

**IMPLEMENTING SCHOOL FINANCE ADEQUACY:
SCHOOL LEVEL RESOURCE USE IN WYOMING
FOLLOWING ADEQUACY-ORIENTED FINANCE REFORM**

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Contents

1. Background	1
2. Review of the Literature	4
Fiscal Federalism	4
Use of the Education Dollar	5
School Level Programmatic Resource Use	6
3. Methodology	7
School Level Research Design	8
Instruments	10
Procedures	14
Data Analysis	14
State Level Research Design	15
4. Results	17
District Expenditure and Average Teacher Salary Analysis	17
Trends in Overall Expenditures at the District Level	17
Trends in Average Teacher Salaries and Salary Schedules	20
Analysis of School Level Resource Allocation and Use	23
Trends in School Level Resource Use	23
Use of Time	24
Use of Staff Resources in Schools	24
Elementary Schools	25
Middle Schools	28
High Schools	32
Alternative Learning Environment Schools	36
Class Size/Core Teachers	37
Instructional Aides	39
Certified Teacher Tutors	40
Instructional Facilitators/Coaches	41
5. Discussion	42
References	47

List of Tables

Table	Description	Page
1	Comparisons of Student Demographics in Wyoming and the First Year Sample Schools (n = 186)	9
2	Number and Type of Schools in Wyoming and Sample	9
3	Number and Percentage of Schools in Wyoming and Sample by School Size	10
4	School Expenditure Framework and Resource Indicators	11
5	A Cost Structure for Professional Development	12
6	Total State Education Expenditures by Fund (Excludes Capital and Debt)	18
7	Breakdown of Total Expenditures by Function	19
8	Change in Instructional Function Expenditures Devoted To Compensation	20
9	Statewide Total of Teacher FTE, 2002-03 to 2006-07	21
10	Statewide Total of Teacher FTE Compared to The Wyoming School Funding Model, 2006-07	22
11	Statewide Average Teacher Salaries, 2002-03 to 2006-07	22
12	Average Resources in Elementary Schools with More than 96 Students	25
13	Average Resources in Elementary Schools with 49-96 Students	27
14	Average Resources in Elementary Schools with Less than 49 Students	28
15	Average School-Level Resources in Middle Schools with More than 105 Students	29
16	Average School-Level Resources in Middle Schools with 49-105 Students	31
17	Average School-Level Resources in Middle Schools with Less than 49 Students	32
18	Average School-Level Resources in High Schools with More than 105 Students	33
19	Average School-Level Resources in High Schools with 49-105 Students	34
20	Average School-Level Resources in High Schools with Less than 49 Students	35
21	Average School-Level Resources in Alternative Learning Environment (ALE) Schools	37
22	Students per Core Teacher (Excludes Small & Alternative Schools data)	38

List of Tables (Continued)

Table	Description	Page
23	Core Teachers in Year 1 Sampled Schools (Excludes Small & Alternative Schools Data)	39
24	Number of Instructional Aides	40
25	Number of Certificated Tutors in Sample Schools (Does not include small or alternative schools data)	41
26	Average Number of Instructional Facilitators in Medium and Large Schools (Schools with more than 49 students)	42

Implementing School Finance Adequacy: School Level Resource Use in Wyoming Following Adequacy-Oriented Finance Reform

This study reports on the allocation and use of school-level resources following an increase in Wyoming education funding. Researchers conducted this study in the first year following a major recalibration of that state’s block grant school finance program. The recalibrated funding model was developed from the results of an evidence-based school finance adequacy study (Odden, Picus, et al. 2005).

Unlike other resource allocation and use studies, the work described in this article analyzes how Wyoming schools used the funds they received during the first year the state implemented this funding model. In addition, in this study we assess how education resources were used by discrete programmatic strategies at the school level. The results reported in this paper represent the findings of the analysis of a random sample of 50% of the schools in Wyoming, the results of the first year of a two year endeavor to visit all 362 schools in Wyoming to assess how they allocate and use the educational resources available to them to improve student learning.

1. Background

In 1997, The Wyoming Supreme Court, in *Campbell County v. State*¹ (hereinafter *Campbell I*), ruled the state’s school funding system unconstitutional. The Wyoming Supreme Court determined that education was a constitutionally protected “fundamental interest” and directed the Legislature to define a “proper” education – “the basket” of educational goods and services – every child in Wyoming should receive.²

¹ *Campbell County School District v. State*, 907 P2d 1238 (Wyo. 1995)

² *Campbell I*

In response to the Court's ruling, the Wyoming legislature implemented a block grant funding model. In essence, the purpose of this effort was to define the basket of educational goods necessary to meet constitutional requirements and determine the cost of providing them to all public school children in Wyoming. The model utilized in 1997 to meet the Court's mandate, used professional judgment panels to establish prototype schools and the resources they would need to provide the basket. As required by the Court, the funding system needed to rely on a cost-based funding model.

Once implemented, the model was challenged in *State v. Campbell County School District*³ (hereinafter *Campbell II*) through which, in February, 2001, the Wyoming Supreme Court found that the core of the funding model and the methodologies used to cost out the resources within the model were constitutional. Although the court found that the core of the funding model – the prototypes for elementary, middle, and high schools – was constitutional, it decided that some individual components of the funding model did not meet constitutional muster and required the Legislature to revise them. Subsequently, the legislature enacted a number of revisions to the funding model and implemented them in the 2002-03 school year.

The Court also ruled in *Campbell II* that the state school finance model must be recalibrated at least every five years. To comply with that requirement, the Legislature employed the authors of this study to recalibrate the Wyoming cost-based funding model. The recommendations of an evidence-based study were implemented into law to establish the funding model for the 2006-07 school year and the following four years (Odden, Picus, et al. 2005). The evidence-based model used in the recalibration included: strategies for small class sizes in all elementary and secondary schools, teacher specialists to provide programs in art, music and physical education and to allow for planning and collaboration time for teachers; a set of

³ *State v. Campbell County School District*, 19 P.3d 518 (Wyo. 2001)

strategies to help students who are struggling in the regular education program including tutoring resources, extended day and summer school programs and additional pupil support personnel; a comprehensive professional development strategy that includes instructional facilitators, resources to pay teachers for intensive summer planning and training institutes and funds to purchase other professional development resources such as consultants and research materials; and, other educational resources to support student learning. In addition, the Wyoming funding model makes a number of adjustments to compensate for the additional per pupil costs associated with the operation of small schools and small school districts. Wyoming made funds available for summer school programs, extended day programs, and instructional facilitators through categorical programs to ensure districts implement these strategies.

As a follow-up to implementation of the new funding model, the Wyoming State Legislature sought answers to the following questions:

1. How are actual resource patterns in Wyoming aligned with or different from the resource use strategies embedded in the Wyoming Funding Model?
2. What instructional improvement strategies are currently in use at the school-level in Wyoming?

This study describes the results from the first year of the study which was designed to answer the first research question. Below we discuss the literature base for this work, followed by a discussion of the methodology, study design and our findings. We conclude with some preliminary thoughts on how this research might impact the design of school finance models in Wyoming and other states.

2. Review of the Literature⁴

This study joins three streams of research, one on how resources are used following school finance reform (see Odden & Picus, 2008, Chapter 6); a second on the general use of the education dollar (see Odden & Picus, 2008, Chapter 6); and a third that provides a framework and methodology for identifying resource use by programmatic strategy at the school level (see Odden, Archibald, Fermanich & Gross, 2003).

Fiscal Federalism

The economic theory of fiscal federalism (Oates, 1999) can be used to make some predictions about local resource use in response to block grant funding. Fiscal federalism suggests that although an education block grant provided by one level of government to another can serve as a vehicle for fiscal equalization, no prediction can be made about how local districts will use those dollars, unless restrictions are imposed. So, in states that provide educational resources to local districts as a block grant (i.e., a lump sum of resources with few restrictions on the use of those dollars), legislators should not necessarily expect a common use of those dollars nor should they be surprised if schools do not use resources according to an implicit, but not mandated, programmatic model on which the state provides funding.

