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A large-scale examination of the nature and efficacy of teachers' practices to engage parents: Assessment, parental contact, and student-level impact[☆]

Anne M. Seitsinger^a, Robert D. Felner^{b,*},
Stephen Brand^a, Amy Burns^a

^a School of Education, University of Rhode Island, Kingston, RI 02881, USA

^b College of Education and Human Development, University of Louisville, Louisville, KY 40292, USA

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Abstract

As schools move forward with comprehensive school reform, parents' roles have shifted and been redefined. Parent–teacher communication is critical to student success, yet how schools and teachers contact parents is the subject of few studies. Evaluations of school-change efforts require reliable and useful measures of teachers' practices in communicating with parents. The structure of teacher–parent-contact practices was examined using data from multiple, longitudinal cohorts of schools and teachers from a large-scale project and found to be a reliable and stable measure of parent contact across building levels and localities. Teacher/school practices in contacting parents were found to be significantly related to parent reports of school contact performance and student academic adjustment and achievement. Implications for school improvement efforts are discussed. © 2007 Published by Elsevier Ltd. on behalf of Society for the Study of School Psychology.

Keywords: Teacher–parent contact; Academic adjustment; Achievement; School improvement

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* Corresponding author. Tel.: +1 502 852 3237; fax: +1 502 852 1464.

E-mail addresses: anneseitsinger@uri.edu (A.M. Seitsinger), r.felner@louisville.edu (R.D. Felner), sbrand@uri.edu (S. Brand), t.dumas@louisville.edu (A. Burns).

Teacher–Parent Contact Scale development

As schools move forward with comprehensive school reform, the roles and responsibilities of key players in the educational system have shifted and been redefined (Conley, 1993; Murphy, 1993). This shift results from the recognition that schools are not solely responsible for the education of students. Rather successful educational outcomes are, in part, a function of effective relationships among the contexts that shape children's lives, particularly between their experiences at home and school (Bronfenbrenner, 1986). School reform efforts have sought to move parents from outsiders to partners in transforming schools, blurring boundaries between school and home, school and community, and faculty and families. Parents are being asked to enter into an educational partnership with schools in a variety of ways, ranging from active school-choice efforts, to governance on school improvement teams, to participation in school events, and support of student learning at home (Epstein, 1995; Haynes & Comer, 1996; Seitsinger & Zera, 2002; Swap, 1993; Vincent, 1996).

The potential importance of creating effective parent–school partnerships is made clear by studies that have shown strong linkages between parent involvement in their child's education and student academic achievement and adjustment (Epstein & Sanders, 2000; Fan & Chen, 2001; Henderson & Berla, 1994; Henderson & Mapp, 2002). Students whose families are more knowledgeable, supportive, and involved in their education perform better academically and exhibit more positive attitudes toward school, have higher expectations, and exhibit more positive behaviors (Clark, 1983 cited in Henderson and Berla; Epstein, 1992). These patterns have been found to hold true regardless of socioeconomic background (Brand & Felner, 1996; Kellaghan, Sloane, Alvarez, & Bloom, 1993), ethnicity (Chavkin & Williams, 1993; Keith & Lichtman, 1994), and marital status (Epstein, 1990). As a result of these and similar studies, major reform efforts have identified parent involvement as an essential component of high performing schools (Hamburg & Takanishi, 1996; Task Force on Education of Young Adolescents, 1989; National Association of Secondary School Principals, 1996; National Middle School Association [NMSA], 1997) and a national priority (Goals 2000: Educate America Act, 1990; No Child Left Behind Act of 2002).

Given this focus on effective parental involvement in their child's schooling, the question that emerges is “what can schools and teachers do to better facilitate and support effective parental involvement?” But, before we can address this question, we need to first define what we mean by parental engagement and involvement. A brief examination of the literature reveals that what is meant by parent involvement and how it is defined and operationalized varies considerably across studies (Fan & Chen, 2001; Jordan, Orozco, & Averett, 2002). Few authors offer a theoretical framework for operationalizing the critical elements of parent involvement in schooling and for developing greater specificity about which actions on the part of parents are most central to enhanced student adjustment and achievement. A notable exception is the framework for parent involvement developed by Epstein (1992, 1995). In her work, Epstein (1995) identifies six types of parent involvement related to schooling: (a) parenting, (b) communicating, (c) volunteering, (d) learning at home, (e) decision making, and (f) collaborating with the community. However, which of these or other types of parent involvement (c.f., Hoover-Dempsey & Sandler, 1997) in education lead to enhanced student achievement, performance, and adjustment is the subject of few studies.

