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Authoritative Teaching Across Student Populations: The Conflicting Effects of Education and Experience on Elementary Teachers

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Abstract

Elementary-school teachers (*N*=246) completed a survey to assess the factors that influence teachers' preferences regarding *response, control, and demand*, three interactional-style components inherent in "authoritative teaching." Participants were randomly assigned to answer concerning one of three populations: general-education students, special-education (SPED) students, or English language learners (ELLs). Interactional-style preferences did not differ across student populations and were not associated with teachers' age or ethnicity. Four factors were associated with significantly higher *control* scores (gender, educational attainment, certification in SPED, and certification in English as a second language). Teaching experience with all three populations was associated with significantly lower *control* scores. Teachers take little account of student population in their beliefs about interacting with students, but these beliefs are subject to conflicting forces as their careers proceed, especially concerning classroom management. Targeted professional-development initiatives have potential to help teachers optimize how they interact with students in the classroom.

Keywords: interactional style, responsiveness, demandingness, control, classroom management, elementary education, special education, English as a second language, English language learners

1. Introduction

It is often said there are many ways to teach well, and teachers display remarkable diversity

in their preferences for interacting with students. One teacher might regard being responsive to student needs as the lifeblood of classroom success. Another might emphasize running a tight ship, believing that students learn best in an orderly and disciplined environment. Still another teacher might place a premium on academic demand, based on the idea that students do best when much is asked of them. And other teachers might combine these preferences in limitless ways.

This is the diversity inherent in teachers' interactional styles – i.e., their beliefs and preferences concerning the optimal way to interact with students (Connor et al., 2005; Furtak & Kunter, 2012; Jang et al., 2010; Nurmi et al., 2012). Traditionally, these beliefs and preferences have been thought to involve two components (Baumrind, 1996). The first is *response*, or responsiveness – getting to know students, taking their needs into account, listening carefully to their contributions, and/or acting in a supportive and encouraging manner. The second component is more difficult to pin down (as noted below in the literature review), but in most cases it refers to *control*: setting out rules for classroom behavior, enforcing the rules consistently, and administering consequences when the rules are violated. More recently, a third component has been considered, adding the element of *demand,* or demandingness – requiring challenging work from students, setting a high bar for success, pushing students to do their best work, and/or making lofty expectations a central feature in the instructional environment. Taken together, these three factors characterize how teachers opt to interact with students in the classroom.

A review of literature in this area reveals not only the diversity in teachers' instructional styles, but also the substantial impact these styles have on students' academic performance and classroom behavior (Archambault et al., 2012; Deci et al., 1982; Furtak & Kunter, 2012; McKown & Weinstein, 2008, Nurmi et al., 2012; Reeve, 2009). But the literature to date has not included an explicit investigation of the extent to which teachers' interactional-style preferences vary depending on the student population (general education, special education, English language learner). It seems plausible that teachers might have different ways of interacting depending on the population of students in the classroom. What's more, demographic factors may influence interactional-style preferences, including such factors as teachers' age, gender, educational attainment, years of teaching experience, and teacher-certifications held. It remains unclear how these demographic factors affect teachers' preferences regarding the appropriate ways to interact with these three student populations.

This article moves into the breach by presenting a research initiative that examines (a) the extent to which, and the ways in which, teachers' beliefs about *response, control,* and *demand* differ according to student population, and (b) how these differences, if any, relate to demographic factors. In what follows we present a literature review, a problem statement with research questions, the methods employed in the study, the results of the study, and a discussion highlighting the implications of the findings for educational research and practice.

2. Literature Review

Interactional Styles in Parenting

Theory and research in interactional styles was set in motion by Baumrind (1966, 1971), who described three parenting styles: permissive, authoritarian, and authoritative. These terms are now common across professions ranging from childcare to business management.

Permissive parents, Baumrind suggested, favor affirming and supportive behavior toward children, negotiating policy decisions with them rather than imposing uncompromising caregiver control (high response, low demand/control). In contrast, *authoritarian* parents seek tight control of children's behavior, typically by imposing policy decisions from a position of authority that is not open to question (low response, high demand/control). *Authoritative* parents, preferring a compromise position between the permissive and authoritarian views, favor supervising children's activities but granting them a degree of autonomy, with policy decisions sometimes negotiated and sometimes imposed (high response, high demand/control). This model of interactional styles was further developed by Maccoby and Martin (1983), who suggested that interactional styles stem from two underlying dimensions, responsiveness and demandingness. The number of styles thus increases to four, with the addition of a "disengaged" or "indifferent" style that is low on both dimensions. This four-style model and its attendant terminology have become conventional in analysis of interactional styles in many professions, including education.

