The Effects of Curriculum Prescription on Second-Year Elementary Teachers' Sense of Support from Language Arts Curriculum Materials

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INTRODUCTION

Curriculum support is a vital concern for beginning teachers, many of whom report that they lack sufficient guidance regarding what to teach and how to teach during their formative early years (Kauffman, Johnson, Kardos, Liu, & Peske, 2002). By curriculum support, I refer both to practical assistance with planning and teaching for the short term, and to developmental assistance with learning deeply about teaching and learning for the long term. Curriculum materials, such as textbooks and teacher's guides, curriculum guides, and standards documents, are potential sources of both types of support (Ball & Cohen, 1996; Grossman & Thompson, 2004; Kauffman, 2002; Remillard, 2000), although the quality of such materials varies widely (Achieve Inc., 2002; Giordano, 2003; Tyson-Bernstein, 1988).

As they learn to teach, new teachers are more likely than their experienced colleagues to follow curriculum materials closely (Brophy, 1982; Grossman & Thompson, 2004; Tyson, 1997). However, some new teachers resist using the curriculum materials provided to them, out of a belief that "good teachers avoid textbooks" and always develop original lesson plans (Ball & Feiman-Nemser, 1988, p. 416).

There are competing viewpoints among educational researchers and practitioners about how much discretion teachers should have regarding curricular decisions. Some argue that teachers' work should be centralized and controlled in greater detail, while others argue that teachers should be empowered with greater authority (Ingersoll, 2003). Existing research typically looks at this issue as it affects teachers in general, without acknowledging the unique needs of new teachers.

In this paper, I explore how control over curriculum decisions affects the support that new teachers feel that they receive. Specifically, I employ quantitative analysis of large-scale survey data from a random sample of second-year, public elementary school teachers in three states (Massachusetts, North Carolina, and Washington) to examine the relationship between new elementary teachers' perceptions of curriculum prescription—meaning expectations and requirements regarding what to teach, how to teach, and how to assess—and the degree of support they report receiving from their language arts curriculum materials—that is, whether they think the materials assist them in promoting student achievement and help them to plan content, instruction, and assessment, preferably in a fashion that is consistent with the novice's desired way of teaching (Kauffman, 2002).

The data show that, on average, there is a positive effect of second-year teachers' perceptions of curriculum prescription on their reports of the level of support they receive from their language arts curriculum materials, even when controlling for other factors. However, both the magnitude and direction of the effect differ according to three factors: the amount of detail the teachers perceive there to be in their curriculum materials, their comfort level with teaching language arts, and the socioeconomic status of the school in which they teach. The positive effect of prescription on new teachers' perceptions of support is greatest, on average, for two groups of second-year teachers: (1) those with a low level of comfort teaching language arts who do not perceive their curriculum materials to be very detailed, regardless of the socioeconomic status of the students in

their school, and (2) those in high-socioeconomic status schools who report both a high level of comfort and detailed curriculum materials. In contrast, greater curricular expectations and requirements have a negative effect, on average, on the level of support that teachers report receiving from their curriculum materials for second-year teachers who lack comfort with teaching language arts and who possess curriculum materials that they perceive to be highly detailed. This paper explores, in greater detail, this complicated relationship between curriculum prescription and support for new teachers.

BACKGROUND

Curriculum Materials as a Source of Support for New Teachers

The literature on the early years of teaching describes a time of extreme challenge and rapid learning (Fuller & Bown, 1975; Lortie, 1975; McDonald & Elias, 1983). This "survival and discovery" phase generally extends into or beyond the second year of teaching (Huberman, 1989). Because early challenges and successes may influence whether people stay in teaching and, if so, the types of teachers they become, sustained support for beginning teachers is imperative (Gold, 1996; Johnson & The Project on the Next Generation of Teachers, 2004; McDonald & Elias, 1983). Decisions about curriculum are among the many challenges new teachers face (Grossman, Thompson, & Valencia, 2001; McDonald & Elias, 1983; Veenman, 1984); they must determine what to teach and how to teach, often by themselves through trial and error (Feiman-Nemser, 1983; Kauffman et al., 2002; Lortie, 1975). They experience not only survival concerns about simply "filling time" without running out of instructional material (McDonald & Elias, 1983, p. 14), but also concerns about adequately teaching the right academic content to help their students succeed on increasingly high-stakes state tests (Kauffman, 2002). These curricular decisions may be especially challenging for elementary school teachers, who typically must address them simultaneously in several subjects.

Curriculum materials, defined here as the textbooks, teacher's guides, and other printed materials that describe the curriculum and how to communicate it to students, have the potential to support new teachers with their instructional decisions. They may specify a list of learning objectives, details about the topics to be taught, the rationale for content choices, a suggested sequence, recommended time allocations, suggestions for instructional strategies, materials for student assessment, performance indicators or samples of student work, and specific lesson plans (see American Federation of Teachers, 2001; Ben-Peretz, 1990). Unlike other potential sources of curriculum support for new teachers, such as mentoring, professional development, and collaboration, curriculum materials are present in most classrooms and address the central activities of students and teachers, making them a "concrete and daily" part of the classroom with a "uniquely intimate connection to teaching" (Ball & Cohen, 1996, p.6).

New teachers receive many types of curriculum materials. In the current era of standards-based reform, nearly all state education agencies distribute information about the state's learning or performance standards, usually in the form of curriculum frameworks. Because of the decentralized nature of public education in the United States,

districts have traditionally produced their own curriculum guides for each subject at each grade level. Districts or schools typically select textbooks and teacher's guides every few years and purchase them for every classroom. Variations on textbooks include hands-on mathematics materials, chapter books and novels, science kits, and computer or audiovisual materials. However, like textbooks, these materials for students are typically accompanied by teacher's guides. With the proliferation of high-stakes testing of students, test preparation materials and state documents with information about the state test are also common. Public school teachers typically receive some combination of these materials for the subjects they teach.

The amount and type of information included in these materials vary. Curriculum materials provided by the state and curriculum guides produced by the district may simply outline learning standards or objectives, or they may also include more detailed specification of the academic content, recommend instructional strategies or specific instructional materials, give examples of student assessments, show samples of student work, or detail sample or even daily lesson plans (American Federation of Teachers, 2001; English, 2000). The teacher's guides that accompany textbooks usually provide daily lesson plans, but they may also include background information regarding the academic content, show examples of student work, describe common difficulties students have in understanding the material, and more.

Research has consistently shown that many teachers, at all levels of experience, rely heavily on commercially published curriculum materials to plan and deliver instruction (Brophy, 1982; Goodlad, 1984; Woodward & Elliott, 1990), although they generally exercise considerable discretion in how they use those materials (Schwille et al., 1983; Sosniak & Stodolsky, 1993). Because of their inexperience, new teachers may be more likely than their veteran colleagues to follow textbooks closely (Brophy, 1982; Grossman & Thompson, 2004; Tyson, 1997).

Despite their widespread use by teachers, curriculum materials are not universally admired, especially textbooks and the teacher's guides that accompany them. American textbooks have been criticized for a host of flaws, including poor writing, factual errors, superficiality, overload, redundancy, clutter, racism, sexism, and promotion of low-level thinking (Giordano, 2003; Tyson-Bernstein, 1988).

Some critics argue that curriculum materials are problematic not just because of their quality, but because they are prepared by someone other than the teacher. Some decry the effect of textbook use on teachers, arguing that, even if voluntary, it leads to the "deskilling" of teachers, whereby they defer to the textbook developers instead of employing and developing their own judgment, and thus diminishes the intrinsic rewards of teaching (Apple & Jungck, 1990; McNeil, 1986). These concerns are closely related to arguments that textbook use negatively affects teaching quality by artificially simplifying a highly complex craft, without regard to the unique challenges posed by each learner and by each lesson (McCutcheon, 1995; Tyson, 1997). These arguments, however, are countered by those who say that closely following well-designed curriculum materials benefits both students and teachers (Becker & Engelmann, no date; Slavin & et al, 1996).

Other researchers and educators argue that curriculum materials are resources that can assist, rather than prevent, teachers' exercise and development of knowledge and judgment. According to this view, teachers may use curriculum materials selectively and

strategically in service of their own curriculum goals, rather than following them ritualistically (Sosniak & Stodolsky, 1993). Furthermore, if well developed, curriculum materials can be a source of teacher learning (Ball & Cohen, 1996; Russell, 1997), especially for new teachers (Grossman & Thompson, 2004).

Prescription

I define curriculum prescription as external expectations or requirements, typically from school- or district-level administrators, regarding what to teach, how to teach, and how to assess. These expectations may also represent implicit or explicit agreements in the school community, rather than explicit directives from supervisors (Abelmann & Elmore, 1999; Westheimer, 1998).

On one level, curriculum prescription is a matter of control. Ingersoll (2003) distinguishes between two viewpoints in an ongoing debate in the literature over the control of teachers' work. According to what he calls the "school disorganization perspective," schools suffer from a lack of coherence and accountability and their improvement requires greater centralization and increased control over the work of teachers. In contrast, the "teacher disempowerment perspective" holds that schools are too centralized, resulting in the deprofessionalization and disempowerment of teachers. According to this viewpoint, school improvement requires that teachers have greater control over their own work. The extent to which teachers should control curriculum, including both content and pedagogy, is an important issue in this debate.

Research documents the potential negative consequences of excessive control of teachers' work. Ingersoll (2003) concludes that:

> Too much organizational control can deny teachers the very control and flexibility necessary to do their job effectively and can undermine the motivation of those doing the job. Imposing a high degree of organizational control may squander a valuable organizational resource—the unusual degree of commitment of those who enter the teaching occupation. Having little say in the terms, processes, and outcomes of their work may undermine the ability of teachers to feel they are doing worthwhile work—the very reason many of them came into the occupation in the first place—and may end up contributing to turnover among teachers (p. 236-237).

This viewpoint is supported by qualitative research that demonstrates that detailed prescription and scrutiny constrain some teachers, compromising the quality of instruction and the intrinsic rewards of teaching (McNeil & Valenzuela, 2000). Furthermore, some large-scale quantitative studies have linked the lack of teacher control over decision making to burnout and decreased commitment, although not directly to attrition or academic harm to students (Dworkin, 1987; Ingersoll & Alsalam, 1997). Teachers' responses to prescription, however, are sometimes ambivalent. For example, interviews of teachers at schools with a tightly prescribed reading program appreciate that

it benefits their students, but express concern that it constrains their own autonomy and creativity (Datnow & Castellano, 2000).