Additionally, a number of factors may influence parental motivation for involvement in their child's education, such as a) their belief that they should be involved and that such involvement will positively effect their child's learning, b) life contexts allow for involvement, and c) responses to outreach efforts from teachers and schools (Hoover-Dempsey et al., 2005; Lawson, 2003). These factors are not fixed, but changeable. Hoover-Dempsey and her colleagues (2005) posed, "schools and important others (family members, social groups) exert significant influence on parents' sense of efficacy for helping their children succeed in school" (p. 109). Investigators reported strong connections between teacher efforts to reach out to parents and parent involvement (Kohl, Lengua, & McMahon, 2002). Outreach efforts from teachers and schools can serve as an important motivator of involvement by establishing a relationship with parents and welcoming their participation and empowering them to communicate with schools (Barton, Drake, Perez, St. Louis, & George, 2004; Hoover-Dempsey et al., 2005).

The literature is less clear about what schools and teachers can and actually do to facilitate such involvement and about which forms of involvement are most effective in improving student learning and development. This question relating to actual practices that may be used by schools and teachers to impact a range of potential aspects of parent engagement is the focus of the current study.

Although communication between teachers and parents may be critical to student success, the actual ways in which schools and teachers engage parents effectively is the subject of few studies (Henderson & Berla, 1994). Most studies of parent involvement have focused on early childhood preschool (e.g., Bronfenbrenner, 1974; Fantuzzo, McWayne, Perry, & Childs, 2004) and elementary levels of schools (e.g., Comer & Haynes, 1991). Even fewer studies have examined parent involvement efforts at the middle school (e.g., Dauber & Epstein, 1993; Epstein & Lee, 1995) and high school levels (e.g., Chavkin & Williams, 1993; Hamburg & Takanishi, 1996). What studies of teacher efforts to involve parents do exist at these levels have often been limited in both the number of schools and classrooms involved (e.g., Grolnick & Slowiaczek, 1994; Lawson, 2003). Additionally, studies that examined parent involvement practices by teachers and schools, in the broader context of school reform (e.g., Comer & Haynes, 1991; Meza, Kennedy, & Teddlie, 1998), typically lack specificity in their identification of more and less effective practices and/or their differential impact on parent and student engagement.

There is yet another limitation in our understanding of how best to prepare teachers and/or advise schools on effective practices to more fully engage parents. That is, in most cases, studies on family involvement and student achievement have relied on student reports about their families (e.g., Clark, 1983; National Center for Education Statistics' High School and Beyond Survey) and/or parent reports of involvement (e.g., Dauber & Epstein, 1993; Eccles & Harold, 1996; Fantuzzo et al., 2004; Mapp, 2002). Few studies have focused on the practices used by teachers or schools to reach out to and involve parents in their children's education (e.g., Becker & Epstein, 1982; Epstein, 1991; Hoover-Dempsey, Walker, Jones, & Reed, 2002). Fewer still have sought to link these examinations of teacher practices to reports on actual student and parent engagement with each other and in communication with the schools as well as with and the outcomes of concern.

The paucity of studies to inform teacher practice and preparation is clearly problematic as schools and public education more broadly seek to create and implement strategies for whole-

school reform that result in ever improving “adequate yearly progress” in academic achievement and overall outcomes for students. Indeed, the need for such a knowledge base is central to the requirement, in the recently reauthorized Elementary and Secondary Education Act (known otherwise as the [No Child Left Behind \(NCLB\) Act of 2002](#)), that teachers and schools employ “research-based” practices that draw on sound “evidentiary bases” as they seek to enhance student achievement, performance and adjustment, and to close equity gaps in those areas. Similarly, teacher preparation programs are also being asked to prepare their candidates in ways that are grounded in such knowledge and that result in the skills to enact those practices.

As investigators move toward addressing the further development of a broader knowledge base on effective teacher and school practices that lead to increasing levels of desirable parent involvement in the schooling of their children, there are several additional issues that need attention. As noted, these include being specific in defining what is meant by parent involvement; about which elements of parent–student–schooling engagement and outcomes are targeted; and being able to provide for a sufficiently broad, extensive, and representative approach that will allow for understanding of practices that may be differentially effective at different developmental levels and across and within very diverse populations of students that schools seek to ensure.

This latter issue relates particularly to the difficulties inherent in obtaining the level and scope of data required to develop a reliable measure of teacher and school parent engagement practices. These include potential limitations on the ability of investigators to (a) collect data from a large and diverse sample of schools and (b) obtain extensive samples of students within buildings. Although studies of parent involvement have often included large samples of students, it must be understood that the actual number of schools involved may be relatively few, and/or the schools may be geographically clustered within only a few districts, with limited variability in students, families, or their life contexts (e.g., urban versus rural settings). When large numbers of schools have been included in studies, as in many of the large-scale assessments from the National Center on Educational Statistics, resources and logistical constraints have led to a tendency to sample relatively small subsets of students with each school to represent each building ([Feuerstein, 2000](#); [Keith & Lichtman, 1994](#); [Sui-Chu & Willms, 1994](#)). Conversely, other investigators have studied parent involvement using relatively full samples of students (i.e., numerous students within a school), but have included a relatively small and restrictive sampling of schools ([Eccles & Harold, 1996](#); [Grolnick & Slowiaczek, 1994](#); [Pfanenstiel, Robinett & Shepard, 2002](#)).