Further, in a study of the intergovernmental grant system Inman (1999) concluded that a political, rather than an economic model, might be more accurate in explaining the way local governments use resources from grant programs. Use of a political model seems plausible in Wyoming for at least two reasons. First, there is strong support at the local level for increasing teacher salaries; thus, local pressure might push for using increased funds from the block grant for teacher salaries that are higher than those in the funding model. Second, generally across the country, there is less political pressure to use block grant funds for special needs students; thus,

⁴ The following section is an adaptation from Mangan (2007).

without putting those funds into more restricted categorical programs, local pressure might also seek to use them for other, more general purposes, such as higher teacher salaries, lower class sizes or additional elective classes. Indeed, if one assesses the use of rising education dollars over the past half century in the United States, these political pressures seem to have dominated school resource use patterns (see Odden & Picus, 2008, chapter 6).

Use of the Education Dollar

This study builds on literature describing the typical use of educational resources over time. Data from the past 50 years show that the percent of the current operating education budget spent on instruction has remained at about 60%, even though spending within the instruction function has changed significantly. Over the past 50 years, the bulk of increased instructional resources have been spent on elective classes (e.g. art, music, physical education, career-technical classes), services for special needs students (e.g. special education, compensatory, bilingual education) and instructional aides rather than on core classes such as math, science, history and reading/language arts. In addition, spending on pupil support (e.g. guidance counselors, social workers, and nurses) has also increased while real teacher salaries have increased only modestly in this time frame (NCES, 2006; Odden & Picus, 2008).

The results of early studies on the use of educational resources following school finance reform reached remarkably similar conclusions. For example, Kirst (1977) found that increased funding from California's school finance reform was not used for large teacher salary increases, a legislative concern, but rather for a variety of extra services that were outside the regular classroom. Studies of the impact of the new dollars from 1984 education reforms found small but short lived increases in spending on the instructional function (Picus, 1991; Hannaway, McKay & Yakib, 2002). Studies of the school finance reforms in New Jersey, Texas, and

Kentucky in the early 1990s found that funds were initially used for one time expenditures – such as construction of new buildings – because of fears that the new funding would not continue over the long term. Over time, resource use patterns returned to remarkably similar patterns exhibited by school districts before the school finance reforms were implemented (Adams, 1994; Firestone, Goertz, Nagle & Smelkinson, 1994; Picus & Wattenbarger, 1995; Picus, 1994). Essentially, districts in all three states increased spending across all functions, resulting in the proportion of funding devoted to instruction remaining constant over time.

Most previous research on the use of educational resources used district level data; few large-scale studies identify use of resources at the school level, let alone the use of resources at the school level by programmatic strategy. Yet, Wyoming policymakers sought school level programmatic use information since it was the basis for the state's new recalibrated funding model, which used prototypical schools to cost out school, district, and state level adequate resources. Because education funding was based on cost (i.e., the evidence-based adequacy model) policy makers desired knowledge of how school districts responded to this increased aid.

School Level Programmatic Resource Use

Collecting micro-level information on resource use is important because teaching and learning occur at the school-level and a goal for researchers and policymakers is to tie educational resource patterns and strategies to school-based strategies linked to student learning. Even today, most fiscal reporting systems mainly provide district-level data, though Wyoming is rapidly developing a relatively detailed school-level reporting structure. However, most of those data are generally available by object of expenditure and by broad education functions (e.g. instruction, administration, pupil support). Newer data systems report fiscal data at the school-level (Busch & Odden, 1997; Goertz & Odden, 1999; Speakman, et al., 1997) but continue to

report expenditures by object and function, not by educational program or strategy. While the new Wyoming school-based system provides more detail on resource and staffing use at the school level than nearly all other states, data has not reached the point of researcher's ability to analyze how schools use resources to improve student learning.

To address this lack of information about resource use by education program, Odden, Archibald, Fermanich and Gross (2003) developed a school-level expenditure reporting framework to track resource use at the school level by educational program strategies (see also, Odden & Picus, 2008). The categories in the framework are inclusive of the resources necessary to implement the educational strategies underlying the Wyoming school funding model. This programmatic framework includes seven instructional categories (core academic teachers, specialist & elective teachers, extra support staff such as tutors & resource room instructors, professional development staff & financial resources, other non-classroom instructional staff, instructional materials & equipment, and student support staff) and two non-instructional categories (administration, operations & maintenance). Because the categories in this school level expenditure framework encompassed all of the educational strategies that were the basis for the new Wyoming school funding model, the framework was used in this study to structure the analysis of how resources in Wyoming were used at the school level by programmatic strategies. Our approach for doing this is detailed in the methodology section.

3. Methodology

This study represents one of the first statewide studies of *school*-level micro-resource use conducted following the implementation of a major school finance reform.⁵ When concluded, researchers will have visited all 362 schools in the state of Wyoming over two years. This article

⁵ The one other state where the authors are aware such a study as been conducted in Arkansas (Mangan, Odden & Picus, 2007).

describes our findings from the first year of our study. During the 2006-07 school year – the first year in which school district funding was based on the evidence-based recalibrated model – we visited a total of 186 randomly selected schools across the state. We will visit the remaining 176 schools during the 2007-08 school year. As a random sample, the analysis of the 186 schools visited in the first year is generalizable to all schools in Wyoming. To supplement these data, we also conducted an extensive analysis of state level data on school district expenditures and of teacher salaries across the 48 districts in Wyoming.

SCHOOL LEVEL RESEARCH DESIGN

This study included a randomly selected statewide sample of 114 elementary, 35 middle and 37 high schools. The sample size was determined based on the need to visit approximately half of the 362 schools in the state during the first year, and to have a sample large enough for a 95% confidence interval in our findings. The randomly-selected sample produced student and school demographics that closely matched the state's K-12 student population in 2006-07 (see Table 1). The comparison of total and sample demographic characteristics reveal similar percentages of students who are eligible for free or reduced-price lunch (33% in the state and 32% in the sample), are identified as having a disability (14% in both), and who are identified as English language learners (4% in the state and 3% in the sample). The sample schools educate approximately half of the total number of students in the state.

Table 1
Comparisons of Student Demographics in Wyoming
and the First Year Sample Schools (n = 186)

Demographics	Wyoming	Sample
Percent Free and Reduced-Price Lunch	33%	32%
Percent ELL	4%	3%
Percent Special Education	14%	14%

Table 2 shows statistics on schools, the unit of analysis. During the 2006-07 school year, the average school size in Wyoming was 234 students while the sample average school had 227 students. The sample yielded a slightly greater percentage of elementary schools (61%) than are in the state (56%), but other characteristics were similar.

Table 2
Number and Type of Schools in Wyoming and Sample

	Wyoming⁶			Sample⁷		
Number of Students	84,975			42,156		
Students in Average School	234			227		
Number of Schools	Elementary	201	56%	Elementary	114	61%
	Middle	78	22%	Middle	35	19%
	High	83	23%	High	37	20%

⁶ Data on the number of students in Wyoming is based on the funding model ADM, which is the greater of 2005-06 ADM or a three-year rolling average ADM.

⁷ Data on the number of students in the sample is based on the enrollment witnessed during researcher school visits.

Wyoming has a large number of small schools as a result of the low density of many districts. Table 3 shows the distribution of schools by size for both the state and the sample.

