Cindy Hill, Superintendent of Public Instruction

Wyoming Department of Education

2300 Capitol Avenue, Hathaway Building 2nd Floor, Cheyenne WY 82002-0050
307-777-7675 Office 307-777-6234 Fax http://edu.wyoming.gov

Wyoming Bridges

A Legislative Grant Program

Funding Summer School and Extended-Day Learning Opportunities for K-12 Students in Wyoming

A Report of 2010 Bridges Summer Learning Programs

Prepared by Ruth Sommers
for the Wyoming Department of Education
February 7, 2011

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Authority

State funds specifically targeted to summer school and extended-day interventions were first made available to districts by the 57th Legislature of the State of Wyoming in 2004 as Section 1001 of Chapter 108, now referred to as Wyoming Bridges. It was funded for the second time in 2005. In 2006, policymakers again determined to keep the Bridges program apart from the block grant and funded it for the third time as a separate, independently functioning program through Section 3 of Chapter 37 of the 2006 Wyoming Session Laws. Chapter 37 of the 2006 Wyoming Session Laws was amended in 2007 to extend funding yet another grant cycle for the summer program for 2007 (FY08) and school year 2007-08. The grant program was enacted into legislation with the 59th Legislature; its funding formula and programmatic function are now described under W.S. 21-13-334, and actual funding for the program is requested through the biennial budget process by the Wyoming Department of Education. Funds are directed separately to districts from the cost-based block grant education funding model, and for FY11, $11.6 million was set aside for summer and extended day programs running through the 2010-11 school year.

History

Need for funds targeted specifically to summer school and extended-day interventions was originally identified in a 2002 study which examined the at-risk adjustment to Wyoming's cost-based block grant funding model for public schools.[1] That report emphasized that the cost-based block grant did not fund programs outside the regular school day or beyond the traditional school year, and that educational services provided to students needing additional instruction varied so greatly among the districts that policymakers could not be assured all students were exposed equally to quality educational supports.

A subsequent 2003 report on summer school highlighted the impact summer learning loss has on students.[2] The report proposed the idea that some of the problems associated with inconsistencies and potential inequities across districts could be addressed through a grant program that set forth requirements which emphasize the components identified nationally as encouraging student achievement. The resultant legislation created a non-competitive grant program that met these standards. Legislators broadened the grant program beyond summer school to allow districts to offer

[1] Ruth Sommers, Review of the At-risk Adjustment to the Wyoming Cost-based Block Grant Education Funding Model, Cheyenne, WY, November 2002.

[2] Ruth Sommers, Summer Semester: A Grant Proposal to Fund summer School Programs for the State of Wyoming, Cheyenne, WY, October 2003.

extended-day opportunities to students needing additional time to master standards during the school year.

In the 2006 legislative session, lawmakers doubled the grant amount available to districts, increasing it from $500 to $1,000/student, limited to ten percent of a district's prior October 1 enrollment. With these additional funds came the ability for districts to offer stand-alone, separate enrichment programs to different student groups needing supplemental instruction.

Before model recalibration in 2008, the Bridges Design Team worked closely with Picus & Associates to revisit the philosophy and funding formula currently being utilized by the summer school grant program. This dialogue ended with two major changes being suggested by the Design Team to the Joint Education Committee and the full legislature, which adopted the changes. The funding formula was changed to direct dollars to districts according to levels of at-risk student proxy numbers rather than being based on enrollment; funding amounts were calculated using current model teacher salary data. This change was in keeping with the philosophy of directing at-risk dollars according to academic need as demonstrated by socioeconomic indicators reflected in the model's student proxy count. The second major change to the summer school grant was to reiterate the original intent of the grant to direct funds to students who are considered to be at risk academically and in need of intervention and remediation. Stand-alone, separate enrichment programs targeted to student groups other than those needing academic intervention/remediation was no longer funded by Wyoming Bridges, although the grant retained requirements for use of enriched instructional strategies. In 2008, the 59th Legislature did separately fund a pilot school enrichment program in the amount of $450,000. This program was continued by legislative action again for 2009 and 2010.

Over these years, policy makers have maintained the Bridges grant as a separate program funded independently from the cost-based block grant that supports K-12 public education. Thus, for participating districts, the Wyoming Bridges grant still retains the programmatic requirements identified in its inception as being essential to successful summer school programs such as minimum length of instruction time, identification of math and language arts as core subjects representative of sound summer or extended-day intervention/remediation program offerings, the development of student individual learning plans, instruction utilizing enriched learning methodologies delivered by teachers certified in their particular curricular areas, professional development, and supervision and oversight of programs.

Action – Summer School Programs

In the summer of 2010, 46 of the state's 48 school districts participated in the Bridges Summer School Grant Program; Sublette County School District #9 and Sheridan County School District #3 did not participate. Most districts made summer intervention and remediation programs available to students in all grades for which they were accredited. Exceptions included Converse County School District #2 which offered credit recovery only to high school students (their K-8 summer program was funded through sources other than the Bridges grant). Park County School District #16 and Washakie County School District #2 both reported having no high school students needing credit recovery, and Washakie #2 indicated there were no junior high students who enrolled for summer remediation.

Implementation of the Wyoming Bridges grant is guided by policymakers, administrators and teachers through the Bridges Design Team. This group meets to review the operation of and data collected by the program, including feedback from districts, and proposes modifications to improve it as needed. The team also studies changes made to legislation, discusses policy implications as a result of those changes, updates rules and regulations, and make suggestions to the Department in the administration of the program.

As directed by legislation, the Department continued the monitoring of Bridges programs this year and visited six districts throughout the summer period. Results of the monitoring visits are explained further in this report and include a description of promising practices observed during these 2010 monitoring visits.

The initial analysis of a single district's summer school effectiveness for the 2007 summer school period has expanded to include student growth assessment data across eight districts throughout the state for the summers of 2008 and 2009. Results of the 2009 pilot study are discussed later in this report and the formal paper is included as Attachment B. Results for this three-year pilot analysis have been quite valuable and informative. Now, in accordance with the statutory mandate to evaluate the effectiveness of summer programs, the analysis will expand to a statewide one beginning with the 2010 summer season. It is anticipated this expanded study will lend objective data to help guide policymakers, administrators and educators in their design of effective instructional programs for at-risk students. Statewide data will be included with next year's annual report to the legislature.

<u>Financial Information - Summer School Programs</u>

In 2008, the grant's funding formula was changed from one based on enrollment to one based on a district's at-risk student count, following the model's example of directing additional funds to districts based on the number of students in that district who are considered to be academically at-risk using as a proxy low student socioeconomic status (measured through free and reduced lunch numbers), students considered to be mobile, and those needing additional support to learn English. The grant remains non-competitive, requiring district assurance that grant guidelines are met. The grant allocation is now calculated using each district's average teacher reimbursement, rather than a finite per pupil amount. Allowances are still made for very small districts, and five received a "floor" grant allocation this year. Districts reported expending $9 million on summer school programs during the summer of 2010, of which nearly $7 million were Wyoming Bridges funds, approximately 77 percent of total expenditures. The difference between these two amounts was made up from other revenue sources locally including Title VI-B, district general funds, other miscellaneous funds, and Title I dollars, in that order of amount expended (Table 1). Total 2010 expenditures increased $1.5 million over 2009, a 20 percent increase.

Table 1: Wyoming Department of Education
2010 Bridges Summer School Expenditures

District	Bridges Grant Funds	Title I	Title VI-B	General Fund	Other	Total Expenditures
Albany #1	$ 216,120	$ 61,000	$ 15,000	$ 13,400	$ 7,000	$ 312,520
Big Horn #1	$ 85,562	$ -	$ -	$ -	$ -	$ 85,562
Big Horn #2	$ 74,167	$ -	$ -	$ -	$ -	$ 74,167
Big Horn #3	$ 63,003	$ -	$ -	$ -	$ -	$ 63,003
Big Horn #4	$ 36,194	$ -	$ 7,195	$ -	$ 12,830	$ 56,218
Campbell #1	$ 600,283	$ -	$ 293,600	$ 49,695	$ -	$ 943,578
Carbon #1	$ 129,045	$ -	$ -	$ -	$ -	$ 129,045
Carbon #2	$ 36,095	$ -	$ -	$ -	$ -	$ 36,095
Converse #1	$ 116,085	$ -	$ -	$ -	$ 5,106	$ 121,191
Converse #2	$ 10,867	$ -	$ -	$ 7,690	$ -	$ 18,557
Crook #1	$ 59,384	$ -	$ 16,739	$ 20,704	$ -	$ 96,827
Fremont #1	$ 87,333	$ -	$ 6,583	$ -	$ -	$ 93,916
Fremont #2	$ 36,853	$ -	$ 10,674	$ 1,938	$ -	$ 49,465
Fremont #6	$ 12,388	$ -	$ 4,161	$ -	$ 26,358	$ 42,908
Fremont #14	$ 109,351	$ -	$ -	$ -	$ 17,661	$ 127,012
Fremont #21	$ 117,016	$ -	$ -	$ -	$ -	$ 117,016
Fremont #24	$ 35,231	$ 447	$ 159	$ -	$ -	$ 35,837
Fremont #25	$ 179,941	$ 8,196	$ 39,974	$ 16,527	$ -	$ 244,638
Fremont #38	$ 30,489	$ 6,748	$ 7,005	$ 2,695	$ 37,919	$ 84,855
Goshen #1	$ 237,434	$ -	$ 18,391	$ 75,824	$ -	$ 331,649
Hot Springs #1	$ 78,831	$ -	$ -	$ -	$ -	$ 78,831
Johnson #1	$ 61,991	$ -	$ -	$ -	$ -	$ 61,991
Laramie #1	$ 1,091,675	$ -	$ 126,858	$ 262,827	$ 18,123	$ 1,499,482
Laramie #2	$ 55,106	$ 1,773	$ 18,381	$ 830	$ -	$ 76,090
Lincoln #1	$ 27,958	$ -	$ -	$ -	$ -	$ 27,958
Lincoln #2	$ 316,675	$ -	$ -	$ -	$ 36,282	$ 352,957
Natrona #1	$ 856,030	$ -	$ -	$ 65,120	$ 74,301	$ 995,451
Niobrara #1	$ 43,298	$ -	$ -	$ -	$ -	$ 43,298
Park #1	$ 199,983	$ 9,939	$ 50,887	$ -	$ 56,880	$ 317,689
Park #6	$ 134,360	$ -	$ 17,847	$ 5,569	$ -	$ 157,776
Park #16	$ 12,139	$ -	$ -	$ -	$ 7,753	$ 19,892
Platte #1	$ 86,046	$ -	$ -	$ -	$ -	$ 86,046
Platte #2	$ 38,409	$ -	$ -	$ -	$ -	$ 38,409
Sheridan #1	$ 87,436	$ -	$ -	$ -	$ -	$ 87,436
Sheridan #2	$ 273,759	$ -	$ -	$ -	$ -	$ 273,759
Sublette #1	$ 34,010	$ -	$ -	$ -	$ 29,670	$ 63,680
Sweetwater #1	$ 466,598	$ -	$ 155,049	$ -	$ -	$ 621,646
Sweetwater #2	$ 147,890	$ 10,450	$ 8,169	$ 71,425	$ 20,415	$ 258,349
Teton #1	$ 113,904	$ -	$ 8,499	$ -	$ -	$ 122,403
Uinta #1	$ 200,547	$ -	$ 132,760	$ -	$ -	$ 333,307
Uinta #4	$ 63,751	$ 5,925	$ 10,406	$ -	$ -	$ 80,082
Uinta #6	$ 49,361	$ -	$ 12,845	$ 15,627	$ -	$ 77,833
Washakie #1	$ 114,181	$ -	$ -	$ -	$ -	$ 114,181
Washakie #2	$ 24,489	$ -	$ -	$ -	$ -	$ 24,489
Weston #1	$ 72,140	$ 4,207	$ 17,665	$ -	$ 3,158	$ 97,170
Weston #7	$ 29,225	$ -	$ 2,300	$ -	$ -	$ 31,525
Total (46)	**$ 6,952,631**	**$ 108,685**	**$ 981,146**	**$ 609,869**	**$ 353,457**	**$ 9,005,788**
% of Total Exp	**77.20%**	**1.21%**	**10.89%**	**6.77%**	**3.92%**	

Table 2: Wyoming Department of Education
2010 Bridges Summer School Expenditures Per Pupil

District	Grades Offered	Student Enrollment		Total SS Expenditures		Per Student Expenditure
Albany #1	K-12	267	$	312,520	$	1,170
Big Horn #1	K-12	102	$	85,562	$	839
Big Horn #2	K-12	114	$	74,167	$	651
Big Horn #3	K-12	89	$	63,003	$	708
Big Horn #4	K-12	34	$	56,218	$	1,653
Campbell #1	K-12	700	$	943,578	$	1,348
Carbon #1	K-12	171	$	129,045	$	755
Carbon #2	K-12	68	$	36,095	$	531
Converse #1	K-12	189	$	121,191	$	641
Converse #2	9-12	12	$	18,557	$	1,546
Crook #1	K-12	134	$	96,827	$	723
Fremont #1	K-12	134	$	93,916	$	701
Fremont #2	K-12	26	$	49,465	$	1,902
Fremont #6	K-12	34	$	42,908	$	1,262
Fremont #14	K-12	133	$	127,012	$	955
Fremont #21	K-8	157	$	117,016	$	745
Fremont #24	K-12	36	$	35,837	$	995
Fremont #25	K-12	338	$	244,638	$	724
Fremont #38	K-12	87	$	84,855	$	975
Goshen #1	K-12	249	$	331,649	$	1,332
Hot Springs #1	K-12	150	$	78,831	$	526
Johnson #1	K-12	110	$	61,991	$	564
Laramie #1	K-12	1,122	$	1,499,482	$	1,336
Laramie #2	K-12	109	$	76,090	$	698
Lincoln #1	K-12	68	$	27,958	$	411
Lincoln #2	K-12	347	$	352,957	$	1,017
Natrona #1	K-12	1,388	$	995,451	$	717
Niobrara #1	K-12	25	$	43,298	$	1,732
Park #1	K-12	199	$	317,689	$	1,596
Park #6	K-12	114	$	157,776	$	1,384
Park #16	K-12	13	$	19,892	$	1,530
Platte #1	K-12	68	$	86,046	$	1,265
Platte #2	K-12	40	$	38,409	$	960
Sheridan #1	K-12	142	$	87,436	$	616
Sheridan #2	K-12	278	$	273,759	$	985
Sublette #1	K-12	62	$	63,680	$	1,027
Sweetwater #1	K-12	576	$	621,646	$	1,079
Sweetwater #2	K-12	221	$	258,349	$	1,169
Teton #1	K-12	161	$	122,403	$	760
Uinta #1	K-12	514	$	333,307	$	648
Uinta #4	K-12	99	$	80,082	$	809
Uinta #6	K-12	80	$	77,833	$	973
Washakie #1	K-12	134	$	114,181	$	852
Washakie #2	K-12	18	$	24,489	$	1,360
Weston #1	K-12	76	$	97,170	$	1,279
Weston #7	K-12	29	$	31,525	$	1,087
State Total (46)		**9,217**	**$**	**9,005,788**	**$**	**977**

Sixteen districts did not support summer programs with funds other than the Bridges grant. As usual, per pupil expenditures among the districts vary widely and ranged from a high of $1,902 in Fremont #2 to a low of $411 in Lincoln #1, with an average of $977, slightly higher than the summer 2008 average of $935/pupil (Table 2).

Districts requested a total of $6,952,631 in Bridges funds be released for summer 2010 expenditures, leaving approximately $5 million to be expended for SY10-11 extended-day programs.

The Department has in the past and anticipates continuing to partner with GEAR UP to sponsor statewide Quantum Learning (QL) workshops. GEAR UP has been working closely with Quantum Learning to develop a cadre of Wyoming-based instructors who will be able to conduct Quantum trainings throughout the state. Six Wyoming teachers have completed Quantum's facilitator training process, and can now provide Quantum training to others within the state. As the Bridges Design Team and the Department stress accountability and the assessment of program effectiveness, training efforts are more frequently being directed toward providing the technical assistance needed by teachers and administrators on how to fully utilize the data-generating capabilities of Northwest Education Association's Measurement of Academic Progress (MAP), not only to identify academic deficiencies, but also to direct appropriate instruction geared toward individual student needs, as well as how to use data to look at whole program strengths and weaknesses. The Bridges grant sponsored regional MAP workshops in the spring of 2010 in Big Horn, Albany, and Lincoln counties, involving the personnel eight districts in this professional development opportunity.

Results – Student Enrollment and Completion Data – Summer School Programs

Readers of this report should be made aware that gathering of summer school data was modified significantly this year, primarily in order to be able to conduct effectiveness analysis of district summer programs. For the first time in the history of the grant, individual student records were included in data reported to the Department. When this step is first taken, it is anticipated that data comparisons to prior years can be somewhat incongruous. But generally speaking, overall student counts were quite consistent, although there may be variances among individual districts from prior years to this.

Districts this year identified 14,910 students who would benefit from summer instruction. Of these, 9,217 students enrolled, and 8,652 completed Bridges summer programs (10.61 percent of all Wyoming students). The number of students reported by districts to be enrolled in summer school this year actually decreased by approximately 200 students from last year (Table 3). Enrollment in summer school ranged from a low of 4.05 percent of total student enrollment in Niobrara #1 to a high of 36.94 percent in Fremont #24. Of the 46 districts utilizing Wyoming Bridges funds this summer, thirty enrolled more than ten percent of their October 1 student count, eleven enrolled over fifteen percent, and five enrolled more than twenty percent. Conversely, sixteen districts enrolled fewer than ten percent of their student count in the participating grades, and six enrolled less than 7.5 percent. Three districts do not have programs for high school students; one is a K-8, and the other two districts have 100% high school graduation rate. Please refer to Table 3 below to see student enrollment and completion data.