These methodological limitations raise concerns regarding both the degree to which measures of teacher practices to engage parents derived from these samples will provide reliable assessments of parent involvement across schools and grade levels, and the degree to which the practices assessed have consistent impact across settings. To move forward in understanding comprehensive school improvement initiatives, one must examine efforts of parent engagement across large and diverse samples of schools and students such that they are reliable and representative for all schools, teachers, and families.

Given the above issues, in the current paper we sought to draw on lessons of prior studies and move toward the development of a reliable and stable measure of parental contact by teachers in elementary, middle, and high schools that might be used effectively in studies with broadly representative, large-scale samples of teachers, students and schools. As part of the development of this measure, we sought to identify distinct dimensions of teacher and/or

school-based practices that are employed to engage parents in the education of their children and to examine the association of each of those practice dimensions to reports by students, their parents, and teachers of actual experiences in and patterns of parental engagement both overall, and for a series of studies that were undertaken to develop a measure of “teacher–parent-contact practices” (TPCP) for use with teachers in elementary, middle, and secondary/high schools. Further, we also focused on the degree to which such practices by teachers could enhance and radiate to other forms of parental engagement that were either bi-directional with teachers (e.g., attendance at and participation in face-to-face parent teacher meetings) or to direct interaction parents and their students at home during non-school hours.

The current paper draws on a relatively unique data set in terms of its size and scope. Over the past 2 decades, the Project on High Performance Learning Communities (Project HiPlaces) has collected data from more than 2000 schools that serve students in grades pre-k to 12 across 25 states. Project HiPlaces is a comprehensive whole-school research model developed to meet the needs of policymakers and educators for a more complete and practical knowledge base about what works in school reform (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Felner, Shim, Brand, Favazza, & Seitsinger, 2000; Felner et al., 2001). Schools have participated in data collection as part of broader self-study, accountability, and school improvement planning efforts that were initiated or supported by district, state, and/or foundations. Because of the active commitment of schools to the use of the data, response rates have been high and representative of the underlying populations across samples. Staff participation levels, particularly among classroom teachers of core academic subjects, have averaged between 80 and 90% or more per school across years. Student response rates have averaged approximately 90% overall, with over 94% of those students in attendance on the day of survey administration participating and providing usable survey data. Across the three studies presented below, schools, teachers, and students were typically involved with multiple years of data collection, as described in the specific sample descriptions for each study.

In Study 1, we provide a description of the samples, item development, and analyses employed to identify preliminary dimensions of parental contact and to consider the psychometric properties of those identified dimensions. In Study 2, we focus on analyses that sought to replicate and refine the original findings with larger, multiple, and longitudinal cohorts of schools and teachers. These analyses consider data collected across 5 consecutive years, drawing on samples which include 35,000 teachers from urban, suburban, and rural elementary, middle, and high schools across 24 states. We further examine the association of these dimensions of teacher practices employed for parent contact with the reports from both students and parents about actual parental engagement with students to parent reports of teacher and school efficacy in engaging them, and finally to student adjustment, performance, and achievement in Study 3. These reports are from nearly 89,000 students and 45,000 of their parents from elementary, middle, and high schools in the Northeast. More detailed information about these samples is presented below.

Study 1

The focus of Study 1 was pilot work and exploratory analyses for the identification of the factor structure of a psychometrically sound, multidimensional instrument to assess teacher practices employed for parent contact.

Method

Sample and procedure

The sample for this pilot study consists of 1089 teachers from 38 schools that include at least a 7th grade in a Midwestern state. Because of variation in grade configurations participating schools and teachers ranged from those that were K-8s to junior/senior high schools. These teachers were participants in a large-scale longitudinal study of transforming education as part of Project HiPlaces (Brand et al., 2003; Felner et al., 2000, 2001). The percentage and number of teachers at each grade level were: Grade 5 (11%, $n=114$), Grade 6 (40%, $n=433$), Grade 7 (55%, $n=601$), and Grade 8 (53%, $n=577$). The rest of the sample reported they taught students in Grades 4, 9 or 10 (9%, $n=101$). (Percentages do not sum to 100 because teachers reported teaching students in more than one grade.) Of the 1089 teachers in the sample, 808 teachers had complete data on the parent-contact items.