Table 3
Number and Percentage of Schools in Wyoming and Sample by School Size

School Size	Schools in Wyoming		Schools in Sample	
	Number	Percentage (%)	Number	Percentage (%)
Elementary				
<49	43	12%	24	13%
49-96	10	3%	8	4%
>96	148	41%	82	44%
Middle				
<49	18	5%	10	5%
49-105	14	4%	5	3%
>105	46	13%	20	11%
High School				
<49	13	4%	7	4%
49-105	17	5%	10	5%
>105	53	15%	20	11%
TOTAL*	362	100%	186	100%

***Totals may not sum to 100 due to rounding**

Instruments

Data collection instruments included interview protocols and corresponding codebooks so that each data collector would have a consistent set of rules for data entry. The data collection instruments were based on the data elements identified in the School Expenditure Structure (Odden, Archibald, et al., 2003) (see Table 4) and the Professional Development Cost Framework (Odden, Archibald, Fermanich, & Gallagher, 2002) (see Table 5).⁸ The School Expenditure Structure includes:

⁸ This School Expenditure Structure was used to conduct a similar study of resource use at the school level after an adequacy-oriented school funding change in Arkansas (Mangan, Odden & Picus, 2007).

Table 4
School Expenditure Framework and Resource Indicators

School Resource Indicators	
School Building Size	Length of Reading Class (Elementary)
School Unit Size	Length of Mathematics Class (Elementary)
Percent Low Income	Reading Class Size (Elementary)
Percent Special Education	Mathematics Class Size (Elementary)
Percent ESL/LEP	Regular Class Size (Elementary)
Expenditures Per Pupil	Length of Core* Class Periods (Secondary)
Professional Development	Core Class Size (Secondary)
Expenditures Per Teacher	Non-Core Class Size (Secondary)
Special Academic Focus of School/Unit	Percent Core Teachers
Length of Instructional Day	
Length of Class Periods	*Math, English/LA, Science, & Social Studies
School Expenditure Structure	
Instructional	<p>1. Core Academic Teachers</p> <ul style="list-style-type: none"> - English/ Reading/ Language Arts - History/ Social Studies - Math - Science <p>2. Specialist and Elective Teachers/Planning and Preparation</p> <ul style="list-style-type: none"> - Art, music, physical education, etc. - Academic Focus with or without Special Funding - Career/ technical/vocational - Drivers Education, Librarians <p>3. Extra Help</p> <ul style="list-style-type: none"> - Tutors - Extra Help Laboratories - Resource Rooms (Title I, special education or other part-day pull-out programs) - Inclusion Teachers - English as a second language classes - Special Education self-contained classes for severely disabled students (Including aides) - Extended Day and Summer School - District-Initiated Alternative Programs <p>4. Professional Development</p> <ul style="list-style-type: none"> - Teacher Time – Substitutes and Stipends - Trainers and Coaches - Administration - Materials, Equipment and Facilities - Travel & Transportation - Tuition and Conference Fees
Instructional	<p>5. Other Non-Classroom Instructional Staff</p> <ul style="list-style-type: none"> - Coordinators and Teachers on Special Assignment - Building Substitutes and Other Substitutes - Instructional Aides <p>6. Instructional Materials and Equipment</p> <ul style="list-style-type: none"> - Supplies, Materials and Equipment - Computers (hardware, software, peripherals) <p>7. Student Support</p> <ul style="list-style-type: none"> - Counselors, Nurses, Psychologists, Social Workers, Extra-Curricular and Athletics
Non-Instructional	<p>8. Administration</p> <p>9. Operations and Maintenance</p> <ul style="list-style-type: none"> - Custodial, Utilities, Security, Food Service

Table reprinted from Odden, Archibald, Fermanich and Gross, (2003).

Table 5
A Cost Structure for Professional Development

Cost Element	Ingredient	How Cost is Calculated
Teacher Time Used for Professional Development	<i>Time within the regular contract:</i>	
	-when students are not present before or after school or on scheduled in-service days, half days or early release days	teachers' hourly salary times the number of student free hours used for pd
	-planning time	the cost of the portion of the salary of the person used to cover the teachers' class during planning time used for pd
	<i>Time Outside the regular day/year:</i>	
	-time after school, on weekends or for summer institutes	- the stipends or additional pay based on the hourly rate that teachers receive to compensate them for their time
	-release time provided by substitutes	- substitute wages
Training and Coaching	<i>Training</i>	
	-salaries for district trainers	sum of trainer salaries
	-outside consultants who provide training; may be part of CSRD	consultant fees or comprehensive school design contract fees
	<i>Coaching</i>	
	-salaries for district coaches including on-site facilitators	sum of coach and facilitator salaries
	-outside consultants who provide coaching; may be part of CSRD	consultant fees or comprehensive school design contract fees
Administration of Professional Development	Salaries for district or school level administrators of professional development programs	salary for administrators times the proportion of their time spent administering pd programs
Materials, Equipment and Facilities Used for Professional Development	Materials	materials for pd, including the cost of classroom materials required for CSRDs
	Equipment	equipment needed for pd activities
	Facilities	rental or other costs for facilities used for professional development
Travel and Transportation for Professional Development	Travel	Costs of travel to off-site pd activities
	Transportation	Costs of transportation within the district for professional development
Tuition and Conference Fees	Tuition	Tuition payments or reimbursement for university-based pd
	Conference Fees	Fees for conferences related to pd

Table reprinted from Odden, Archibald, Fermanich, and Gallagher, (2002).

- Indicators of school characteristics
- Non-fiscal resource patterns such as the length of the instructional day, number of school class periods, minutes formally allocated to core subjects, and the size of core content classes
- Categories of staff use by major programmatic strategies within the school which include:
 - Core subjects (math, science, history, reading/language arts, foreign language)
 - Electives (art, music, physical education)
 - Instructional support
 - Pupil support (e.g. guidance counselors)
 - Programs to provide additional help for struggling students (such as tutoring, extended day programs, summer school, and pull-out resource room assistance)
 - School and district administration.

Before we began our site visits, the framework was revised to tailor all elements to the Wyoming context. Following two days of training, data collectors used the protocol at each school during an in-person interview with the school principal and other selected school leaders. For some schools, we also interviewed the district superintendent. Interviewers were provided with definitions of all data elements in a detailed codebook, which was largely drawn from the School Expenditure Structure framework (see Table 4), and these definitions were used to elicit data from interviewees. Researchers told interviewees that all non-public information would be held confidential.

Data collected on professional development were based on the Professional Development Cost Framework shown in Table 5 (Odden et al., 2002). To accommodate additional

professional development expenditure elements identified by the schools we added two “other” data items to the protocol.

Procedures

The study was conducted in collaboration with the Educational Leadership program at the University of Wyoming. Data were collected both by staff from Lawrence O. Picus and Associates as well as 19 Ed.D. students from the University. All data collectors received two days of training in January 2007. The resource use data were collected via in-person interviews with principals, teachers and superintendents between February and April 2007. Data collectors also analyzed school and district budgets to supplement the interviews. Data were collected on full-time equivalent (FTE) staff positions, as well as on expenditures for professional development. Each data collector worked with the principal (and other interviewees) to ensure there was a comprehensive list of all the staff in the school as well as the district staff who provided direct services to that school. Interviewees also helped the data collectors ensure the accuracy of budgetary data. Data were then entered into a common web-based database to ensure accuracy and consistency of reporting. The data collection and entry was coordinated by the study manager.

Data Analysis

The goal of our analysis was to compare the staff resource use choices schools and districts made for 2006-07 to the staffing ratios that were used to develop the Wyoming funding model for that year (Odden, Picus, et. al. 2005). We also wanted to understand how schools and districts used the fiscal resources available to each school that year.

Analysis Procedures. Frequencies, averages, ranges, full-time equivalent counts of staff, and ratios of staff to students encompassed the majority of the analytic procedures.

Once we determined the number of staff at each school, we computed a staffing ratio by dividing the number of staff by the number of pupils in the school. These staffing ratios were then compared to the staff generated for each school through the Wyoming school funding model.

To further understand how resources were used in the schools, we undertook a number of additional analyses. First we conducted an analysis of instructional aides at each school. Because the model specifically does not fund aides, this analysis helped to identify resource use strategies that differed from the funding model. Second, we computed the number of tutors each school would generate based on counts of at-risk students (the unduplicated count of free and reduced price lunch eligible children, English-language learning students, and in grades 6-12, mobile students as counted per Wyoming Department of Education regulations) and compared that to the actual number of tutors found in each school. Third, we used data from high school class schedules to estimate the percentages of class types (e.g. core, electives) that were taught. These percentages offer a picture of how resources were allocated by programmatic strategy. We supplemented this programmatic data with information on the use of time in schools. This included asking respondents to indicate how much time was spent daily in various subjects such reading and mathematics, and understanding the overall length of the school day and what proportion of that day was spent in instruction compared to other activities.