Table 3: Wyoming Department of Education **UNDUPLICATED COUNT**
2010 Bridges Summer School Enrollment and Completer Data

District	Grades Offered	Students Identified	Students Enrolled	% of Total Enrollmt	Students Completing	Percent Completing
Albany #1	K-12	534	267	7.46%	236	88.39%
Big Horn #1	K-12	143	102	16.72%	105	102.94%
Big Horn #2	K-12	173	114	17.27%	69	60.53%
Big Horn #3	K-12	144	89	17.87%	87	97.75%
Big Horn #4	K-12	59	34	11.45%	35	102.94%
Campbell #1	K-12	1,173	700	8.52%	657	93.86%
Carbon #1	K-12	390	171	9.48%	174	101.75%
Carbon #2	K-12	117	68	10.49%	63	92.65%
Converse #1	K-12	205	189	11.18%	169	89.42%
Converse #2	9-12	12	12	5.63%	12	100.00%
Crook #1	K-12	166	134	12.14%	132	98.51%
Fremont #1	K-12	219	134	8.02%	119	88.81%
Fremont #2	K-12	36	26	14.61%	26	100.00%
Fremont #6	K-12	57	34	8.59%	11	32.35%
Fremont #14	K-12	174	133	24.86%	133	100.00%
Fremont #21	K-8	208	157	36.94%	115	73.25%
Fremont #24	K-12	18	36	12.29%	36	100.00%
Fremont #25	K-12	568	338	13.71%	320	94.67%
Fremont #38	K-12	135	87	27.36%	60	68.97%
Goshen #1	K-12	432	249	13.78%	232	93.17%
Hot Springs #1	K-12	227	150	23.01%	151	100.67%
Johnson #1	K-12	175	110	8.93%	110	100.00%
Laramie #1	K-12	2,313	1,122	8.50%	1,122	100.00%
Laramie #2	K-12	138	109	12.50%	109	100.00%
Lincoln #1	K-12	101	68	11.30%	63	92.65%
Lincoln #2	K-12	507	347	13.14%	347	100.00%
Natrona #1	K-12	1,507	1,388	11.82%	1,288	92.80%
Niobrara #1	K-12	46	25	4.05%	25	100.00%
Park #1	K-12	250	199	11.74%	199	100.00%
Park #6	K-12	143	114	5.29%	114	100.00%
Park #16	K-12	17	13	10.92%	11	84.62%
Platte #1	K-12	106	68	6.40%	69	101.47%
Platte #2	K-12	64	40	20.73%	39	97.50%
Sheridan #1	K-12	178	142	15.38%	144	101.41%
Sheridan #2	K-12	344	278	8.78%	264	94.96%
Sublette #1	K-12	62	62	6.34%	37	59.68%
Sweetwater #1	K-12	1,655	576	11.44%	506	87.85%
Sweetwater #2	K-12	176	221	8.50%	200	90.50%
Teton #1	K-12	454	161	6.95%	142	88.20%
Uinta #1	K-12	708	514	17.35%	496	96.50%
Uinta #4	K-12	164	99	13.34%	94	94.95%
Uinta #6	K-12	134	80	11.59%	78	97.50%
Washakie #1	K-12	246	134	10.11%	134	100.00%
Washakie #2	K-12	24	18	16.07%	18	100.00%
Weston #1	K-12	161	76	9.34%	72	94.74%
Weston #7	K-12	47	29	10.47%	29	100.00%
Total: (46)		**14,910**	**9,217**	**10.61%**	**8,652**	**93.87%**

All districts make available math and language arts to their students needing to recover standards, as required by the Bridges grant. Most districts offer instruction in other subjects as well, particularly making available social studies and science to secondary students. This year 36 districts made social studies available to 950 students; science was offered by 35 districts to 1,056 students; credit or standards recovery for health/physical education were offered to 171 students in six districts; and six districts made available credit recovery to 89 students in subjects such as foreign language, fine or performing arts, and computer science. Tables showing student counts by subject and by district are included in this report as Attachment A.

Of interest in Table 3 table above is the high number of students identified by districts as needing additional instructional support versus those who actually attended. Districts indicated they referred 14,910 students to summer school; this is 17 percent of total student enrollment in the grades offered. Approximately 61 percent of those referred actually enrolled in summer school (9,217 students). Of those who enrolled, an average of 94 percent completed summer school, with completion rates ranging among the districts from 100 percent to only 32 percent. (NOTE: Observers will see some districts reporting more completing students than enrolled. This is a report editing issue that will be resolved next year. It is also interesting to note than completion rates in the past averaged near 85 percent rather than the 94 percent reported this year.)

Some districts still report struggling to maintain attendance and interest in summer programs. In contrast, others report improving student attendance as well as parental interest and support largely as a result of increased student engagement through the incorporation of enriched instructional approaches. Provision of hot breakfasts and lunches is also reported to increase student attendance. The number of districts having policies in place that require successful remediation before promotion to the next grade stands at ten (Big Horn #2, Carbon #1, Carbon #2, Fremont #14, Fremont #24, Fremont #25, Lincoln #1, Park #1, Washakie #2, and Weston #1).

In 2010, thirteen districts offered pre-kindergarten summer programs to 383 students, as shown in Table 4. Most of these programs were targeted to students who may be considered not ready for kindergarten, and nearly all of the participant districts indicated they used a pre and post assessment specifically designed to measure kindergarten readiness in young students.

Table 5 illustrates enrollment and completer data for credit recovery in high school grades in the seven content areas of math, language arts, science, social studies, career/technical, fine arts, foreign language, and health/physical education for 2010 summer high school students. Detailed district information on summer high school student participation by subject is included with this report as Attachment A. It is apparent that summer programs funded through Wyoming Bridges play an essential part in credit recovery for Wyoming high school students, enabling many to successfully graduate. As can be seen below, 2,106 high school students recovered a total of 2,598 semester credits; some students recovered credits in more than one subject, and others may have received both a fall and spring credit for a single subject.

Table 4: Wyoming Department of Education
2010 Summer Pre-K Enrollment

District	Students Enrolled
Carbon #1	8
Crook #1	7
Fremont #2	6
Fremont #21	4
Fremont #25	85
Laramie #1	114
Laramie #2	8
Park #1	8
Sheridan #1	7
Sublette #1	47
Uinta #1	27
Uinta #4	42
Weston #1	20
Total: (13)	**383**

Table 5: Wyoming Department of Education
2010 Bridges High School Summer Enrollment
Number of Credits Recovered & Number of Students Completing

Subject (# Distr Offering)	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Math (41)	287	281	244	34	**846**
Language Arts (39)	237	271	213	52	**773**
Science (29)	159	167	124	18	**468**
Social Studies (30)	97	135	146	27	**405**
Career Tech (11)	31	31	30	15	**107**
Fine Arts (5)	6	5	8	4	**23**
Foreign Language (5)	13	12	4	2	**31**
Health/PE (11)	32	33	29	12	**106**
Total Credits Recovered:	**812**	**887**	**756**	**143**	**2,598**
Tot Students Completing:	**693**	**682**	**617**	**114**	**2,106**

Tables 6 and 7 on the following pages provide historical data on student participation, shown both in total student enrollment counts (Table 6), and enrollment as a percentage of total district enrollment for the past six years the grant program has been in operation (Table 7). Counts for 2005, 2006 and 2007 are shown according to highest district enrollment in either math or language arts, while the latter years indicate an unduplicated count of students enrolled regardless of subject.

Other than the inaugural year of the Bridges grant, 44 to 45 districts have each year held summer school for their struggling students. The number of students enrolled grew by 1,268 over this timeframe, an increase of 16 percent. However, because statewide enrollment has increased in general, the *percentage* of students enrolling in summer programs has remained fairly consistent across time, moving from 10.02 percent in 2005 to 10.61 percent in 2010 of total student enrollment in offered grades.

Table 8 illustrates district at-risk proxy percentages used within the school funding model, as well as the level of students completing summer school who were also identified as at-risk students (either free/reduced lunch eligible, mobile, or English language learner). Please note that the percentage of students completing summer school identified as at-risk is generally considerably higher than the at-risk percentage identified in the district at large (though not always). Not included in this table are Fremont school districts #14, #21, and #38, whose count of at-risk students completing summer school could not be identified within existent data constraints, and the two districts which do not utilize Bridges grant funds for summer programs – Sheridan #3 and Sublette #9.

In the summer of 2010, all but ten school districts identified other programs offered to students during summer in addition to Wyoming Bridges. The most common summer supplementary program made available was the provision of Extended School Year (ESY) or other supports to students having Individual Education Plans (IEPs) under Title VI-B, special education (over 500 students). But, the majority of *students* participating in programs other than Bridges were enrolled in some form of enrichment offering (almost 1300 students); seven districts were recipients of Student Enrichment Project (SEP) grant funds. It appeared at least seven districts made first-time credit classes available to students, and subjects included driver's education, health/physical education, performing arts, and career/technical courses; seven additional districts reported provided training related to work or other career/technical opportunities through the American Recovery & Reinvestment Act (ARRA). A number of districts coordinated with 21st Century Learning to provide summer programs for students, and still others offer specialized programs for English language learners and migrant students. In total, it was reported that approximately 3300 students participated in these "other than Bridges" summer learning opportunities in 2010, reiterating the important role schools play in the vitality of communities year-round.

Table 6: Wyoming Department of Education
Bridges Summer School Enrollment History 2005 through 2010

	SS Enrollment - Number of Students					
District (# in SS)	**2010 (46)**	**2009(45)**	**2008(44)**	**2007(45)**	**2006(44)**	**2005(40)**
Albany 1	267	350	485	492	407	328
Big Horn 1	102	115	133	71	91	N/A
Big Horn 2	114	106	101	101	100	N/A
Big Horn 3	89	63	76	43	63	37
Big Horn 4	34	28	45	38	50	39
Campbell 1	700	728	878	872	735	779
Carbon 1	171	227	264	229	207	230
Carbon 2	68	75	35	80	79	86
Converse 1	189	170	168	119	154	146
Converse 2	12	19	19	9	10	N/A
Crook 1	134	132	101	115	124	112
Fremont 1	134	192	183	143	122	180
Fremont 2	26	25	23	25	28	34
Fremont 6	34	N/A	N/A	25	16	N/A
Fremont 14	133	133	93	159	153	88
Fremont 21	157	138	74	146	227	140
Fremont 24	36	42	39	42	23	30
Fremont 25	338	291	294	213	309	283
Fremont 38	87	17	N/A	N/A	N/A	N/A
Goshen 1	249	287	204	237	217	271
Hot Springs 1	150	85	136	72	74	118
Johnson 1	110	264	97	108	78	125
Laramie 1	1,122	1385	1110	870	1076	1194
Laramie 2	109	133	116	95	90	69
Lincoln 1	68	57	60	58	38	67
Lincoln 2	347	295	316	245	348	359
Natrona 1	1,388	1123	1111	935	694	734
Niobrara 1	25	34	28	31	16	26
Park 1	199	224	237	112	134	162
Park 6	114	153	113	126	104	129
Park 16	13	17	14	6	18	4
Platte 1	68	90	104	104	152	102
Platte 2	40	36	18	40	49	20
Sheridan 1	142	126	77	162	145	95
Sheridan 2	278	265	282	187	200	353
Sheridan 3	N/A	N/A	N/A	N/A	N/A	N/A
Sublette 1	62	78	48	33	N/A	N/A
Sublette 9	N/A	N/A	N/A	N/A	N/A	N/A
Sweetwater 1	576	568	526	392	374	512
Sweetwater 2	221	233	279	163	206	189
Teton 1	161	222	265	249	174	230
Uinta 1	514	463	337	354	316	164
Uinta 4	99	74	88	114	93	105
Uinta 6	80	82	69	98	89	102
Washakie 1	134	140	132	136	80	136
Washakie 2	18	13	12	18	10	24
Weston 1	76	96	89	68	100	121
Weston 7	29	20	29	28	35	26
Total Enr:	**9217**	**9414**	**8908**	**7963**	**7808**	**7949**

Table 7: Wyoming Department of Education
Bridges Summer School Enrollment History 2005 through 2010

SS Enrollment as Percentage of Total District Enrollment						
District (# in SS)	**2010(46)**	**2009(45)**	**2008(44)**	**2007(45)**	**2006(44)**	**2005(40)**
Albany 1	7.46%	9.88%	13.83%	14.09%	11.69%	9.22%
Big Horn 1	16.72%	18.64%	21.91%	11.29%	13.85%	N/A
Big Horn 2	17.27%	16.36%	15.40%	16.08%	15.50%	N/A
Big Horn 3	17.87%	12.55%	15.57%	12.84%	12.28%	7.44%
Big Horn 4	11.45%	8.51%	13.72%	11.11%	14.88%	11.08%
Campbell 1	8.52%	9.12%	11.57%	11.45%	10.02%	10.82%
Carbon 1	9.48%	12.70%	14.55%	13.06%	11.99%	13.82%
Carbon 2	10.49%	11.54%	10.77%	12.08%	11.93%	12.29%
Converse 1	11.18%	10.02%	9.57%	7.36%	9.72%	9.20%
Converse 2	5.63%	8.19%	8.37%	3.86%	4.33%	N/A
Crook 1	12.14%	12.17%	9.09%	10.65%	11.98%	10.42%
Fremont 1	8.02%	11.49%	10.55%	8.12%	6.99%	10.06%
Fremont 2	14.61%	13.09%	10.09%	10.64%	12.12%	14.41%
Fremont 6	8.59%	N/A	N/A	15.72%	11.27%	N/A
Fremont 14	24.86%	23.92%	17.65%	30.06%	25.93%	21.95%
Fremont 21	36.94%	36.90%	22.22%	44.51%	71.61%	39.77%
Fremont 24	12.29%	13.50%	11.37%	20.79%	14.29%	20.98%
Fremont 25	13.71%	0.00%	12.48%	8.61%	12.76%	11.68%
Fremont 38	27.36%	27.87%	N/A	N/A	N/A	N/A
Goshen 1	13.78%	15.80%	11.17%	12.96%	11.28%	14.36%
Hot Springs 1	23.01%	12.98%	21.18%	11.56%	11.67%	17.37%
Johnson 1	8.93%	21.60%	7.61%	8.56%	6.32%	10.24%
Laramie 1	8.50%	10.71%	8.69%	6.78%	8.42%	9.31%
Laramie 2	12.50%	15.81%	12.50%	10.64%	10.37%	7.86%
Lincoln 1	11.30%	9.06%	9.15%	9.25%	6.04%	10.77%
Lincoln 2	13.14%	11.13%	12.25%	9.67%	13.69%	14.46%
Natrona 1	11.82%	9.65%	9.57%	8.17%	6.08%	6.36%
Niobrara 1	4.05%	9.04%	7.69%	8.52%	4.58%	6.95%
Park 1	11.74%	13.37%	14.30%	6.91%	8.33%	10.34%
Park 6	5.29%	7.10%	5.25%	5.77%	4.83%	5.85%
Park 16	10.92%	13.93%	11.29%	4.65%	13.53%	3.33%
Platte 1	6.40%	8.26%	9.33%	8.90%	13.16%	8.59%
Platte 2	20.73%	17.56%	7.86%	16.26%	21.06%	8.30%
Sheridan 1	15.38%	13.56%	8.11%	17.63%	16.09%	10.63%
Sheridan 2	8.78%	8.49%	9.16%	6.20%	6.80%	11.96%
Sheridan 3	N/A	N/A	N/A	N/A	N/A	N/A
Sublette 1	6.34%	7.89%	5.11%	3.92%	N/A	N/A
Sublette 9	N/A	N/A	N/A	N/A	N/A	N/A
Sweetwater 1	11.44%	11.46%	11.09%	8.88%	8.82%	12.20%
Sweetwater 2	8.50%	8.72%	10.73%	6.39%	7.98%	7.21%
Teton 1	6.95%	9.68%	11.67%	11.22%	7.68%	10.13%
Uinta 1	17.35%	15.57%	11.45%	12.04%	11.29%	5.67%
Uinta 4	13.34%	10.14%	12.17%	16.55%	13.40%	16.77%
Uinta 6	11.59%	12.20%	10.65%	14.65%	13.38%	15.34%
Washakie 1	10.11%	10.72%	10.01%	10.26%	6.07%	10.75%
Washakie 2	16.07%	13.83%	12.50%	21.43%	12.20%	25.26%
Weston 1	9.34%	11.71%	11.31%	8.32%	12.87%	14.53%
Weston 7	10.47%	6.87%	10.74%	10.81%	14.06%	10.74%
% of Total Enr:	**10.61%**	**11.13%**	**10.70%**	**9.64%**	**9.64%**	**10.02%**

Table 8: Wyoming Department of Education
2010 Bridges Summer School Participant Data

District	Number of SS Completers ID'd At Risk	Percent of SS Completers ID'd At Risk	District At-Risk Proxy Percent in Funding Model	Difference
Albany 1	122	51.69%	33.42%	18.27%
Big Horn 1	53	50.48%	49.34%	1.14%
Big Horn 2	38	55.07%	43.94%	11.13%
Big Horn 3	51	58.62%	49.60%	9.02%
Big Horn 4	17	48.57%	39.39%	9.18%
Campbell 1	273	41.55%	30.59%	10.96%
Carbon 1	95	52.20%	42.98%	9.22%
Carbon 2	37	58.73%	45.83%	12.90%
Converse 1	78	46.15%	32.78%	13.37%
Converse 2 (9-12)	5	41.67%	38.08%	3.59%
Crook 1	70	50.36%	35.24%	15.12%
Fremont 1	66	55.46%	36.35%	19.11%
Fremont 2	12	46.15%	34.83%	11.32%
Fremont 6	7	63.64%	42.93%	20.71%
Fremont 24	8	22.22%	28.33%	**-6.11%**
Fremont 25	189	59.06%	44.18%	14.88%
Goshen 1	160	68.97%	55.17%	13.80%
Hot Springs 1	69	45.70%	45.40%	0.30%
Johnson 1	45	40.91%	30.93%	9.98%
Laramie 1	636	51.46%	41.05%	10.41%
Laramie 2	58	49.57%	32.34%	17.23%
Lincoln 1	18	28.57%	26.58%	1.99%
Lincoln 2	160	46.11%	36.93%	9.18%
Natrona 1	604	46.86%	36.87%	9.99%
Niobrara 1	7	28.00%	30.47%	**-2.47%**
Park 1	115	57.79%	39.71%	18.08%
Park 6	70	61.40%	30.57%	30.83%
Park 16	6	54.55%	56.30%	**-1.75%**
Platte 1	25	36.23%	33.05%	3.18%
Platte 2	15	38.46%	43.01%	**-4.55%**
Sheridan 1	59	39.60%	26.00%	13.60%
Sheridan 2	142	53.79%	37.95%	15.84%
Sublette 1	6	16.22%	16.87%	**-0.65%**
Sweetwater 1	254	50.20%	38.70%	11.50%
Sweetwater 2	87	43.50%	28.22%	15.28%
Teton 1	86	60.56%	28.92%	31.64%
Uinta 1	323	61.76%	46.89%	14.87%
Uinta 4	29	21.64%	29.11%	**-7.47%**
Uinta 6	26	33.33%	30.58%	2.75%
Washakie 1	82	61.19%	48.60%	12.59%
Washakie 2	9	50.00%	30.36%	19.64%
Weston 1	30	41.67%	30.59%	11.08%
Weston 7	14	48.28%	35.74%	12.54%

Results – Data - Student Achievement – Summer School Programs

As has been stated in each prior summary report to the legislature over the history of the Bridges grant, the ability to analyze the effectiveness of summer school has been elusive as a uniform assessment system or instrument was not available to all districts throughout the state. An additional issue the Department faced in evaluating summer school effectiveness in the past was the attempt to measure effectiveness by measuring changes in student proficiency rather than student growth. While many summer school students may show positive growth over the summer period, quite a few may still not be considered "proficient" in a subject, which was for a number of years the tool used by Wyoming Bridges to measure progress. Districts had made appeals each year to Bridges administrators asking for guidance on summer school student assessment, requesting that the Department move to a system that can measure growth rather than proficiency in students across the summer period. Fortunately, over the timeframe of the Bridges grant, more and more districts had begun using Northwest Evaluation Association's (NWEA) Measurement of Academic Progress (MAP) which specifically measures student academic growth. Using MAP for evaluation of summer school effectiveness could resolve both the issue of measuring growth rather than proficiency, and it was a uniform assessment system being used more frequently across all districts.