The preliminary Teacher–Parent Contact Scale (TPCS) was administered to teachers as part of a battery of self-report assessments being used for the broader HiPlaces study (Felner et al., 2000, 2001). Participation required voluntary and informed consent. Each teacher completed the measures individually. Teachers were provided time during the school day to complete the surveys at their desks and return them to drop boxes in sealed envelopes. No names were written on the survey and confidentiality of their responses was assured.

Teacher–Parent Contact Scale

The preliminary TPCS was developed to assess teacher contact with parents as part of a series of studies of educational reform and improvement. Items were adapted and developed from several state-level implementation surveys that included teachers at all grade levels (Colorado MGSSPI, 1990; Epstein & Salinas, 1992), the *School and Staffing Survey* of the United States that again included teachers at all grade levels (National Center for Educational Statistics, 1988), and focus groups comprised of school principals and teachers. The preliminary TPCS consisted of 12 items, each of which was rated on a scale ranging from 1 (*never*) to 7 (*daily*). Teachers were asked to report, other than through grade reports, how often they have contact (either in writing, by telephone, or face-to-face) with the families of their students regarding each item.

In addition to items related to practices specific to teacher efforts to engage parents, there were a range of other items included in elements of the teacher and administrator surveys relating to (a) school-level contacts with parents (e.g., how often did they hold regular parent–teacher conferences, how often did parents volunteer/attend school meetings and functions), and (b) how often teachers had contact with parents of individual students. Both sets of these items are employed in the latter studies reported in this paper.

Results

In order to better understand the dimensional structure underlying the strategies and practices teachers used to engage parents, we conducted exploratory factor analysis (Floyd & Widaman, 1995) of the initial 12-item TCPS that emerged from the pilot efforts above. The empirical decision rules applied included the scree test (Cattell, 1966) and the

eigenvalue criterion for the reduced correlation matrix (Harman, 1976). Principal factor analysis with varimax rotation revealed that three factors should be retained. The three dimensional structure that characterized teacher reports of TPCS items included (a) providing information regarding student performance and problems (Student Performance and Problems, 5 items), (b) providing information and suggestions to increase parental involvement in academics (Information and Activities to Increase Parent Involvement, 5 items), and (c) suggestions for connecting with health and community services (Information/Referrals for Health and Social Services Needs, 2 items). These rotated factors explain 49.7%, 9.8%, and 6.5%, respectively, for a total of 66% of the variance explained. With three exceptions, items that loaded on a given dimension of parental contact had loadings greater than .40 on the primary factor and did not cross-load significantly (generally <.30) on any other factor (see Table 1). Two items had nearly equal loadings on two factors, Student Performance and Problems and Information and Activities to Increase Parent Involvement. Two items were dropped based on empirical and conceptual considerations. The item with the lowest loading on Factor 1 and the item with equal factor loadings on Factor 2 were dropped from the TPCS.

Next, confirmatory factor analysis was conducted on these 10 items to examine the fit of the three-factor structure. Hu and Bentler (1999) advised using a two-index presentation strategy including the maximum likelihood (ML)-based standardized root mean squared residual (SRMR) and a supplemental fit index, such as Comparative Fit Index (CFI). A SRMR less than .08 and a cutoff value close to .95 for CFI are needed for a good fit (Hu & Bentler, 1999). The pure factor model in which factors were allowed to correlate with each other and

Table 1
Exploratory and confirmatory factor analysis of teacher–parent–contact practices items

	Factor loading			Standardized path coefficient
	1	2	3	
Factor 1: Student performance and problems				
Student accomplishments	.73	.22	.14	.78
Student academic performance	.73	.26	.21	.77
Student behavior problems	.70	.20	.26	.75
Class activities	.53	.49	.21	.73
Make-up work for student returning from absences	.46	.32	.34	–
Factor 2: Information and activities to increase parent involvement				
Information on the programs and requirements in the grade levels that you teach	.24	.72	.25	.70
Suggestions to parents on how to help students with school work	.47	.55	.27	.79
Homework to do with students	.46	.46	.22	–
Information on talking to students about the importance of school	.29	.44	.37	.67
Using parents as school resources/volunteers	.19	.43	.37	.58
Factor 3: Information/referrals for health and social services needs				
Student referrals for health and social services	.25	.21	.85	.85
Information on the availability of health and social service programs	.20	.32	.73	.85

Note: $n=808$.

SRMR=.05, CFI=.95.

Bold signifies factor loadings greater than .40.

items were permitted to load only on their target factor suggests that the model is a good fit to the data (SRMR = .05, CFI = .95). Results from the standardized solution indicate the items still loaded on the intended factors (see Table 1). Standardized path coefficients ranged from .58 to .85 and items had large effect sizes, ranging from .34 to .73. Factor 1 correlated with Factor 2 ($r = .81$) and Factor 3 ($r = .58$). Factor 2 correlated with Factor 3 ($r = .73$).