STATE LEVEL RESEARCH DESIGN

In addition to the school level analysis, we conducted an extensive analysis of district level expenditures and teacher salaries using data available from the Wyoming Department of Education. As part of the recalibration process in 2005, the Wyoming Legislature appropriated \$1 million to enhance and improve the state's education fiscal data system. This analysis

represents the first effort to use these data to enhance our understanding of school district resource allocation and use patterns.

District level expenditure information reported by districts to the Wyoming Department of Education via WDE Form 601 were used to examine trends in districts' spending over the five year period from 2002-03 to 2006-07. Data for each year were merged for each individual district using a combination of SPSS, Microsoft Excel and Microsoft Access. Of particular interest were spending trends in instruction, instructional support, student services, as well as administration, transportation and food services. Due to the focus on instruction, sub-function categories were also analyzed to examine trends in compensation and professional development of teachers. Average expenditures as well as annual and five-year percent changes are reported for each district.

The *Teacher Salary Schedule*, *Teacher Assignment*, *Teacher Employment* and *Teacher Experience* files, also provided by districts to the Wyoming Department of Education, were used to examine the changes in teacher salary schedules for each district, average teacher salaries at each district, and number of teacher full time equivalent teachers (FTE) in each district. The first two indicators were used to determine the impact of the implementation of the new adequacy based school funding formula on teacher compensation and the latter indicator was used to provide a rough comparison between what funding model provides to each district in terms of teacher FTE and what is actually found in schools.⁹ As in the case of the district expenditure files, SPSS, Microsoft Excel and Microsoft Access were used to link districts' data across five years and perform the analyses.

⁹ This is an estimate because of the inability to determine, from the available data, which or how many FTE are funded using federal funds. The school level site visits provide a closer comparison between the adequacy funding model and actual number of FTEs.

4. Results

Our findings from this initial round of data collection in 186 schools in Wyoming are presented in two parts. We begin with a broad overview of district level expenditures and teacher salaries describing how those resources are used and how that use has changed over time. The second part provides a detailed analysis of resource use at the school level. We provide an analysis of staff allocations disaggregated by school level – elementary, middle and high school. School level staffing patterns are described and compared to the resources used to generate revenues for each school through the Wyoming funding model.

DISTRICT EXPENDITURE AND AVERAGE TEACHER SALARY ANALYSIS

In this section we describe overall trends in total school district expenditures for current operating purposes, followed by an analysis of teacher salaries.

Trends In Overall Expenditures At The District Level

Table 6 shows the four-year trend in total state education expenditures for current operations in Wyoming from 2002-03 to 2005-06. These expenditures grew from about \$848 million to over \$1 billion over four years. Combined with an enrollment decline of 4,713 students (88,051 students in 2002-03 to 83,338 in 2005-06), per pupil expenditures grew from \$9,967 in 2002-03 to \$12,479 in 2005-06. This represents a 22.7% increase in total current operating spending and a 25.2% increase in per pupil current operating spending during that time.

Although the average increase in per pupil spending was 25.2%, individual school districts saw increases ranging from 3.28% to 41.92%. Given that the state provides almost all of the funds for education, this wide variation is due largely to changes in student enrollment (with enrollments rising and falling by various amounts in all districts), the substantial

adjustments for small district and school size, and changes in funding produced by the recalibrated school funding system, with more new funding based on student need factors than in the past.

Table 6
Total State Education Expenditures by Fund
(Excludes Capital and Debt)

	2002-2003	2003-2004	2004-2005	2005-2006	Four-Year Change
Statewide Student Enrollment	85,051	83,871	83,078	83,338	
Total State Expenditures					
General Fund	\$728,284,018	\$741,864,255	\$772,813,538	\$865,539,002	
Special Revenue Funds	\$91,095,959	\$109,714,624	\$131,495,499	\$138,718,134	
Food	\$25,717,247	\$26,101,340	\$27,838,483	\$30,520,781	
Other	\$2,612,761	\$2,747,464	\$2,411,531	\$5,205,096	
Total	\$847,709,985	\$880,427,684	\$934,559,051	\$1,039,983,012	
Percent Change		3.86%	6.15%	11.28%	22.68%
Total State Expenditures, Per Pupil					
General Fund	\$8,563	\$8,845	\$9,302	\$10,386	
Special Revenue Funds	\$1,071	\$1,308	\$1,583	\$1,665	
Food	\$302	\$311	\$335	\$366	
Other	\$31	\$33	\$29	\$62	
Total	\$9,967	\$10,497	\$11,249	\$12,479	
Percent Change		5.32%	7.16%	10.93%	25.20%

Table 7 disaggregates district-level current operating expenditures by function. The last column shows that the proportion of expenditures in each category remained almost unchanged over the four years studied. There are slight increases in the proportion of expenditures going to instructional support (0.56%) and maintenance (0.74%), and a corresponding decrease in the proportion spent on instruction (1.24%). From this vantage point, schools in Wyoming are apportioning the additional \$190 million infused into the system to roughly the same functional

categories of spending, even though most of the funding model's proposed new resources were for activities within the instructional function.

Table 7
Percentage of Total Expenditures by Function

	2002-2003	2003-2004	2004-2005	2005-2006	Four-Year Change in Share Devoted To Function
Total	\$847,709,985	\$880,427,684	\$934,559,051	\$1,039,983,012	
Instruction	57.79%	56.82%	56.41%	56.56%	-1.24%
Student Support	5.50%	5.50%	5.47%	5.50%	0.00%
Instructional Support	4.89%	4.83%	5.21%	5.45%	0.56%
School Administration	5.36%	5.23%	5.11%	5.22%	-0.14%
Central Office Administration	5.75%	5.81%	5.77%	5.72%	-0.03%
Operations	9.86%	9.82%	9.90%	9.77%	-0.08%
Maintenance	2.19%	3.22%	3.44%	2.93%	0.74%
Transportation	5.36%	5.54%	5.49%	5.45%	0.10%
Food	3.03%	2.96%	2.98%	2.93%	-0.10%
Other	0.27%	0.27%	0.22%	0.46%	0.19%

Although the proportion of resources allocated to instruction decreased over this four year period, the total amount of funding available for instruction increased by almost 20 percent from \$489,925,961 in 2002-03 to \$588,188,142 in 2005-06, an increase of \$98.3 million. Since a large portion of instructional expenditures go to compensation, our macro-expenditure review also analyzed the proportion of instructional expenditures allocated to compensation. This includes classroom teacher compensation (e.g. core classes, elective classes, extra help classes such as tutoring, extended day, summer school, special education), but does not include other staff positions such as administration and instructional support which have their own expenditure category. Table 8 shows that the total compensation portion of instructional expenditures increased by 20%, though the amount of compensation as a proportion of instructional

expenditures remained essentially the same. Benefits increased by about 30% over the four-year time period.

Table 8
Change in Instructional Function Expenditures Devoted To Compensation

	2002-2003	2003-2004	2004-2005	2005-2006	Four-Year Change
Salary	\$324,271,747	\$328,316,000	\$342,131,905	\$378,968,162	
Percent Change		1.25%	4.21%	10.77%	16.87%
Per Pupil	\$3,813	\$3,915	\$4,118	\$4,547	
Percent Change		2.67%	5.20%	10.42%	19.27%
Benefits	\$103,392,432	\$108,118,694	\$115,774,840	\$134,204,864	
Percent Change		4.57%	7.08%	15.92%	29.80%
Per Pupil	\$1,216	\$1,289	\$1,394	\$1,610	
Percent Change		6.04%	8.10%	15.56%	32.47%
Total Compensation	\$427,664,178	\$436,434,694	\$457,906,744	\$513,173,025	
Percent Change		2.05%	4.92%	12.07%	19.99%
Per Pupil	\$5,028	\$5,204	\$5,512	\$6,158	
Percent Change		3.49%	5.92%	11.72%	22.46%
Percent of Total Instruction	87.29%	87.24%	86.86%	87.25%	-0.05%

Trends in Average Teacher Salaries and Salary Schedules

Our analysis of the number of teachers and of average salary and benefits shows significant increases in both across the state, with specific increases varying dramatically across districts. This analysis begins by showing the changes in the number of teachers over these four school years.