Interactional Styles in School Climate

Interactional styles have been the focus of research on school climate – i.e., the general tenor of student-teacher interactions in a particular school environment. Research as such takes the school as the unit of analysis, not the individual teacher or parent, based on the assumption that each school as a whole manifests a consistent pattern in the interactional styles of the educators who work there.

Results of research using this whole-school approach points up the broad and deep impacts of interactional styles in schools. For example, students were higher in academic achievement and social competence in schools classified as authoritative (relative to permissive, authoritarian, or disengaged schools) (Geisler-Brenstein, et al., 1996). In addition, schools classified as disengaged produced the most negative effects, particularly for students whose parents did not favor an authoritative parenting style.

Similarly, students' academic performance was most favorable in schools where teachers praised and encouraged student work (*response*) and emphasized the importance of academic achievement (*demand*) (Rutter et al., 1979). Pellerin (2005) reported that a) authoritative schools had optimal academic and non-academic outcomes, b) authoritarian schools had the highest dropout rates, and c) indifferent schools had the least engaged students.

Finally, a higher level of student engagement and a lower incidence of peer aggression were obtained in schools where support from teachers (*response*) combined with a high level of academic structure (*demand*) (Cornell et al., 2016). Research employing the "climate" of the

school as the unit of analysis has demonstrated that interactional styles have multiple impacts, academic and non-academic, and that an authoritative approach that emphasizes both *response* and some combination of *demand* and *control* produces optimal results.

Interactional Styles of Individual Teachers

The interactional styles of individual teachers have been explored by numerous researchers, which seems appropriate in light of a substantial body of research showing the importance of the classroom teacher in student learning. In this research, the four-style model is used to assess the beliefs and practices of individual teachers, and the results reveal the benefits of authoritative teaching. For example, in classrooms where teachers provided social-emotional support (*response*) and emphasized instructional goals *(demand),* students produced higher scores in math, generated fewer behavioral problems, and reported a higher level of academic self-efficacy (Perry, et al., 2007).

Producing similar results, Kiuru et al. (2012) reported that an authoritative interactional style positively predicted development of children's spelling skills, particularly among children who were nonreaders in kindergarten but had no risk for reading disabilities. The authors also found that authoritative teaching could compensate for the negative impacts of non-authoritative parenting on reading achievement among kindergarten students who struggle in reading.

Examining the effect of interactional styles on a variety of outcomes including student engagement, self-efficacy, and test results, Walker (2008) found that students in an authoritative teacher's class had higher academic self-efficacy and lower self-handicapping relative to students in an authoritarian teacher's class. Students with authoritative and authoritarian teachers produced similar test results, with both groups outscoring students with a permissive teacher. The researcher concluded that an authoritative teaching style produced optimal results in student learning and well-being.

Other research has eschewed the assumption that interactional styles can be fully characterized with two components. Connor et al. (2005) measured three elements of teaching: warmth/responsivity (*response*), time spent on academic activities (*demand*), and classroom discipline (*control*). Higher student vocabulary scores were obtained from teachers with higher scores for warmth/responsivity and classroom control. Teachers' scores for warmth/responsivity and classroom control were positively correlated, but neither variable was significantly associated with the researchers' operationalization of *demand*. "Time spent on academic activities" seems limited as an assessment of *demand*, given the importance of such factors as amount of academic work required, the rigor of this work, and the expectations for student performance manifested in the learning environment. At the same time, the findings reported by Connor et al. (2005) are consistent with other research showing that the interactional styles of individual teachers, when sufficiently authoritative, are often optimal for academic and non-academic outcomes in schools.

Other research using a three-component approach has revealed developmental changes in teachers' interactional-style beliefs. Instead of examining how styles influence student

performance, this research investigates the factors that affect teachers' instructional-style beliefs. In a study involving secondary teachers, Torff and Kimmons (2020) reported that *response* scores diminished with age but increased with teaching experience. Such a finding suggests that teachers experience conflicting forces as their careers proceed. A similar conclusion can be drawn from the results presented in this article, which employs a sample of elementary teachers. In general, research on the interactional styles of individual teachers has revealed the substantial effects of an authoritative interactional style on student outcomes. And this research has begun to examine the factors that are associated with these evidently influential style beliefs, although there is much left to be done in this area.