Next, we examined descriptive statistics and internal reliability for the resulting scale scores corresponding to each dimension of the TCPS. Each scale score was computed by summing the relevant items. A total Teacher–Parent Contact Scale was also computed by summing all the items from the subscales. All scales were found to have strong internal consistency (coefficient alphas ranging from .78 to .89). Consistent with findings for individual items, scale means were close to the midpoint of their possible ranges, with slight positive skewness ranging from .22 to .68. Overall, the scale scores exhibited substantial variability and were not characterized to a notable degree by either *floor* or *ceiling* effects.

Finally, we computed item-total correlations to establish the internal consistency of the items on each scale. Correlation coefficients ranged from .51 to .73, indicating moderate to strong associations between the items and scale.

Study 2

A primary goal of Study 2 was to confirm the underlying dimensional structure of the TPCS in a larger and more diverse sample of schools. We sought to further examine and establish the internal consistency of ratings across (a) the items that constitute each of TPCP scales, (b) years, (c) building configuration, and (d) school locality.

Method

Sample and procedure

The data collection procedures described in Study 1 were employed in the present study but with a far larger sample of schools. The sample for this study consists of more than 35,000 core classroom teachers¹ who participated in Project HiPlaces (Felner et al., 2000, 2001) during a 5-year period. These data were drawn from over 2000 separate annual school-wide reports from elementary, middle, and high schools that were focused on whole-school integrative reform across 24 states. The schools involved were participating in an array of school reform efforts ranging from foundation-funded initiatives aimed at middle-level recommendations (e.g., *Turning Points*) to schools involved in statewide improvement efforts (e.g., Rhode Island's *School Accountability for Learning and Teaching*). For this study, the annual samples comprising the overall sample consisted of the 2863 teachers from 162 schools who participated in the staff survey in Year 1; 7107 teachers from 420 schools who participated in Year 2; 6305 teachers from 299 schools who participated in Year 3; 10,297 teachers from 729 schools who participated in Year 4; and 8494 teachers from 511 schools who participated in Year 5.

¹ School staff are classified as core classroom teachers if they selected “classroom teacher” as their primary role in the school and indicated that they spent at least 50% of their time teaching mathematics, reading, science, language arts, and/or social studies.

It is also important to note that for a subset of participating schools, we obtained multiple years of data. Of the 162 schools that collected data from teachers in Year 1, 146 schools collected data in Year 2; 135 schools from Year 1 collected data in Year 3; 111 schools from Year 1 collected data in Year 4; and 53 schools from Year 1 collected student data on this measure in Year 5. So the overall sample consists of a number of schools with longitudinal data, as well as new participating schools that joined the Project each year during this 5 year span. Additionally, each year 10–15% of teachers reported they had been employed at their school for less than 1 year and another 20% reported they had been employed at their school for 1 to 3 years. Thus, the teacher populations shifted considerably over time such that they were not completely overlapping.

In addition, we categorized the 511 schools that participated in Year 5 by building configuration and locality. This was the first year a substantial number of schools at each grade level pre-K-12 participated in the Project. Prior to Year 5, schools were primarily at the elementary/middle levels. The percentages of schools by building type in Year 5 were 43% elementary schools, 48% middle-level schools, and 10% high schools (see Table 3). The percentages of schools by locality were 42% urban, 23% suburban, and 35% rural.² Our sample includes an over-representation of urban and rural schools and an under-representation of suburban schools (NCES, 1998a,b).

Teacher–Parent Contact Scale

Based on the work described in Study 1, the 10-item TPCS was employed on which each item is rated on a 7-point scale, summarized on three scales: (a) providing information regarding student performance and problems, (b) providing information and suggestions to increase parental involvement in academics, and (c) suggestions for connecting with health and community services.

Results

Factor analyses

Using the independent sample of core teachers with complete data on the TPCS items ($n=2122$) from Year 1 of Study 2, exploratory factor analysis of the 10 items of the TPCS replicated the three-factor solution. Principal components analysis with varimax rotation, and application of the decision rules verified three factors reflecting parental contact regarding (a) providing information regarding student performance and problems (4 items), (b) providing information and suggestions to increase parental involvement in academics (4 items), and (c) suggestions for connecting with health and community services (2 items). As in the initial study, these rotated factors explain 66% of the total variance.

² Schools were classified by locality using the 1990 Urbanized Area Codes and Names from <http://www.census.gov/geo/www/index.html> and the 1990 U.S. Gazetteer from <http://ftp.census.gov/cgi-bin/gazetteer>. Schools located in cities with populations between 400,000 and 45,000 were coded as urban (central city). Schools located in cities with populations between 25,000 and 45,000 were coded as suburban (urban fringe or large town). Schools located in places with populations less than 25,000 were coded as rural (rural/small town). This categorization conforms to U.S. Bureau of the Census' geographical definitions (1999) and the categories used by the U.S. Department of Education National Center for Education Statistics (1996).