The total number of teachers in the state increased by almost 7.4% from 2002-03 to 2006-07 (see Table 9) totaling 8,178 in 2006-07. When considered separately, special education teachers grew by over 11%, compared to a growth rate of just under 7% for all other teachers. Although the reason for faster growth in the number of special education teachers is not clear, the state's program to reimburse districts for all approved special education costs may have led

to faster growth in that program than others, with the resultant substantial increase in teacher resources.

Table 9
Statewide Total of Teacher FTE, 2002-03 to 2006-07

	2002-03	2003-04	2004-05	2005-06	2006-07	Five Year Change
All Teachers	7,616	7,599	7,645	7,732	8,178	562
% change		-0.23%	0.60%	1.14%	5.77%	7.37%
All Teachers Minus Special Education	6,802	6,789	6,831	6,893	7,272	470
% change		-0.19%	0.61%	0.91%	5.50%	6.91%
Special Education	814	810	814	839	905	91
% change		-0.53%	0.50%	3.09%	7.93%	11.23%

One of the features of the 2005 evidence-based recalibration of the Wyoming Funding Model was the development of school-based cost estimates. These school-based estimates placed a strong emphasis on personnel resources such as teachers. Consequently, it is possible to compare the number of teachers generated by the funding model to the actual number of teachers across the state. Table 10 provides that analysis, showing there are 704 more staff paid on the teacher salary schedule than the funding model provides. However, when Special Education teachers are taken out of the totals, there are 202 fewer staff members in schools than funded through the model. It is important to note that we were unable to exclude teachers who are supported by federal funds from this analysis. As a result we anticipate that the actual number of teachers over-estimates the number of teachers funded through state dollars as part of the Wyoming Funding Model, making the 202 teachers an underestimation of the discrepancy between what the model funds and the number of teachers employed in the schools. This discrepancy suggests that some programmatic strategies recommended in the evidence-based

model are not being fully implemented in schools and therefore districts and/or schools have chosen to use the dollars for alternative purposes.

Table 10
Statewide Total of Teacher FTE Compared to
The Wyoming School Funding Model, 2006-07

	Number of Teachers		
	Model Total	Actual Total	Difference
All Teachers	7,474	8,178	704
Without Special Education	7,474	7,272	-202

One possible explanation for the gap between funded and actual teachers may lie in the analysis of average teacher salaries. From 2002-03 to 2006-07, average teacher salaries increased by \$12,000, more than 30% (see Table 11). The largest increase occurred between 2005-06 and 2006-07 when teacher salaries increased by more than 17% in one year. It is important to note that this increase took place the first year the new funding model was implemented and that the average teacher salary of \$51,574 that year compares with the funding model which used an average salary of \$45,126¹⁰ to fund teacher positions.

-Table 11
Statewide Average Teacher Salaries, 2002-03 to 2006-07

	2002-03	2003-04	2004-05	2005-06	2006-07	Five Year Change
Avg. Salary	\$39,565	\$40,204	\$41,284	\$44,049	\$51,574	\$12,009
% change		1.62%	2.69%	6.70%	17.08%	30.35%

¹⁰ This figure represents an average salary of \$43,938 for teachers, increased to \$45,126 to reflect an additional five contract days for summer institutes as recommended in the evidence based adequacy report.

Analysis of School Level Resource Allocation and Use

As described above, we visited 186 schools across the state to develop a better understanding of how educational resources are used to produce student achievement. This section describes our findings from that work.

Trends in School Level Resource Use

To understand how the sample schools in Wyoming used the resources available to them through the new funding model, we begin this section with an analysis of the use of time in the sample schools. We follow that analysis with a discussion of how staff resources were deployed in those schools, comparing actual resource use patterns with the resource allocations from the evidence based model that emerged from the recalibration process. Wyoming has a high percentage of small schools, and the funding model took the diseconomies of scale associated with small school size into consideration. For most schools, the funding model allocates resources on the basis of a prototypical school of the same level (i.e. Elementary, middle or high school), and prorates resources in relation to the size of the school compared to the prototype. However, for very small schools (less than 49 students) and small schools (between 49 and 96 elementary students and between 49 and 105 middle or high school students) the model allocates resources somewhat differently. Consequently, the results below are generally reported for all schools in the sample, and then by size and type of school. This means that many analyses are based on nine school categories: three types of schools, elementary, middle and high school; and three size categories, less than 49 students, between 49 and 96 (elementary) or 105 (middle or high school) and more than either 96 or 105 students.

Use of Time

The average instructional day was 5 hours and 43 minutes for elementary schools, 6 hours and 6 minutes for middle schools, and 6 hours and 13 minutes for high schools. The instructional day is defined as the school day minus time for lunch, recess, and passing periods. The average school day covering all functions was 6 hours 41 minutes for elementary schools, 6 hours 54 minutes for middle and 7 hours 4 minutes for high schools.

During the daily instructional time, teachers spent varying amounts of time on the core subjects. Teachers spent an average of 64 minutes instructing in mathematics across all grade levels; the time spent for mathematics instruction did not differ substantially across grade or school levels. Average daily reading instruction at the elementary level was 1 hour and 47 minutes, and 65 minutes was spent in middle and high schools on English/Language Arts.

The time spent on science and social studies instruction also varied by grade level, with elementary schools spending an average of 29 minutes in each subject and middle and high schools spending almost twice as much time, 54 minutes, in each of these subjects.

Use of Staff Resources in Schools

This section explores staffing elements that are part of the core components of school resource use. Instructional materials and equipment are not included in the discussion as the study was unable to collect reliable and valid school-based expenditure data for these categories. To provide a comprehensive picture of the resource use found in the sample schools compared to the state funding model, staff allocations are reported both as the total number of staff and as average full-time equivalencies (FTEs). The findings are described by type of school.

Elementary Schools.

Table 12 provides data on elementary schools with enrollment greater than 96 students. The table shows these schools employed about the same number of administrative staff as funded through the model. The model funds 1.0 principal position for any elementary school with 96 to 288 ADM. Above that figure the model provides prorated funding for principal positions such that a school that is double the prototypical size of 288 (576) would receive two principal FTEs. The sample schools had an average of 0.92 principals as well as 0.07 assistant principals for a total of about 0.99 school administrative staff positions. Because some of the schools in the sample are larger than 288 ADM, the average funding for principal positions for the sample schools provide 1.09 positions.

Table 12
Average Resources in Elementary
Schools with More than 96 Students

Staffing	Funding Model	Sample
Principals	1.09	0.92
Assistant Principals	0.00	0.07
Core Teachers	16.6	14.45
Specialist Teachers	3.32	2.40
Instructional Aides	0.00	4.25
Certified Tutors	1.15	0.85
Librarians	0.92	0.41
Pupil Support Staff	1.15	1.34
Secretaries	1.09	1.19

Does not include data from alternative schools

For many of the other staff positions identified in Table 12 the model provided more positions than we found in the sample schools. There were fewer core teachers, fewer specialist

teachers, fewer certified tutors and fewer librarians¹¹ in the sample elementary schools with more than 96 students than were funded through the finance model. On average, for these schools, the funding model provided for 16.6 core teachers whereas schools actually employed about 14.45 core teachers. The funding model provides for 3.32 specialist teachers and the study found that elementary schools with more than 96 students only had 2.40 specialist/elective teachers. The smaller number of certificated teacher tutors compared to the funding model (0.85 with funding for 1.15 positions on average) is of particular interest because research evidence suggests certified tutors are a high-impact strategy for helping struggling students. And, although the model provides no support for instructional aides, the schools in this group employed an average of 4.25 instructional aides.