Problem Statement and Research Questions

This review of the literature shows how authoritative teaching has been linked to favorable outcomes in schools, when assessed as a school-wide construct or as a characteristic of individual teachers. But the literature remains unclear concerning the extent to which teachers vary their approach depending on the student population – general education, special education (SPED), or English language learners (ELLs). And it remains unknown the extent to which any population differences that might obtain stem from demographic factors such as teachers' age, gender, ethnicity, educational attainment, years of teaching experience, and certifications held. Consequently, survey research was conducted to address the following research questions:

- To what extent, and in what ways, do elementary teachers' interactional-style preferences (as assessed by measures of *response*, *demand*, and *control*) vary according to the student population being taught (general education, SPED, or ELL)?
- To what extent, and in what ways, are differences in interactional-style preferences across student populations associated with demographic factors (teachers' age, gender, ethnicity, educational attainment, years of teaching experience, and certifications held)?

The research has promise to inform professional-development initiatives designed to foster the interactional-style characteristics associated with best practices in elementary education. In what follows we present the methods of a research project focused on differences associated with these student populations and demographic factors.

3. Methods

Research Design

Using experimental methods, the research centered on administering a survey to a sufficient sample of teachers, who were randomly assigned to three groups: (1) those asked to respond concerning general-education students; (2) those asked to respond concerning SPED students; and (3) those asked to respond concerning English language learners. Using random assignment as such, instead of asking respondents to express their views concerning all three populations, reduced response bias by diverting respondents from directly comparing their views about optimal teaching of the three populations. The survey (detailed below) tapped respondents' preferences concerning the three interactional style components, as well as 11

demographic variables.

Variables and Measures

The survey tapped teachers' preferences concerning *response*, *demand*, and *control*, the three interactional-style components assessed by the Teachers' Interactional Style Scale (TISS) (Torff et al., 2020). The scale includes nine statements with which respondents rate their level of agreement, such that each factor is assessed with three items (Table 1). For example, a *response* item is "Academic work improves when students sense the teacher cares about them." An example of a *demand* item is "Students sometimes learn more when teachers avoid pushing too hard academically" (note that this item is worded for reversed scoring, such that a low score indicates a high level of *demand*, and vice versa). An example of a *control* item is "Teachers who are clearly in charge get the most from students." Participating teachers rated their level of agreement with each statement using a 10-point scale (1=strongly disagree, 10=strongly agree). Each factor was constituted by taking the average of the three items designed to assess that factor.

Table 1. Teachers' Interactional Style Scale (Torff et al., 2020)

Response
1. Listening carefully to what students have to say fosters their learning
2. Teachers who are responsive to students' needs get the most out of them
3. Academic work improves when students sense the teacher cares about them
Demand
4. "Raising the bar" often fails to boost educational outcomes*
5. Teachers can be effective without pressing students to work harder all the time*
6. Students sometimes learn more when teachers avoid pushing too hard academically*
Control
7. Teachers who are clearly in charge get the most from students
8. A great many outstanding teachers favor no-nonsense classroom discipline
9. The best classrooms have rules and routines clearly stated and consistently enforced

Notes. * Item worded for reverse scoring. All items scored on 10-point scales, from 1 = strongly disagree to 10 = strongly agree.

The psychometric utility of the scale was evaluated in a series of three studies (Torff et al., 2020). (See Table 2.) In Study 1 (*N*=255), factor analysis was used to reduce 30 candidate items to nine, with three items per component. The three-factor, nine-item solution produced factor-analytic results with satisfactory values for (a) the KMO measure of sampling adequacy (.70), (b) explained variance (62.6%), (c) eigenvalues (2.60, 1.75, and 1.28; next largest eigenvalue was .80), (d) communalities (> .89), and (e) pattern/structure coefficients ("loadings") (mean of .76, range .58 - .90). The three-factor, nine-item model yielded satisfactory alpha values (.54 - .84) and low or nonsignificant inter-component correlations (< .30). The three factors were interpreted as *response*, *demand*, and *control*, in keeping with the design of the TISS instrument. Study 2 followed the same protocol with a separate sample (*N*=150), closely replicating the findings of Study 1. In Study 3, the nine-item scale was correlated as expected with a previous measure of *response* and *control* (Ertesvag, 2011), with both factors weakly correlated with *demand*. Notably, *demand* was shown to be largely separate from *control*, underscoring the theoretical and practical utility of a three-factor model of teachers' interactional styles.