Because the TPCS was initially developed with schools that were restricted to those that included a 7th grade it is important to examine the extent to which the items and scales have similar structure and meaning across the diverse configurations of elementary, middle, and high school grade levels. To address this issue, we utilized a multi-group confirmatory factor analysis to examine the extent to which the same dimensional structure is found for teachers from different grade levels. Analyses were conducted on teachers ($n=1490$ elementary, 2122 middle, and 904 high) who rated all of the items. We tested the assumption that factor loadings were identical across grade levels by comparing the fit of a model in which factor loadings were constrained to be equal across grade levels to a less restrictive model in which factor loadings were allowed to vary across grade levels. The imposition of invariant factor loadings resulted in a small, but statistically significant, decrease in the fit of the model to the data, $\chi^2(20, N=4516)=1063, p<.001$. These results must be interpreted with caution. Given the large sample sizes used in the present study, even small differences in factor loadings between groups may be statistically significant (Hayduk, 1987). The assumption of factorial invariance may be rejected even when the differences in factor loadings is quite small. In the present work, one factor loading differed by .18 between the elementary and high school samples, “Information on talking to students about the importance of school.” All of the remaining factor loadings differed by less than .15; the majority by less than .05. It should also be noted that the fit of the constrained model to the data was quite good (SRMR = .06; CFI = .94), and was almost identical to the fit obtained for the unconstrained model (SRMR = .05; CFI = .95).

Next, we computed internal reliability estimates for each of the five annual samples. As shown in Table 2, all scale scores were found to have strong internal consistency (coefficient alphas ranging from .74 to .91) across the 5 years. In Year 3, “homework to do with students” was added to the Total Teacher–Parent Contact Scale. This item was part of the original set of items, but was initially dropped because it did not load cleanly on only one factor (loadings $>.50$ on Factors 1 and 2). By adding this item to the Total scale and reporting it to schools as a single item, schools are able to measure their efforts on this aspect of communication with parents.

Item-total correlations were also computed to examine the internal consistency of the items on each scale for each year. Correlation coefficients ranged from .56 to .74, indicating moderate to strong associations between the items and scales. The only exception is for the item, “using parents as school resources/volunteers” which tended to have slightly lower item-total correlations, ranging from .41 to .49, across the years.

Table 2
Internal reliability estimates for Teacher–Parent Contact Scale scores across years

Subscale	Coefficient alpha by year				
	Year 1	Year 2	Year 3	Year 4	Year 5
Student performance and problems (4 items)	.82	.81	.81	.81	.84
Information and activities to increase parent involvement (4 items)	.74	.77	.78	.79	.79
Information/referrals for health and social services needs (2 items)	.79	.82	.81	.81	.82
Total (10 items) ^a	.87	.88	.89	.90	.91

^a Total scale includes 11 items after Year 2.

Descriptive statistics and estimates of internal reliabilities at the school level

In addition to computing and examining descriptive statistics and internal reliability estimates at the individual teacher level as above, similar procedures were implemented at the school level for the 511 schools that collected data during Year 5. As noted above, Year 5 was the first year in which a substantial number of schools at each building level participated in the Project. These 511 schools were categorized by building type—elementary, middle, or high; and locality—urban, suburban, or rural.

Multiple analysis of variance (MANOVA) were computed for each building type and locality, separately. The MANOVA by building type revealed statistically significant differences and a moderate effect size (ES) among the three building levels for the three scales and the total TPCS ($F [8, 1006]=31.96 p<.01, ES=.36$). Follow-up analysis of variance (ANOVA) revealed significant differences between the three building levels for each of the scales and the total TPCS. All scale means were highest at the elementary school. Means at the high school level were lowest. The results of the MANOVA by locality indicated no significant differences among the schools for the three scales and the total TPCS ($F [8, 1006]=1.53, p>.10, ES=.01$). Descriptive statistics for each set of schools by building type and locality along with significance tests are provided in Table 3.

Coefficient alphas were computed to examine the internal consistency of each scale at the school level across building type and locality. Coefficient alphas generally ranged from .81 to .97, indicating strong associations between the items and scale and consistency across building type and locality at the building level.