Legislative changes made to the Bridges grant in 2008 directed the Department to evaluate summer program effectiveness. In order to move toward a more appropriate and accurate assessment of these programs, a voluntary longitudinal study utilizing MAP data was initiated using 2007 Measurement of Academic Progress (MAP) data from a single district. Readers of prior Wyoming Bridges annual reports to the legislature will remember the comprehensive student growth analysis from Natrona County School District #1 which served the first year as the template for an expanded pilot study using MAP student growth data as its basis.[3]

That report indicated the academic growth associated with 2007 summer school students in Natrona County was considered substantial in both math and language arts. The report also observed a very significant increase in the learning gap associated with free and reduced lunch status students from the fall before summer school to the fall after summer school; this learning gap largely occurs over the summer period, when students are not in school. However, with the substantial growth associated with summer school students, this achievement gap was significantly diminished, in dramatic contrast to the growth effect for free/reduced lunch students, where the learning gap increased over the year fall to fall.

Dr. Flicek has since completed studies of summer school effectiveness for both the summer of 2008 and 2009 with expanded voluntary district participation in the pilot project in both years. His 2008 paper was included with last year's legislative Bridges report, and the complete analysis of 2009 summer school effectiveness is included as Attachment B to this report.[4] Briefly, Dr. Flicek's study illustrates the growth of students attending summer school versus those who did not attend summer school. Eight districts

[3] Flicek, Michael, "The Effect of Summer School Participation in NCSD on NWEA Reading and Math Test Scores from Fall-to-Fall – Final Version, " *Assessment and Research Brief 27,* Natrona County School District #1, Casper, WY, November 2007.
[4] Flicek, Michael, "A Study of Initial Status and Growth in Reading and Math Associated with 2009 Summer School Participation in Wyoming, (Year 3, Working Version)", Casper, WY, August, 2010.

participated in the analysis of 2009 summer school programs and include Big Horn #3, Crook #1, Fremont #1, Fremont #24, Natrona #1, Park #1, Sheridan #1 and Sweetwater #2. As with the 2008 report, this year's analysis investigates the change in student growth from the spring prior to and the fall following the 2009 summer school period. In the statewide compilation, students across the eight districts were grouped into three samples for both reading and math: grades three and four; grades five and six; and grades seven and eight.

Figure 1 from Dr. Flicek's paper plots the coefficients for reading and math growth associated with students attending summer school and is shown with 80 percent confidence interval lines. Measurements are expressed in NWEA's RIT (Rasch UnIT) scale which is a curriculum scale that estimates student achievement. Figure 1 charts the *difference* in RIT growth measured over the summer period between growth associated with students attending summer school and the RIT growth (or loss) associated with students who did not attend summer school (excluding the effects associated with free/reduced lunch and special education). The *x* axis on the left is expressed in MAP's measurement of growth, the RIT score. The horizontal line at "0.00" expresses the growth for students not attending summer school; points above the "0.00" line represent higher growth associated with summer school attendance, while points below would indicate lower growth associated with summer school attendance. Anticipated annual student growth, as expressed through RIT scores, varies somewhat from lower to higher grades. Common RIT growth during the school year from grades two to three would be around ten RIT points, from grades three to four, seven RIT points, continuing to slow so that from grades seven to eight, one would anticipate three to four RIT points growth during the entire school year. Thus, a two-point RIT growth over a three-month summer period for fifth and sixth grade students can be considered significant.

As can be seen in Figure 1, growth over summer was associated with all grades in both reading and math; there was significantly high growth in reading during the summer for students in grades five through eight and in math in grades seven and eight. These findings add to the evidence that summer school in Wyoming is effective at preventing growth of the achievement gap, and for some low performing students, time in summer school *narrows* this gap.

Figure 1. The Change to the RIT Score Achievement Gap (with 80% Confidence Intervals) during Summer 2009 Associated With Summer School Attendance for All 8 Participating Wyoming Districts.

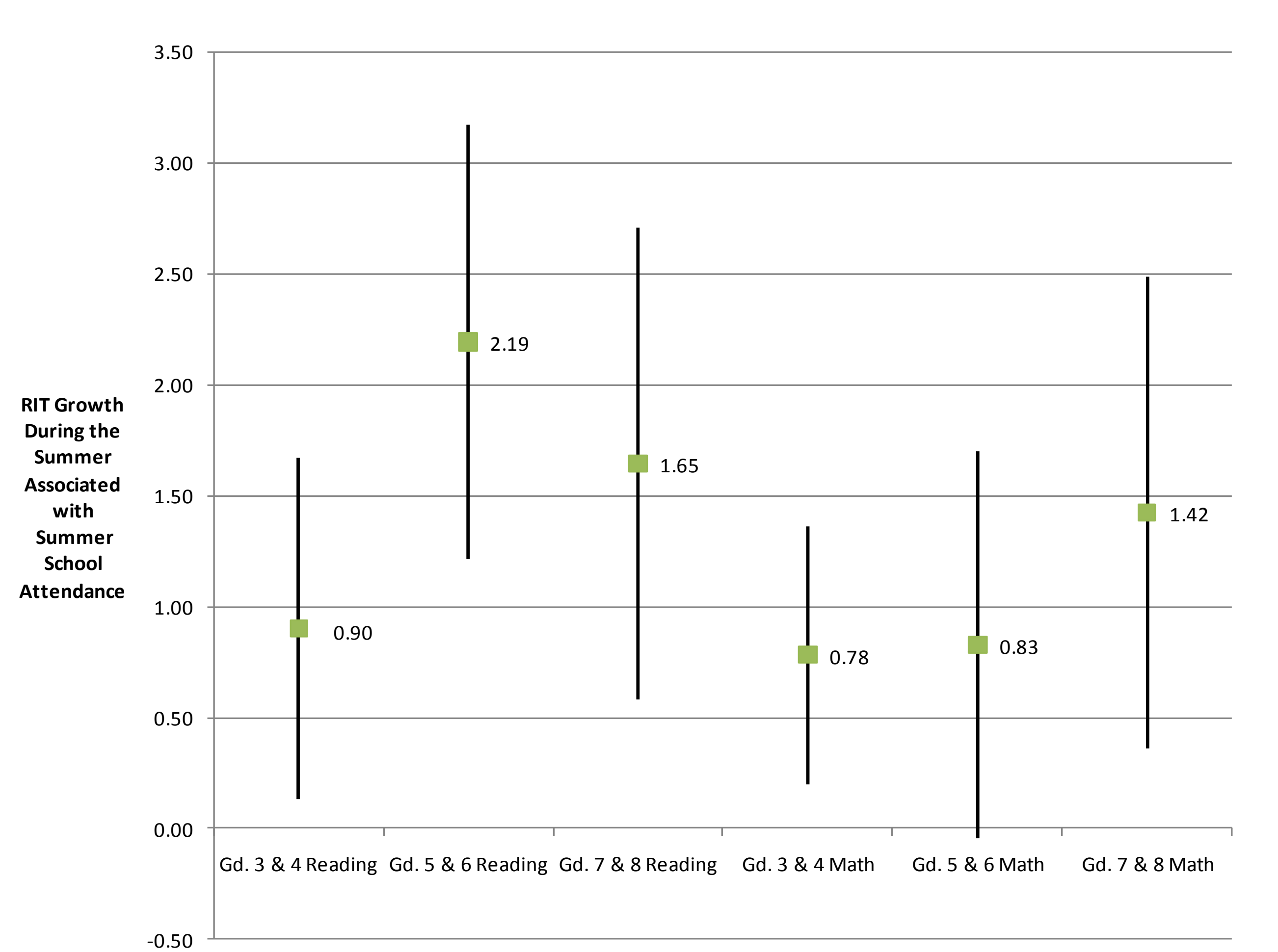


Figure 5 below provides even more information to administrators and policymakers concerning changes in student growth over the three-month summer break. This figure represents results in reading in fifth and sixth-grade students in all the districts participating in the pilot project for 2009 summer school. Individual participating districts have their specific student data presented to them in this same format. The blue line (diamond – "not SUMMER, FREE, SPED) represents the change over summer in MAP reading RIT scores from all fifth and sixth-grade students in the pilot study who were not in summer school, not on free/reduced lunch, or not receiving special education. The green line (with diamond – "FREE") represents the change over summer associated with being eligible for free/reduced lunch. The red line (square – "SUMMER") shows changes in reading RIT scores associated with summer school attendance; and the purple line (with an X – "SPED") shows the change over summer associated with students receiving special education services.

One thing this figure can tell us is where various groups of students start and end relative to summer vacation, using MAP RIT scores. For instance, it is evident that the fifth and six-grade students represented by the top line (blue, diamond) generally have a much higher reading RIT score than the other groups represented in the figure. It can also be seen that generally speaking, the students targeted for summer school (red line, diamond) have reading RIT scores considerably lower than the "not SUMMER, FREE, SPED" group. This tells us that overall, districts in the pilot group are targeting their academically at-risk students for summer school, as is directed by the grant. Indeed, the achievement gap in reading spring RIT scores between these two groups of fifth/sixth grade students can be considered to be more than full year.

Another observation that can be made from this data is the negative academic growth in *all* student categories over the summer period except for those students attending summer school. The growth shown in this chart is representative of the *largest* growth in students in the pilot project over the 2009 summer school period, and cannot necessarily be considered typical. But one can readily see that this kind academic growth in these fifth and sixth-grade students attending summer school is significant, and if maintained over a few consecutive summers, would definitely narrow the existent achievement gap.

The considerable loss of growth evident in students from a low socioeconomic status (green diamond line) and those receiving special education services (purple X line) who did not attend summer school is impossible to ignore and is discussed later in this report.

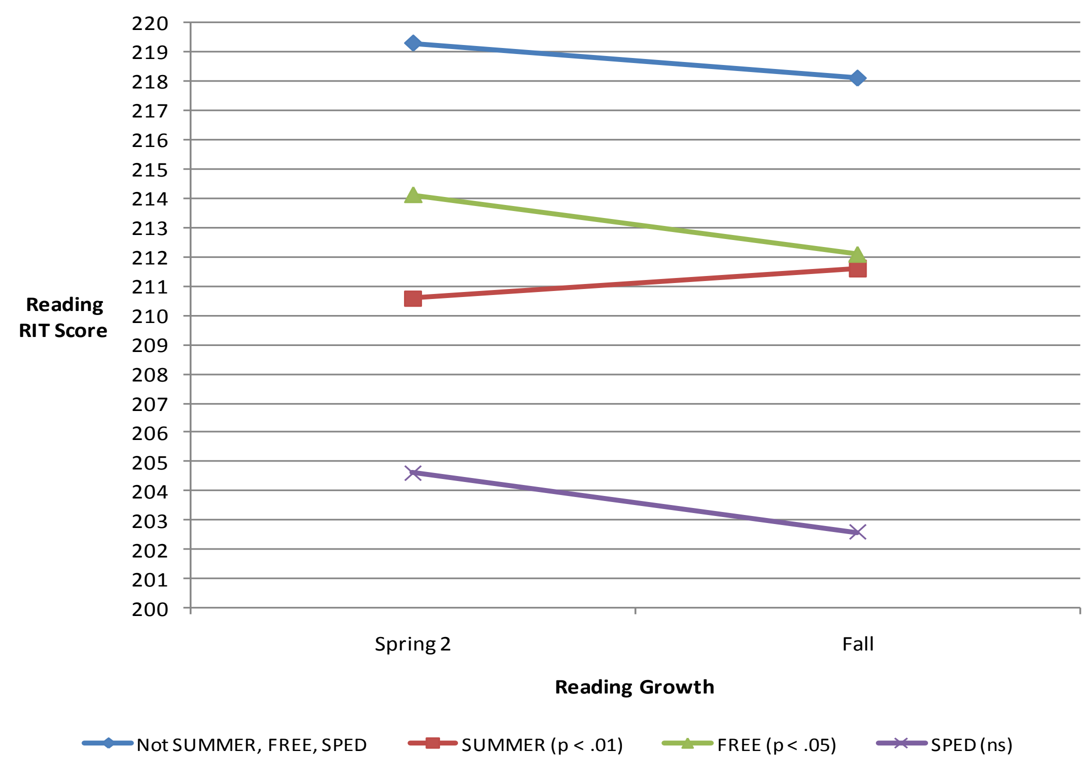
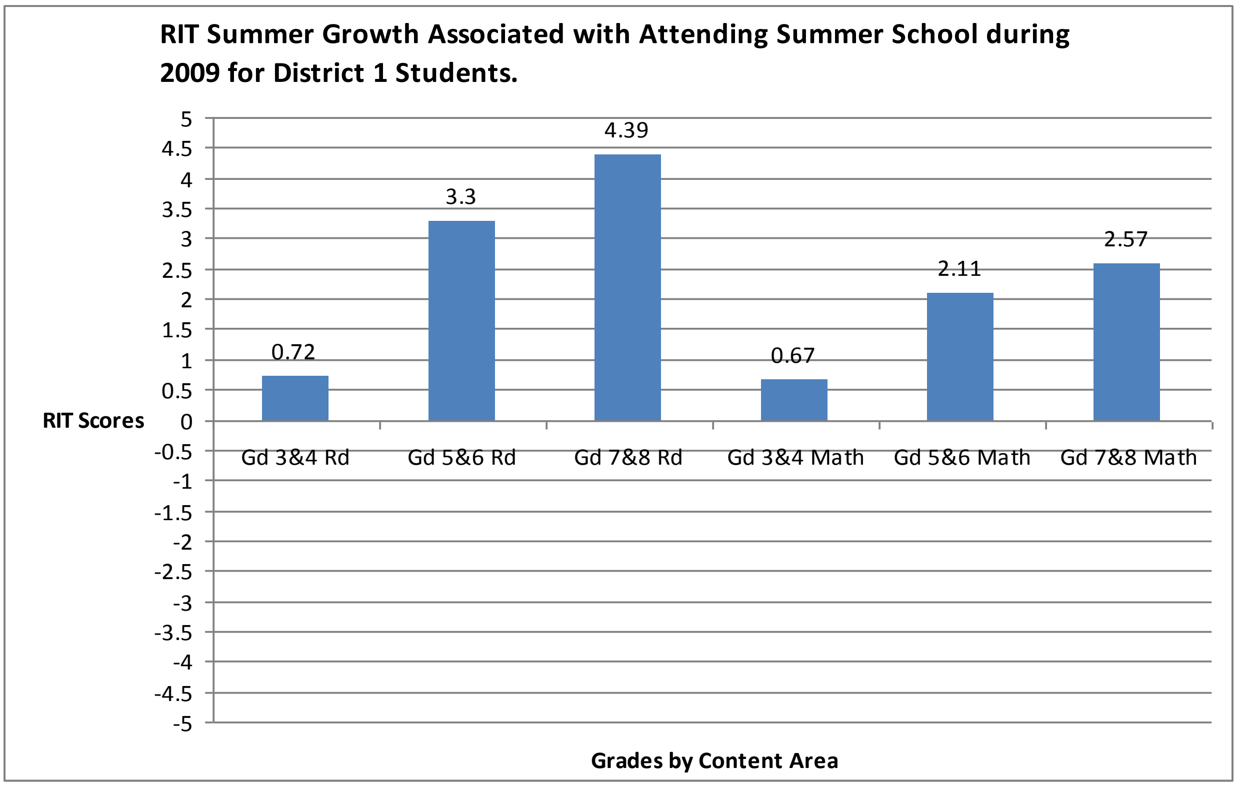


Figure 5. Summer 2009 Reading Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 5 and 6.

Individual District Performance

While statewide results are very positive concerning academic growth among students in summer school generally, success of summer programming varied among the districts participating in the pilot program, among different grade groups, and even from year to year within the same district.

Below you will find a bar graph from Natrona County School District #1, used with their permission. This information is provided to let policymakers see at least part of the data that will be made more widely available to districts in the future as the MAP pilot is broadened. It can be observed that the district had very strong student growth in their 2009 summer program, with blue bar graphs consistently rising above the "0" line (which represents growth of students not attending summer school). It is the goal of gathering this data that districts which consistently have successful summer programs can be identified, that their approach and delivery of summer programs can be studied, and that their successful strategies can be communicated widely to all districts as well as to policymakers.