It is important to examine curriculum prescription from the perspective of the teachers who experience it. Teachers respond to prescription in different ways, partly because they do not define autonomy uniformly; some believe they have sufficient freedom even within a tightly prescribed curriculum (Archbald & Porter, 1994; Kauffman, 2005b; Rowan, 1990). Their response depends also on what elements of curriculum they perceive to be prescribed. Teachers are typically more willing to accept controls over what they teach than over how they teach. Furthermore, teachers may perceive other sources of prescription beyond the administrators and policymakers up the hierarchical ladder. In schools with powerful normative cultures, there may be shared expectations regarding teachers' instructional practice (Abelmann & Elmore, 1999; Kardos, Johnson, Peske, Kauffman, & Liu, 2001; Westheimer, 1998). Individual teacher autonomy may give way to a collective sense of teacher autonomy (Little, 1990). In such settings, new teachers may encounter a curriculum that is prescribed by the professional norms of the school, and not necessarily by principals or district administrators.

Research on curriculum control typically does not distinguish veteran teachers from novices, who might more willingly accept constraints on their decision-making because of their inexperience and their need for support (Huberman, 1989). It is important to consider whether prescription undermines or enhances a potentially supportive resource for new teachers, especially as many districts and schools today respond to pressure to improve test scores by prescribing academic content and instructional methods (Bloomberg, 2003; Koppich, 2002; Mathews, 2000; Steinberg, 1999; Tyack, 1999).

To explore these topics, I address the following questions: Is there a relationship between second-year elementary teachers' perceptions of curriculum prescription and the degree of support they report receiving from their language arts curriculum materials? Does that relationship persist when controlling for other factors, including the teachers' perceptions of how much detail their curriculum materials provide, the teachers' level of comfort with teaching language arts, and the socioeconomic status of the school?

METHODS

Sampling and Data Collection Procedures

Finding complete lists of new teachers is a difficult task. Few districts and fewer states maintain up-to-date lists of their teachers by experience level. I obtained comprehensive lists of second-year teachers from the best available sources in each state. Officials at the North Carolina Department of Public Instruction granted access to its state database of teachers. Because that list would not be updated until the Spring, I instead used a list of first-year teachers from the prior year. Therefore, second-year teachers who had changed schools after their first year would not have been included. The state education departments in Massachusetts and Washington do not maintain teacher databases, so I obtained access to state teacher union membership lists from the

Massachusetts Teachers Association, the Massachusetts Federation of Teachers, and the Washington Education Agency. Because charter school teachers in Massachusetts are not union members, I identified those teachers by contacting the schools directly. The only known groups not included on the Massachusetts and Washington lists are the 1.9 percent of certified educators in Washington who work in districts not represented by the Washington Education Agency, and teachers in five local union affiliates in Massachusetts whose officials did not respond to requests for membership lists.[1]

The lists I received were not completely accurate or up to date, in that they included teachers who were not in their second year, who had left their schools, or who were not elementary classroom teachers. Usually this meant that they were secondary teachers or elementary specialists, such as art or physical education teachers. Some of these inaccuracies were expected because of conservative decisions about whom to include on the teacher lists. For example, the union lists in Massachusetts included many entries with the teacher's name and address but that had no experience level or grade level listed. Rather than potentially exclude eligible teachers, I included the unknown teachers, aware that the ineligible ones would be sifted out during data collection.

In order to ensure sufficient numbers from each state in order to conduct within-state analyses, I stratified the sample by state and selected a separate simple random sample of 300 teachers from Massachusetts, 286 from North Carolina, and 286 from Washington.[2] After removing ineligible teachers, the sample consisted of 439 second-year, elementary classroom teachers—91 in Massachusetts, 149 in North Carolina, and 199 in Washington.

Because the population of second-year teachers from which the sample was drawn differs in size across the three states, it was necessary in analyses of the full dataset to apply sampling weights to account for the over-sampling and under-sampling (Levy & Lemeshow, 1999). Except where noted, all reported data have been adjusted by the sampling weights (pweight = .172 for WA, .462 for MA, and .366 for NC).

To maximize the response rate, I used persistent data collection strategies (Dillman, 1991), modeled after techniques designed by Kardos (2004) and Liu (2004). In March 2003, I sent all teachers in the sample a letter briefly explaining the study and offering a fifteen-dollar gift certificate for an online bookseller to those who completed the questionnaire. Soon after, I sent the questionnaire with a cover letter, followed after approximately two weeks with a reminder to non-respondents. I tracked questionnaire returns with a unique code number on each questionnaire mailed. I subsequently sent an additional four reminders, sometimes with a copy of the questionnaire, at two to four week intervals until the school year ended. This resulted in the return of 295 eligible surveys for a response rate of 67 percent. Table 1 displays a description of the respondents.

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[1] Although union membership is not required, teachers in districts represented by the union must pay dues. Therefore, these lists include non-members as well as members.

[2] In order to include all possible second-year teachers, I included teachers from the Massachusetts Teachers' Association about whom I had limited information, knowing that I could purge them from the sample if they proved to be ineligible. To adjust for the possibility of some teachers being ineligible, I drew an additional 14 teachers from the Massachusetts list.

Due to agreements with the unions to protect the privacy of the teachers involved, the only data available about the full set of non-respondents were their gender (inferred from their names) and the state in which they taught. There is no evident sample bias based on either of these factors. The response rate was almost identical across the three states: 66 percent in Massachusetts, 68 percent in North Carolina, and 67 percent in Washington. Additionally, a chi-square test revealed no statistically significant differences by gender between the respondents and non-respondents, either in the whole sample or within each state.

Table 1: Description of Respondents with Percentages and Counts. Total sample, unweighted and weighted. Standard errors reported in parentheses. (n=295)

	n	%	% weighted
Gender			
Female	267	90.5	90.8 (1.8)
Male	28	9.5	9.2 (1.8)
Race			
American Indian	1	0.3	0.5 (0.5)
Asian	9	3.1	2.2 (0.8)
African American	13	4.4	5.2 (1.4)
Hispanic / Latino	6	2.0	2.5 (1.1)
White	263	89.2	88.7 (2.0)
Other	3	1.0	0.9 (0.6)
Age			
22-29	195	66.1	64.3 (3.0)
30-39	63	21.4	22.1 (2.6)
40-49	30	10.2	10.5 (2.0)
50-59	6	2.0	2.7 (1.1)
60-63	1	0.3	0.4 (0.4)
Career Stage			
First-Career Entrant	185	62.7	61.7 (3.1)
Mid-Career Entrant	110	37.3	38.3 (3.1)
Highest Degree Earned			
Bachelor's	218	73.9	73.8 (2.8)
Master's	77	26.1	26.2 (2.8)
Grade Level			
Primary (K-2)	113	38.3	37.1 (3.0)
Intermediate (3-5)	168	57.0	58.1 (3.1)
Primary/Intermediate	14	4.8	4.8 (1.4)
Type of class			
Regular education	246	83.4	79.3 (2.7)
Special education	21	7.1	8.6 (1.9)
Inclusion	12	4.1	5.8 (1.6)
Bilingual education	10	3.4	4.6 (1.5)
Other	6	2.0	1.7 (0.8)

Measures and Data Analysis

I developed the survey instrument for this study based on two previous qualitative studies (Kauffman, 2002; Kauffman et al., 2002), a review of the curriculum and questionnaire design literature (Rea & Parker, 1997; Sudman & Bradburn, 1982), an inspection of questionnaires on related topics (Center for the Study of Teaching and Policy, 2001; Kennedy, Ball, & McDiarmid, 1993; National Center for Education Statistics, 1999), and several rounds of focus groups with current and former teachers. The questionnaire consists of 205 items in five sections. The first section includes six questions about teaching assignments, such as grade level and subjects taught. The second section includes 33 items regarding the curriculum materials teachers have, how they use them, and their opinions about them. Each of these items requests a separate answer for each subject—mathematics, language arts, science, and social studies. The third section has nine items regarding the official curriculum expectations that teachers encounter, again repeated for each subject. The fourth section inquires about teachers' use of time with four items repeated for each subject. The final section asks nine questions about the teachers' background and personal information.

A final question was attached to the questionnaires for Massachusetts and Washington, asking respondents to identify their school and district. This information had already been provided on the North Carolina teacher list. I gathered school demographic data from the Common Core of Data, which is produced by the U.S. Department of Education's National Center for Education Statistics (NCES).

The analyses in this paper draw from 42 of the items from the complete survey instrument, including those pertaining to the degree of curricular specification and prescription in language arts, the respondents' agreement with several statements related to the support they receive from their curriculum materials, and their teaching assignment.

Support. I created a composite variable to measure support by finding the average of 13 items from the survey. This variable captures teachers' beliefs that their language arts curriculum materials support them in achieving success with their students, effectively planning instruction, and teaching the way they want to teach.[3]

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[3] Based on qualitative fieldwork, I had hypothesized that these three aspects of curriculum support would, through quantitative analysis, emerge as distinct dimensions of support: support with achieving outcomes ("Does it help my students to achieve?"), support with teacher work ("Does it help me to plan and deliver instruction?"), and support with professional actualization ("Does it help me to be the kind of teacher I want to be?"). In the ideal situation, these would be closely knit. For example, the state curriculum standards and a high-quality commercial teacher's guide together support a new teacher in promoting student success by providing user-friendly assistance in making decisions about what and how to teach that are consistent with the way she wants to teach. They can be disconnected, however. For example, the district-provided teacher's guide supports the teacher in teaching mathematics the way she wants to, but does not address some of the important mathematics standards her students need to achieve and thus does not generate the success she hopes for (Kauffman, 2002). Another example is that the school-adopted reading curriculum leads to success for students, but the teacher wishes it allowed the teacher to exercise more flexibility and creativity (Datnow & Castellano, 2000). In my quantitative analysis, however, effectiveness, usefulness, and compatibility all hung together as one "efficacy" variable, while two questions emerged as different components: focus and creativity.