Table 3
Descriptive statistics for Teacher–Parent Contact Scale scores for schools by building type and locality

Subscale	Mean (standard deviation)			df	F	ES
	Elementary	Middle	High			
Student performance and problems	4.48 (.51)	4.22 (.53)	3.20 (.57)	2, 507	119.05***	.32
Information and activities to increase parent involvement	3.47 (.50)	3.24 (.57)	2.38 (.56)	2, 507	83.26***	.25
Information/referrals for health and social services needs	3.00 (.57)	2.86 (.65)	2.02 (.71)	2, 507	48.90***	.16
Total	3.90 (.45)	3.63 (.53)	2.65 (.57)	2, 507	125.43***	.33
<i>n</i> ^a	217	244	49			
	Urban	Suburban	Rural			
Student performance and problems	4.22 (.71)	4.26 (.61)	4.23 (.54)			
Information and activities to increase parent involvement	3.23 (.67)	3.23 (.56)	3.29 (.58)			
Information/referrals for health and social services needs	2.87 (.74)	2.83 (.60)	2.80 (.65)			
Total	3.65 (.67)	3.66 (.58)	3.65 (.55)			
<i>N</i>	219	115	176			

Note: Responses on a 7-point scale: 1 (never), 2 (once a year), 3 (several times a year), 4 (quarterly), 5 (monthly), 6 (weekly), and 7 (daily).

*** $p<.001$.

^a One school did not have complete data for all TCPS scales and thus was not included in this set of analyses.

Assessment of concurrent and divergent validity

A second focus of Study 2 was to begin the assessment of the concurrent and divergent validity of the TPCS. As part of the *HiPlaces Assessment*, there are additional items related to parent-contact practices that are included on the staff survey. First, teachers are asked to

Table 4
Correlation matrices for TPCS and teachers' attitudes toward and practices of parent involvement overall and by building type

Attitudes and practices	M (SD) ^a	Teacher–Parent Contact Scale			
		Student performance and problems	Information and activities to increase parent involvement	Information/referrals for health and social services needs	Total
<i>Year 5 schools (n = 511)</i>					
Attitude toward parent involvement ^b	4.06 (.29)	.35**	.38**	.31**	.39**
Frequency of parent–teacher conferences ^c	2.65 (.80)	.11*	.18**	.18**	.15**
Percent of parents attending conferences ^d	6.11 (2.30)	.39**	.37**	.16**	.39**
Weekly meetings with parents ^e	2.16 (.55)	.42**	.42**	.48**	.46**
<i>Elementary schools (n = 218)</i>					
Attitude toward parent involvement	4.15 (.27)	.03	.15*	.09	.12
Frequency of parent–teacher conferences	2.31 (.56)	.00	.14*	.13	.11
Percent of parents attending conferences	7.39 (2.12)	.17*	.20**	–.14*	.13
Weekly meetings with parents	2.07 (.43)	.24**	.19**	.31**	.28**
<i>Middle schools (n = 243)</i>					
Attitude toward parent involvement	4.04 (.27)	.32**	.32**	.24**	.33**
Frequency of parent–teacher conferences	2.99 (.81)	.29**	.33**	.28**	.31**
Percent of parents attending conferences	5.38 (1.93)	.21**	.16*	.05	.19**
Weekly meetings with parents	2.37 (.55)	.46**	.53**	.47**	.53**
<i>High schools (n = 50)</i>					
Attitude toward parent involvement	3.78 (.34)	.28*	.28*	.31*	.26
Frequency of parent–teacher conferences	2.37 (.88)	.49**	.55**	.52**	.52**
Percent of parents attending conferences	4.21 (1.84)	.41**	.49**	.39**	.45**
Weekly meetings with parents	1.50 (.32)	.72**	.67**	.50**	.66**

report the percentage of students whose parents attended conferences. There are 10 possible response choices: (a) 0–5%, (b) 6–10%, (c) 11–20%, (d) 21–30%, (e) 31–40%, (f) 41–50%, (g) 51–60%, (h) 61–75%, (i) 76–90%, and (j) more than 90%. Additionally, teachers are asked to report how frequently they had regularly scheduled parent–teacher conferences using a 7-point scale: 1 (*we do not have regularly scheduled parent–teacher conferences*), 2 (*once a year*), 3 (*twice a year/each semester*), 4 (*three times a year*), 5 (*four times a year/each quarter*), 6 (*monthly*), and 7 (*more often than monthly*). Teachers also report the number of meetings they have each week with parents to discuss student needs or concerns on an 8-point scale: (a) none, (b) 1, (c) 2, (d) 3–4, (e) 5–6, (f) 7–8, (g) 9–10, and (h) 10 or more. In addition to these three items regarding regularities for meeting with parents, teachers are asked about their attitudes and beliefs toward parent involvement in education. On a scale from 1 (*strongly disagree*) to 5 (*strongly agree*), teachers report their level of agreement with the importance of parent involvement as “essential to effective education in the grade level(s) [they] teach” (Felner, 1997, p. 20).

As the Year 5 sample had the most substantial number of schools at each of the elementary, middle, and high school levels, school-level data ($n=511$) we drew on that sample to examine the association between teacher–parent-contact practices (TPCS) and attitudes toward parent involvement and the frequency of meeting with parents in different ways (i.e., parent–teacher conferences). We examined these associations overall as well as at the elementary, middle, and high school levels separately.