The High Cost of Summer Vacation

Dr. Flicek is in the second year of a multi-year research project in Natrona County School District #1 that is analyzing student academic growth (or loss) in reading and math during the school year compared with the same over summer. The investigation has so far found that growth in the achievement gap between elementary students in low socioeconomic status (SES - as measured by free/reduced lunch participation) and other elementary students *did not occur* during the school year. Rather, the achievement gap began and grew *during the summer months*.[5] For the groups of fifth grade students in the study, Dr. Flicek found the achievement gap increased from less than four RIT score points at the

[5] Flicek, Michael, "Subgroup Initial Status and Growth in Reading and Math Associated with Summer School Participation in Wyoming – Final Version", *Assessment & Research Brief 39*, Natrona County School District #1, Casper, WY, 2010.

beginning of one summer to eight RIT points at the end of the following summer *even though the gap did not grow at all during the school year.* In this example, **the gap doubled as a direct result of learning loss that occurred during only two subsequent summers.** A difference of eight RIT points in a fifth grade student represents a full year or more of academic deficiency. Thus, as a group, students in low socioeconomic status who do not have instruction over the three-month summer period are highly vulnerable to losing a full year of learning **in only two or three summers**. .

This finding in Wyoming students is fully in concert with national studies of what has commonly come to be known as the "summer slide", one of the primary reasons lawmakers in Wyoming originally initiated the Bridges grant.[6] It is heartening to know that additional instructional time during summer can help mitigate this at gap; but in Wyoming, this additional instruction is targeted only to students academically at risk, not more broadly to all students in low SES status. As we gather more substantive "home-grown" data, we are beginning to demonstrate that summer school, when adherence to research-based practices is in place, can repair the learning deficiencies that may have caused these students to initially be referred to summer school. Eventually there should be a discussion of the possibility of making additional summer learning time available to all students in low socioeconomic status, not only those who are already struggling academically, to further mitigate serious summer learning loss. To reiterate Dr. Flicek's findings, summer learning loss disproportionately harms disadvantaged students; therefore the need for extra school days for this student population is disproportionate. High poverty schools are in more need of extra school days than low poverty schools. Summer school has a great potential to serve as the primary factor in reducing achievement gaps between different socioeconomic groups, and indeed summer may be the only time to bridge this gap.[7]

Results – Site Monitoring Visits

In 2008, the Department was given statutory mandate to monitor summer school programs. During 2010, the Department performed site visits at four districts over the summer: Carbon County School Districts #1 and #2 and Sweetwater County School Districts #1 and #2. Since 2008, a total of seventeen districts with Bridges summer programs have been visited.

Observers in summer programs this year heard more and more reference by district educators to Response to Intervention (RTI) processes and policies. It is exciting to see that summer school is recognized as an appropriate RTI for academically at-risk students, as indeed it is. As districts seek appropriate research-based curricula to address student learning needs through an RTI perspective, they know what "level" to target that will also be effective and useful for summer school students. This is good news.

In the four districts visited during the summer of 2009, all were relying on computer-based rather than direct instruction for high school credit recovery. Districts were generally careful to make available appropriately certified teachers to high school students should

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[6] H. Cooper, B. Nye, K. Charlton, J. Lindsay, and S. Greathouse, "The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analysis Review", *Review of Educational Research,* 1996.

[7] Miller, Beth, and the Nellie Mae Education Foundation, "The Learning Season: The Untapped Power of Summer to Advance Student Achievement," Quincy, MA, June 2007.

questions arise, but those teachers were not directly involved in student learning except as needed, or for a limited amount of time per day. High school students generally liked learning through a computer-based platform, but a number of them were obviously struggling with the level of reading required to successfully complete some of these courses. In one district, students who frequently used the remedial program, "Read 180" during the school year were still assigned to PLATO programs for credit recovery. PLATO courses are grade-leveled, require relatively strong reading skills, self-discipline, and ability to focus for students to be successful. Districts need to be sure students can read at the level needed to comprehend and be successful using on-line learning tools. Otherwise, these struggling students need direct instruction from an appropriately certified teacher.

Two districts were aware of research that stresses the importance of **direct instruction even in an on-line or computer-based learning environment** (Marzano). In particular, teachers in Sweetwater County School District #2 monitored on-line student progress persistently throughout the day (by subject), and could tell from student assessment performance where particular concepts were problematic. Teachers then developed daily classroom instruction that used hands-on techniques as much as possible to clarify those concepts for students. The mix of on-line learning with dynamic, appropriate and timely intervention through direct instruction seemed quite effective in helping students learn and in keeping them engaged and on-task. Sweetwater County School District #1 was also aware of and using direct instruction to enhance computer-based learning.

Sweetwater #1 particularly was very careful to assure that students completing PLATO programs were also able to pass **Body of Evidence assessments** to assure student mastery of content. That district also required that students complete PLATO **assessment on-site** rather than allowing assessment completion in another setting. And while this might seem like an obvious requirement, this policy is not followed in all districts, another issue the Design Team will discuss.

Elementary teachers in Sweetwater #1 for a number of years have been encouraged to try new, different approaches and methods of teaching during summer school, and to implement strategies learned through multiple professional development opportunities. As a result, a great variety of instruction was provided to students, all quite active and hands-on, resulting in **very high levels of student engagement in learning.**

Carbon County School District #2 has begun utilizing a student data mapping system, Alpine Achievement. The program can coordinate information from multiple student assessments such as MAP, DIBELS, and PAWS and build **individual student learning plans** targeted to each student. The plan can be used as a reading plan, an individual learning plan for summer school, and a Response to Intervention (RTI) plan, outlining potential appropriate interventions for each individual student.

Carbon County School District #1 instituted **single-subject academies** this past summer, referring students in grades K-6 to instruction in either math or language arts. Teachers were very enthusiastic about having a full four-hour class devoted to a single subject. Everyone is of course anxious to see the results of this focused approach, and when data is once available, it will be shared broadly.

Two of the districts visited were using the Federal Summer Food Program, and two others planned to initiate the program the coming summer. Sweetwater County School

District #1 particularly had a robust food program, providing both breakfast and lunch to students. We cannot stress more the importance of nutrition to learning, and to students in summer school who typically represent a higher low socioeconomic status than during the school year. As of yet the provision of meals is not a program requirement for the Bridges grant, but the Design Team will continue to monitor the provision of food during summer programs, as districts are made more aware of summer food program availability. .
The preparation of useful Individual Learning Plans (ILPs) for students, particularly those in secondary grades, remains a challenge for most districts visited this year. As last year, it was unfortunately common to hear that summer school teachers were spending quite a bit of time on student assessment in order to determine instructional needs and develop student ILPs. Districts relying heavily on computer-based programs also relied on those programs to initially assess student ability rather than observations and suggestions from referring teachers through a thoughtfully prepared ILP. Bridges rules have been amended to specify that ILPs should be prepared by the student's referring teacher or team of teachers well in advance of the start of summer school. Time in summer school is precious. Teachers and students need to begin learning on day one, not expend time on assessment and ILP preparation.

Two districts were cited this year for issues of non-compliance. There was one citation for a secondary teacher instructing outside her area of certification, and another for releasing junior high students ahead of the minimum instruction time required by the grant for summer school. As part of the grant application process, districts sign assurances that grant requirements can and will be met. The minimum time requirement of 60 instructional hours for students in grades K-8 was placed in statute because it has been found to be an effective research-based best practice, and has been a requirement since the 2009 summer season. It is suggested to districts that if a student attains proficiency before the time requirement is met, it is appropriate to incorporate a pre-teaching model for that student, preparing him or her for material anticipated to be encountered the upcoming school year. Districts releasing junior high school students ahead of their full seat-time requirement will have their grant awards reduced proportionate to the number of students released early at their corresponding per student expenditure amount.

One district was informed that their computer-based instruction of junior high-aged students would not be permissible under new rules effective in August of this year, applicable to the upcoming 2010 summer program. Monitors observed little to no interaction between junior high students and teachers in this computer-based setting during the 2009 visit. All students in grades K-8 need to receive direct instruction from teachers, in as rich an environment as possible, providing rigorous and hands-on instruction that engages students in learning.

Recommendations to Policymakers

The Bridges Design Team applauds the legislature's decision to maintain the Bridges summer school and extended-day grant separate and independent of the block grant school funding model to ensure program quality, integrity and effectiveness can be maintained. Additionally, allowing both summer school and extended-day programs to be funded as a single entity gives districts flexibility in targeting resources according to perceived need.

As has been stated in each prior summary report to the legislature over the history of the Bridges grant, the ability to analyze the effectiveness of summer school has been extremely elusive as a uniform assessment system or instrument was not available to all districts throughout the state. Each year the Department receives more and more requests from districts for guidance on summer school student assessment, asking that the Department move to a system that can measure growth rather than proficiency in students across the summer period.

As part of legislative changes made to the Bridges grant in 2008, statutory authority was given to the Department to implement a common assessment evaluation of program effectiveness. In response, the Department initiated a pilot project to study the effectiveness of summer school; the protocol was established with one district in 2007, then eight districts voluntarily participated in the 2008 and 2009 analyses. The project utilizes MAP data to isolate growth of students attending summer school versus those not in attendance. As a result of the pilot project, we find NWEA's MAP is a valuable tool that can answer the challenge of implementing the common assessment evaluation needed to carefully look at summer program effectiveness. Over time, more and more districts are using MAP, and now, all Wyoming districts have in place fall and spring student assessments that can be used to complete this study. Thus, the Department asked all districts wishing to receive Bridges grant funds to submit MAP student data to the Department for analysis beginning with student scores the fall of 2009. The pilot project will be taken statewide for the 2010 summer school period, and we anticipate providing statewide analysis to policymakers by this time next year. We believe data analysis of program effectiveness combined with on-site monitoring can provide an unprecedented insight into what is working well in summer programs and in identifying what areas need attention or additional resources.

Finally, a topic of discussion which has been raised but still not discussed broadly concerns how the Bridges grant may or may not be used to fund instructional supervision for failed classes during summer for students participating in distance education settings. We will need the guidance of policymakers to resolve issues such as the sharing of district grant revenues when those revenues are based on district proxy counts, minimum-hour instructional requirements, assessment of all students through NWEA's MAP, including students in a distance education environment, and other matters which will no doubt be raised as this discussion takes place. At this point, Bridges funds are paid only to districts which make local decisions on how those funds are expended, within grant rules and guidelines. At this point, this is not changing; just as districts remain responsible for expenditure of block grant funds, they remain the gatekeeper and the responsible party for Bridges funds and program quality.

Wyoming Department of Education
2010 Bridges High School Summer Enrollment

Math Credits Recovered

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	4	4	1	0	9
Big Horn #1	3	4	4	0	11
Big Horn #2	3	3	0	0	6
Big Horn #3	3	2	1	0	6
Big Horn #4	3	1	1	0	5
Campbell #1	36	37	27	2	102
Carbon #1	2	3	2	1	8
Carbon #2	1	3	2	0	6
Converse #1	4	2	2	2	10
Converse #2	2	1	1	0	4
Crook #1	2	2	2	0	6
Fremont #1	3	3	3	0	9
Fremont #2	2	0	0	0	2
Fremont #6	0	0	0	0	0
Fremont #14	10	5	4	0	19
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	16	15	19	1	51
Fremont #38	1	0	1	1	3
Goshen #1	12	15	11	0	38
Hot Springs #1	21	16	17	2	56
Johnson #1	3	1	2	0	6
Laramie #1	34	27	27	4	92
Laramie #2	3	2	1	0	6
Lincoln #1	2	2	2	0	6
Lincoln #2	6	11	8	0	25
Natrona #1	45	54	37	10	146
Niobrara #1	2	0	0	0	2
Park #1	1	2	4	0	7
Park #6	10	1	11	2	24
Park #16	0	0	0	0	0
Platte #1	0	3	6	1	10
Platte #2	0	1	3	0	4
Sheridan #1	3	4	6	0	13
Sheridan #2	0	0	3	3	6
Sublette #1	1	2	2	0	5
Sweetwater #1	6	19	10	2	37
Sweetwater #2	7	8	2	1	18
Teton #1	1	2	0	0	3
Uinta #1	25	21	15	1	62
Uinta #4	2	1	3	0	6
Uinta #6	0	1	1	0	2
Washakie #1	7	2	0	0	9
Washakie #2	0	0	0	0	0
Weston #1	0	0	0	0	0
Weston #7	0	1	1	0	2
State Total (41)	**287**	**281**	**244**	**34**	**846**

Wyoming Department of Education **Language Arts Credits Recovered**
2010 Bridges High School Summer Enrollment

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	2	2	1	0	5
Big Horn #1	7	2	3	0	12
Big Horn #2	5	5	1	0	11
Big Horn #3	0	0	0	0	0
Big Horn #4	4	1	1	0	6
Campbell #1	16	21	33	1	71
Carbon #1	0	4	0	0	4
Carbon #2	1	1	0	1	3
Converse #1	2	5	3	1	11
Converse #2	1	1	0	0	2
Crook #1	5	6	1	1	13
Fremont #1	2	8	2	0	12
Fremont #2	3	2	1	0	6
Fremont #6	0	0	0	0	0
Fremont #14	8	10	3	0	21
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	10	12	13	1	36
Fremont #38	0	0	2	2	4
Goshen #1	2	2	2	0	6
Hot Springs #1	10	15	5	2	32
Johnson #1	4	1	3	0	8
Laramie #1	17	41	30	3	91
Laramie #2	1	2	2	0	5
Lincoln #1	3	4	1	1	9
Lincoln #2	5	9	6	1	21
Natrona #1	40	45	37	11	133
Niobrara #1	0	0	0	0	0
Park #1	10	2	2	2	16
Park #6	10	1	11	2	24
Park #16	0	0	0	0	0
Platte #1	2	5	12	3	22
Platte #2	5	2	0	0	7
Sheridan #1	3	1	1	0	5
Sheridan #2	3	8	7	6	24
Sublette #1	0	0	0	0	0
Sweetwater #1	16	17	9	3	45
Sweetwater #2	1	8	1	1	11
Teton #1	2	0	3	0	5
Uinta #1	24	16	6	5	51
Uinta #4	5	0	1	1	7
Uinta #6	0	1	1	0	2
Washakie #1	4	5	4	3	16
Washakie #2	0	0	0	0	0
Weston #1	3	2	2	0	7
Weston #7	0	4	1	0	5
State Total (39)	**237**	**271**	**213**	**52**	**773**

Wyoming Department of Education
2010 Bridges High School Summer Enrollment

Science Credits Recovered

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	0	0	0	0	0
Big Horn #1	4	3	0	0	7
Big Horn #2	0	2	0	0	2
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	0	1	11	0	12
Carbon #1	6	1	3	0	10
Carbon #2	0	0	0	0	0
Converse #1	2	2	5	1	10
Converse #2	0	1	2	0	3
Crook #1	0	0	1	0	1
Fremont #1	3	2	2	1	8
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	7	4	2	0	13
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	0	0	0	0	0
Fremont #38	1	1	0	2	4
Goshen #1	16	7	13	0	36
Hot Springs #1	15	18	1	0	34
Johnson #1	0	1	2	0	3
Laramie #1	32	40	20	1	93
Laramie #2	0	0	0	0	0
Lincoln #1	2	2	6	0	10
Lincoln #2	4	0	6	0	10
Natrona #1	18	27	16	3	64
Niobrara #1	0	0	0	0	0
Park #1	2	0	0	1	3
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	0	5	1	0	6
Platte #2	1	0	1	0	2
Sheridan #1	0	0	0	0	0
Sheridan #2	3	7	3	2	15
Sublette #1	0	0	0	0	0
Sweetwater #1	6	8	11	3	28
Sweetwater #2	15	10	3	1	29
Teton #1	1	2	0	0	3
Uinta #1	10	20	6	1	37
Uinta #4	0	0	0	0	0
Uinta #6	0	1	0	0	1
Washakie #1	9	2	3	1	15
Washakie #2	0	0	0	0	0
Weston #1	1	0	4	0	5
Weston #7	0	0	0	0	0
State Total (29)	**159**	**167**	**124**	**18**	**468**

Wyoming Department of Education **Social Studies Credits Recovered**
2010 Bridges High School Summer Enrollment

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	3	5	10	0	18
Big Horn #1	0	0	0	0	0
Big Horn #2	0	4	0	0	4
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	1	2	8	2	13
Carbon #1	0	0	0	0	0
Carbon #2	0	0	0	0	0
Converse #1	1	0	4	0	5
Converse #2	0	3	1	0	4
Crook #1	0	2	3	2	7
Fremont #1	0	0	0	0	0
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	4	1	0	0	5
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	1	2	10	0	13
Fremont #38	0	0	0	2	2
Goshen #1	8	0	4	0	12
Hot Springs #1	0	11	5	3	19
Johnson #1	6	2	1	0	9
Laramie #1	3	23	15	2	43
Laramie #2	4	0	0	0	4
Lincoln #1	1	0	1	1	3
Lincoln #2	2	2	14	0	18
Natrona #1	17	29	27	6	79
Niobrara #1	3	2	1	0	6
Park #1	2	2	4	2	10
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	1	2	4	0	7
Platte #2	2	1	3	0	6
Sheridan #1	0	0	0	0	0
Sheridan #2	0	6	0	2	8
Sublette #1	0	0	0	0	0
Sweetwater #1	16	13	9	3	41
Sweetwater #2	11	8	2	0	21
Teton #1	1	0	2	0	3
Uinta #1	2	8	7	1	18
Uinta #4	0	0	0	0	0
Uinta #6	0	0	2	0	2
Washakie #1	6	4	4	0	14
Washakie #2	0	0	0	0	0
Weston #1	1	3	3	0	7
Weston #7	0	0	0	0	0
State Total (30)	**97**	**135**	**146**	**27**	**405**

Wyoming Department of Education **Career Tech Credits Recovered**
2010 Bridges High School Summer Enrollment