The TISS instrument was evaluated for internal consistency reliability with the dataset of 246 teachers who participated in the research reported in this article. This evaluation yielded satisfactory alpha levels, with .77 for response, .65 for demand, and .51 for control. These values are similar to results obtained in previous studies using the TISS instrument (Torff et al., 2020; Torff & Kimmons, 2020).

Table 2. Psychometric Evaluation of the Teachers' Interactional Style Scale (TISS)*

Variable	Study 1	Study 2
Number of participants	255	150
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	.70	.75
Explained variance	62.60	64.09
Eigenvalue for *Response*	2.60	2.67
Eigenvalue for *Demand*	1.75	1.83
Eigenvalue for *Control*	1.28	1.28
Next highest eigenvalue	.80	.77
Pattern-structure coefficients ("loadings") for *Response*	.90, .86, .82	.90, .83, .75
Pattern-structure coefficients ("loadings") for *Demand*	.81, .79, .58	.83, .68, .63
Pattern-structure coefficients ("loadings") for *Control*	.74, .73, .67	.87, .75, .73
Alpha value for *Response*	.84	.85
Alpha value for *Demand*	.56	.60
Alpha value for *Control*	.54	.56
Interfactor correlations	<.19	<.24
Study 3 (*N*=73): Correlations of TISS factors with two factors in scale published by Ertesvag (2011): *Response*: <.55, *p*<.01 *Control*: <.56, *p*<.01		

* Torff et al., 2020.

4. Participants

The survey was completed by 246 teachers employed in two elementary schools in a large

and diverse city in the northeastern United States. Located in a community with a substantial population of students whose first language is Spanish, the schools were designated by the state as "high-needs," an indication of poverty in the community. All enrolled students at these schools qualified for free or reduced lunch.

Descriptive statistics are provided for continuous variables in Table 3, with categorical variables in Table 4. Participating teachers included 217 females (89%), 27 males (11%), two individuals who opted not to provide gender information, and one who selected "other" but did not specify their gender identity; this gender distribution is typical in elementary education. Among the respondents, 162 (66.7%) self-identified as white, 62 (25.5%) as Hispanic, eight (3.3%) as African American, five (2.1%) as Asian, and six (2.5%) as "other." As such the sample was somewhat more diverse than is typical in modern schools in the United States, especially concerning the abundance of teachers with Hispanic backgrounds.

The participants were a veteran group, averaging 39.63 years of age (*SD*=9.88) with a range of 42 years. As for classroom experience teaching general-education students, the participants averaged 10.78 years (*SD*=9.27) ranging from zero to 47 years. With special-education students, they averaged 4.9 years (*SD*=6.79) ranging from zero to 36 years. With ELLs, they averaged 9.55 years (*SD*=8.47) ranging from zero to 42 years.

The participating teachers were also highly educated, for the most part, including 10 (4.1%) with a bachelor's degree, 78 (32.1%) with a master's, 138 (56.8%) who were masters-plus-30, 16 (6.6%) who were masters-plus-60, and one teacher who held a doctorate. Elementary-level ("general education") certification was held by 221 teachers (91.7%); SPED certification was held by 93 teachers (38.9%); and TESOL/bilingual certification was held by 97 teachers (39.9%). Only four teachers (2%) reported experience in school administration. As for the number of participants assigned to each of the three experimental groups, 84 teachers (34.1%) responded concerning GE students, 77 (31.3%) responded concerning SPED students, and 85 (34.6%) responded concerning ELLs.

Procedure

During the Fall 2019 semester, research assistants travelled to the schools to administer the survey to teachers assembled for faculty meetings. The printed surveys were completed in pencil-and-paper format; no online survey methods were employed. The surveys were placed in random order to facilitate randomized distribution of the three forms to the participants. Each survey clearly identified the group to which participants were assigned, in bold-text capital letters at the top of the form.

Verbal instructions emphasized the group assignment, indicated that the survey tapped opinions (and thus had no correct answers), and provided assurances that all survey responses were confidential. At no point did participants identify themselves or their schools on the survey instrument or elsewhere. All teachers asked to participate did so, and none were compensated. Data were entered into SPSS (v. 26) for statistical analysis.