Each item measures, on a six-point Likert scale, the extent to which respondents agree or disagree with a particular statement. For each of these items, responses range from 1 to 6 on the following scale:

1 = "Strongly Disagree"
2 = "Disagree"
3 = "Disagree Somewhat"
4 = "Agree Somewhat"
5 = "Agree"
6 = "Strongly Agree"

I reverse coded the items with negative statements so that the data consistently represents positive outcomes. For example, a response of "strongly agree" to item 12(b), "I have to choose between following these curriculum materials and teaching this subject the way I think it should be taught," is coded with "1" to represent a negative response.

In cases where respondents skipped some questions, I imputed missing values using Stata's "impute" command to regress each variable with missing data on a set of related variables—the other 12 support questions, whether the teacher reported having a language arts textbook, and the state where she teaches. This allowed me to retain more cases in the regression analyses. I did not impute data for cases where the respondent answered four or fewer of the 13 total items, as there was not adequate data from which to impute appropriate values. No more than five missing values were imputed per component variable, and only 15 of 290 total cases involved imputation of any missing values. A comparison of means between the subgroup of cases with missing data and the subgroup with complete data revealed no systematic differences by state, teaching assignment, or personal characteristics. There were subgroup differences in the means of certain curriculum-related variables, but these differences were accounted for by using curriculum-related variables to impute the missing data.

Together, the 13 items have a high degree of reliability (Cronbach's Alpha = .92). Principal components analysis indicates that a single composite that includes these 13 items reliably reflects one unique dimension of curriculum support and captures 45.5 percent of the variation in the original 15 items.[4] The two items excluded from this composite reflect the dimensions of creativity and focus. Table 2 summarizes descriptive data for these 13 items and the composite variable, including the number of cases with missing values for which I imputed data. For comparison, Table A1 in Appendix A displays the averages for all four subject areas included in the full study. Table A2 displays the average support value for language arts by various subgroups.

[4] Rather than using the standardized components that were generated by PCA, I used a simple average for all composite variables in order to simplify interpretation of the data by keeping the original scale of the variables. Parallel analyses substituting the standardized components generated roughly equivalent results.

Table 2: Weighted Averages of Second-Year Teachers' Responses to Statements About Support from Language Arts Curriculum Materials. Six-point Likert scale. Negatively worded items are reverse coded so higher numbers indicate a positive response: 1 = "Strongly Disagree" and 6 = "Strongly Agree".

Item # and Description	Observations (# imputed)	Weighted Average (Standard error)	Standard Deviation
#10(a): "These curriculum materials help my students do well academically."	290 (2)	4.41 (.07)	1.13
#10(b): "For my students to be successful academically, I have to bring in more ideas and resources than these curriculum materials provide." (REVERSE CODED)	290 (5)	2.25 (.08)	1.34
#10(c): "These curriculum materials address the content that my students need to learn."	290 (1)	4.50 (.07)	1.12
#10(d): "These curriculum materials will help prepare my students to do well on the state test for this subject—this year and/or in the future."	290 (3)	4.30 (.07)	1.20
#11(a): "These curriculum materials help me decide what to teach."	290 (5)	4.59 (.08)	1.32
#11(b): "These curriculum materials help me decide how to teach this subject."	290 (5)	4.08 (.08)	1.37
#11(c): "These curriculum materials help ME learn about this subject so that I can teach it better."	290 (2)	3.95 (.09)	1.41
#11(d): "These curriculum materials are 'user-friendly' for teachers."	290 (2)	4.28 (.08)	1.35
#11(e): "These curriculum materials include everything I need, so I don't HAVE TO look anywhere else." (REVERSE CODED)	290 (3)	3.00 (.10)	1.55
#12(a): "I agree with how these curriculum materials approach teaching this subject."	290 (2)	4.04 (.08)	1.26
#12(b): "I have to choose between following these curriculum materials and teaching this subject the way I think it should be taught." (REVERSE CODED)	290 (2)	3.46 (.09)	1.45
#12(c): "There are too many decisions left up to me when I use these curriculum materials." (REVERSE CODED)	290 (2)	4.07 (.09)	1.44
#12(d): "I like these curriculum materials because I don't have to 'reinvent the wheel.'"	290 (2)	3.65 (.09)	1.45
Composite Support Variable (Average of 13 Items)	290 (15)	**3.89 (.06)**	.95

Prescription. I formed a composite variable for curriculum prescription by averaging the responses to each of six items about the extent to which the respondent is encouraged or required[5] to follow guidelines regarding the following curriculum components:

a) Cover certain general topics, objectives, or standards
b) Teach specific content (skills and/or knowledge)
c) Follow a particular timeline or sequence for the year – this could include following the textbook, teacher's guide, or curriculum guide
d) Use a particular approach to teach the subject
e) Follow prepared lesson plans from the teacher's guide, the textbook, a detailed curriculum guide, or another source
f) Periodically administer certain tests or other assessments (not including standardized tests)

A sixth item—(g) Explicitly prepare students for the state test or other standardized tests in this subject; for example, teach test-taking skills, practice sample test items, format classroom assessments like standardized tests, etc.—was excluded from this composite to allow for comparisons across subject areas and grade levels for which standardized tests are not administered. For each of these items, responses range from 1 to 4 on the following scale:

1 = "Left completely up to me"
2 = "Encouraged"
3 = "Required, but nobody checks"
4 = "Required, and somebody checks"

Table A3 in Appendix A presents summary statistics for each of the prescription items from the survey, including cross-subject comparisons.

I imputed missing values for the variables used to form the prescription composite by regressing each variable with missing data on the other prescription questions, whether the teacher reported having a language arts textbook, and the state where she teaches. I did not impute data for cases where the respondent answered three or fewer of the seven total items (including the test preparation question, which was not used to form the composite prescription variable). Only three missing values were imputed for a single component variable.

Together, the six component variables have a high degree of reliability (Cronbach's Alpha = .78), and principal components analysis indicated that a single composite would capture 49.7 percent of the variation from the original six variables.

Control Variables. In order to separate the effects of specification and prescription from other factors that may be related to new teachers' perceptions of curriculum support, I introduced a number of control variables into my analyses.

I formed a composite variable for curriculum specification by averaging the responses to each of seven items about the extent to which the curriculum materials provided to the respondents specified each of the following curriculum components:

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[5] The survey question does not specify the source of the expectations or requirements, to allow for prescription that derives from a source other than school or district administration. For example, a teacher may perceive there to unwritten norms in the school or in her grade level team that dictate what and how to teach.

a) General topics, objectives, or standards to cover
b) Specific content (skills and/or knowledge)
c) A timeline or sequence for the year
d) A recommended approach for teaching the subject
e) Examples of student work
f) Daily lesson plans
g) Tests or other assessments to use with students

As with the prescription variable, a final item—(h) Strategies or materials for preparing students for the state test—was excluded from the composite variable. For each of these items, responses range from 1 to 3 on the following scale:

1 = "Not at all" specified
2 = "Somewhat" specified
3 = Specified "in detail"

Because they are simple averages of these seven items, the composite variables also range from 1 to 3. Table A4 in Appendix A presents summary statistics for each of the specification items from the survey, including cross-subject comparisons.

I imputed missing values for the variables used to form the specification composite by regressing each variable with missing data on the other specification questions, whether the teacher reported having a language arts textbook, and the state where she teaches. I did not impute data for cases where the respondent answered three or fewer of the seven total items (including the test preparation question, which was not used to form the composite prescription variable). Missing values were imputed for eight cases, with no more than two variables imputed for each.

Together, the seven component variables have a high degree of reliability (Cronbach's Alpha = .83), and a principal components analysis for each subject area indicated that a single composite would capture 51.2 percent of the variation in the seven variables.

Other controls used in the analysis include individual characteristics. One variable measures new teachers' comfort with teaching language arts. It reflects their response to the question, "At the time you began teaching, how comfortable were you with your skills and knowledge regarding how to teach language arts?" Values range from 1 (very uncomfortable) to 4 (very comfortable). In addition, a series of dummy variables indicate age (22-25 or older than 25), gender, race (white or minority), and highest degree attained (bachelors or masters). Four more dummy variables reflect teaching assignments: whether or not students at the teachers' grade level are required to take state tests in language arts, whether the teacher is assigned students at more than one grade level, whether she teaches special education, and whether she teaches bilingual education.

Another set of controls represent school characteristics. First, I use dummy variables to control for the state in which teachers work. To measure the socioeconomic status of schools, I used the percentage of students who participate in the federal free or reduced lunch program, as reported in the NCES Common Core of Data, 2003. In the models I report here, I coded schools in which more than 50 percent of the students participate as low-socioeconomic schools and schools with fewer than 15 percent as high-socioeconomic schools. These definitions are consistent with definitions used in other research (Education Trust, 2003; Johnson, Kardos, Kauffman, Liu, & Donaldson, 2004). I

also ran parallel analyses, not reported here, of each fitted model using the continuous variable instead of the dummy variables.

Table 3 presents the mean (weighted), standard error, standard deviation, and range for each of the variables used in subsequent analyses.

Data analysis

I conducted all statistical analyses using Stata 8.2. All population estimates reported are weighted averages, with probability weights assigned to account for the different likelihood of being selected in each state.

To estimate the effects of specification and prescription on new teachers' perceptions of support, I fit a series of models using ordinary least squares (OLS) regression with probability weights assigned. Model 1 includes only the outcome variable and the main predictor, prescription. Model 2 adds the main control variable, specification, to test whether prescription has an independent effect on support. Model 3 tests for an interaction effect between prescription and specification. Model 4 introduces several individual controls and tests for interactions. Model 5 includes several school controls, including tests for interactions. To test for the joint impact of combinations of variables, such as the two dummy variables for socioeconomic status and the associated interaction variables in Model 5, I use a general linear hypothesis test, or GLH (Stata command *testparm*). In addition to the five models reported in this paper, I fit dozens of other models, ultimately settling on Model 5 as the best model for explaining much of the variation in the support variable in a parsimonious fashion that still captures the complexity of the interaction effects. Through analysis of residuals, I verified that no assumptions of linear regression analysis were violated (Verran, 1987).

Table 3: Summary of Outcome and Predictor Variables.