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	0	0	0	0	0
Big Horn #1	0	0	0	0	0
Big Horn #2	1	1	0	0	2
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	0	0	0	0	0
Carbon #1	0	0	0	0	0
Carbon #2	0	0	0	0	0
Converse #1	0	0	1	1	2
Converse #2	0	0	0	0	0
Crook #1	0	0	0	0	0
Fremont #1	0	0	0	0	0
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	0	0	0	0	0
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	0	0	0	0	0
Fremont #38	0	0	0	0	0
Goshen #1	1	0	0	0	1
Hot Springs #1	15	4	5	2	26
Johnson #1	0	0	0	0	0
Laramie #1	0	0	0	0	0
Laramie #2	0	0	0	0	0
Lincoln #1	0	0	0	0	0
Lincoln #2	1	1	0	0	2
Natrona #1	0	11	15	6	32
Niobrara #1	0	0	0	0	0
Park #1	0	0	1	2	3
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	0	0	1	0	1
Platte #2	0	0	0	0	0
Sheridan #1	0	0	0	0	0
Sheridan #2	0	0	0	0	0
Sublette #1	0	0	0	0	0
Sweetwater #1	0	0	0	0	0
Sweetwater #2	0	0	0	0	0
Teton #1	0	0	0	0	0
Uinta #1	7	14	3	3	27
Uinta #4	0	0	0	0	0
Uinta #6	5	0	2	0	7
Washakie #1	0	0	0	0	0
Washakie #2	0	0	0	0	0
Weston #1	0	0	0	0	0
Weston #7	0	0	0	0	0
State Total (11)	**31**	**31**	**30**	**15**	**107**

Wyoming Department of Education **Fine Arts Credits Recovered**
2010 Bridges High School Summer Enrollment

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	0	0	0	0	0
Big Horn #1	0	0	0	0	0
Big Horn #2	0	0	0	0	0
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	0	0	0	0	0
Carbon #1	0	0	0	0	0
Carbon #2	0	0	0	0	0
Converse #1	0	0	0	0	0
Converse #2	0	0	0	0	0
Crook #1	0	0	0	0	0
Fremont #1	0	0	0	0	0
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	0	0	0	0	0
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	5	1	2	3	11
Fremont #38	0	0	0	0	0
Goshen #1	0	0	0	0	0
Hot Springs #1	0	3	3	0	6
Johnson #1	0	0	0	0	0
Laramie #1	0	0	0	0	0
Laramie #2	0	0	0	0	0
Lincoln #1	0	0	0	0	0
Lincoln #2	0	0	0	0	0
Natrona #1	0	0	1	0	1
Niobrara #1	0	0	0	0	0
Park #1	0	1	0	0	1
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	0	0	0	0	0
Platte #2	0	0	0	0	0
Sheridan #1	0	0	0	0	0
Sheridan #2	0	0	0	0	0
Sublette #1	0	0	0	0	0
Sweetwater #1	0	0	0	0	0
Sweetwater #2	0	0	0	0	0
Teton #1	0	0	0	0	0
Uinta #1	0	0	0	0	0
Uinta #4	0	0	0	0	0
Uinta #6	0	0	0	0	0
Washakie #1	0	0	0	0	0
Washakie #2	0	0	0	0	0
Weston #1	0	0	0	0	0
Weston #7	0	0	0	0	0
State Total (5)	**6**	**5**	**8**	**4**	**23**

Wyoming Department of Education **Foreign Lang Credits Recovered**
2010 Bridges High School Summer Enrollment

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	0	0	0	0	0
Big Horn #1	0	0	0	0	0
Big Horn #2	0	0	0	0	0
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	0	0	0	0	0
Carbon #1	0	0	0	0	0
Carbon #2	0	0	0	0	0
Converse #1	0	0	0	0	0
Converse #2	0	0	0	0	0
Crook #1	0	0	0	0	0
Fremont #1	0	0	0	0	0
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	0	0	0	0	0
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	0	0	0	0	0
Fremont #25	7	1	0	0	8
Fremont #38	0	0	0	0	0
Goshen #1	0	0	0	0	0
Hot Springs #1	3	4	3	0	10
Johnson #1	0	0	0	0	0
Laramie #1	0	0	0	0	0
Laramie #2	0	0	0	0	0
Lincoln #1	0	0	0	0	0
Lincoln #2	0	0	0	0	0
Natrona #1	0	1	0	0	1
Niobrara #1	0	0	0	0	0
Park #1	0	0	0	0	0
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	0	0	0	0	0
Platte #2	0	1	0	0	1
Sheridan #1	0	0	0	0	0
Sheridan #2	0	0	0	0	0
Sublette #1	0	0	0	0	0
Sweetwater #1	0	0	0	0	0
Sweetwater #2	0	0	0	0	0
Teton #1	0	0	0	0	0
Uinta #1	3	5	1	2	11
Uinta #4	0	0	0	0	0
Uinta #6	0	0	0	0	0
Washakie #1	0	0	0	0	0
Washakie #2	0	0	0	0	0
Weston #1	0	0	0	0	0
Weston #7	0	0	0	0	0
State Total (5)	**13**	**12**	**4**	**2**	**31**

Wyoming Department of Education
2010 Bridges High School Summer Enrollment

Health/PE Credits Recovered

District	9th Grade	10th Grade	11th Grade	12th Grade	9-12 Total
Albany #1	0	0	0	0	0
Big Horn #1	0	0	0	0	0
Big Horn #2	0	0	0	0	0
Big Horn #3	0	0	0	0	0
Big Horn #4	0	0	0	0	0
Campbell #1	0	0	0	0	0
Carbon #1	0	0	0	0	0
Carbon #2	0	0	0	0	0
Converse #1	0	1	1	0	2
Converse #2	0	0	0	0	0
Crook #1	0	0	0	0	0
Fremont #1	0	0	1	0	1
Fremont #2	0	0	0	0	0
Fremont #6	0	0	0	0	0
Fremont #14	0	0	1	0	1
Fremont #21 (K-8)	0	0	0	0	0
Fremont #24	1	0	2	1	4
Fremont #25	0	0	0	0	0
Fremont #38	0	0	0	0	0
Goshen #1	0	0	0	0	0
Hot Springs #1	6	4	1	0	11
Johnson #1	0	0	0	0	0
Laramie #1	7	2	0	0	9
Laramie #2	0	0	0	0	0
Lincoln #1	0	0	0	0	0
Lincoln #2	0	5	2	0	7
Natrona #1	12	19	18	11	60
Niobrara #1	0	0	0	0	0
Park #1	0	0	0	0	0
Park #6	0	0	0	0	0
Park #16	0	0	0	0	0
Platte #1	0	0	0	0	0
Platte #2	0	0	0	0	0
Sheridan #1	0	0	0	0	0
Sheridan #2	0	0	0	0	0
Sublette #1	0	0	0	0	0
Sweetwater #1	3	0	0	0	3
Sweetwater #2	0	0	0	0	0
Teton #1	0	0	0	0	0
Uinta #1	3	2	2	0	7
Uinta #4	0	0	0	0	0
Uinta #6	0	0	1	0	1
Washakie #1	0	0	0	0	0
Washakie #2	0	0	0	0	0
Weston #1	0	0	0	0	0
Weston #7	0	0	0	0	0
State Total (11)	**32**	**33**	**29**	**12**	**106**

A Study of Initial Status and Growth in Reading and Math Associated with 2009 Summer School Participation in Wyoming (Year 3, Working Version)

Working Paper Prepared for Wyoming Department of Education by
Michael Flicek, Ed.D.

Abstract

This paper investigated the initial status and growth in reading and math test scores that were associated with summer school attendance in eight Wyoming school districts. As a group, students who attended summer school had low initial academic status. Since the correlation coefficients for initial status and summer growth were statistically significant ($p < .05$) and positive, the group of students attending summer school would be predicted to have low growth during the summer. Attending summer school, however, was found to be associated with significantly high growth in reading (i.e., at least $p < .05$) during the summer for students in grades 5 and 6 and during grades 7 and 8 and in math during grades 7 and 8. Furthermore, attending summer school was also associated with growth that trended high (i.e., $p < .10$) in reading and math during grades 3 and 4. Thus summer growth associated with summer school for all grades assessed in both reading and math was positive, reached statistical significance for three of the six groups studied and was approaching statistical significance in the other three groups studied. These findings continue to provide evidence that the academically at risk students attending summer school keep up with or gain in academic skills relative to their peers not attending summer school.

Introduction

Following the summer of 2007, Flicek (2007) studied the initial status and growth in reading and math skills associated with summer school participation for students in Natrona County School District (NCSD) over the summers of 2006 and 2007. A similar study investigated achievement effects associated with attending summer school in 2008 with a sample that was expanded to include other Wyoming districts (Flicek, 2009). The current study replicated the study of summer school effects during 2008 with analyses of the effects associated with summer school attendance during 2009. As such, this study is the third an ongoing series of studies of summer school effects. As described in the Flicek (2007) paper, funding for summer programs was authorized in Wyoming to address the loss of academic skills that research had demonstrated to be more pronounced among students from disadvantaged background (e.g., see Cooper, Charlton, Valentine, and Muhlenbruck, 2000). Students with low achievement are currently eligible for participation in summer school programs.

Analyses completed for this study addressed the initial status and growth in reading and math that were associated with summer school participation for three samples of students in reading and three samples in math. Students in each sample studied were from adjacent grades. There were samples from grades 3 and 4, grades 5 and 6, and grades 7 and 8 in reading and math. For each of the samples, the effect associated with attending summer school for one summer (i.e., summer 2009) was investigated. In all cases, students on free/reduced lunch and in special education were overrepresented in the summer school samples. This was addressed by using hierarchical linear modeling (HLM) and entering free/reduced lunch (FRL) status (i.e., yes or no) and special education (SPED) status (i.e., yes or no) along with summer school (SUMMER) status (i.e., yes or no) into the final models for initial achievement status and for achievement growth. *Control* represented the effect associated with not in SUMMER, not on FRL, and not in SPED. By entering FRL and SPED into the model it was possible to identify the effect associated with SUMMER that was independent of the effects associated with these other variables.

Two growth slopes were modeled. One was for the spring-to-fall-to-spring prior to summer school and the second was for the spring-to-fall during which summer school was in session. It was the effect associated with SUMMER on growth in this second growth slope that was of the most interest to the principal question of this study. Specifically, to what extent was summer school attendance associated with growth in reading and math during the summer after controlling for the effect of FRL status and SPED status? Based on findings from the two previous studies, it was assumed that an achievement gap associated with SUMMER versus control would be present during the spring prior to summer school. After all, low academic skills were required for summer school eligibility. This study specifically sought to determine if the gap grew wider, remained stable, or became narrower during the summer in association with summer school attendance.

Method

Samples

The total sample consisted of students from eight Wyoming school districts who were in grades 3 through 8 during the spring of 2008. Table 1 shows the total number of students from each district and the number of students from each district that were in summer school in each of the three grade level combinations that were studied.

Students on FRL were overrepresented in SUMMER. In the grade 3 and 4 sample, 34% of students not in summer school were on FRL and 46% of student in SUMMER were on FRL (Pearson Chi-Square = 19.61; $p < .001$). In the grade 5 and 6 sample, 33% of students not in SUMMER were on FRL and 41% of student in SUMMER were on FRL (Pearson Chi-Square = 4.70; $p < .05$). In the grade 7 and 8 sample, 28% of students not in SUMMER were on FRL and 41% of student in SUMMER were on FRL (Pearson Chi-Square = 12.13; $p < .001$).

Students in SPED were also overrepresented in the SUMMER. In the grade 3 and 4 sample, 13% of students not in SUMMER were in SPED and 30% of student in SUMMER were SPED (Pearson Chi-Square = 72.69; $p < .001$). In the grade 3 and 4 sample, 14% of students not in SUMMER were in SPED and 27% of student in SUMMER were SPED (Pearson Chi-Square = 23.34; $p < .001$). In the grade 5 and 6 sample, 14% of students not in SUMMER were in SPED and 27% of student in SUMMER were SPED (Pearson Chi-Square = 23.34; $p < .001$). In the grade 7 and 8 sample, 12% of students not in SUMMER were in SPED and 24% of student in SUMMER were SPED (Pearson Chi-Square = 20.42; $p < .001$).

Measures

The Measures of Academic Progress (MAP) tests from the Northwest Evaluation Association were used to measure reading and math achievement for this study. These tests are well suited for studying initial status (i.e., where students start) and growth in achievement over time since they are adaptive tests with a vertical scale. Adaptive tests will adjust item difficulty for individual students based upon the pattern of correct and incorrect responses that a student provides. As such, these tests have high reliability and accuracy for students at all achievement levels, including students with low achievement for their grade in school and students with very high achievement. All items on these tests are multiple choice and they are calibrated on a vertical scale so that total scores (i.e., scale scores that are referred to as RIT scores) have a comparable meaning independent of a student's grade in school. The distance between any two points on the scale are equal so that the scale can be thought of as functioning like a ruler of reading or math skills. There is a national norm sample for the tests with more than one million students.

Analyses

To investigate the impact of summer school attendance on reading and math initial status and growth, two level HLM models were employed where test occasion *i* was at level 1 and between student *j* was at level 2. Piecewise linear models of reading and math achievement were employed which included a separate growth slope for spring '08-to-fall '08-to-spring '09 prior to the entry of the student into summer school and then another slope for spring '09-to-fall '09 during the time that the students were in summer school.

As recommended by Singer and Willett (2003) and Holt (2008) for both reading and math the unconditional means model was fitted first in order to partition the variance between the two levels and to serve as a baseline for future models. In the model, Y_{ij} is reading or math achievement for student *i* at time *j*.

$$Y_{ij} = \beta_{0j} + r_{ij} \qquad (1a)$$
$$\beta_{0j} = \gamma_{00} + u_{0j},$$

Where it is assumed that:

$$r_{ij} \sim N(0, \sigma^2_{\varepsilon}) \text{ and } u_{0i} \sim N(0, \sigma^2_0) \qquad (1b)$$

Next, an unconditional growth model with two slopes was employed. This model fit two linear trajectories to each student in the data set. First, a random slope was fitted for growth from spring-to-fall-to-spring prior to the summer of 2009. This slope is designated as *Slope 1* in the models. Next, a second slope was fitted for growth from spring-to-fall for the summer when the students were attending summer school. This slope is designated as *Slope 2* in the models. For grades 3 and 4 reading, Slope 2 did not vary significantly across individuals (χ^2 [2590] =

2232, $p > .05$) therefore, the summer slope was fixed for a final unconditional growth model and the final model. Time was coded in months with the Slope 1 including 12 months and Slope 2 including 3 months. The final unconditional growth model is presented in equation 2.

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Slope } 1_{ij}) + \beta_{2j}(\text{Slope } 2_{ij}) + r_{ij} \quad (2)$$
$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + u_{1j}$$
$$\beta_{2j} = \gamma_{20}$$

The final model for each grades-by-content analyses had three predictor variables for initial status and both growth slopes. The predictors (i.e., SUMMER, FRL, and SPED) were described above. The final model for grades 3 and 4 reading and for grade 3 and 4 math is presented in equation 3. The correlation between initial status and *Slope 1* was $r = -0.50$ for reading and $r = -0.42$ for math therefore latent variable regression was utilized for both content areas and is included in equation 3 as "γ_{14}(*Initial Status*)".

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Slope 1})_{ij} + \beta_{2i}(\text{Slope 2})_{ij} + r_{ij} \quad (3)$$
$$\beta_{0j} = \gamma_{00} + \gamma_{01}(SUMMER)_j + \gamma_{02}(FRL)_j + \gamma_{03}(SPED)_j + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}(SUMMER)_j + \gamma_{12}(FRL)_j + \gamma_{13}(SPED)_j + \gamma_{14}(Initial\ Status)_j + u_{1j}$$
$$\beta_{2j} = \gamma_{20} + \gamma_{21}(SUMMER)_j + \gamma_{22}(FRL)_j + \gamma_{23}(SPED)_j$$

Equation 4 is the final model for grades 5 and 6 reading and grades 7 and 8 reading.

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Slope 1})_{ij} + \beta_{2i}(\text{Slope 2})_{ij} + r_{ij} \quad (4)$$
$$\beta_{0j} = \gamma_{00} + \gamma_{01}(SUMMER)_j + \gamma_{02}(FRL)_j + \gamma_{03}(SPED)_j + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}(SUMMER)_j + \gamma_{12}(FRL)_j + \gamma_{13}(SPED)_j$$
$$\beta_{2j} = \gamma_{20} + \gamma_{21}(SUMMER)_j + \gamma_{22}(FRL)_j + \gamma_{23}(SPED)_j + \gamma_{24}(Initial\ Status)_j + u_{2j}$$

Equation 5 is the final model for grades 5 and 6 math and for grades 7 and 8 math.

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Slope 1})_{ij} + \beta_{2i}(\text{Slope 2})_{ij} + r_{ij} \quad (5)$$
$$\beta_{0j} = \gamma_{00} + \gamma_{01}(SUMMER)_j + \gamma_{02}(FRL)_j + \gamma_{03}(SPED)_j + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}(SUMMER)_j + \gamma_{12}(FRL)_j + \gamma_{13}(SPED)_j$$
$$\beta_{2j} = \gamma_{20} + \gamma_{21}(SUMMER)_j + \gamma_{22}(FRL)_j + \gamma_{23}(SPED)_j$$

The findings of interest were the coefficients for initial status and growth for SUMMER. 80% confidence intervals around the SUMMER coefficient for *Slope 2* were constructed for the purpose of charting the effect of SUMMER on the change in RIT scores that occurred from the spring-to-fall test of the year that the students were in summer school. The use of 80% confidence intervals for chart, instead of more conventional 95% confidence intervals, is consistent with the recommendation of Cohen (1990, 1992). Cohen's recommendation was particularly appropriate in this type of situation since there could be a potentially high cost associated with a type II error (i.e., concluding that summer school was not effective, when, in fact, it was effective). Cohen and others (e.g., Denis, 2006; Thompson, 1996) have been very critical of strict adherence to conventional significance testing practices where findings are not considered significant unless the $p < .05$ level is reached. While this traditional convention guards against a Type I error (e.g., concluding that summer school is effective, when in fact it is not), the critics of this approach have called for more researcher judgment to be employed.

Results

Relationship of Initial Status and Growth

Initial status refers to the student's status during spring 1 of the study. This was the first of four waves of data. The question about how would the summer school students would fare in the absence of summer school was not directly addressed in this study. Nevertheless, the analyses provided some evidence pertinent to this question. Eligibility for summer school is defined based upon a student having low academic achievement. As a group, summer school attendees were a subset of students with low achievement in that the initial status associated with SUMMER was significantly low (i.e., $p < .001$) in all six grade-by-content areas studied. More specifically, they were the subset who were recommended for summer school and who chose to attend summer school. A positive correlation between initial status and growth during the summer would mean that students with low initial status had low growth during the summer and that high achieving students had high growth during the summer.