Table 12 shows the schools in our sample employed slightly more pupil support staff and secretarial staff than the model funds. In these schools, more resources were allocated to areas outside of the classroom and instruction functions than allocated by the model.

For elementary schools with enrollment between 49 and 96 students (see Table 13), the findings are somewhat different. This group of schools generates funding for between a half and full time principal depending on enrollment. The sample schools in this group had an average of 0.35 principal positions despite funding adequate to provide more than twice that level of administrative leadership (0.72 FTE principals). These schools, however, employed about the same instructional staff as funded through the model. Specifically, as shown in Table 13, there were a total of 6.38 core, specialist and additional minimum teachers in the sample as compared to 6.19 funded through the model. There were also 1.19 instructional aide positions despite no model funding for this position. Pupil support staff also was slightly higher in the schools (0.51) than in the funding model (0.29). In elementary schools with between 49 and 96 students,

¹¹ We note that many schools hire library aides or a library media technician rather than fully certified librarians.

schools employed about the same level of resources in the classroom as the model funded resulting in small classes.¹² On the other hand, the elementary schools in this size range had no certified teacher tutors, indicating the absence of a high-impact strategy to help struggling students learn to standards.

Table 13
Average Resources in Elementary Schools with 49-96 Students

Staffing	Funding Model	Sample
Principals	0.72	0.35
Assistant Principals	0.00	0.03
Core Teachers	4.30	5.25
Specialist Teachers	0.86	1.13
Additional Minimum Teachers	1.03	0.00
Instructional Aides	0.00	1.19
Certified Tutors	0.29	0.00
Librarians	0.24	0.25
Pupil Support Staff	0.29	0.51
Secretaries	0.72	0.66

Results for elementary schools with fewer than 49 students are reported in Table 14. Because these schools are small, the funding model does not allocate resources based on the staffing categories. Instead, it allocates teacher FTEs and an assistant principal for each school, at a ratio of one assistant principal for the school and one certified teacher for each seven ADM.¹³ From this personnel allocation, the school is responsible for all functions including custodial and clerical tasks. For the sample elementary schools with fewer than 49 students, the

¹² It should be noted that during the recalibration study, the Legislative Oversight committee elected to fund one teacher per grade level in elementary schools with between 49 and 96 ADM despite an initial recommendation from consultants for fewer teachers.

¹³ In the case of districts with only schools with 49 or fewer ADM, schools are resourced with one assistant principal and 1.5 teacher FTEs per 7 ADM.

funding model allocated an average of one assistant principal and 2.53 teacher level positions for a total of 3.53 FTE. Our analysis found a total of 3.38 FTE in schools spread out over a number of functions as one would expect. This is just 0.15 FTE less than the model generated for those sample schools.

Table 14
Average Resources in Elementary Schools with Less than 49 Students

Staffing	Funding Model	Sample
Principals	0.00	0.15
Assistant Principals	1.00	0.00
Core & Specialist Teachers*	2.53	2.21
Instructional Aides	0.00	0.72
Certified Tutors	0.00	0.03
Librarians	0.00	0.04
Pupil Support Staff	0.00	0.10
Secretaries	0.00	0.13
<i>Total Professional Staff</i>	3.53	3.38

Note: Although the model provides enough funds to hire an assistant principal and one teacher position for each seven students (or an assistant principal and 1.5 teacher FTE for each seven students if the school is in a district with only schools under 49 ADM), schools are expected to fulfill all school operation responsibilities with that level of funding. The positions are listed as Core and Specialist teachers in this table because they are funded at the teacher salary level for the district.

Middle Schools.

A staff comparison for middle schools with enrollments greater than 105 students is presented in Table 15. The table shows close alignment between the number of school administrators allocated to the sample schools and the number of administrators employed in

those schools. The schools received funding for approximately 1.5 more core teachers than they employed, but had nearly 2 more specialist teachers than the model funded.

There were significant differences across other staff categories. Compared to the funding levels provided through the model, these large middle schools employed fewer certified tutors and fewer pupil support staff. The schools employed greater levels of personnel than funded through the model for secretarial staff. The large middle schools also employed an average of 2.27 instructional aides, a staffing resource not provided by the evidence-based model. The decision to emphasize specialist teacher resources over core teacher resources suggests choices that could be at odds with the need to improve student performance in the core classes – mathematics, science, reading/writing/language arts, history and social studies.

Table 15
Average School-Level Resources in Middle Schools with More than 105 Students

Staffing	Funding Model	Sample
Principals	1.00	0.93
Assistant Principals	0.53	0.68
Core Teachers	20.51	18.95
Specialist Teachers	6.80	8.68
Additional Minimum Teachers	0.28	0.00
Instructional Aides	0.00	2.27
Certified Tutors	1.50	0.48
Librarians	1.10	0.87
Pupil Support Staff	3.18	2.35
Secretaries	1.53	1.87

Table 16 shows that our findings for middle schools with enrollments between 49 and 105 students were similar to those of the larger middle schools. The funding model allocates 0.65 principal positions to the schools in our sample though these schools, on average, employ 0.53 principals. Core teacher resources were employed at about the same level as funded through the model (3.26 FTE) as in the sample (3.11 FTE). Like the larger middle schools, there were more specialist teachers in the sample schools than the model provided (1.86 specialist/elective teacher positions employed by the schools compared to funding for 1.08 allocated by the funding model). And, the funding model allocated 3.51 FTE positions for “additional minimum teachers.” Middle schools with 49 to 105 students employed considerably fewer teachers than provided by the model, a strategy at odds with the policy focus on improving student performance in core subjects. Librarian staffing was lower than the level funded through the model while secretarial and pupil support staffing was slightly larger than funding allocations in the model. The middle schools in this portion of the sample did not employ any certified tutors, despite funding allocations that would have provided an average of one-third of an FTE tutor for each school.

Table 16
Average School-Level Resources in Middle Schools with 49-105 Students

Staffing	Funding Model	Sample
Principals	0.65	0.53
Assistant Principals	0.00	0.00
Core Teachers	3.26	3.11
Specialist Teachers	1.08	1.86
Additional Minimum Teachers	3.67	0.00
Instructional Aides	0.00	1.18
Certified Tutors	0.33	0.00
Librarians	0.65	0.30
Pupil Support Staff	0.60	0.73
Secretaries	0.65	0.71

Our findings for the smallest middle schools – those with fewer than 49 students – are displayed in Table 17. The funding model allocates a total of 3.94 FTE for these schools and schools employed an average of 4.09 FTE staffing positions. The actual job assignments we found at the sample schools in this category were quite strongly aligned with the number of non-differentiated positions provided by the funding model. The bulk of actual resources were for core and specialist teachers (2.61). However, instructional aides – which are not funded in the model -- were found (0.45 FTE) at levels higher than certified tutors (0.11 FTE), librarians (0.05 FTE) and pupil support staff (0.73) combined.