Variable name and description	n	Mean (Standard Error)	Standard Deviation and Range
Outcome Variable:			
Support. Composite measure comprised of 13 items that address new teachers' perception of the support they receive from their language arts curriculum materials. Measured on a scale from 1 (low) to 6 (high). For 14 cases, values were imputed for one or more of the individual items that comprise this measure.	290	3.89 (.06)	.95 min = 1.15 max = 6.00
Main Predictor Variable:			
Prescription. Composite measure comprised of 6 items that address new teachers' perception of the expectations and requirements pertaining to their curriculum decisions in language arts. Measured on a scale from 1 (low) to 4 (high). For 3 cases, values were imputed for one or more of the individual items that comprise this measure.	290	2.70 (.04)	.67 min = 1.00 max = 4.00
Control Variables:			
Specification. Composite measure comprised of 7 items that address new teachers' perception of the level of detail provided by their language arts curriculum materials. Measured on a scale from 1 (low) to 3 (high). For 9 cases, values were imputed for one or more of the individual items that comprise this measure.	286	2.24 (.03)	.51 min = 1.00 max = 3.00
Comfort with Language Arts. Response to question "At the time you began teaching, how comfortable were you with your skills and knowledge regarding how to teach" language arts? Measured on a scale from 1 (low) to 4 (high).	290	3.12 (.04)	.75 min = 1.00 max = 4.00
High-SES. Teaches in a school where fewer than 15% of the students are on free or reduced price lunch;* (1=yes, 0=no).	289	.24 (.03)	n/a
Low-SES. Teaches in a school where more than 50% of the students are on free or reduced price lunch;* (1=yes, 0=no).	289	.37 (.03)	n/a
Massachusetts. Teaches in Massachusetts; (1=yes, 0=no).	291	.32 (.02)	n/a
North Carolina. Teaches in North Carolina; (1=yes, 0=no).	291	.42 (.03)	n/a
Washington. Teaches in Washington; (1=yes, 0=no).	291	.26 (.02)	n/a
Language Arts Tested. Teaches in a state that requires a reading or writing test in the grade level taught by the teacher.	291	.50 (.03)	n/a
Minority Teacher. Teacher's race; (1=minority, 0=white).	291	.11 (.02)	n/a

* SES breakdowns follow those used by the Education Trust (2003) and in Johnson, Kardos, Kauffman, Liu, & Donaldson (2004). Data obtained from the National Center for Education Statistics' Common Core of Data, 2002.

FINDINGS: THE EFFECTS OF PERCEIVED PRESCRIPTION

Table 4 presents a taxonomy of fitted regression models, which explore the complicated relationship between teachers' perceptions of curriculum prescription and of support from curriculum materials. Model 5 represents the final model and will be explained and illustrated graphically after a description of the model building process.

Explanation of Models

Model 1 shows that, without controlling for any other factors, prescription does have a large, positive, statistically significant effect on support.[6] That is, respondents who described stronger expectations and requirements regarding what and how to teach in language arts also reported, on average, more highly-positive responses to questions about the type and degree of support provided by their language arts curriculum materials. The difference in predicted values of support between a second-year teacher reporting no prescription (average value of 1, or "left completely up to me") and heavy prescription (average value of 4, or "required, and somebody checks) is 1.29 points (3 times the estimated coefficient of .43), or more than a complete step on the six-point Likert scale used to measure perceived support.

When considering the relationship between curriculum prescription and support from curriculum materials, however, it is essential to control for the closely related factor, curriculum specification. This is because second-year teachers who report greater curriculum prescription, meaning stronger expectations and requirements, also report, on average, greater specification, meaning more detail in their curriculum materials (Pearson's correlation coefficient r = .37). By controlling for specification, the effect of teachers' perception of greater detail in the curriculum materials is separated out from the effect of the expectations and requirements they perceive about what and how to teach and assess.

In Model 2, the large, positive, and statistically significant effect of specification ($\hat{\beta} = 1.09$) demonstrates that greater perceived detail in curriculum materials contributes considerably to second-year teachers' reported sense of support in using those materials. With this important control in place, the estimated coefficient ($\hat{\beta}$) for prescription falls to .16, but remains statistically significant. The R^2 statistic shows that Model 2, including both specification and prescription, explains 40.4 percent of the variation in respondents' perceptions of support from their curriculum materials, considerably more than the 9.1 percent explained by perceived prescription alone in Model 1.

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[6] Residuals for Model 1 indicate some overprediction at the lowest values of the prescription variable, which suggests a non-linear relationship between prescription and support. Transforming the prescription variable using an inverse operation (1/LAPRI) eliminates this problem in Model 1. However, such a transformation is not necessary because the control variables introduced in the other models correct for the non-linearity.

Table 4: Taxonomy of Fitted Regression Models Representing the Relationship Between Second-Year Teachers' Sense of Support From Language Arts Curriculum Materials (Support) and the Perceived Level of Curriculum Prescription, Controlling for Relevant Subsidiary Predictors.

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	2.74***	1.02***	-.30	-9.59**	-9.07***
Main Predictor					
Prescription Composite	.43***	.16*	.68**	3.60**	3.81**
Control and Interaction					
Specification Composite		1.09***	1.70***	6.27***	6.08***
Interaction – Prescription x Specification			-.24*	-1.71**	-1.78***
Individual Controls and Interaction					
Minority				-.23	-.27~
Masters Degree				-.20~	-.23*
Comfort with Teaching Language Arts				2.91**	2.84***
Interaction – Prescription x Comfort				-.88*	-.92*
Interaction – Specification x Comfort				-1.43***	-1.36***
Interaction – Pres x Spec x Comfort				.45*	.45**
School Controls and Interactions					
High-SES (< 15% of students in poverty)					.14
Low-SES (>50% of students in poverty)					-.47
Interaction – Prescription x High-SES					-.60
Interaction – Prescription x Low-SES					-.04
Interaction – Specification x High-SES					-.51
Interaction – Specification x Low-SES					-.19
Interaction – Presc. x Spec. x High-SES					.41*
Interaction – Presc. x Spec. x Low-SES					.09
Massachusetts					.06
Washington					-.29*
Interaction – Massachusetts x high-SES					.10
Interaction – Washington x high-SES					.30
Interaction – Massachusetts x low-SES					.35
Interaction – Washington x low-SES					.88***
R^2	.091	.404	.413	.457	.528
F(df)	22.83 (1, 287)	79.79 (2, 281)	58.85 (3, 280)	27.86 (9, 273)	17.82 (23, 257)
P of F	.000	.000	.000	.000	.000
Observations (n)	289	284	284	283	281

Statistical significance: ~p≤.10; *p≤.05; **p≤.01; ***p≤.001

Model 3 demonstrates that there is a statistically significant interaction effect between specification and prescription, meaning that the effect of prescription is different at different levels of specification. Specifically, according to this model, when second-year teachers, on average, perceive that their curriculum materials contain little detail, the positive effect of perceived prescription is greater than when they perceive that their curriculum materials contain considerable detail. In short, the less detailed the materials,

the greater positive effect prescription has. At the highest levels of specification, the effect of prescription disappears entirely for second-year teachers on average. This interaction effect suggests that second-year teachers benefit most from prescription when they feel that they lack the resources to make effective decisions on their own. When they have what they perceive to be detailed curriculum materials, expectations and requirements have no effect on the support they perceive that they receive from those materials. However, Models 4 and 5 will introduce additional interaction variables that demonstrate a more complicated relationship between specification, prescription, and a sense of support from language arts curriculum materials.

Model 4 adds individual characteristics as control variables, including teachers' race (minority or not), education level (masters or not), and degree of comfort with teaching language arts (range from 1 to 4). This model reveals a statistically significant three-way interaction effect for specification, prescription, and comfort, which indicates that the two-way interaction effect between specification and prescription shown in Model 3 differs depending on teachers' comfort level. This effect persists in Model 5 with the introduction of additional control variables, so I will explain it in greater detail when interpreting that model below. Other variations of Model 4 revealed neither main nor interaction effects of gender and age.

The three-way interaction effect of specification, prescription, and comfort persist in Model 5, which introduces control variables for socioeconomic status and state. In addition, this model includes a statistically significant three-way interaction among prescription, specification, and socioeconomic status. This means that the main and interaction effects of prescription and specification, introduced in Model 3 and shown to vary according to teachers' comfort level in Model 4, also differ according to the socioeconomic status of the students attending the second-year teachers' school. The state control variables are used strictly as controls and are not otherwise interpreted in this paper. Other school characteristic variables—school size, bilingual class, special education class, grade level, and tested grade level—did not contribute to the best fit model and were excluded. Model 5 explains over half of the variation in the support variable ($R^2 = .528$). Figures A1 through A5 in Appendix A display relevant plots pertaining to the regression analysis, including residuals from the final model.[7]

Interpretation of Model 5: The Varied Effects of Prescription on Support

Model 5 illustrates a statistically significant relationship, when controlling for other factors, between second-year teachers' perceptions of curriculum prescription in language arts and the degree of support that they report receiving from their curriculum materials. Several two- and three-way interaction effects, however, combine to show that

[7] The total number of observations used to fit each model is not constant across all models, ranging from 289 in Model 1 to 281 in Model 5. This is due to missing data in the variables for specification, socioeconomic status, and comfort with language arts. I verified that none of the eight observations missing from Model 5 had any undue influence over the earlier models by estimating the Cook's D statistic for each. I then refit all models using only the 281 observations in the complete set and found only very small changes to the estimated coefficients.

the effect of perceived prescription, although positive on average, varies according to second-year teachers' perceptions of curriculum specification (defined as detail in curriculum materials, not as expectations or requirements), the teachers' comfort level with teaching language arts, and the socioeconomic status (SES) of the school.

Figures 1a and 1b graphically display the varied estimated effects, with the level of perceived prescription on the horizontal axis and the predicted level of perceived support on the vertical axis. Figure 1a models the relationship for second-year teachers who report a high level of comfort with teaching language arts (4 on a scale from 1 to 4; 90th percentile) and Figure 1b shows the relationship for those with a low level of comfort (2; 10th percentile). On both figures, the fitted trend lines with black markers model the relationship at low levels of perceived specification (1.57 on a scale from 1 to 3, which represents the 10th percentile of responses) and lines with white markers show the relationship at high levels (2.86; 90th percentile). The shape of the marker indicates the socioeconomic status of the schools at which the second-year teachers work: diamond markers indicate high-SES schools, meaning those where fewer than 15 percent of students are eligible for the federal free and reduced-price lunch program; circles represent middle-SES schools (15 to 50 percent); and triangles show low-SES schools (greater than 50 percent). In each case, the value of state is set to NC, race is set to non-minority, and degree is set to bachelor's degree only.