The correlation coefficients for the association of initial status and growth on both slopes are first presented in Tables 2 through 7. They are summarized again in Table 8 to facilitate ease of interpretation. Of most interest to the current study are the correlation coefficients between initial status (i.e., spring 2008) and summer growth a year later (i.e., spring 2009-to-fall 2009). All six coefficients were positive and five of the six were quite high ranging from $r = 0.24$ to $r = 0.66$. These correlation coefficients suggest that, had the group of students in summer school in these five samples not attended summer school, they would have been expected to have had low growth during the summer relative to the control (i.e., the control consists of not being on *FRL*, in *SPED* or in SUMMER). As such, having growth that was the same as the growth of the control could reasonably be seen as evidence of positive effects associated with summer school.

The argument in favor of this view is further developed here. When there is sufficient random variance for a growth slope, latent variable regression (LVR) can be used to control for the effect of initial status on growth. Slope 2 had sufficient random variance for the use of LVR for reading in grades 5 and 6 and in grades 7 and 8. In grades 5 and 6 the monthly summer growth coefficient was 0.473 (i.e., $p < .10$) when LVR was not used to control for initial status. When LVR was used to control for initial status, however, the monthly summer growth coefficient was 0.731 (i.e., $p < .01$). Likewise, for grades 7 and 8 reading, without LVR the monthly summer growth coefficient was 0.410 ($p > .10$). With LVR, however, the summer monthly growth coefficient was 0.548 ($p < .05$). Finally, the lowest correlation coefficient between initial status and monthly summer growth occurred in grades 7 and 8 for math (i.e., $r = 0.06$). The results of the HLM modeling for this sample were reported in Table 7. Even though the χ^2 test suggested that there was insufficient random variation associated with summer slope ($p > .10$), an exploratory model where Slope 2 was allowed to randomly vary was undertaken so that LVR could be employed. Without LVR, the coefficient for *Slope 2* associated with summer school attendance was 0.448 ($p < .10$) while the *Slope 2* coefficient with LVR that was associated with summer school attendance was 0.530 ($p < .05$).

Given the above evidence, in grades 3 and 4 in reading and in all grades in math the evidence suggests that obtained *Slope 2* coefficients for these samples very likely reflect underestimates of actual summer growth associated with SUMMER. Since initial status associated with summer school was low and the correlation coefficients associated with summer growth were positive and generally quite large, summer school students would, in the absence of summer school, be expected have negative growth coefficients. As such, even coefficients that were near zero could be interpreted as evidence that summer school prevented the increased summer loss that would very likely have occurred without summer school.

Reading

Tables 2 contains the results of fitting subsequent HLM models for reading initial status and reading growth on *Slope 1* and *Slope 2* for grades 3 and 4. SUMMER was associated with initial status of -9.8 RIT points which was closer to the initial status of SPED (i.e., -10.3 RIT points) than FRL (i.e., -5.1 RIT points). The achievement gap associated with each predictor did not grow during the spring-to-spring interval prior to the summer of 2009 as the coefficients for the predictors on *Slope 1* were positive but quite small and not statistically significant. On *Slope 2*, however, SUMMER was associated with a larger positive coefficient (i.e., $p < .10$) while both FRL and SPED were associated with statistically significant negative summer growth (i.e., $p < .01$ and $p < .05$, respectively). Even without controlling for initial status, the coefficient associated with SUMMER nearly reached the $p < .05$ level of significance. Thus, the reading achievement gap associated with SUMMER narrowed by 0.9 RIT points during the summer (see Figure 1). In contrast, the reading achievement gap associated with FRL grew by 1.2 RIT points (see Figure 2) and SPED gap grew by 1.1 RIT points (see Figure 3) during the summer of 2009. The changes to the reading achievement gaps that occurred during the summer of 2009 are also visible in the Figure 4 chart.

The results for grades 5 and 6 reading are presented in Table 3. The initial status associated with SUMMER again fell between that associated with FRL and SPED. The reading achievement gap associated with SUMMER was -8.5 RIT points compared to gaps of -5.7 and -15.2 for FRL and SPED respectively. As with grades 3 and 4, the reading achievement gap did not grow for any of the three predictors during the spring-to-spring preceding the summer of 2009. The gap associated with FRL grew by 0.9 RIT points during the summer of 2009 (see Figure 2) which was statistically significant ($p < .05$). A similar size growth in the reading achievement gap (see Figure 3) during that summer associated with SPED of 0.8 RIT points was not statistically significant. Once again, however, the gap associated with SUMMER narrowed by 2.2 RIT points (see Figure 1) which was statistically significant ($p < .001$). These results are presented in the Figure 5 chart.

The final reading results for grades 7 and 8 are presented in Table 4. The initial status associated with SUMMER was very similar to that associated with FRL and higher than that associated with SPED at these grades. Initial status associated with SUMMER was -6.0 compared to -5.8 for FRL and -16.5 for SPED. During the spring-to-spring prior to the summer of 2009 the achievement gap grew slightly (i.e., about 60% of one RIT point) for SUMMER and FRL but this growth was not statistically significant. The gap associated with SPED actually narrowed by nearly 2 RIT points during this interval ($p < .001$). The achievement gap during summer of 2009 did not change significantly ($p > .05$) for either FRL or SPED. For SPED, however, the gap did grow by 0.84 RIT points and the confidence interval around this growth in the gap did not reach zero (see Figure 3). The gap associated with SUMMER narrowed by approximately 2.2 RIT points during the summer (see Figures 1 and 6) due to significantly high summer growth ($p < .05$).

Math

Tables 5 contains the results of fitting subsequent HLM models for math initial status and reading growth on *Slope 1* and *Slope 2* for grades 3 and 4. SUMMER was associated with initial status of -8.29 RIT points which was lower than the initial status of SPED (i.e., -5.52 RIT points) than FRL (i.e., -4.03 RIT points). The math growth for SUMMER and SPED during the spring-to-spring interval prior to the summer of 2009 was not statistically significant (i.e., $p > .05$). The math growth for FRL on *Slope* 1 was significantly negative (i.e., $p < .01$) and the growth of SPED approached statistical significance and (i.e., $p < .10$) and was positive. On *Slope 2*, however, SUMMER was associated with a positive coefficient that approached significance (i.e., $p < .10$; see Figure 1). Growth on *Slope 2* for FRL was not statistically significant (i.e., $p > .05$) while growth for SPED on that slope was significantly negative (i.e., $p < .01$). Thus, the math achievement gap associated with FRL was essentially unchanged (see Figure 2) during the summer but the gap associated with SPED grew by 1.6 RIT points during the summer of 2009 (see Figure 3). In contrast, the gap associated with SUMMER narrowed by 0.8 RIT points during that same summer (see Figure 1). The changes to the reading achievement gaps that occurred during the summer of 2009 are also visible in the Figure 7 chart.

The results for grades 5 and 6 math are presented in Table 6. The initial status associated with SUMMER again fell between that associated with FRL and SPED. The math achievement gap associated with SUMMER was -9.5 RIT points compared to gaps of -4.9 and -12.2 for FRL and SPED respectively. The reading achievement gap did not grow for SUMMER during the spring-to-spring preceding the summer of 2009. During the summer of 2009, however, the gap associated with SUMMER narrowed by 0.8 RIT which was not statistically significant ($p > .05$). The achievement gap associated with FRL was negative but it did not grow significantly during the summer (see Figure 2). The gap associated with SPED grew significantly (i.e., 1.6 RIT points; $p < .01$) during the summer (see Figure 3). The SUMMER results are presented in Figure 1 and visible in the Figure 8 chart.

The final math results for grades 7 and 8 are presented in Table 7. The initial status associated with SUMMER was very similar to that associated with FRL and much lower than that associated with SPED at these grades. Initial status associated with SUMMER was -6.5, with FRL was -6.2 and with SPED was -16.6. During the spring-to-spring prior to the summer of 2009 the achievement gap did not grow for SPED but it did grow significantly for both SUMMER (i.e., by 2.1 RIT points; $p < .01$) and FRL (i.e., by 1.3 RIT points; $p < .01$). The achievement gap associated with SUMMER narrowed by 1.4 RIT points on slope 2 which approached significance (i.e., $p < .10$). FRL growth during this same interval was again negative but not statistically significant ($p > .05$). SPED was associated with significant negative growth and an increasing achievement gap during the summer of 2009 (i.e., growth by 1.6 RIT points; *p*

< .05). The slope 2 coefficients for predictors are presented along with 80% confidence intervals in Figure 1 for SUMMER, Figure 2 for FRL and Figure 3 for SPED. Figure 9 also shows the slope 2 growth for grades 7 and 8 math.

Discussion

This study is the third in an ongoing series of studies of the effect of summer school participation on reading and math achievement growth (see Flicek, 2007 and Flicek, 2009). The 2007 study investigated the impact of summer school participation from fall-to-fall. The analyses for the 2009 investigation were similar to those of the current investigation. Growth during the summer was isolated in both the 2009 study and the current study so that changes to the achievement gap associated with summer school participation could best be documented. The term "growth" applied to what happens to student academic skills during the summer is somewhat misleading since all students, on average, had negative growth (i.e., lower test scores in the fall than the spring) during the summer in all 6 grade-by-content areas in the current study. The analyses in the current study and the 2009 study identified the extent that the achievement gap for the students who attended summer school was present initially and whether or not the gap increased, remained unchanged or narrowed during the summer that the students attended summer school. All three studies have controlled for the effect associated with FRL and SPED when identifying the effect associated with summer school attendance. In the current study and the two previous studies there have been no instances of SUMMER being associated with significantly negative growth. In all instances, SUMMER has been associated non significant growth in the achievement gap or with a statistically significant narrowing of the achievement gap between SUMMER students and the control students who did not attend summer school and who were also not students on FRL or students in SPED.

In the current study the correlation between initial status and the summer growth rate was interpreted. These correlation coefficients were reported in the 2009 study by they were not interpreted. There was a strong positive correlation coefficient between initial status and growth during the summer of 2009 in 5 of 6 groups studied (i.e., $r = 0.24$ to 0.66; $p < .001$). In the final group, (i.e., grades 7 and 8 math) there was a statistically significant ($p < .05$) positive correlation coefficient that was smaller than the others (i.e., $r = 0.06$). In retrospect, these findings were very similar to the findings in the 2009 study. These correlation coefficients provide evidence that students with low initial status had low growth during the summer while students with high initial status had high growth during the summer. Initial status refers to the achievement level of a student on the spring test one year prior to the spring that the student entered summer school. The initial status of students attending summer school was significantly low in all grade-by-content areas that were studied. Therefore, in the absence of summer school they would be expected to have low growth with an increasing achievement gap during the summer. Instead they had either (a) significantly high growth and a narrowing achievement gap or (b) non significant growth compared to control students (i.e., those who did not attend summer school and who were not FRL or SPED) and a stable achievement gap. As such, the conclusion that summer school attendance was associated with the prevention of growth in the achievement gap or a narrowing of the achievement gap is supported. The one caveat involves the remote possibility that students who attended summer school were a subgroup of low achieving students whose summer growth would have been contrary to the expectations based upon the aforementioned positive correlation associated with summer growth and initial status. That said it seems very unlikely to this researcher that selection bias accounts for the summer growth findings reported in this study.

FRL, in contrast, experienced a growing reading achievement gap during the summer in grades 3 through 6. The reading achievement gap associated with FRL in grades 7 and 8 did not grow during the summer nor did the achievement gap associated with FRL in math grow in any grades tested during the summer (see Figure 2). The achievement gap associated with SPED grew during the summer in both reading and math during all grades studied. There were no instances of the achievement gap associated with FRL or SPED narrowing during the summer (see Figure 3).

Finding differential summer learning loss among disadvantaged students and their more advantaged peers is hardly a new finding. Alexander and Entwisle (1996) demonstrated that summer loss, and not school year loss, was primarily responsible for the growth in the achievement gap as disadvantaged students progressed through elementary school. Alexander, Entwisle, and Olson (2007) noted that summer learning loss during the elementary grades was responsible for more than half of the achievement gap that is present when students entered high school (i.e., grade 9). Borman (2000) called for a focus on prevention by offering summer programming for disadvantaged students over multiple summers.

A recent investigation of subgroup performance in Natrona County School District (NCSD) found that growth in the reading achievement gap for students on FRL did not occur during the school year but that it did occur during the summer months for students in elementary school grades (Flicek, 2010). In the middle school grade, the reading achievement gap grew for students both during the school year and during the summer. It was during the summer that the achievement gap grew for students in SPED as well. These findings are particularly relevant considering that the theory of action supporting funding for summer school in Wyoming (Odden, Picus, Goetz, Fermanich, Seder, Glenn & Nelli, 2005). The theory of action stipulated that summer school was important to the mitigation of summer loss that students from disadvantaged backgrounds were known to experience. The patterns documented in this study and others (e.g., Flicek, 2010; Flicek, 2007; McCall, Hauser, Cronin, Kingsbury, & Houser, 2006) suggest that, as disadvantaged children move through their school careers, the cumulative effect of summer loss substantially increases the risk of poor outcomes for these students. For example, Flicek (2010) found that the reading achievement gap for a cohort of grade 5 students increased from less than 4 RIT score points at the beginning of one summer to 8 RIT score points at the end of the following summer even though the gap did not grow at all during the intervening school year. In this example the gap doubled and grew by approximately 34% of a standard deviation as a direct result of loss that occurred during two subsequent summers. In the current study and in past studies of Wyoming students (Flicek, 2009; Flicek 2007) more days in school (i.e., summer school) has consistently been found to be associated with prevention of growth in the achievement gap or a reversal of the achievement gap for the students who get the extra days. These findings are consistent with well established findings in the field (e.g., see Cooper, 2004; Cooper et al., 2000)

It is becoming increasingly evident that the key to preventing growth of the achievement gap or reducing the gap is finding a way to get more disadvantaged students extra school days. This is true for disadvantaged students regardless of their academic skill level. Disadvantaged students with average or above achievement also experience declining achievement relative to their peers as a result of summer loss (see McCall et al., 2006). This loss contributes to the achievement gap and has a real cost to the students in terms of diminishing options over time (see Alexander et al., 2007). With this in mind, Flicek and Mahlum (2010) have suggested that schools with high proportions of disadvantaged students would benefit from an alternate school calendar that includes extra school days. This suggestion is consistent with the recommendations of Alexander et al. (2007) who stressed the importance of "year-round, supplemental programming" as essential to the prevention of growth in the achievement gap during the school career of disadvantaged students. Summer loss disproportionately harms disadvantaged students (Alexander et al., 2007; Cooper, 2004; Flicek, 2010; McCall et al., 2006). Therefore, a need for extra school days is disproportionate. High poverty schools are more in need of extra school days than low poverty schools. At a minimum the Wyoming summer school program consisted of 15, four hour days. The equivalent of this could be incorporated into a school calendar at high poverty schools so that all students attending these schools, not just the students with low achievement, would have the extra days. This approach would make teaching in high poverty schools more attractive so that the applicant pools for jobs in these schools would be deeper. The intended outcome for this approach would be prevention of growth in, or narrowing of, the achievement gap associated with poverty as students move through their school careers.

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Table 1. Total Number of Student and Number of Students in Summer School by District and Total Sample.

	Grade 3 & 4		Grade 5 & 6		Grade 7 & 8	
	Total *n*	Summer *n*	Total *n*	Summer *n*	Total *n*	Summer *n*
Big Horn 3	82	15	92	12	83	6
Crook	164	29	144	14	177	8
Fremont 1	265	31	274	20	237	18
Fremont 24	42	3	49	10	60	12
Natrona	1756	164	1682	63	1768	53
Park 1	266	48	237	17	249	30
Sheridan	150	26	139	17	140	15
Sweetwater 2	415	40	416	22	366	24
Total	2782	356	3033	175	3080	166

Table 2. Results of Fitting Subsequent HLM Models for ***Reading*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from **Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grades 3 and 4*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	199.535	193.817	198.183
	SUMMER	γ_{01}			-9.747****
	FRL	γ_{02}			-5.062****
	SPED	γ_{03}			-10.270****
Slope 1	Intercept	γ_{10}		0.872	0.856****
	SUMMER	γ_{11}			*0.012*
	FRL	γ_{12}			*0.032*
	SPED	γ_{13}			*0.027*
Slope 2	Intercept	γ_{20}		-0.438	-0.289****
	SUMMER	γ_{21}			0.301*
	FRL	γ_{22}			-0.403***
	SPED	γ_{23}			-0.352**
Variance Components					
Level 1	Within-person	r_{ij}	71.940	44.332	44.199
Level 2	In initial status	u_{0j}	156.493	184.625	149.996
	In rate of change 1	u_{1j}		0.067	0.069
	Correlation Initial Status:				
	(a) with *Slope 1*			-0.452	-0.498
	(b) with *Slope 2*			0.585□	
	r_{0j} Variance Explained			0.384	
	u_{0j} Variance Explained				0.188
	u_{1j} Variance Explained				0.000

Note. Coefficients in italics were obtained when latent variable regression was included in the model.
□ This correlation was obtained from a model where *Slope 1* and *Slope 2* were allowed to randomly vary.
*p < .10.
**p < .05.
***p < .01.
****p < .001.

Table 3. Results of Fitting Subsequent HLM Models for ***Reading*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from* ***Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grades 5 and 6*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	211.833	208.708	213.312
	SUMMER	γ_{01}			-8.476****
	FRL	γ_{02}			-5.707****
	SPED	γ_{03}			-15.146****
Slope 1	Intercept	γ_{10}		0.518	0.499****
	SUMMER	γ_{11}			-0.021
	FRL	γ_{12}			0.045
	SPED	γ_{13}			0.038
Slope 2	Intercept	γ_{20}		-0.621	-0.392****
	SUMMER	γ_{21}			*0.731****
	FRL	γ_{22}			*-0.283***
	SPED	γ_{23}			*-0.280*
Variance Components					
Level 1	Within-person	r_{ij}	50.864	41.433	41.435
Level 2	In initial status	u_{0j}	158.154	154.728	111.163
	In rate of change 2	u_{2j}		0.717	0.626
	Correlation Initial Status:				
	(a) with *Slope 1*			-0.447□	
	(b) with *Slope 2*			0.476	0.406
	r_{0j} Variance Explained			0.185	0.286
	u_{2j} Variance Explained				0.127

Note. Coefficients in italics were obtained when latent variable regression was included in the model.
□ This correlation wasobtained from a model where *Slope 1* and *Slope 2* were allowed to randomly vary.
*p < .10.
**p < .05.
***p < .01.
****p < .001.