Table 17
Average School-Level Resources in Middle Schools with Less than 49 Students

Staffing	Funding Model	Sample
Principals	0.00	0.24
Assistant Principals	1.00	0.00
Core & Specialist Teachers	2.94	2.61
Instructional Aides	0.00	0.45
Certified Tutors	0.00	0.11
Librarians	0.00	0.05
Pupil Support Staff	0.00	0.28
Secretaries	0.00	0.35
<i>Total Professional Staff</i>	3.94	4.09

Note: Although the model provides enough funds to hire an assistant principal and one teacher position for each seven students (or an assistant principal and 1.5 teacher FTE for each seven students if the school is in a district with only schools under 49 ADM), schools are expected to fulfill all school operation responsibilities with that level of funding. The positions are listed as core and specialist teachers in this table because they are funded at the teacher salary level for the district

High Schools

Large high schools in Wyoming, those with enrollments greater than 105 students, had several staff use patterns similar to that of larger middle schools. Table 18 shows administrative staffing (principals and assistant principals) at about the same as that provided by the model (an average of 1.71 positions funded and 1.74 positions employed in the sample schools). However, schools employed fewer core teachers than funded by the model (20.07 compared to 22.09), but significantly more specialist/elective teachers than were funded by the model (12.72 compared to 7.94), with the model providing an additional 1.47 teacher FTEs for core and specialist positions to meet the legislatively stipulated minimums. On the other hand, the schools only employed

0.31 tutor positions despite having funding for about five times that amount – 1.51 positions. The schools employed 0.41 fewer pupil support staff and 0.29 fewer librarian staff than the model funded. As with elementary and middle schools, despite the fact that the model does not provide for instructional aides, large high schools in our sample employed an average of 1.79 aides. Further, though the model provided funding to hire 1.17 secretaries in the sample schools, the schools employed an average of 2.46 clerical staff. As we found in the elementary and middle schools, staffing patterns at the sample high schools with more than 105 students reflects less focus on the core academic subjects, pupil support and help for struggling students and more focus on elective classes. When there is a strong policy focus on improving student achievement in core subjects, the actual use of resources appears to be out of synch with strategies that evidence suggests would help student performance in core subjects.

Table 18
Average School-Level Resources in High Schools with More than 105 Students

Staffing	Funding Model	Sample
Principals	1.00	0.92
Assistant Principals	0.71	0.82
Core Teachers	22.09	20.07
Specialist Teachers	7.94	12.72
Additional Minimum Teachers	1.47	0.00
Instructional Aides	0.00	1.79
Certified Tutors	1.51	0.31
Librarians	1.17	0.88
Pupil Support Staff	3.32	2.91
Secretaries	1.17	2.46

Our analysis of high schools with between 49 and 105 ADM suggests that although the staffing patterns are not well aligned with the funding model, they appear to be better aligned with strategies aimed at helping student achieve at high levels in core academic subjects (see Table 19). The sample schools employed fewer principal positions than the model funds (0.55 in the schools compared to funding for 0.70 FTE). The sample schools in this group employed a total of 8.85 core and specialist teachers, compared to the total of 10.62 teachers provided by the funding model. Moreover, the schools employed a higher proportion of specialist teachers, than the 33 percent figure in the funding model, showing the same secondary school preference for specialist over core teachers observed in other categories of middle and high schools.

Table 19
Average School-Level Resources in High Schools with 49-105 Students

Staffing	Funding Model	Sample
Principals	0.70	0.55
Assistant Principals	0.00	0.03
Core Teachers	3.48	5.60
Specialist Teachers	1.25	3.25
Additional Minimum Teachers	5.89	0.00
Instructional Aides	0.00	0.90
Certified Tutors	0.29	0.15
Librarians	0.70	0.24
Pupil Support Staff	0.58	0.82
Secretaries	0.70	0.75

These high schools also employed 0.90 instructional aides despite receiving no direct funding for them through the model, and they employed about half of the tutoring staff the model funds (0.15 compared to 0.29). The schools also employed nearly one half of a librarian less

than the model funds. Though there are more core teachers than the model, there are still proportionately more elective teachers than the funding model provides and much less tutoring help for struggling students.

Table 20 displays finding from high schools with fewer than 49 students. The smallest high schools in our sample were funded to receive a total of 7.19 FTE staff yet employed a total of 9.69 FTE. The additional 2.5 FTE in the smallest high schools was somewhat surprising given the generous funding the model provides for the smallest schools to begin with. The bulk of total resources employed at the sample schools described in Table 20 are allocated to core and specialist teachers (6.81), with other resources providing principals (0.61), secretaries (0.88), and pupil support and instructional aides (0.58 for each). Certified tutors (0.18) and librarians (0.05) represent a small fraction of resources for the small high schools.

Table 20

Average School-Level Resources in High Schools with Less than 49 Students

Staffing	Funding Model	Sample
Principals	0.00	0.61
Assistant Principals	1.00	0.00
Core & Specialist Teachers	6.19	6.81
Instructional Aides	0.00	0.58
Certified Tutors	0.00	0.18
Librarians	0.00	0.05
Pupil Support Staff	0.00	0.58
Secretaries	0.00	0.88
<i>Total Professional Staff</i>	7.19	9.69

Alternative Learning Environment Schools

There were nine schools in the study that were labeled as Alternative Learning Environment (ALE) Schools. The funding formula was designed under the assumption that these schools would be small and designed to provide a highly personalized learning environment for students with multiple social, behavioral emotional and often substance abuse problems, issues that make it difficult for them to function well in a traditional school environment. The resources for these schools are allocated using the same formula for funding schools with fewer than 49 ADM – one assistant principal position plus one teacher position for every seven students.

Table 21 shows the difference between what the funding model allocates for ALE schools and the staff employed in the nine ALE schools. The model funds an average of 11.4 total FTE in the schools, but only 9.29 FTE were found in the nine alternative schools in our sample. Most of the staff positions in these schools are teachers (5.9) and instructional aides (1.08). The schools also employ pupil support staff (0.84), secretaries (0.78) and on average about 2/3 of a school principal (0.67). There is, however, little use of librarians (0.02), and no use of certified tutors. Given the needs of students in these alternative learning environments, it is important to note the gap between the staff funded through the finance formula and what was actually provided to these schools.

Table 21**Average School-Level Resources in Alternative Learning Environment (ALE) Schools**

Staffing	Funding Model	Sample
Principals	0.00	0.67
Assistant Principals	1.00	0.00
Teachers*	10.4	5.90
Instructional Aides	0.00	1.08
Certified Tutors	0.00	0.00
Librarians	0.00	0.02
Pupil Support Staff	0.00	0.84
Secretaries	0.00	0.78
<i>Total Professional Staff</i>	11.4	9.29

Class Size/Core Teachers

The goal underpinning the evidence-based adequacy model is to provide the resources necessary for students to attain state academic standards. These academic standards focus on the core subject areas of reading/language arts, mathematics, science, social studies and perhaps foreign language in secondary schools. Table 22 shows the number of students per core teacher found in the schools we visited, and compares that to the ratio established by grade level in the funding model. This ratio could be interpreted as an indicator of the actual class size for core subjects. The funding model provided for a ratio of 16:1 in elementary core classes, and 21:1 in middle and high school core classes. The actual ratios found were larger in elementary schools: averaging 18:1 in elementary schools, ranging from 11:1 to 24:1. In middle schools the average ratio was 23:1, ranging from 11:1 to 42:1, while in the sample high schools, the average ratio was smaller than the funding model, at 20:1, with a range of 9:1 to 36:1. Overall, actual student to teacher ratios are slightly higher than the model in elementary and middle schools, and slightly

lower than the model level in high schools. However, there were wide ranges in actual practice at all three school levels. The larger ratios in elementary and middle schools are somewhat surprising as there seemed to be strong, professional educator support for small classes.

Table 22
Students per Core Teacher
(Excludes Small & Alternative Schools data)

	Ratio of Students to Core Teachers Funded by State Model	Ratio of Actual Students to Core Teachers in Sampled Schools
Elementary	16:1	18:1 Range 11:1 to 24:1
Middle	21:1	23:1 Range 11:1 to 42:1
High	21:1	20:1 Range 9:1 to 36:1

As part of our analysis, we compared the total number of core teachers employed by the sample schools with the number of core teachers those schools generate under the funding model. Table 23 shows that there were 240 (10.6%) fewer core teachers employed by the schools than were funded through the model. At the elementary level there 169 (12%) fewer core teachers, 32 (7.4%) fewer teachers in middle schools and 38 (8.6%) fewer teachers in high schools.