Table 3. Descriptive Statistics for Continuous Variables

Variable	General Education Students			Special Education Students			English Language Learners			Overall		
	n	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*
Response	83	9.50	.85	77	9.43	1.15	85	9.42	.85	245	9.45	.95
Demand	83	4.48	2.02	77	4.80	2.25	84	4.67	1.98	244	4.64	2.08
Control	84	7.83	1.29	77	7.99	1.45	85	7.61	1.50	246	7.80	1.42
Age	80	40.39	8.66	68	38.07	10.64	78	40.23	10.34	226	39.63	9.88
Yrs with GE	78	10.23	9.11	75	9.89	8.98	84	12.07	9.65	237	10.78	9.27
Yrs with SPED	78	4.85	5.55	73	4.93	6.52	80	4.93	8.09	231	4.90	6.79
Yrs with ELL	82	8.70	7.66	75	8.17	8.14	84	11.61	9.19	241	9.55	8.47

Table 4. Descriptive Statistics for Categorical Variables

Variable	Codes	General Education Students		Special Education Students		English Language Learners		Overall	
		Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Gender	Female	79	94	64	83.1	74	87.1	217	11.0
	Male	5	6.0	11	14.3	11	12.9	27	88.2
	Other	0	0	1	1.3	0	0	1	.4
Ethnicity	White	59	70.2	41	53.2	62	72.9	162	65.9
	Black	0	0	4	5.2	4	4.7	8	3.3
	Hispanic	22	26.02	24	31.2	16	18.8	62	25.2
	Asian	2	2.4	2	2.6	1	1.2	5	2.0
	Other	1	1.2	3	3.9	2	2.4	6	2.4
Educational Attainment	Bachelor's	2	2.4	4	5.2	4	4.7	10	4.1
	Master's	30	35.7	23	29.9	25	29.4	78	31.7
	Mast. + 30	47	56.0	41	53.2	50	58.8	138	56.1
	Mast. + 60	3	3.6	7	9.1	6	7.1	16	6.5
	Doctorate	0	0	1	1.3	0	0	1	.4
GE Certification	yes	78	92.9	65	84.4	78	91.8	221	89.8
	no	3	3.6	9	11.7	5	5.9	17	6.9
SPED Certification	yes	34	40.5	31	40.3	28	32.9	93	37.8
	no	46	54.8	43	55.8	57	67.1	146	59.3
ESL/Bilingual Certification	yes	34	40.5	32	41.6	31	36.5	97	39.4
	no	46	54.8	45	58.4	54	63.5	145	58.9

5. Results

Data analysis employed a series of MANCOVA models, a useful method for analyzing how categorical variables (such as the groups in this study) are associated with continuous outcome variables (such as the three instructional-style components). The analysis was focused on two goals. The first was to examine the extent to which teachers' beliefs about three style components (response, demand, and control) differed across student populations (GE, SPED, ELL), controlling for the demographic variables. The second was to evaluate how, within and across populations, the demographic variables were associated with the style components. Evaluation of statistical assumptions was satisfactory, including absence of outliers, absence of multicollinearity, linearity, and equality of error variances.

The combined independent variables had a significant effect on the dependent variables, with Wilk's Lambda as follows: $F(3, 32) = 23.37$, $p<.0001$, partial eta-squared = .68. The student-population variable (GE, SPED, ELL) did not contribute significantly to the variance

in any of the three dependent variables, *response* (p=.84), *demand* (p=.20), or *control* (p=.20). The similarities among the means for the three student populations are striking: *response* produced a range (across populations) of .08 on a ten-point scale, varying less than 1%. Demand ranged .32, just 1.3%, and control ranged .38, about 1.4%. These results suggest that teachers did not regard student population as an important factor in their interactional-style beliefs.

Accordingly, additional MANCOVA procedures were conducted excluding the student-population variable, to examine the effect of the demographic variables on teachers' interactional-style beliefs. The combined independent variables had a significant effect on the dependent ones, with Wilk's Lambda of $F(3, 38) = 27.32$, $p<.0001$, partial eta-squared = .68.

Teachers' age had no significant effect on *response* (p=.90), *demand* (p=.12), or *control* (p=.09). Similarly, teachers' ethnicity did not contribute to the variance in *response* (p=.15), *demand* (p=.86), or *control* (p=.28).

None of the demographic variables contributed significantly to the variance in *response* or *demand*, with one modest exception. Teachers with administrative experience were significantly higher in *demand*, but the exceedingly low number of teachers with this experience (n=4) casts doubt on the utility of this finding.

Other variables did have meaningful effects, however, and these effects were centered on the *control* variable. Seven such variables had significant effects, in opposite directions.