Table 4. Results of Fitting Subsequent HLM Models for ***Reading*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from* ***Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grades 7 and 8*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	219.018	217.063	221.170
	SUMMER	γ_{01}			-5.991****
	FRL	γ_{02}			-5.748****
	SPED	γ_{03}			-16.504****
Slope 1	Intercept	γ_{10}		0.326	0.323****
	SUMMER	γ_{11}			-0.057
	FRL	γ_{12}			-0.052*
	SPED	γ_{13}			0.161****
Slope 2	Intercept	γ_{20}		-0.402	-0.305****
	SUMMER	γ_{21}			0.548**
	FRL	γ_{22}			0.017
	SPED	γ_{23}			-0.339
Variance Components					
Level 1	Within-person	r_{ij}	48.934	42.801	42.727
Level 2	In initial status	u_{0j}	158.869	155.733	113.076
	In rate of change 2	u_{2j}		1.438	1.427
	Correlation Initial Status:				
	(a) with *Slope 1*			-0.361	
	(b) with *Slope 2*			0.235	0.206
	r_{0j} Variance Explained			0.125	0.274
	u_{2j} Variance Explained				0.008

Note. Coefficients in italics were obtained when latent variable regression was included in the model.
This correlation was obtained from a model where *Slope 1* and *Slope 2* were allowed to randomly vary.
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

Table 5. Results of Fitting Subsequent HLM Models for ***Math*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from **Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grades 3 and 4*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	204.836	197.436	200.594
	SUMMER	γ_{01}			-8.294****
	FRL	γ_{02}			-4.032****
	SPED	γ_{03}			-5.522****
Slope 1	Intercept	γ_{10}		1.115	1.132****
	SUMMER	γ_{11}			*-0.057*
	FRL	γ_{12}			*-0.095****
	SPED	γ_{13}			*0.066**
Slope 2	Intercept	γ_{20}		-0.445	-0.396****
	SUMMER	γ_{21}			0.261*
	FRL	γ_{22}			-0.017
	SPED	γ_{23}			-0.517***
Variance Components					
Level 1	Within-person	r_{ij}	74.994	29.971	29.872
Level 2	In initial status	u_{0j}	123.228	152.181	134.707
	In rate of change 1	u_{1j}		0.082	0.082
	Correlation Initial Status:				
	(a) with *Slope 1*			-0.360	-0.407
	(b) with *Slope 2*			0.331□	
	r_{0j} Variance Explained			0.600	
	u_{0j} Variance Explained				0.115
	u_{1j} Variance Explained				0.000

Note. Coefficients in italics were obtained when latent variable regression was included in the model.
□ This correlation was obtained from a model where *Slope 1* and *Slope 2* were allowed to randomly vary.
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

Table 6. Results of Fitting Subsequent HLM Models for ***Math*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from **Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grade 5 and 6*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	220.320	216.458	220.278
	SUMMER	γ_{01}			-9.474****
	FRL	γ_{02}			-4.867****
	SPED	γ_{03}			-11.235****
Slope 1	Intercept	γ_{10}		0.659	0.697****
	SUMMER	γ_{11}			*-0.034*
	FRL	γ_{12}			*-0.053**
	SPED	γ_{13}			*-0.123****
Slope 2	Intercept	γ_{20}		-0.936	-0.829****
	SUMMER	γ_{21}			0.276
	FRL	γ_{22}			-0.134
	SPED	γ_{23}			-0.517***
Variance Components					
Level 1	Within-person	r_{ij}	47.915	35.433	35.153
Level 2	In initial status	u_{0j}	157.235	162.664	127.889
	Correlation Initial Status:				
	(a) with *Slope 1*			0.524□	
	(b) with *Slope 2*			0.659□	
	r_{0j} Variance Explained			0.261	
	u_{0j} Variance Explained				0.214

Note. Coefficients in italics were obtained when latent variable regression was included in the model.
□ This correlation was obtained from a model where *Slope 1* and *Slope 2* were allowed to randomly vary.
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

Table 7. Results of Fitting Subsequent HLM Models for ***Math*** Initial Status and Growth on *Slope 1* (i.e., from ***Spring 1-to-Fall 1-to-Spring 2***) and *Slope 2 (i.e., from **Spring 2-to-Fall 2)*** for a Sample of Wyoming Students in ***Grade 7& 8*** during Spring 2009.

		Parameter	Unconditional Means Model*	Unconditional Growth Model	Final Model
Fixed Effects					
Initial Status,	Intercept	γ_{00}	229.723	226.830	231.107
	SUMMER	γ_{01}			-6.485****
	FRL	γ_{02}			-6.188****
	SPED	γ_{03}			-16.593****
Slope 1	Intercept	γ_{10}		0.473	0.514****
	SUMMER	γ_{11}			-0.177***
	FRL	γ_{12}			-0.104***
	SPED	γ_{13}			-0.021
Slope 2	Intercept	γ_{20}		-0.368	-0.337****
	SUMMER	γ_{21}			0.459*
	FRL	γ_{22}			-0.152
	SPED	γ_{23}			-0.539**
Variance Components					
Level 1	Within-person	r_{ij}	44.746	36.833	36.649
Level 2	In initial status	u_{0j}	212.910	217.885	165.855
	Correlation Initial Status:				
	(a) with *Slope 1*			0.571□	
	(b) with *Slope 2*			0.056□	
	R_{0j} Variance Explained			0.224	
	u_{0j} Variance Explained				0.232

□ This correlation was obtained from a model where*Slope 1* and *Slope 2* were allowed to randomly vary.
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

Table 8. Correlation Coefficients of the Association of Initial Status and Growth.

	Spring-to-Spring Growth	Summer Growth
Grades 3 and 4 Reading	-0.45****	0.59****
Grades 5 and 6 Reading	-0.45****	0.48****
Grades 7 and 8 Reading	-0.36****	0.24****
Grades 3 and 4 Math	-0.36****	0.33****
Grades 5 and 6 Math	0.54****	0.66****
Grades 7 and 8 Math	0.57****	0.06**

Note. The correlation coefficients appearing in this table are first reported in Tables 2 through 7.
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

Figure 1. The Change to the RIT Score Achievement Gap (with 80% Confidence Intervals) during Summer 2009 Associated With Summer School Attendance for All 8 Participating Wyoming Districts.

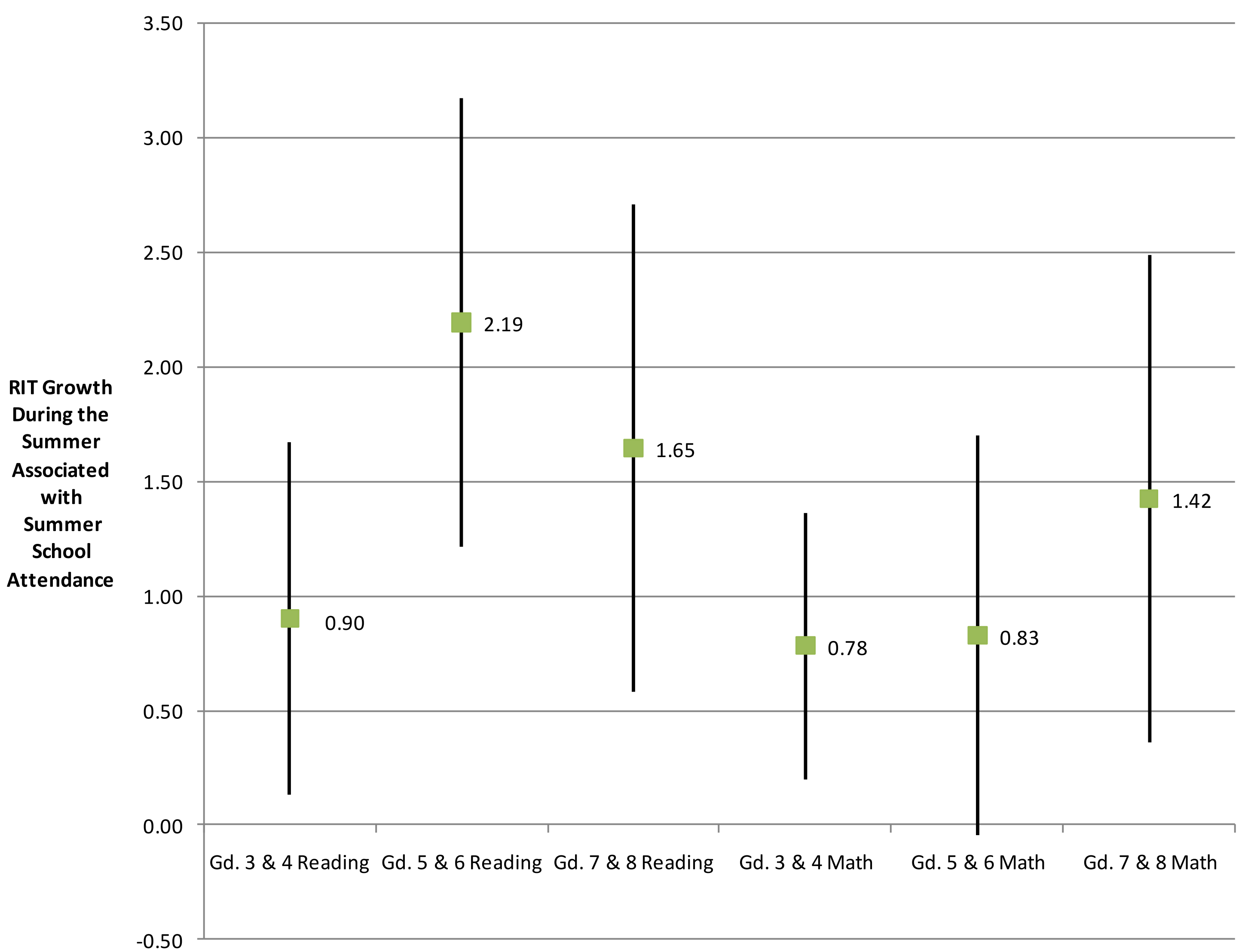

Figure 2. The Change to the RIT Score Achievement Gap (with 80% Confidence Intervals) during Summer 2009 Associated With Free or Reduced Lunch Eligibility.

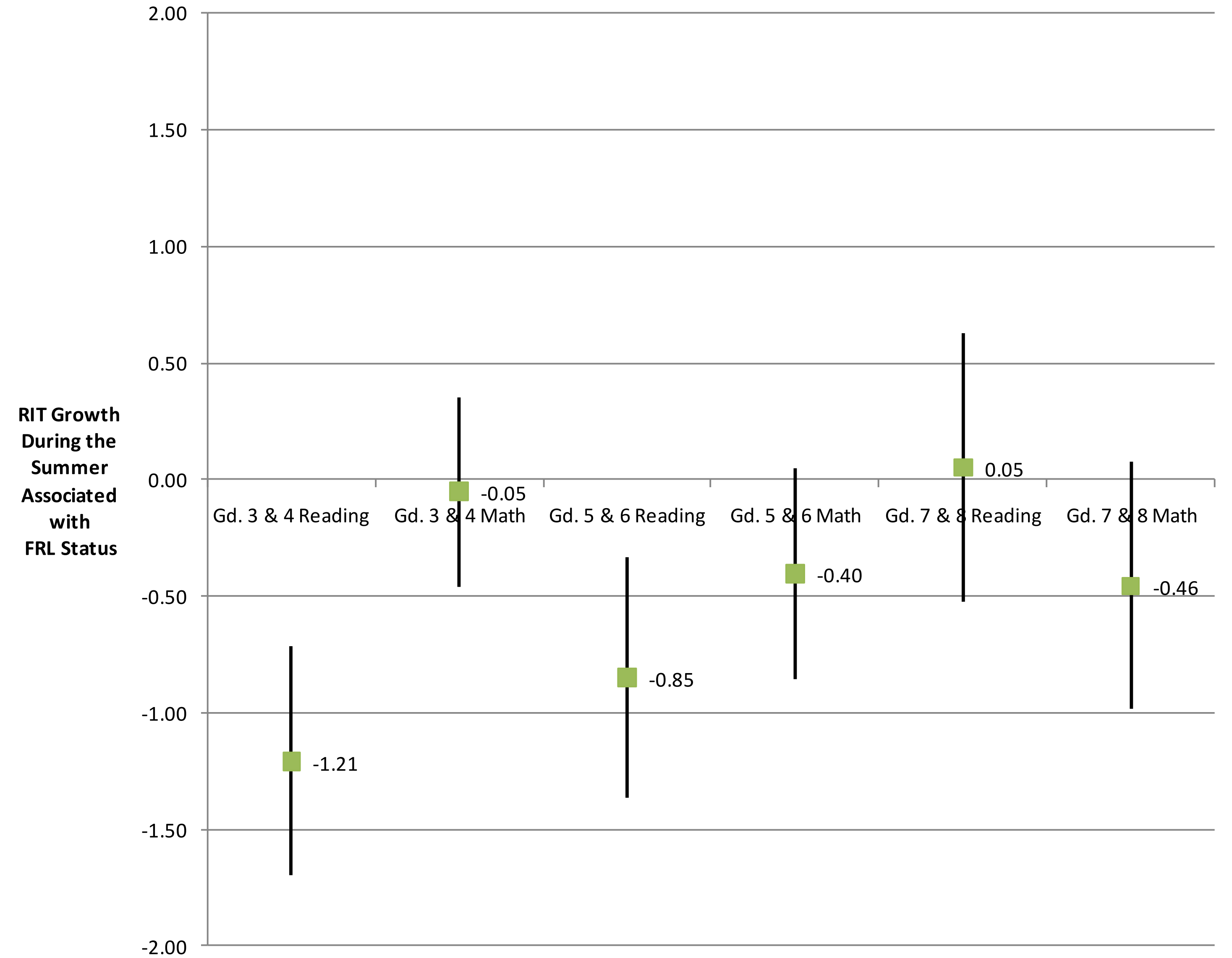

Figure 3. The Change to the RIT Score Achievement Gap (with 80% Confidence Intervals) during Summer 2009 Associated With Special Education Membership.

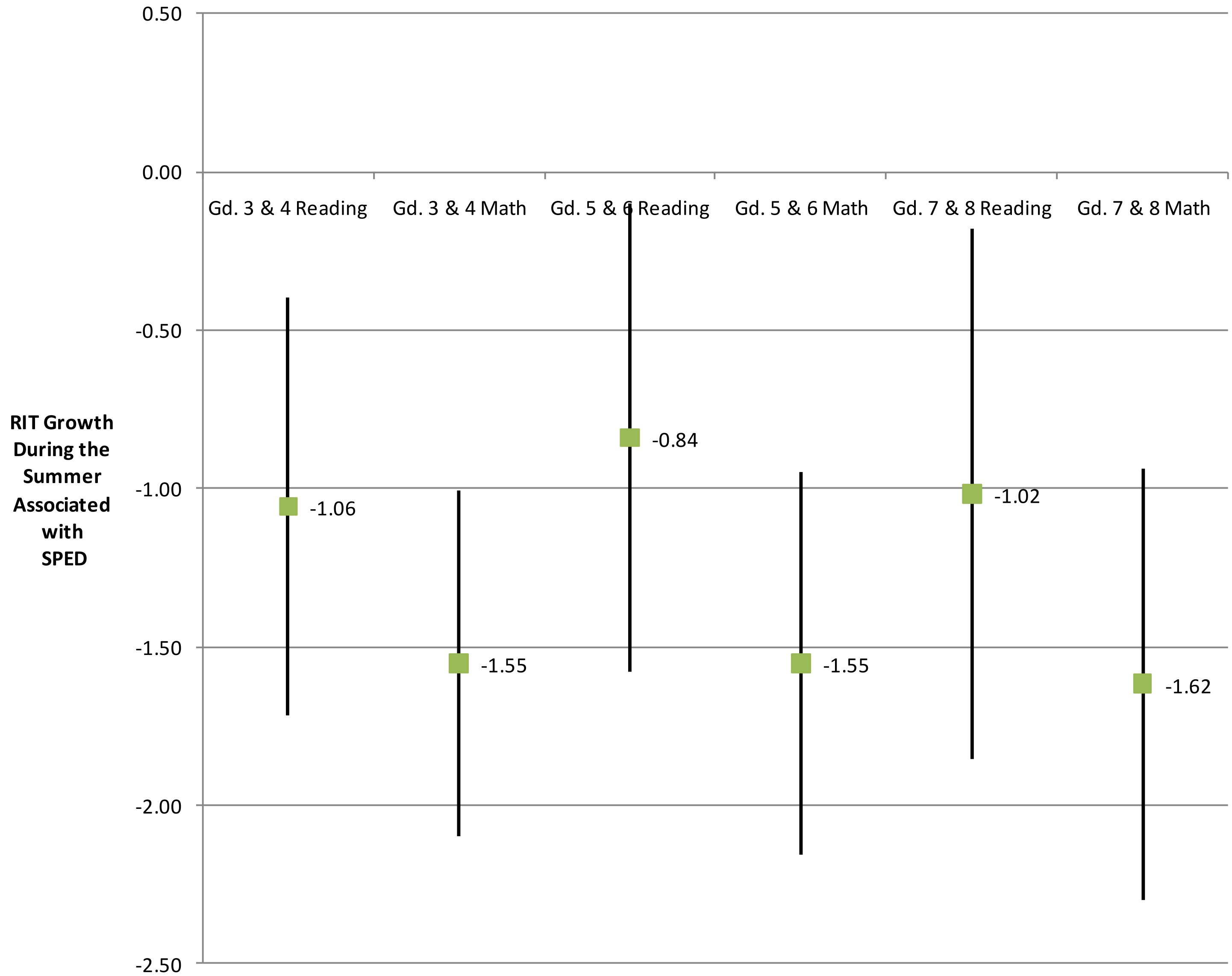

Figure 4. Summer 2009 Reading Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 3 and 4.