Teachers with low levels of comfort teaching language arts. The effect of perceived curriculum prescription varies considerably based on the teachers' reported level of comfort with their skills and knowledge regarding how to teach language arts at the time they began teaching. For second-year teachers who report that they were uncomfortable, the effect of greater prescription depends upon whether they perceive their curriculum materials to be highly specified or not. When they perceive their curriculum materials to lack specification, there is a consistent, moderately high, positive effect of perceived prescription on perceived support for the less confident second-year teachers. As shown by the lines in Figure 1b with white markers, each one point difference in perceived prescription for these teachers is associated with a roughly two-thirds point positive difference in perceived support ($\hat{\beta}$ = .64 for high SES, $\hat{\beta}$ = .59 for mid SES, and $\hat{\beta}$ = .68 for low SES). This suggests that new teachers lacking in confidence who also think that they lack detailed resources benefit from having clear expectations and requirements about what and how to teach and assess.

The relationship is opposite for the less confident teachers who feel that their language arts curriculum materials are highly specified, as shown by the lines with black markers in Figure 1b. For this group, greater prescription is associated with a diminished sense of support in low- and mid-SES schools ($\hat{\beta}$ = -.33 and $\hat{\beta}$ = -.54, respectively), while in high-SES schools there is practically no effect at all ($\hat{\beta}$ = .03). It is interesting that the less confident teachers seem to benefit from prescription of materials lacking in specification, but suffer from prescription of more detailed materials. Perhaps these teachers view the detailed curriculum materials as being complicated and difficult to use, so requirements and expectations regarding what and how they teach force them to rely on materials that they are uncertain how to use effectively.

Figures 1a and 1b: Graphs Showing the Relationship Between Perceptions of Curriculum Prescription and Sense of Support From Curriculum Materials for Second-Year Teachers Who Report Either a High (Figure 1a) or Low (Figure 1b) Level of Comfort With Teaching Language Arts. Fitted Trend Lines Compare (1) Teachers at High-, Mid-, and Low-Socioeconomic Status Schools and (2) High vs. Low Levels of Perceived Specification. Other control variables are set to the following: State=NC (WA=0, MA=0), Minority=0, Masters=0.

Figure 1a: … High comfort level (90th percentile, 4 on a scale of 1 to 4)

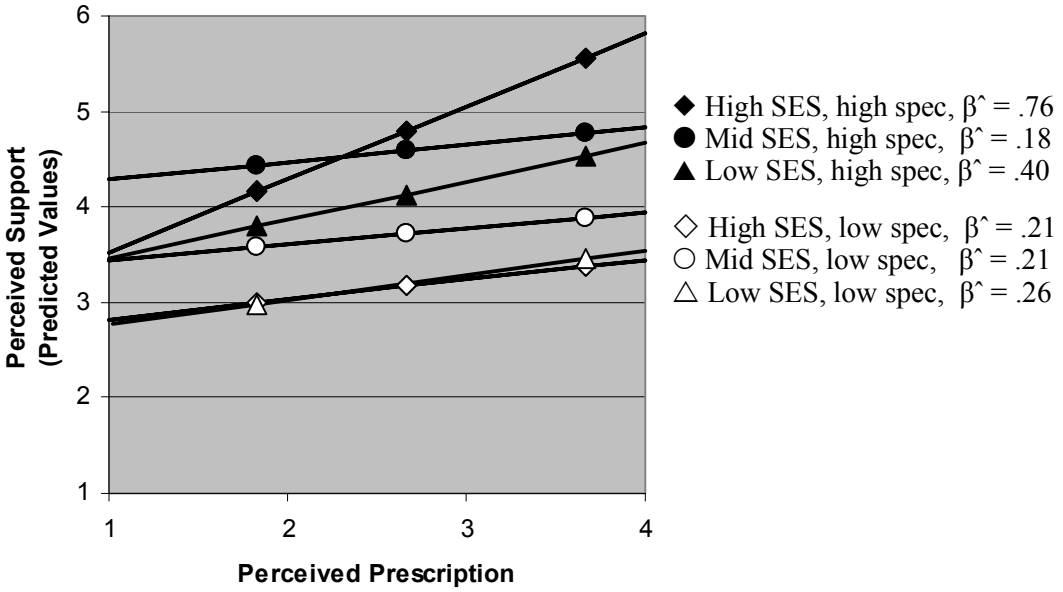
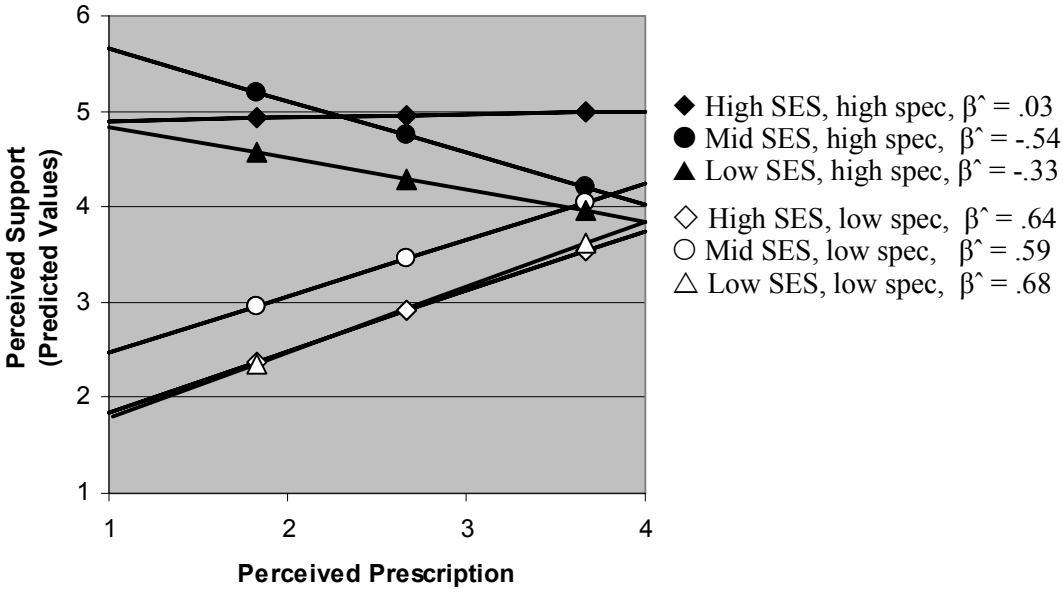


Figure 1b: … Low Comfort Level (10th percentile, 2 on a scale of 1 to 4)



Teachers with high levels of comfort teaching language arts. For second-year teachers with high levels of comfort in teaching language arts, greater perceived prescription of the language arts curriculum has a positive effect on perceived support, regardless of how specified they perceive their curriculum materials to be. This is demonstrated by the series of upward sloped lines in Figure 1a. For these more confident teachers, the positive effect of curriculum prescription is greater when they have what they perceive to be highly specified curriculum materials as compared to when they have curriculum materials lacking detail – at least in high- ($\hat{\beta} = .76$ vs. $\hat{\beta} = .21$) and low-SES ($\hat{\beta} = .40$ vs. $\hat{\beta} = .26$) schools; the effects are roughly equivalent for low and high specification in mid-SES schools ($\hat{\beta} = .18$ vs. $\hat{\beta} = .21$). This suggests that the teachers who are more comfortable teaching language arts may have a greater capacity to use detailed curriculum materials in response to external curriculum pressures. Perhaps the high comfort level reflects confidence in their ability to effectively teach language arts, which allows them to adapt and adjust the curriculum, using the expectations and requirements as additional data for making their decisions. When they think that the materials lack detail, then they are not as useful for guiding their decisions.

Socioeconomic status. For second-year teachers who report that their curriculum materials lack detail, the effect of curriculum prescription does not vary by socioeconomic status. For those who perceive their curriculum materials to be highly specified, however, socioeconomic status makes a difference. For teachers who report a high comfort level, the positive effect of prescription is greater in high-SES schools than in others. For those who lack confidence, there is no effect of prescription in high-SES schools, compared to a negative effect in the others. These differences by socioeconomic status are consistent with findings from this study reported elsewhere that second-year teachers' reports of curriculum neglect in language arts are more commonplace in high-SES schools than in other schools (Kauffman, 2005a), that the teachers in those schools encounter fewer expectations and requirements regarding the language arts curriculum (Kauffman, 2005b), and that teachers in high-SES schools are more likely to report using literature-based curricula than basal readers or structured reading programs (Kauffman, 2005a). These conditions may leave new teachers in high-SES schools hungrier for direction than their counterparts in low- and mid-SES schools.

Regardless of the effect of perceived prescription, high levels of perceived specification are consistently associated with second-year teachers' reports of greater support, regardless of comfort level or SES; with one very minor exception, the lines with white markers are above the lines with black markers in all three figures. (The exception is hardly worth noting; one very short segment of a line with a white marker is higher than two lines with black markers). This is consistent with the view that detailed curriculum materials are a potential source of support for new teachers (Ball & Feiman-Nemser, 1988; Grossman & Thompson, 2004), even if greater detail sometimes causes feelings of overload or lack of focus (Kauffman, 2002).[8] From the perspective of new

[8] In this analysis, one of the two items not included in the support composite variable addresses focus: "These curriculum materials provide so much information, I am often not sure what to use or how to focus." A preliminary analysis in which I regressed the focus variable on specification and prescription revealed a statistically significant negative effect of specification on focus ($\hat{\beta}$=-.65, $p \leq .001$) and a positive

teachers, it is important to provide detailed materials and to develop the capacity of new teachers to recognize and use what is available.