Four variables were associated with higher *control* scores. *Gender* was one such significant, positive predictor, as females produced higher *control* scores relative to males (p=.45, partial eta-squared = .09). Three other variables associated with higher *control* are concerned with teaching experience, operationalized as the number of years of full-time teaching completed. For all three student populations, teaching experience was associated with higher *control* scores, with remarkably strong effects. The effect was strongest for ELLs (p=.01, partial eta-squared = .56) and general-education students (p=.0007, partial eta-squared = .54). Similarly large effects were obtained for SPED students (p=.03, partial eta-squared = .52). Across student populations, teaching experience was associated with markedly increased emphasis on classroom control.

A different set of variables produced opposite effects, associated with lower *control* scores. These have to do with educational attainment and teacher certification. To begin with, educational attainment was a negative predictor of *control* (p=.03, partial eta-squared = .23), an effect of moderate size. Completion of academic degrees apparently had the effect of making teachers less concerned with issues of classroom control.

The same can be said of teacher certifications, unsurprisingly, since they are typically earned in the same post-secondary programs that lead to academic degrees. The strongest effect was obtained for certification in ESL/bilingual (p=.02, partial eta-squared = .17), although this effect was a third the size of the effects of teaching experience presented above. A statistically significant but somewhat weaker negative effect was obtained for certification in SPED (p=.03, partial eta- squared = .12). Certification in elementary education (general education)

was not a significant predictor, although it could not have been closer to the .05 threshold (p=.06, partial eta-squared =.16). In cautious interpretation, the data indicate that certification in ELL and SPED were associated with decreased emphasis on classroom control, and further studies may reveal a similar effect for certification in elementary education.

6. Discussion

Research on teachers' interactional styles has underscored the broad and deep impacts of interactional-style preferences on student outcomes both academic and non-academic (Archambault et al., 2012; Harlin et al., 2009; Nurmi et al., 2012). But little research has examined how these preferences vary across student populations, or how these beliefs are affected by demographic variables such as teaching experience and educational attainment. Hence, survey research was conducted to examine elementary teachers' beliefs about appropriate interactions with three populations of students (GE, SPED, and ELL), taking account of the influence of 11 demographic variables. In this section we take stock of the findings, beginning with comparisons where no significant effect was obtained, and turning to analysis of significant results.

Absence of Population Effects

Strikingly, the participating teachers did not favor varying their interactional approach according to the population of students being taught. This study revealed no evidence that teachers adjust their emphasis on response, demand, and control according to student population. Few conclusions can be drawn from negative findings, but it seems worthy to ask what might account for this lack of differences. It could be that the manipulation for group assignment was unsuccessful, but the same manipulation was used effectively in prior research (Murphy & Torff, 2019). It's also plausible that beliefs about teaching different populations are to some extent socially scripted, prompting participating teachers to answer in socially acceptable ways; but the same could be said of countless research projects on teachers' beliefs, projects that overcame such problems to produce significant results. The possibility remains that participating teachers discounted student population as a factor in their preferences about interacting with students. In other words, teachers may have supported a pedagogical approach that provides similar treatment for all students. To the extent that this interpretation is accurate, these preferences seem unbiased and egalitarian.

Absence of Effects for Age or Ethnicity

It seems noteworthy that age and ethnicity were unrelated to teachers' ratings of *response*, *demand*, and *control*. Prior research has reported age differences in *response* (Torff & Kimmons, 2020), but that work was done with a sample of secondary teachers; in the present article, elementary teachers produced no age effect. Neither did ethnicity produce significant differences in any outcome variable. Hiring teachers whose ethnicity matches that of the enrolled students remains a priority in many schools, for many reasons, but this study provides no evidence that it influences the way teachers interact with students.

Absence of Effects for *Response* or *Demand*

Additional analyses were focused on the factors that predict scores for *response*, *demand*, and *control*. Remarkably, none of 11 demographic variables had a significant impact on *response* scores, which were unaffected by educational attainment, acquisition of teacher certifications, classroom experience, age, ethnicity, or other plausible predictors. Prior research has reported demographic predictors of *response* with a sample of secondary teachers (Torff & Kimmons, 2020); however, in the present article, elementary teachers produced no such effects. Accordingly, below we recommend future research comparing the interactional-style beliefs of elementary and secondary teachers.

The *demand* variable produced the same across-the-board stability, unchanging with education and experience, or anything else. This stability of *response* and *demand* is unlikely to be an artifact of impoverished measurement, given the satisfactory psychometric characteristics of the TISS instrument in this study and in prior research (Torff et al., 2020; Torff & Kimmons, 2020). Where *response* and *demand* are concerned, the data suggest that the interactional-style preferences with which elementary teachers begin their careers are highly similar to the ones they hold as their careers end. This stability is consistent with a large body of research on human beliefs that demonstrates how robust, independent, and resistant to change beliefs often are (Decker et al., 2015; Torff, 2014; Vacc & Bright, 1999; Yost et al., 2000).