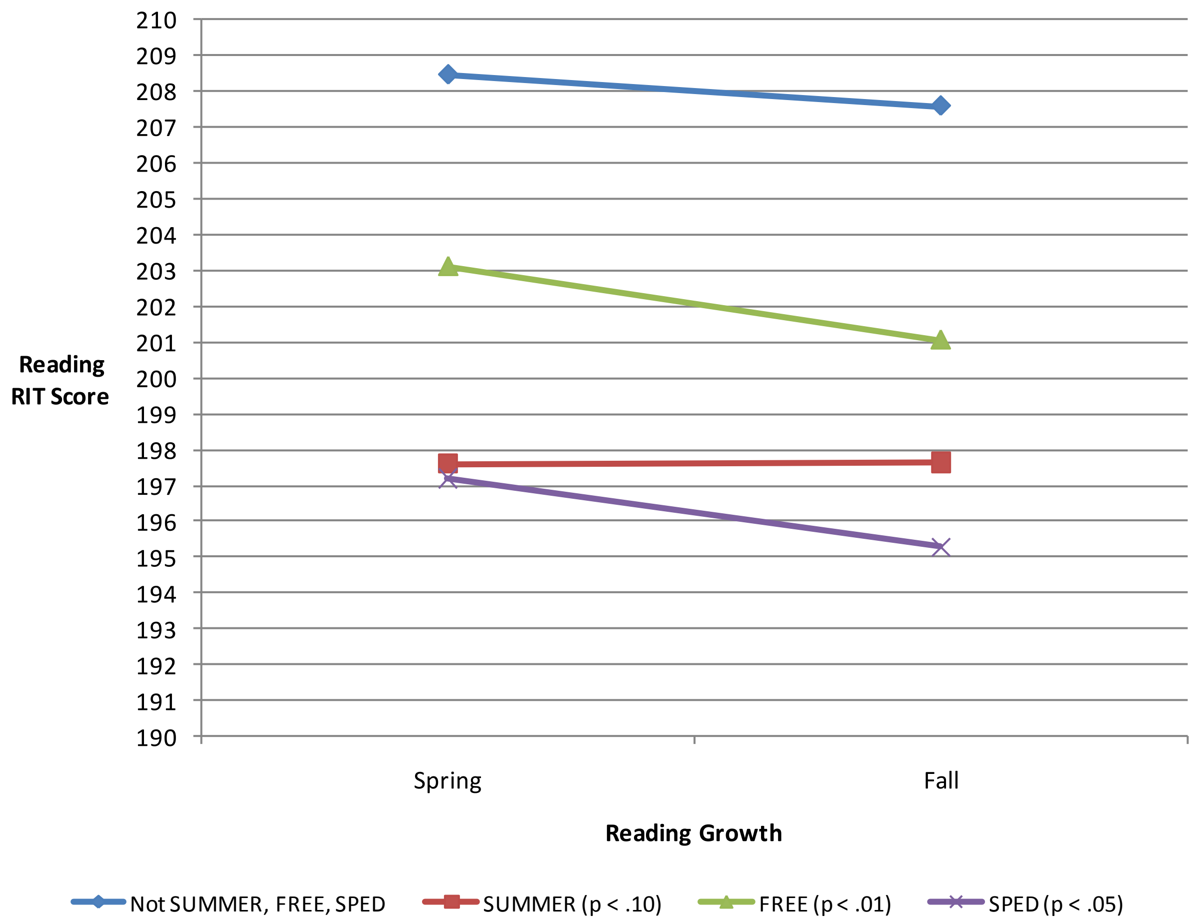

Figure 5. Summer 2009 Reading Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 5 and 6.

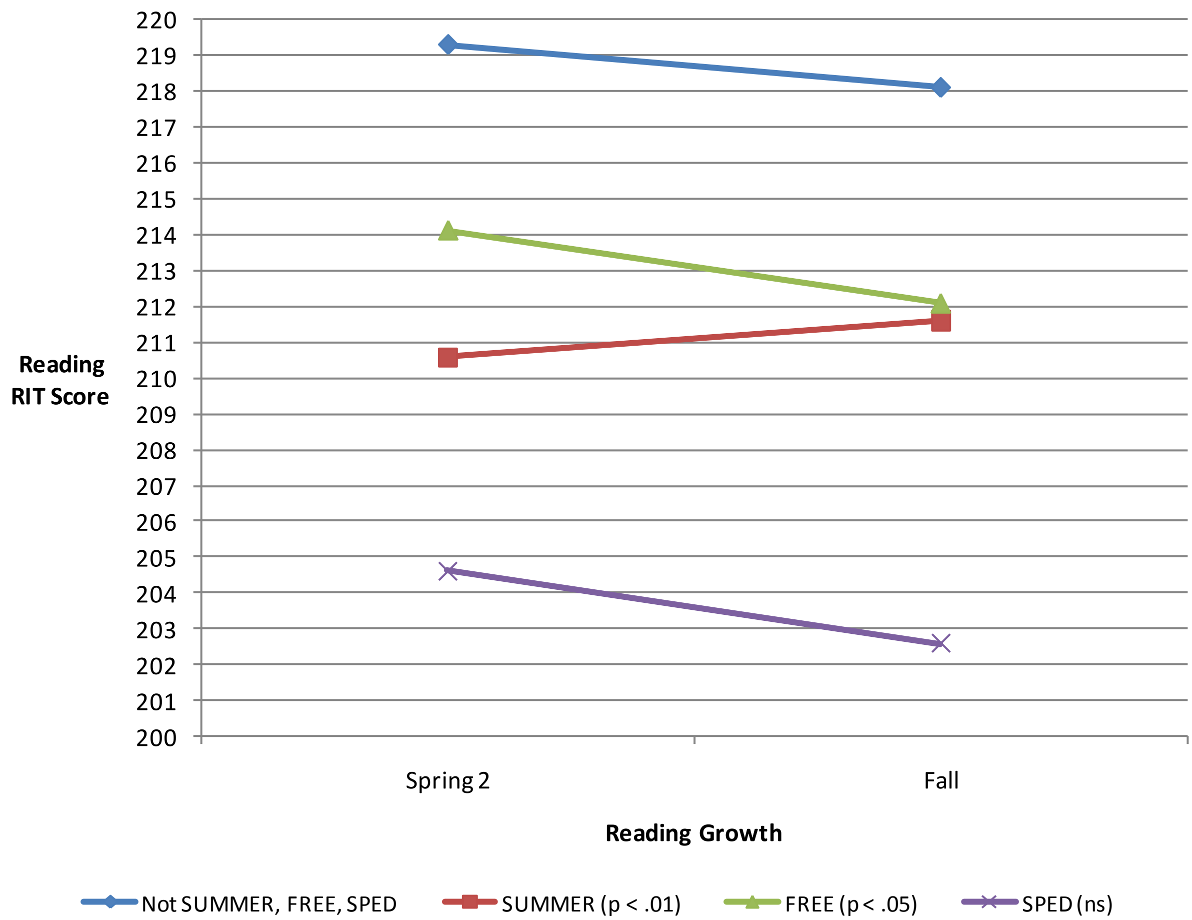

Figure 6. Summer 2009 Reading Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 7 and 8.

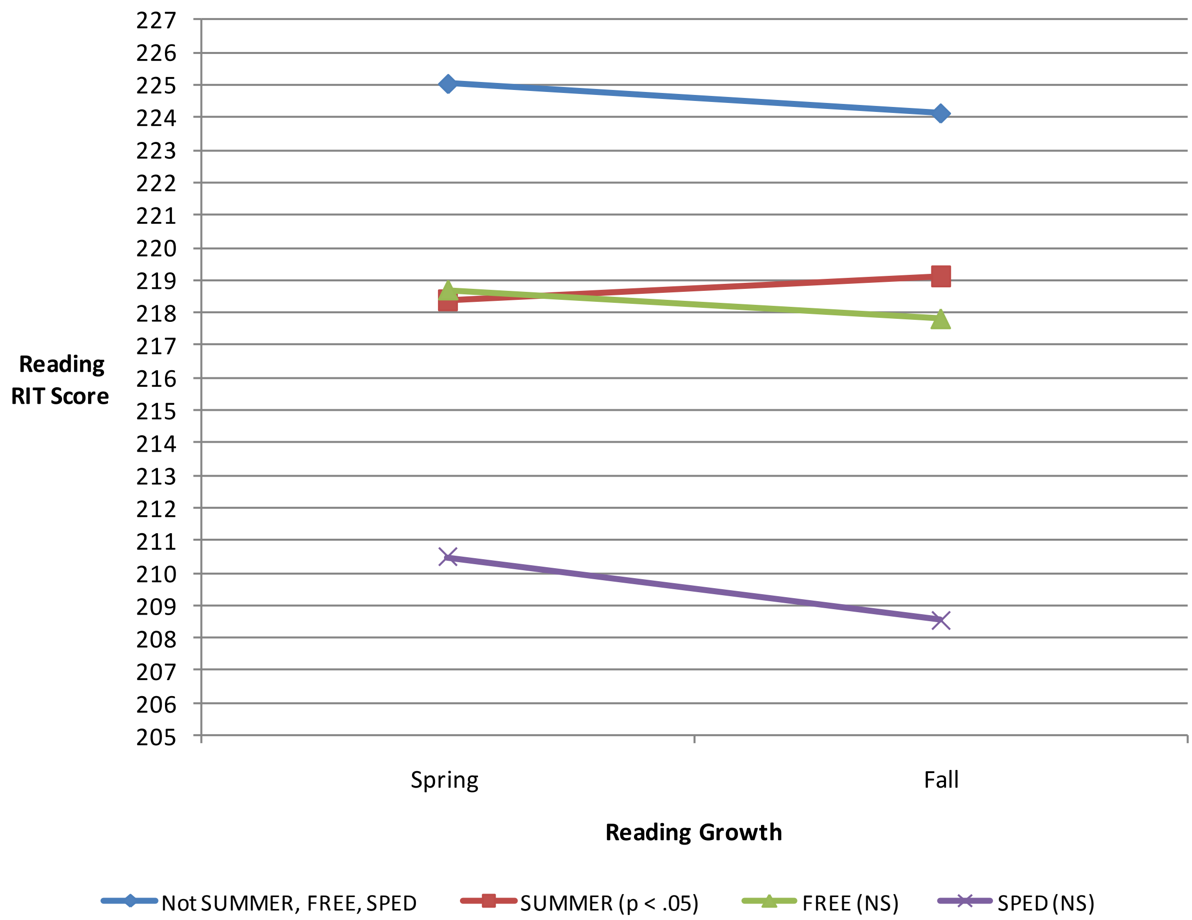

Figure 7. Summer 2009 Math Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 3 and 4.

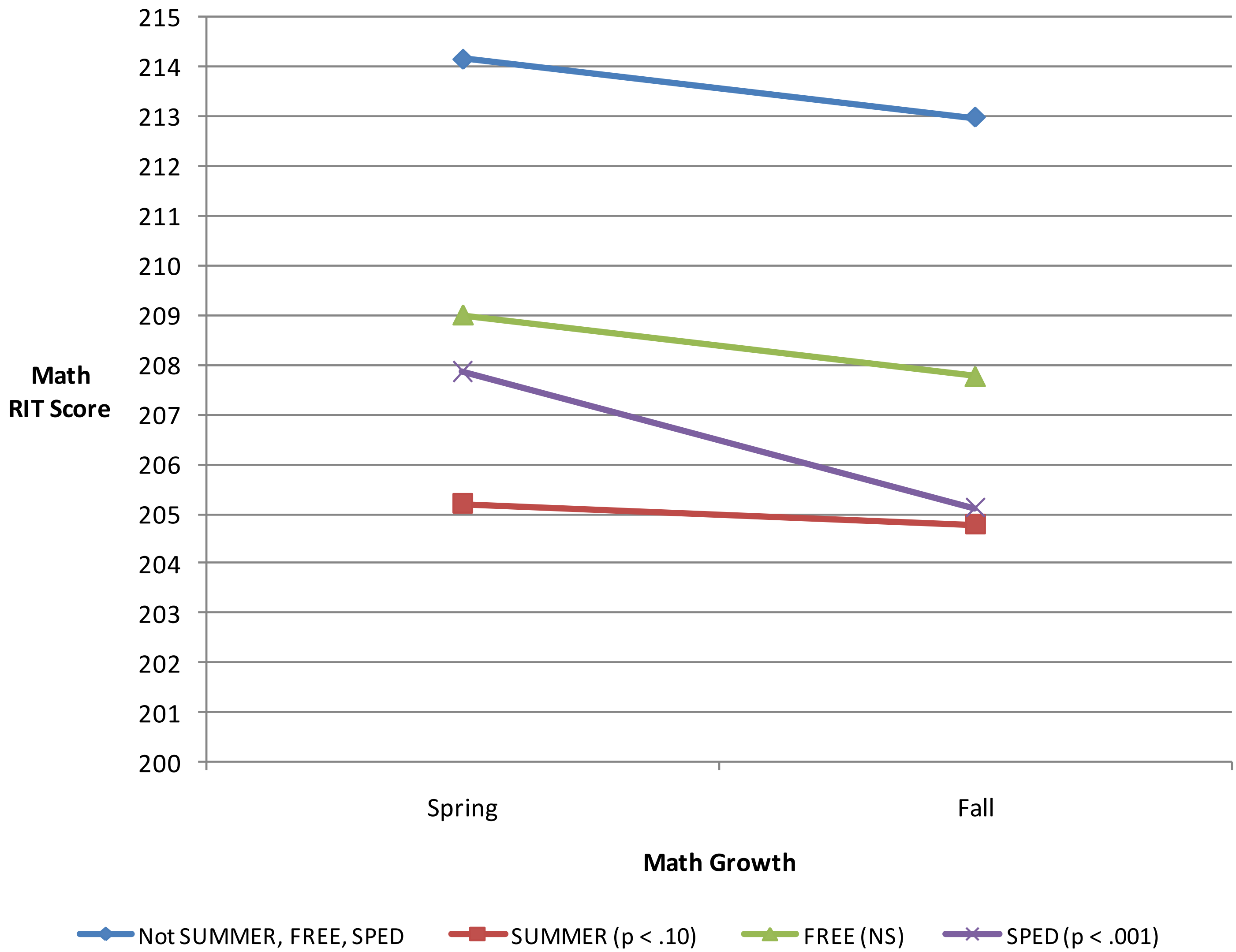

Figure 8. Summer 2009 Math Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 5 and 6.

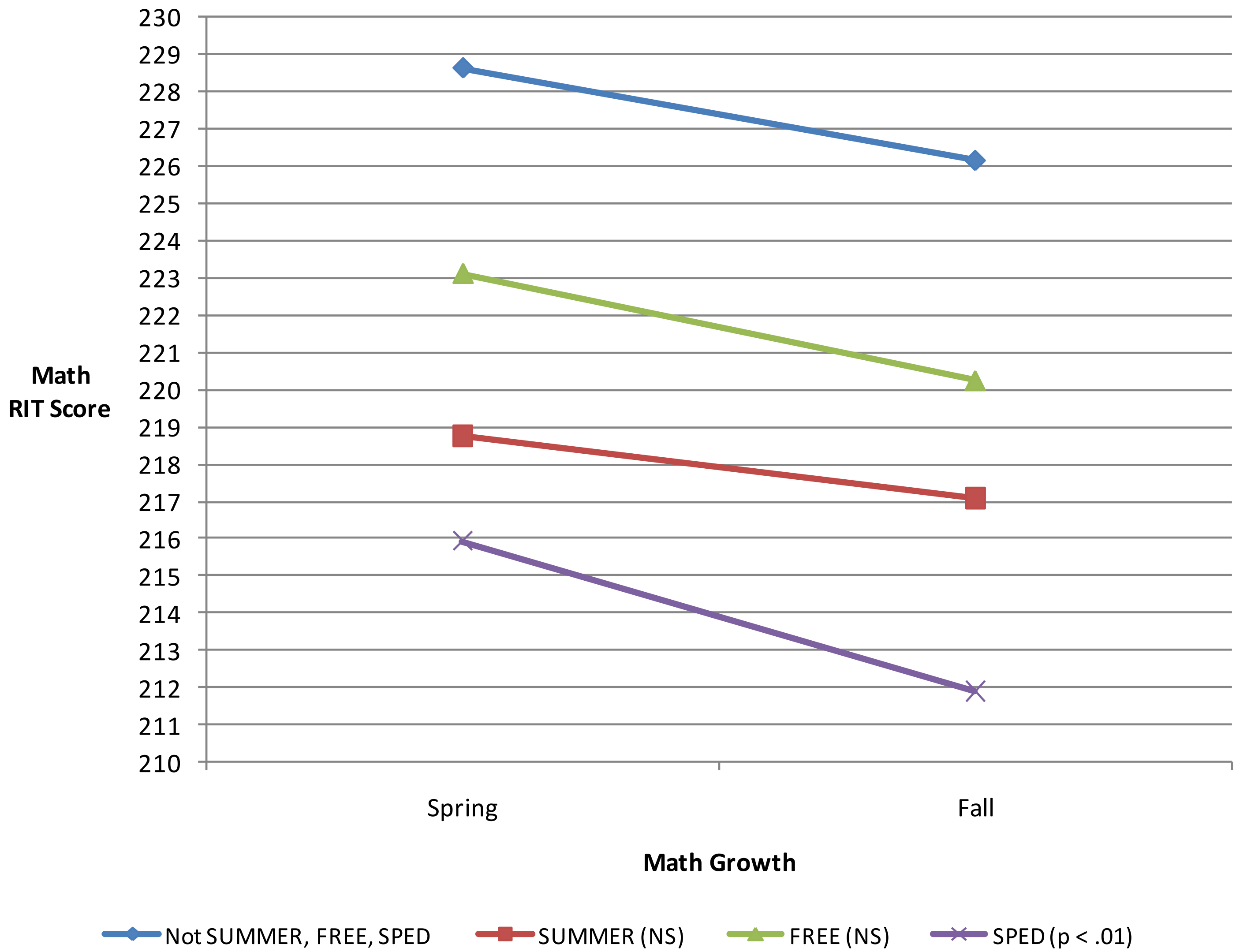

Figure 9. Summer 2009 Math Growth on the NWEA MAP Test from Spring to Fall for Students in Grades 7 and 8 .