CONCLUSION

Analysis of data from a random sample of second-year elementary teachers in Massachusetts, North Carolina, and Washington indicates that curriculum expectations and guidelines are important considerations in designing support systems for teachers in their early years. In general, second-year elementary teachers' perceptions of curriculum prescription in language arts, defined as expectations and requirements about what and how to teach and assess, are related to their reports of the level of support that they receive from their curriculum materials, on average and when controlling for other factors. Second-year teachers who report greater curriculum prescription in language arts also report, on average, a higher level of support from their curriculum materials. But the relationship between prescription and support differs according to second-year teachers' perceptions of curriculum specification, meaning the level of detail in their curriculum materials, the teachers' comfort level with teaching language arts, and the socioeconomic status (SES) of the school in which they teach. In fact, for second-year teachers who report a low level of comfort with the skills and knowledge regarding teaching language arts that they possessed when they began teaching, higher levels of perceived prescription are correlated with lower levels of support from curriculum materials.

This study relies on information collected directly from teachers themselves at a single point in time, so it provides neither objective nor longitudinal data regarding the actual development of new teachers. Thus, it provides no evidence to refute arguments that providing detailed curriculum guidance to new teachers deskills them and curtails their long-term professional growth (Apple & Jungck, 1990; McDonald, 1992). It does, however, emphasize the interest that new teachers have in receiving detailed guidance and their willingness to accept in exchange some external controls over what and how they teach. As has been confirmed repeatedly by research, there is a strong market for curriculum materials, including but not limited to textbooks and teacher's guides (Goodlad, 1984; Grossman & Thompson, 2004; Sosniak & Stodolsky, 1993). New teachers, even when they enter the profession with disdain for textbooks, often turn to such materials as the most readily available resource to assist them when faced with the reality of teaching's demands (Ball & Feiman-Nemser, 1988; Kauffman, 2002; Powell, 1997).

Other data from this study show that 15.9 percent of second-year teachers in Massachusetts, North Carolina, and Washington reported that they lacked sufficient freedom to decide what and how to teach in language arts (Kauffman, 2005b). Because of the potential for excessive prescription that constrains new teachers and curtails the intrinsic rewards they may feel, it is important to note that curriculum prescription does not necessarily denote hierarchical and authoritarian arrangements. Instead, prescription

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effect of prescription on focus ($\beta\hat{} = .25$, $p \leq .010$), although the latter effect did not meet the threshold for statistical significance. This relationship must be further explored before drawing conclusions.

can take the form of shared agreements about content coverage and instructional practice within a school (Abelmann & Elmore, 1999; Kardos et al., 2001; Westheimer, 1998). Curriculum prescription grounded in strong, positive shared norms within a school community can provide guidance in a way that supports rather than constrains.

It is important to highlight the value of differentiating support depending on the particular needs of the individual new teacher. Although second-year teachers *on average* reported greater support in the presence of higher levels of specification and prescription, individuals vary. New teachers who are well-prepared and highly value opportunities to exercise their own creativity will likely not find certain prescriptive settings to be supportive. New teachers comfortable with a certain approach to teaching a subject, based on their coursework, field experiences, or own schooling, would likely find greater support in a setting that uses a similar approach or set of materials. Confident and skilled new teachers may not depend as greatly on any curriculum materials or guidance offered to them. It is critical that new teachers' formative first years of teaching take place in settings that will support their own unique needs regarding learning to teach, and that their colleagues and supervisors do the same.

The important question, then, is not whether the curriculum is specified in detail and sometimes prescribed for new teachers, rather it is *what* is specified in detail and *what* is required (Cohen & Ball, 1999). Curriculum materials for new teachers should provide substantive and accessible opportunities for the teachers to learn about the content itself, how students learn it, and how they can effectively teach it (Ball & Cohen, 1996). They should scaffold learning and meet individual teachers' needs by providing guidance and direction to those who need them and greater complexity to those who are ready for it (Eisner, 1990). They should allow teachers to take greater control over curriculum decisions as they build their knowledge, skills, and confidence (Grossman & Thompson, 2004). Curriculum materials can even provide a rich resource around which a school or district can build a coherent system of regular teacher collaboration and professional development (Russell, 1997).

REFERENCES

Abelmann, C., & Elmore, R. (1999). *When accountability knocks, will anyone answer?* Philadelphia: Consortium for Policy Research in Education.

Achieve Inc. (2002). *Staying on course: Standards-based reform in America's schools: Progress and prospects*. Washington, DC: Achieve, Inc.

American Federation of Teachers. (2001). *Making standards matter 2001: A fifty-state report on efforts to implement a standards-based system*. Washington, DC: American Federation of Teachers.

Apple, M. W., & Jungck, S. (1990). "You don't have to be a teacher to teach this unit:" Teaching, technology, and gender in the classroom. *American Educational Research Journal, 27*(2), 227-251.

Archbald, D. A., & Porter, A. C. (1994). Curriculum control and teachers' perceptions of autonomy and satisfaction. *Educational Evaluation and Policy Analysis, 16*(1), 21-39.

Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is -- or might be -- the role of curriculum materials in teacher learning and instructional reform? *Educational Researcher, 25*(9), 6-8, 14.

Ball, D. L., & Feiman-Nemser, S. (1988). Using textbooks and teachers' guides: A dilemma for beginning teachers and teacher educators. *Curriculum Inquiry, 18*(4), 401-423.

Becker, W. C., & Engelmann, S. (no date). *Sponsor findings from Project Follow Through*. <http://darkwing.uoregon.edu/~adiep/ft/becker.htm>.

Ben-Peretz, M. (1990). *The teacher-curriculum encounter: Freeing teachers from the tyranny of texts*. Albany, NY: State University of New York Press.

Bloomberg, M. R. (2003, January 15). *Major address on education at New York Urban League's Dr. Martin Luther King, Jr. Symposium*, [Internet website]. Office of the Mayor, New York City. Available: http://www.nyc.gov/html/om/html/2003a/address_education.html [2003, 16 January].

Brophy, J. E. (1982). How teachers influence what is taught and learned in classrooms. *Elementary School Journal, 83*(1), 1-13.

Center for the Study of Teaching and Policy. (2001). *Teacher Survey*. Stanford, CA: Center for Research on the Context of Teaching, Stanford University.

Cohen, D. K. (1998). Standards-based school reform: Policy, practice,and performance. In H. Ladd (Ed.), *Holding schools accountable: Performance-based reform in education*. Washington, D.C.: Brookings Institution.

Cohen, D. K., & Ball, D. L. (1999). *Instruction, capacity, and improvement* (CPRE Research Report Series RR-43). Philadelphia, PA: Consortium for Policy Research in Education.

Datnow, A., & Castellano, M. (2000). Teachers' responses to Success for All: How beliefs, experiences, and adaptations shape implementation. *American Educational Research Journal, 37*(3), 775-799.

Dillman, D. A. (1991). The design and administration of mail surveys. *Annual Review of Sociology, 17*, 225-249.

Dworkin, A. G. (1987). *Teacher burnout in the public schools: Structural causes and consequences for children*. Albany: State University of New York Press.

Education Trust. (2003). *Education Watch State Summaries*. Washington, DC: Education Trust.

Eisner, E. W. (1990). A development agenda: Creative curriculum development and practice. *Journal of Curriculum and Supervision, 6*(1), 62-73.

English, F. W. (2000). *Deciding what to teach and test: Developing, aligning, and auditing the curriculum* (Millenium ed.). Thousand Oaks, CA: Corwin Press, Inc.

Feiman-Nemser, S. (1983). Learning to teach. In L. S. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 150-170). New York: Longman.

Fuller, F., & Bown, O. H. (1975). Becoming a teacher. In K. Ryan (Ed.), *Teacher education: Part II. Seventy-fourth yearbook of the National Society for the Study of Education* (pp. 25-52). Chicago: University of Chicago Press.

Giordano, G. (2003). *Twentieth-century textbook wars*. New York: Peter Lang.

Gold, Y. (1996). Beginning teacher support: Attrition, mentoring, and induction. In J. Sikula & T. J. Buttery & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed., pp. 548-594). New York: Simon & Schuster Macmillan.

Goodlad, J. I. (1984). *A place called school: Prospects for the future*. New York: McGraw-Hill.

Grossman, P., & Thompson, C. (2004). *Curriculum materials: Scaffolds for new teacher learning?* (Research Report R-04-1). Seattle, WA: Center for the Study of Teaching and Policy, University of Washington.

Grossman, P., Thompson, C., & Valencia, S. (2001). *District policy and beginning teachers: Where the twain shall meet* (Research Report R-01-4). Seattle, WA: Center for the Study of Teaching and Policy, University of Washington.

Houghton Mifflin. (2002). *Houghton Mifflin reading: Teacher's resources*. Available: http://www.eduplace.com/marketing/nc/teacher.html [2005, February 26].

Huberman, M. (1989). The professional life cycle of teachers. *Teachers College Record, 91*(1), 31-57.

Ingersoll, R. M. (2003). *Who controls teachers' work?: Power and accountability in America's schools*. Cambridge, Massachusetts: Harvard University Press.

Ingersoll, R. M., & Alsalam, N. (1997). *Teacher professionalization and teacher commitment: A multilevel analysis* (NCES 97-069). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Johnson, S. M., Kardos, S. M., Kauffman, D., Liu, E., & Donaldson, M. L. (2004). The support gap: New teachers' early experiences in high-income and low-income schools. *Education Policy Analysis Archives, 12*(61).

Johnson, S. M., & The Project on the Next Generation of Teachers. (2004). *Finders and keepers: Helping new teachers survive and thrive in our schools*. San Francisco: Jossey-Bass.

Kardos, S. M. (2004). *Supporting and sustaining new teachers in schools: The importance of professional culture and mentoring.* Harvard University, Cambridge, MA.

Kardos, S. M., Johnson, S. M., Peske, H. G., Kauffman, D., & Liu, E. (2001). Counting on colleagues: New teachers encounter the professional cultures of their schools. *Educational Administration Quarterly, 37*(2), 250-290.

Kauffman, D. (2002). *A search for support: Beginning elementary teachers' use of mathematics curriculum materials.* Unpublished Special Qualifying Paper, Graduate School of Education, Harvard University, Cambridge, MA.

Kauffman, D. (2005a). Curriculum support and curriculum neglect: Second-year teachers' experiences. Cambridge, MA: Project on the Next Generation of Teachers at the Harvard Graduate School of Education.

