Post-Initiation Year Percent District Students Meeting or Exceeding State Algebra Standards for *Prentice Hall Algebra 1* User and Matched Districts by Initiation Year and State

STATE					PH ALGEBRA 1 USER DISTRICT NAME	Pre SATP, TAAS, SOL % Stand	Post SATP, TAAS, SOL % Stand	PH ALGEBRA 1 MATCHED DISTRICT NAME	Pre SATP, TAAS, SOL % Stand	Post SATP, TAAS, SOL % Stand
MS	INITIATION YEAR	2001	1		LEFLORE CO SCHOOL DISTRICT	.	75.65	CANTON PUBLIC SCHOOL DIST	.	72.50
			2		JACKSON PUBLIC SCHOOL DIST	.	65.45	DESOTO CO SCHOOL DIST	.	95.15
			3		LAFAYETTE CO SCHOOL DISTRICT	.	96.25	FORREST COUNTY SCHOOL DISTRICT	.	95.70
			4		BILOXI SCHOOL DISTRICT	.	97.20	GULFPORT SCHOOL DIST	.	93.90
			5		JACKSON CO SCHOOL DISTRICT	.	76.75	HARRISON CO SCHOOL DIST	.	92.70
			6		WINONA SCHOOL DISTRICT	.	97.60	HOUSTON SCHOOL DIST	.	99.45
			7		LOUISVILLE MUNICIPAL SCH DIST	.	70.25	LAUREL SCHOOL DISTRICT	.	66.90
			8		CALHOUN CO SCHOOL DISTRICT	.	78.60	MARION CO SCHOOL DIST	.	68.25
			9		HATTIESBURG PUBLIC SCH DIST	.	73.55	MOSS POINT SEPARATE SCHOOL DIST	.	65.20
			10		LONG BEACH SCHOOL DISTRICT	.	93.70	PEARL PUBLIC SCHOOL DIST	.	93.65
			11		SCOTT CO SCHOOL DISTRICT	.	75.85	PETAL SCHOOL DIST	.	96.25
			12		KOSCIUSKO SCHOOL DISTRICT	.	97.95	QUITMAN SCHOOL DIST	.	92.70
			13		CORINTH SCHOOL DISTRICT	.	90.55	SENATOBIA MUNICIPAL SCHOOL DIST	.	94.70
			14		ALCORN SCHOOL DISTRICT	.	85.65	TISHOMINGO CO SP MUN SCH DIST	.	91.90
			15		INDIANOLA SCHOOL DISTRICT	.	62.40	YAZOO CITY MUNICIPAL SCHOOL DIST	.	46.00
			Total	N	15		15	15		15
				Mean			82.4933			84.3300
				Std. Deviation			12.35292			16.11991
		2002	1		WATER VALLEY SCHOOL DISTRICT	.	91.80	COLUMBIA SCHOOL DISTRICT	.	79.70
			2		LINCOLN CO SCHOOL DISTRICT	.	90.80	NESHOBA COUNTY SCHOOL DISTRICT	.	79.80
			Total	N	2		2	2		2
				Mean			91.3000			79.7500
				Std. Deviation			.70711			.07071
		Total	N		17		17	17		17
			Mean				83.5294			83.7912
			Std. Deviation				11.92081			15.15532
TX	INITIATION YEAR	2000	1		PASADENA IND SCHOOL DISTRICT	38.40	50.20	CORPUS CHRISTI ISD	27.70	43.65
			2		UNITED IND SCHOOL DISTRICT	28.40	38.75	LAREDO ISD	25.80	33.25
			3		SOCORRO IND SCHOOL DISTRICT	24.65	41.40	MCALLEN ISD	46.35	63.55
			4		LUFKIN IND SCHOOL DISTRICT	45.05	59.85	NACOGDOCHES ISD	49.35	57.55
			Total	N	4	4	4	4	4	4
				Mean		34.1250	47.5500		37.3000	49.5000
				Std. Deviation		9.31276	9.54943		12.26805	13.66858
		2001	1		ALDINE IND SCHOOL DISTRICT	41.77	74.20	ALIEF ISD	36.53	52.40
			2		MCKINNEY IND SCHOOL DIST	58.27	70.40	DENTON ISD	47.90	67.50
			3		AUSTIN IND SCHOOL DISTRICT	35.60	48.70	FORT WORTH ISD	23.73	44.50
			Total	N	3	3	3	3	3	3
				Mean		45.2111	64.4333		36.0556	54.8000
				Std. Deviation		11.71933	13.75730		12.09042	11.68632
		2002	1		WYLIE IND SCHOOL DISTRICT (TAYLOR)	62.95	.	FORNEY ISD	43.18	.
			2		FT BEND IND SCHOOL DISTRICT	57.45	.	GARLAND ISD	55.83	.
			3		DALLAS IND SCHOOL DISTRICT	19.90	.	HOUSTON ISD	34.95	.
			4		CLEAR CREEK IND SCHOOL DIST	56.80	.	ROUND ROCK ISD	67.32	.
			Total	N	4	4		4	4	
				Mean		49.2750			50.3187	
				Std. Deviation		19.77669			14.22161	
		Total	N		11	11	7	11	11	7
			Mean			42.6576	54.7857		41.6947	51.7714
			Std. Deviation			14.81271	13.78860		13.49365	12.12287
VA	INITIATION YEAR	2000	1		SUFFOLK PUBLIC SCHOOL DISTRICT	17.48	47.33	LYNCHBURG CITY PUBLIC SCHOOLS	38.57	65.05
			2		ALBEMARLE CO SCHOOL DISTRICT	54.70	83.64	SPOTSYLVANIA COUNTY PUBLIC SCH	47.32	75.83
			Total	N	2	2	2	2	2	2
				Mean		36.0875	65.4875		42.9425	70.4425
				Std. Deviation		26.32205	25.67151		6.19072	7.61908
		2002	1		ARLINGTON PUBLIC SCHOOLS	70.90	.	HAMPTON CITY PUBLIC SCHOOLS	59.16	.
			Total	N	1	1		1	1	
				Mean		70.9031			59.1550	
				Std. Deviation		.			.	
		Total	N		3	3	2	3	3	2
			Mean			47.6927	65.4875		48.3467	70.4425
			Std. Deviation			27.39465	25.67151		10.33332	7.61908
Total	N				31	14	26	31	14	26
	Mean					43.7365	74.4029		43.1201	74.1437
	Std. Deviation					16.99515	18.26720		12.82618	19.72618