Conflicting Influences on *Control*

At the same time, significant influences on teachers' interactional-style preferences were revealed in this study, all concerned with the *control* component. This variable taps the extent to which the respondent emphasizes classroom discipline in the instructional environment. *Control* was highly dynamic, unlike *response* and *demand*, with numerous significant predictors. The influence of these predictors was split, with some associated with higher *control* scores and others associated with lower *control*.

The first of four factors associated with higher *control* scores was *gender*. In this study, females produced higher *control* scores, relative to other respondents. Prior research with secondary teachers did not produce this result, with male teachers producing similar *control* scores relative to their female colleagues (Torff & Kimmons, 2020; Torff et al., 2020). The effect reported in this study with elementary teachers was not as strong as the effect produced in prior research by secondary teachers, but it was statistically significant. At present, the influence of gender on *control* beliefs remains unclear.

Three additional factors were significant positive predictors of control, all involving teaching experience. Few educators doubt the impact of experience on teachers, but as the *response* and *demand* results reported above suggest, experience does not always make a difference. In terms of *control*, however, experience was a powerful factor, generating large effect sizes rarely seen in educational research. For all three student populations, teaching experience was associated with considerably higher *control* scores. In essence, experience prompted teachers to place greater emphasis on discipline in the classroom, such that more experienced teachers

produced far larger scores. It is noteworthy that these data were collected in an urban setting, and other settings might differ. In the urban schools in which this study was conducted, experience prompted teachers to value classroom management, similarly for all three student populations.

The results also include factors that had the opposite effect – that is, factors associated with lower *control* scores. These factors have to do with educational attainment and teacher certification. Educational attainment was significantly associated with lower *control*, as was certification in SPED and certification in ESL/bilingual. Certification in elementary education (general education) was nearly significant, consistent with the pattern that training-and-certification variables are linked to lower *control* scores.

With teaching experience associated with higher *control*, and training-and-certification variables associated with lower *control*, it's clear that teachers face conflicting forces as their careers proceed. Generally speaking, teacher-education programs tend to place more emphasis on *response* than *control or demand*, given the progressive, student-centered pedagogy favored in many schools of education. Nurturance of the child is an unambiguously laudable goal, but a persistent criticism of these programs holds that inadequate emphasis is placed on classroom management (LePage et al., 2005; Levin & Nolan, 2014). Of course, there are exceptions, but in the main teacher-education programs focus more on *response* than *control*.

Students emerge from these programs to enter the classroom, where they confront the exigencies of modern schooling – e.g., bringing the class to order, organizing and directing activities, supervising student behavior, and dealing with disruptions. It follows that these exigencies prompt teachers to appreciate classroom discipline. Experience is often an effective teacher, and in this case, it seems to teach something different from what new teachers encounter in pre-service education. The participating teachers in this study seem whipsawed between two sets of forces, one facilitating higher *control* and the other prompting lower *control*.

But these forces are not equally strong. While the effect sizes for the factors associated with lower *control* were small to moderate, the effect sizes for factors associated with higher *control* were quite high. The strong effects seem likely to overwhelm the weak ones, so over time it seems probable that teachers' preferences trend in the direction of increased classroom control. This trend is fostered by teaching experience, mitigated in part by teacher education and certification.

Looking Ahead: Comparing Elementary and Secondary Teachers

As noted, in this study elementary teachers produced higher *control* scores as they gained teaching experience, with *response* unchanged. But a prior study found that secondary teachers produced higher *response* scores as they gained teaching experience, with *control* unchanged (Torff & Kimmons, 2020). Such a juxtaposition suggests that grade level – elementary versus secondary – is an influential factor in teachers' beliefs about interactional styles and authoritative teaching. It further suggests a developmental pattern, based on

teaching experience, in which elementary and secondary teachers converge on authoritative teaching from opposite directions.

Perhaps teaching experience prompts elementary and secondary teachers in contrasting ways because each is shaped by experience to move toward an authoritative style that is high in both *response* and *control*. According to this theory, elementary teachers tend to begin their careers with a strong focus on nurturance of the child, and later come to value the importance of setting limits and enforcing rules. They start high in *response*, and stay that way, but over time they learn to prize *control*. In the language of theory and research in interactional styles, elementary teachers begin with permissive style and later develop an authoritative one.