Kauffman, D. (2005b). Curriculum prescription and curriculum constraint: Second-year teachers' perceptions. Cambridge, MA: Project on the Next Generation of Teachers at the Harvard Graduate School of Education.

Kauffman, D., Johnson, S. M., Kardos, S. M., Liu, E., & Peske, H. G. (2002). "Lost at sea": New teachers' experiences with curriculum and assessment. *Teachers College Record, 104*(2), 273-300.

Kennedy, M. M., Ball, D. L., & McDiarmid, G. W. (1993). *A study package for examining and tracking changes in teachers' knowledge* (Technical Series 93-1). East Lansing, MI: National Center for Research on Teacher Learning.

Koppich, J. E. (2002, Winter). Using well-qualified teachers well. *American Educator*.

Levy, P. S., & Lemeshow, S. (1999). *Sampling of populations: Methods and applications* (3rd ed.). New York: John Wiley & Sons, Inc.

Little, J. W. (1990). The persistence of privacy: Autonomy and initiative in teachers' professional relations. *Teachers College Record, 91*(4), 509-536.

Liu, E. (2004). *New teachers' experiences of hiring in four states.* Harvard University, Cambridge, MA.

Lortie, D. C. (1975). *Schoolteacher*. Chicago: University of Chicago Press.

Mathews, J. (2000). Prepackaged school reform. *The School Administrator, 57*(1), 12-14, 16-18.

McCutcheon, G. (1995). *Developing the curriculum: Solo and group deliberation*. White Plains, NY: Longman Publishers.

McDonald, F. J., & Elias, P. (1983). *The transition into teaching: The problems of beginning teachers and programs to solve them. Summary Report*. Princeton, NJ: Educational Testing Services.

McDonald, J. P. (1992). *Teaching: Making sense of an uncertain craft*. New York: Teachers College Press.

McNeil, L., & Valenzuela, A. (2000). *The harmful impact of the TAAS system of testing in Texas: Beneath the accountability rhetoric*. Cambridge, MA: The Civil Rights Project at Harvard University.

McNeil, L. M. (1986). *Contradictions of control: School structure and school knowledge*. New York: Routledge & Kegan Paul.

National Center for Education Statistics. (1999). *Public school teacher questionnaire, Schools and staffing survey, 1999-2000 school year*. Washington, DC: National Center for Educational Statistics, U.S. Department of Education, Office of Educational Research and Improvement.

Powell, R. R. (1997). Teaching alike: A cross-case analysis of first-career and second-career beginning teachers' instructional convergence. *Teaching and Teacher Education, 13*(3), 341-356.

Rea, L. M., & Parker, R. A. (1997). *Designing and conducting survey research: A comprehensive guide* (2nd ed.). San Francisco: Jossey-Bass Publishers.

Remillard, J. T. (2000). Can curriculum materials support teachers' learning? Two fourth-grade teachers use of a new mathematics text. *Elementary School Journal, 100*(4), 331-350.

Rowan, B. (1990). Commitment and control: Alternative strategies for the organizational design of schools. In C. Cazden (Ed.), *Review of Research in Education* (Vol. 16, pp. 353-389). Washington, D.C.: American Educational Research Association.

Russell, S. J. (1997). The role of curriculum in teacher development. In S. N. Friel & G. W. Bright (Eds.), *Reflecting on our work: NSF teacher enhancement in K-6 mathematics* (pp. 247-254). Lanham, MD: University Press of America, Inc.

Schwille, J., Porter, A., Belli, G., Floden, R., Freeman, D., Knappen, L., Kuhs, T., & Schmidt, W. (1983). Teachers as policy brokers in the content of elementary school mathematics. In L. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 370-391). New York: Longman.

Slavin, R. E., & et al. (1996). Success for All: A summary of research. *Journal of Education for Students Placed at Risk, 1*, 41-76.

Sosniak, L. A., & Stodolsky, S. S. (1993). Teachers and textbooks: Materials use in four fourth-grade classrooms. *The Elementary School Journal, 93*(3), 249-275.

Steinberg, J. (1999, November 26). Teachers in Chicago schools follow script from day 001. *New York Times,* pp. A1, A25.

Sudman, S., & Bradburn, N. M. (1982). *Asking questions: A practical guide to questionnaire design*. San Francisco: Jossey-Bass.

Tyack, D. (1999, June 23). Needed: More educational conservationists. *Education Week,* pp. 68.

Tyson, H. (1997). *Overcoming structural barriers to good textbooks*. Washington, DC: National Education Goals Panel.

Tyson-Bernstein, H. (1988). *A conspiracy of good intentions: America's textbook fiasco*. Washington, DC: Council for Basic Education.

UCLA Academic Technology Services. (no date). *Stata Learning Modules*. Available: http://www.ats.ucla.edu/stat/stata/modules/ [2005, February 25].

Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54*(2), 143-178.

Verran, J. A., & Ferketich, S. L. (1987). Testing linear model assumptions: Residual analysis. *Nursing Research, 36*(2), 127-130.

Wasley, P. A. (1994). *Stirring the chalkdust: Tales of teachers changing classroom practice*. New York: Teachers College Press.

Westheimer, J. (1998). *Among schoolteachers: Community, autonomy, and ideology in teachers' work*. New York: Teachers College Press.

Woodward, A., & Elliott, D. L. (1990). Textbook use and teacher professionalism. In D. L. Elliott & W. Arthur (Eds.), *Textbooks and schooling in the United States* (pp. 178-193). Chicago: University of Chicago Press.

APPENDIX A

Table A1: Weighted Averages of Second-Year Teachers' Responses to Statements About the Support Dimension of Support from Curriculum Materials; Summary by Subject Area. Six-Point Likert Scale. Negatively Worded Items are Reverse Coded so Higher Numbers Indicate a Positive Outcome. Standard Errors in Parentheses.

	Math (n=285)	Lang. Arts (n=290)	Science (n=269)	Soc. Stud. (n=262)
#10(a): "These curriculum materials help my students do well academically."	4.71 (.06)	4.41 (.07)	3.93 (.08)	3.50 (.09)
#10(b): "For my students to be successful academically, I have to bring in more ideas and resources than these curriculum materials provide." (REVERSE CODED)	2.35 (.09)	2.25 (.08)	2.28 (.08)	1.92 (.08)
#10(c): "These curriculum materials address the content that my students need to learn."	4.74 (.06)	4.50 (.07)	4.07 (.08)	3.73 (.09)
#10(d): "These curriculum materials will help prepare my students to do well on the state test for this subject—this year and/or in the future."	4.52 (.07)	4.30 (.07)	n/a	n/a
#11(a): "These curriculum materials help me decide what to teach."	5.15 (.06)	4.59 (.08)	4.49 (.08)	3.92 (.10)
#11(b): "These curriculum materials help me decide how to teach this subject."	4.62 (.07)	4.08 (.08)	3.88 (.09)	3.21 (.09)
#11(c): "These curriculum materials help ME learn about this subject so that I can teach it better."	4.31 (.09)	3.95 (.09)	3.93 (.10)	3.41 (.10)
#11(d): "These curriculum materials are 'user-friendly' for teachers."	4.61 (.08)	4.28 (.08)	3.88 (.09)	3.41 (.10)
#11(e): "These curriculum materials include everything I need, so I don't HAVE TO look anywhere else." (REVERSE CODED)	3.22 (.10)	3.00 (.10)	2.77 (.10)	2.28 (.09)
#12(a): "I agree with how these curriculum materials approach teaching this subject."	4.27 (.07)	4.04 (.08)	3.89 (.08)	3.36 (.09)
#12(b): "I have to choose between following these curriculum materials and teaching this subject the way I think it should be taught." (REVERSE CODED)	3.60 (.09)	3.46 (.09)	3.64 (.10)	3.51 (.10)
#12(c): "There are too many decisions left up to me when I use these curriculum materials." (REVERSE CODED)	4.43 (.08)	4.07 (.09)	3.90 (.10)	3.58 (.10)
#12(d): "I like these curriculum materials because I don't have to 'reinvent the wheel.'"	3.95 (.09)	3.65 (.09)	3.45 (.10)	2.85 (.09)
Composite Support Variable (Average of 13 Items)	**4.19 (.05)**	**3.89 (.06)**	**3.68 (.06)**	**3.22 (.06)**

Table A2: Second-Year Teachers' Reports of Support Related to Their Language Arts Curriculum Materials, Summary by Selected Subgroups. Six-Point Scale. Standard Errors in Parentheses.

School and Classroom Characteristics	Support	Individual Characteristics	Support
TOTAL	**3.89 (.06)**	**TOTAL**	**3.89 (.06)**
State		**Gender of Teacher**	
Massachusetts (n=56)	3.88 (.09)	Female (n=262)	3.90 (.06)
North Carolina (n=100)	3.92 (.13)	Male (n=28)	3.83 (.24)
Washington (n=134)	3.87 (.09)		
		Age of Teacher	
School Socioeconomic Status~		25 years old and younger (n=117)	3.96 (.08)
High (n=61) (< 15% of students in poverty)	3.82 (.15)	More than 25 years old (n=173)	3.85 (.08)
Mid (n=124) (15-50% of students in poverty)	4.01 (.07)		
Low (n=103) (> 50% of students in poverty)	3.80 (.10)	**Race of Teacher**	
		Minority (n=31)	3.65 (.17)
School Size		White (n=259)	3.92 (.06)
Small School (n=59) (< 350 students)	3.94 (.13)		
Medium School (n=158) (300-600 students)	3.88 (.08)	**Education Level***	
Large School (n=71) (> 600 students)	3.87 (.13)	Bachelors Degree (n=216)	3.97 (.06)
		Masters Degree (n=74)	3.67 (.13)
Type of Classroom			
Bilingual Education (n=10)	3.85 (.19)	**Comfort with Teaching Language Arts**	
Special Education (n=19)	3.45 (.32)	Comfortable or Very Comfortable (n=236)	3.94 (.06)
Regular Education and Other (n=261)	3.93 (.06)	Uncomfortable or Very Uncomfortable (n=53)	3.68 (.17)

Marker indicates that the difference between one or more pairs of subgroups is statistically significant: ~p≤.10; *p≤.05; **p≤.01; ***p≤.001

Table A3: Average (Weighted) Level of Prescription Reported by Second-Year Teachers for Each of Several Curriculum Components; Summary by Subject Area. Standard Errors in Parentheses.