Table IIb. Pre- and Post-Initiation Year SATP Scaled Scores for *Prentice Hall Algebra 1* User and Matched Districts by Initiation Year and State

						PH ALGEBRA 1 USER DISTRICT NAME	Pre SATP Scaled Score	Post SATP Scaled Score	PH ALGEBRA 1 USER DISTRICT NAME	Pre SATP Scaled Score	Post SATP Scaled Score
STATE	MS	INITIATION YEAR	2001	1		LEFLORE CO SCHOOL DISTRICT	285.40	327.75	CANTON PUBLIC SCHOOL DIST	297.40	318.20
				2		JACKSON PUBLIC SCHOOL DIST	290.80	317.80	DESOTO CO SCHOOL DIST	317.00	363.20
				3		LAFAYETTE CO SCHOOL DISTRICT	299.50	359.45	FORREST COUNTY SCHOOL DISTRICT	309.40	361.70
				4		BILOXI SCHOOL DISTRICT	311.60	371.25	GULFPORT SCHOOL DIST	310.50	355.30
				5		JACKSON CO SCHOOL DISTRICT	309.00	362.35	HARRISON CO SCHOOL DIST	312.90	354.30
				6		WINONA SCHOOL DISTRICT	307.70	358.65	HOUSTON SCHOOL DIST	308.10	362.95
				7		LOUISVILLE MUNICIPAL SCH DIST	302.80	326.05	LAUREL SCHOOL DISTRICT	298.10	320.00
				8		CALHOUN CO SCHOOL DISTRICT	300.40	324.45	MARION CO SCHOOL DIST	288.50	314.95
				9		HATTIESBURG PUBLIC SCH DIST	292.00	326.85	MOSS POINT SEPARATE SCHOOL DIST	299.90	314.05
				10		LONG BEACH SCHOOL DISTRICT	306.00	368.45	PEARL PUBLIC SCHOOL DIST	311.20	361.25
				11		SCOTT CO SCHOOL DISTRICT	301.00	329.00	PETAL SCHOOL DIST	328.00	360.05
				12		KOSCIUSKO SCHOOL DISTRICT	306.60	358.25	QUITMAN SCHOOL DIST	297.30	349.85
				13		CORINTH SCHOOL DISTRICT	327.70	359.00	SENATOBIA MUNICIPAL SCHOOL DIST	311.60	356.30
				14		ALCORN SCHOOL DISTRICT	308.00	339.55	TISHOMINGO CO SP MUN SCH DIST	311.00	348.80
				15		INDIANOLA SCHOOL DISTRICT	283.40	308.75	YAZOO CITY MUNICIPAL SCHOOL DIST	298.80	300.55
				Total	N	15	15	15	15	15	15
					Mean		302.1267	342.5067		306.6467	342.7633
					Std. Deviation		11.22647	20.63530		9.90425	22.17791
			2002	1		WATER VALLEY SCHOOL DISTRICT	314.75	346.10	COLUMBIA SCHOOL DISTRICT	314.60	330.30
				2		LINCOLN CO SCHOOL DISTRICT	318.95	346.30	NESHOBA COUNTY SCHOOL DISTRICT	309.00	335.00
				Total	N	2	2	2	2	2	2
					Mean		316.8500	346.2000		311.8000	332.6500
					Std. Deviation		2.96985	.14142		3.95980	3.32340
			Total	N		17	17	17	17	17	17
				Mean			303.8588	342.9412		307.2529	341.5735
				Std. Deviation			11.60775	19.34152		9.47319	21.03208