Table 23

**Core Teachers in Year 1 Sampled Schools
(Excludes Small & Alternative Schools Data)**

	Core Teachers Funded by State Model in Sampled Schools	Actual Core Teachers in Sampled Schools
Elementary	1,396	1,227
Middle	433	401
High	444	406
TOTAL	2,273	2,033

Instructional Aides

The Wyoming funding model does not allocate resources to schools for instructional aides. This is due to the lack of research evidence supporting the use of instructional aides to increase student performance. Districts, however, continued to employ significant numbers of instructional aides in the schools. Table 24 shows the number and type of instructional aides found in the sample elementary, middle, and high schools. A total of 619 elementary, 144 middle, and 109 high school instructional aides were identified in our sample schools. The majority of these aides (421) are Special Education inclusion or resource room aides. Special education aides are typically part of the student's IEP and therefore the resources going to these cannot be easily reallocated to other uses. Another common use of instructional aides is for a variety of strategies to help struggling students. Though there are disagreements about the effectiveness of instructional aides, these data suggest that schools chose to employ a large

number of instructional aides, even though, outside of aides for special education, none were financed by the funding model.

Table 24
Number of Instructional Aides

Type of Inst. Aide	# of Elementary Inst. Aides	# of Middle School Inst. Aides	# of High School Inst. Aides
ELL	15	3	5
Library	64	16	13
Title I	87	3	1
Other Extra Help	61	10	4
Other Instructional	61	16	9
Non-Certified Tutors	69	6	8
Special Education Inclusion & Resource Room	262	90	69
TOTAL	619	144	109

*Does not include small or alternative schools data

Certified Teacher Tutors

Unlike instructional aides, certified teacher tutors have been shown to be a high-impact strategy for helping students struggling to meet academic standards. They are included in the funding model at the rate of 1 FTE tutor position for every 100 at-risk students. They are meant to provide immediate and intensive intervention for students struggling to meet academic standards so the students stay on track and do not fall behind. Table 25 shows the use of certified teacher tutors in the sample elementary, middle and high schools, and compares those figures to the funding provided through the model. Overall, there were significantly fewer certified teachers who provided tutoring services in the sample schools than funded through the

funding model. About 70% of funded certified teacher tutors were employed in the sample elementary schools, about one-third in the sample middle schools and about 22% in the sample high schools. Many schools have chosen to use instructional aides to provide this tutoring rather than certified tutors and the study found approximately the same numbers of instructional aides as certified teachers providing this tutoring across the sample. Research suggests that if instructional aides are to be used for tutoring, they need a significant amount of professional development and training to be effective at improving student learning.

Table 25
Number of Certificated Tutors in Sample Schools
 (Does not include small or alternative schools data)

	Tutors Funded by State Model in Sampled Schools	Teachers Tutoring in Sampled Schools	Aides Tutoring in Sampled Schools
Elementary	97	69	69
Middle	32	10	6
High	31	7	8

Instructional Facilitators/Coaches

Another high-impact strategy for improving student learning is the use of instructional facilitators in schools. Instructional facilitators or coaches provide ongoing, job-embedded support to teachers in the learning and application of new curriculum and instructional strategies to improve student learning. In a response to recommendations for instructional coaches as part of the recalibration process in 2005, the legislature chose to provide the resources for instructional facilitators/coaches as a categorical grant to schools in order to insure that funds

were used for that purpose. Although the initial recommendation in the recalibration report for instructional coaches was to employ them in schools at a ratio of one for every 200 students, funding for this categorical program is approximately two-thirds of that level. Table 26 compares the number of instructional facilitators provided for in the model, the number funded, and the number found in the schools sampled. Elementary schools had about the same number of instructional facilitators as were funded, while middle and high schools had slightly fewer. Overall, actual instructional facilitators pretty much mirrored the level funded provided by the categorical program.

Table 26

**Average Number of Instructional Facilitators in Medium and Large Schools
(Schools with more than 49 students)**

	Model	Funded	Sample
Elementary	1.29	0.85	0.87
Middle	1.60	1.06	0.92
High School	1.70	1.12	1.04

5. Discussion

One general conclusion that can be drawn from the results reported above is that in most cases, districts and schools employed staff resources in patterns that varied considerably from the funding model. Compared to the staff included in the Wyoming funding model, large (more than 96 students) elementary schools had:

- Slightly less school site administration
- Fewer core and specialist teachers
- More aides
- Fewer certified tutors

- About half the certified librarian staff
- Somewhat more pupil support

The findings, with one exception, were somewhat similar for large (more than 105 students) middle schools. Compared to the Wyoming Funding Model, large middle schools had:

- About the same level of school administration
- Fewer core teachers
- More specialist teachers
- More aides
- Fewer tutors
- Less certified librarian staff
- Less pupil support

The major difference in the general findings between the large middle and large elementary schools is that the large middle schools employed many more specialist/elective teachers than that provided by the funding model.

This general pattern continued for the large (more than 105 students) high schools in our sample. Compared to the Wyoming Funding Model, large high schools had:

- Similar amounts of administration (Principals & assistant principals)
- Double the number of secretaries
- Slightly fewer core teachers
- More specialist teachers
- More aides
- 1/5 the number of certified tutors
- Less certified librarian staff

- Less pupil support

Our findings on actual resource use compared to the funding model suggests schools in Wyoming may be relying on a different theory on how to improve student performance than the one embedded in the adequacy model used to develop the funding system. The theory of instructional improvement embedded in the funding model is that to boost student learning, there should be an emphasis on small core classes at all school levels, heavy emphasis on professional development, and the provision of immediate extra help for struggling students by certified, teacher tutors. Schools in our sample had fewer core teachers and many fewer teacher tutors than the model would provide. The existence of instructional coaches in numbers similar to that provided by the funding model is likely a result of the categorical funding that required the funds to be used for coaches. More research is required to fully understand the effectiveness of these facilitators.

By contrast, the theory of instructional improvement embedded in the way sample schools chose to use their resources is harder to decipher. Core classes, the prime content areas in which the state wants improved student performance, were larger than envisioned by the funding model. At the same time, we found more resources employed in elective classes (art, music, physical education, career education, etc.), and for instructional aides. These are strategies which always have a lower impact on student achievement. It would be hard to argue that the way to boost student achievement in the core classes is to make them larger, have students take many elective classes, and use instructional aides rather than certified teachers for extra help strategies.

Perhaps future research and analysis needs to focus on what theory of instructional improvement works the best in Wyoming. Conclusions about effective resource use patterns can

be reached only in the context of the instructional improvement strategy and its effectiveness or ineffectiveness. On the face however, we would predict that if the goal is higher student performance in core subjects, the resource use practices embedded in the funding model have a greater chance of being effective. Nevertheless, this assertion still needs to be empirically substantiated.

Several other patterns of resource use also should be mentioned. First, school site administration resources were employed at levels similar to the funding model. That suggests schools did not funnel additional resources to school administration and that the funding model is calibrated correctly for this resource.

Second, significantly fewer resources were employed by the ALE schools in the sample. It might be useful to ask if the reason for this is that the model is overly generous or if districts elected to redirect some of those resources to other schools for reasons that have not yet been determined through our research.

Third, staffing in small elementary and middle schools is about the same as that provided by the funding model. On the other hand, staffing in small high schools is a bit less than that provided by the funding model, in part because of the generous minimum high school teacher provision of the model. However, the number of core teachers versus specialist teachers is still proportionately less than the model would provide, reflecting high school preference for elective over core courses. The state would want to recalibrate the small high school funding model only if it wanted to support the preference for more elective classes at the schooling level.

Finally, all schools at all levels and pretty much all sizes provided for fewer librarian resources than that in the funding model.

This document represents the first in what we hope will be a series of reports on the allocation and use of educational resources by Wyoming schools and school districts as they adjust to the new evidence-based recalibrated funding model. Through careful analysis of the choices school districts make in employing resources and comparing those choices to the resource patterns funded through the model, we hope to improve knowledge about which strategies work best to improve student learning both in the Wyoming context and more generally in K-12 schools.

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