Variable	Questionnaire Item: To what extent are you encouraged or required to do each of the following in each subject?	Math (n=286)	Lang. Arts (n=290)	Science (n=272)	Soc. Stud. (n=272)
Topic Prescribed	Cover certain general topics, objectives, or standards.	3.40 (.04)	3.33 (.05)	2.95 (.05)	2.78 (.06)
Content Prescribed	Teach specific content (skills and/or knowledge)	3.40 (.04)	3.30 (.05)	2.93 (.05)	2.75 (.06)
Sequence Prescribed	Follow a particular timeline or sequence for the year – this could include following the textbook, teacher's guide, or curriculum guide	2.84 (.06)	2.60 (.07)	2.22 (.07)	2.00 (.07)
Pedagogy Prescribed	Use a particular approach to teach the subject.	2.01 (.07)	2.02 (.07)	1.65 (.06)	1.48 (.06)
Lesson Plans Prescribed	Follow prepared lesson plans from the teacher's guide, the textbook, a detailed curriculum guide, or another source.	2.03 (.07)	1.92 (.07)	1.70 (.06)	1.54 (.06)
Assessments Prescribed	Periodically administer certain tests or assessments (not including standardized tests).	2.95 (.07)	3.02 (.07)	1.97 (.08)	1.88 (.08)
Test Preparation Prescribed (NOT INCLUDED IN THE COMPOSITE MEASURE OF PRESCRIPION)	Explicitly prepare students for the state test or other standardized tests in this subject; for example, teach test-taking skills, practice sample test items, format classroom assessments like standardized tests, etc.	2.63 (.07)	2.67 (.07)	n/a	n/a

Scale: 1 = "Left completely up to me," 2 = "Encouraged," 3 = "Required, but nobody really checks," and 4 = "Required, and somebody checks."

Table A4: Average (Weighted) Level of Specification Reported by Second-Year Teachers for Each of Several Curriculum Components; Summary by Subject Area. Standard Errors in Parentheses.

Variable	Questionnaire Item: To what degree do the curriculum materials provided by your state, district, and school—including textbooks, teacher's guides, standards documents, curriculum guides, and other materials—specify each of the following?	Math (n=282)	Lang. Arts (n=286)	Science (n=265)	Soc. Stud. (n=259)
Topic Specified	General topics, objectives, or standards to cover.	2.79 (.03)	2.63 (.04)	2.41 (.04)	2.25 (.04)
Content Specified	Specific content (skills and/or knowledge).	2.78 (.03)	2.61 (.04)	2.36 (.04)	2.17 (.05)
Sequence Specified	A timeline or sequence for the year.	2.54 (.04)	2.15 (.05)	1.81 (.05)	1.67 (.05)
Pedagogy Specified	A recommended approach for teaching this subject.	2.48 (.04)	2.25 (.05)	1.94 (.05)	1.66 (.05)
Student Work Described	Examples of Student Work.	1.80 (.05)	1.64 (.05)	1.36 (.04)	1.30 (.04)
Lesson Plans Specified	Daily lesson plans.	2.34 (.05)	2.05 (.06)	1.77 (.05)	1.56 (.05)
Assessments Specified	Tests or other assessments you can use with your students.	2.63 (.04)	2.32 (.05)	1.90 (.05)	1.79 (.06)
Test Preparation Specified (NOT INCLUDED IN THE COMPOSITE MEASURE OF PRESCRIPION)	Strategies or materials for preparing students for the state test.	2.16 (.05)	2.11 (.05)	n/a	n/a

Scale: 1 = "Not at all," 2 = "Somewhat," 3 = "In detail."

Figure A1: Two-way Scatterplots Between the Outcome Variable (Support – LASATI) and Main Predictors (Prescription – LAPRI and Specification – LASPI).

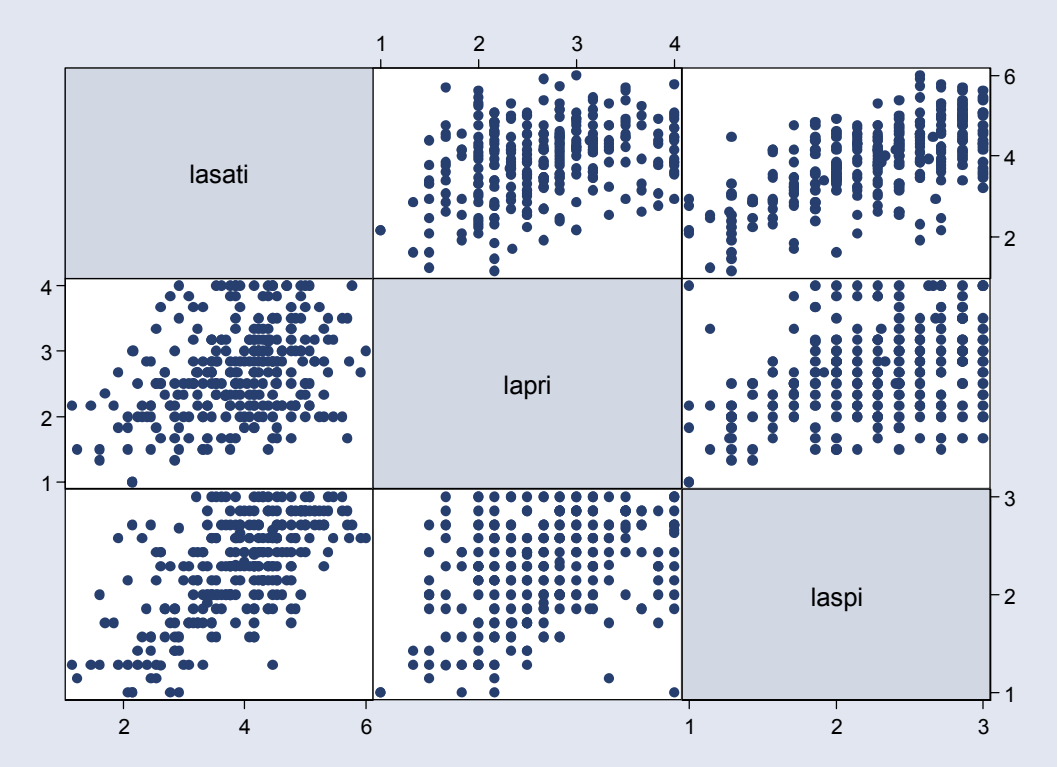

Figure A2: Residuals From Model 5 Plotted Against The Predicted Values (Y^) on the X-Axis

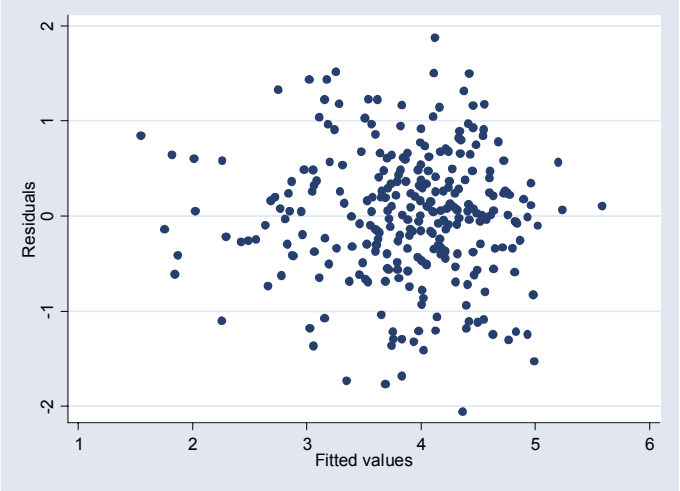

Figure A3: Residuals From Model 5 Plotted Against the Prescription Variable (LAPRI) on the X-Axis

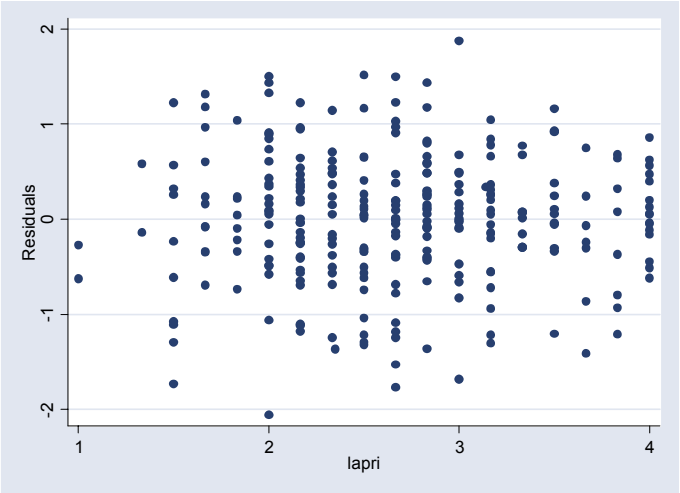

Figure A4: Residuals From Model 5 Plotted Against SES on the X-Axis

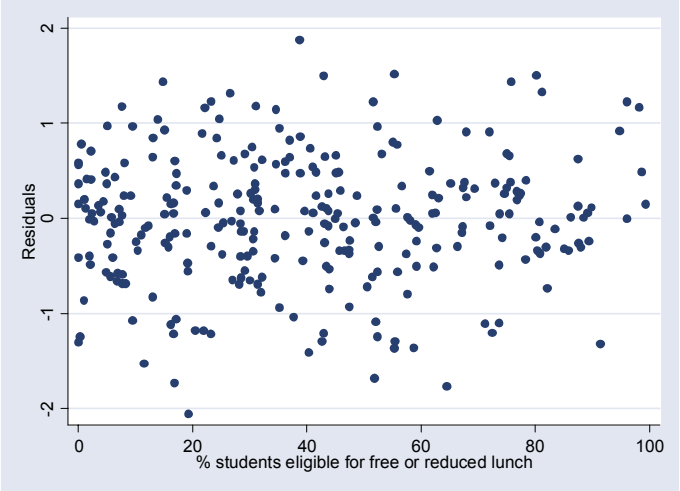

Figure A5: PNORM Results for Residuals From Model 5, Showing Normal Distribution