Conversely, secondary teachers tend to begin their careers concerned about the disruptions adolescents can produce, and later come to understand the importance of establishing rapport and offering support. They start as high *control* and remain that way as they learn to value high *response*. In this case, the change is from an authoritarian style to an authoritative one.

In both cases the developmental path, based on teaching experience, results in an authoritative style. But elementary and secondary teachers come from opposite directions to get there. Substantiation for such a theory could come from a study that explicitly compared elementary and secondary teachers using the same variables, instruments, and procedures as those used in the present article.

Targeting Professional Development for Preferred Interactional Styles

A crucial application for research with elementary and secondary teachers concerns how professional development might well proceed. It seems plausible that optimal professional development for elementary teachers might differ from that offered to secondary ones, given their possibly different paths to authoritative teaching. Even if these paths do not diverge as theorized, the present research contributes to a literature with implications for professional development for teachers.

In this article we remain neutral concerning what blend of *response*, *demand*, and *control* is optimal in the classroom; as we suggest below, this seems a fruitful topic for future research. But this neutrality does not extend to schools, where stakeholders including students, parents, teachers, administrators, and others make value judgments concerning the kind of interactionalstyles they favor in their schools. One school may value a highly responsive environment in which teachers go the extra mile to establish rapport with students, listen to them, and address their concerns. Elsewhere a highly demanding academic environment might be prized, one in which arduous and complex assignments are frequent, rigorous assessment is routine, and academic excellence highly valued. And still another school might favor a resolute disciplinary environment, where rules for student behavior are salient, rigorous, and enforced. Schools where authoritative teaching is prized likely press for high levels of all three – response, demand, and control.

For school leaders to create the school environments they value, professional development initiatives can be targeted to promote those ends. Initiating change in *response* and *demand*, the data in the study suggest, involves initiating change not likely to otherwise occur. These

variables were highly stable, and that stability does not bode well for professional development initiatives designed to initiate belief change. What's more, a great deal of theory and research points to the uphill fight professional-development programs face as they attempt to initiate belief change, in teaching or any other profession (Decker et al., 2015; Torff, 2014; Vacc & Bright, 1999; Yost et al., 2000). It appears that initiating change in *response* or *demand* will require an extensive effort, and existing research has yet to document what might make such an effort successful.

Control was substantially more dynamic, but that does not mean desired belief change in this variable is readily fostered. Many professional-development programs have produced mixed results (Darling-Hammond et al., 2017), and programs that aim to change teachers' beliefs share this checkered history (Decker et al., 2015; Richardson & Placier, 2002; Torff, 2011, 2014).

At the same time, strategies for initiating belief change have potential to raise the odds. The first involves discussions, journals, and assignments designed to encourage reflection on existing beliefs, based on the assertion that simply telling people what to believe is rarely effective over the long term (Decker et al., 2015; Vacc & Bright, 1999; Yost et al., 2000). The second strategy initiates detailed analysis of case studies of classroom interactions and curricula for teachers to access examples of rigorous curriculum. A third strategy entails examination of models of best practice wherein challenging activities are directed appropriately to SPEDs and ELLs. Finally, curriculum-writing projects can be crafted to provide challenging curriculum for all student populations. These strategies have potential to help teachers initiate the deep encounters needed for change to take root.

Limitations and Additional Recommendations for Research

Recommendations for future research are offered earlier in this section, which we augment here with additional suggestions, some of which grow out of limitations to the present study. Replication of the procedure used in this study with larger samples could produce different results, since sampling bias varies inversely with sample size, typically. Future studies might well be conducted in communities other than the urban one employed in this project; in particular, studies in suburban and rural areas could produce divergent results, as educational values may vary in these different communities. It seems possible that teachers' preferences about interactional styles might vary depending on community SES; for example, teachers in upper-middle-class schools might have different preferences relative to teachers in less affluent schools. Similarly, teachers' preferences might vary in accordance with the level of academic achievement of the students, such that high- and low-achieving students are thought to require different approaches.

Finally, although the literature on teachers' interactional styles and authoritative teaching is substantial, it remains unclear what blend of *response*, *demand*, and *control* produces optimal academic and non-academic outcomes in schools. It's likely this optimal blend varies depending on school characteristics such as grade level and SES. Future research might well examine how interactional-style beliefs are associated with academic and nonacademic outcomes in a variety of school settings.

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