MANOVA by building type revealed statistically significant differences with a large effect size among the three building levels for teachers’ attitudes toward parent involvement and meetings with parents ($F [8, 962]=54.78, p<.001, ES=.53$). Follow-up ANOVAs revealed means were significantly highest at the elementary level. Means were significantly lowest at the high school level. The only exception to this pattern was that the frequencies of parent–teacher conferences were similar at the elementary and high school levels. This is not surprising because most of the elementary schools in the sample were from the same school districts as the high schools where the frequency of regularly scheduled parent–teacher conferences is set by district-level policy.

The patterns shown in the correlation matrices conducted at the school level and reported in Table 4 suggest that, overall, more effort on the part of core teachers in schools to reach out to parents at the school level is positively and significantly related to teachers’ attitudes toward parent involvement, as well as the frequency with which regular and ad hoc conferences are

Notes to Table 4:

* Correlation is significant at the .05 level (2-tailed).

** Correlation is significant at the .01 level (2-tailed).

^a Means between elementary, middle, and high schools statistically and meaningfully significant ($F [8, 962]=54.78, p<.001, ES=.53$).

^b Responses range from 1 (*strongly disagree*) to 5 (*strongly agree*).

^c Responses are 1 (*we do not have regularly scheduled parent–teacher conferences*), 2 (*once a year*), 3 (*twice a year/each semester*), 4 (*three times a year*), 5 (*four times a year/each quarter*), 6 (*monthly*), and 7 (*more often than monthly*).

^d Responses are 1 (0–5%), 2 (6–10%), 3 (11–20%), 4 (21–30%), 5 (31–40%), 6 (41–50%), 7 (51–60%), 8 (61–75%), 9 (76–90%), and 10 (more than 90%).

^e Responses range from 1 (*none*) to 8 (*10 or more*).

held with parents and importantly the percentage of parents who actually attend regularly scheduled conferences. Each dimension of parent contact measured on the TPCS was positively and significantly related to teachers' attitude toward parent involvement, a greater percentage of students' parents attending parent–teacher conferences and higher numbers of weekly meetings with parents. Teacher–parent-contact practices were also weakly, but statistically significantly, associated with the overall frequency with which schools held regular parent–teacher conferences. This relatively weak association may be due to the small variability in the frequency with which schools regularly schedule such conferences; that is, 90% of schools hold regular parent–teacher conferences one to three times a year. Teachers' practices of contacting parents were most strongly associated with weekly meetings with parents to discuss student needs and concerns, indicating that the practices there were self-reported on the TPCS were associated with other indicators of teachers' efforts to engage parents.

At the specific grade levels, these patterns of association are somewhat variable, being less strong at the elementary school level. This may be due to the low variability in attitudes and practices. As indicated in [Table 3](#), elementary schools reach out to parents more often and with less variability across schools than do middle and high schools. Teachers in elementary schools also report higher levels of “buy-in” towards the importance of parent involvement in education. In addition, greater percentages of elementary students' parents attend regularly scheduled conferences.

Teacher–parent contact efforts do seem to make a greater difference in patterns of communication with parents at the middle and high school levels where such communication typically drops below the level of elementary grades. Efforts by teachers in middle schools to reach out to parents are consistently correlated, albeit moderately, with teachers' attitudes toward parent involvement, the frequency of regularly scheduled conferences, and weekly meetings with parents. Most teacher–parent-contact practices showed weak, yet statistically significant, associations with the percentage of parents attending regularly scheduled conferences.

At the high school level, these practices are even more strongly associated with the frequency of regularly scheduled conferences, the percentage of parents attending these conferences, and most notably, the number of weekly meetings with parents. Even though high schools on average reported having fewer meetings a week with parents than elementary and middle schools, this regularity for contacting parents was strongly associated with teachers' and schools' reported efforts to reach out to parents.

This evidence supports the concurrent and divergent validity of the TPCS as a measure of teachers' practices in communicating with parents on a number of issues at the elementary, middle, and high school levels.

Study 3

The primary focus of Study 3 is on the degree to which teachers' and schools' efforts to contact parents, as assessed by the TPCS, were systematically related to (a) parent reports of the adequacy with which the school contacted and engaged them in a variety of areas, (b) the degree to which students reported their parents engaged them in schooling in several different ways, and (c) student academic achievement and adjustment. Of concern in this

work, of course, is whether teacher efforts to contact parents are recognized and reflected in parent reports, linked to actual student–parent interactions, and associated with student adjustment. That is, we were concerned with the predictive validity of the TPCS. Our specific research questions for Study 3 were how are teacher/school efforts to contact parents related to (a) parent reports of school performance in contacting them, (b) student reports of parental involvement at home, and (c) student academic adjustment as well as achievement in literacy and numeracy. In addition, we were interested in examining to what extent, if any, these associations differ by building grade level.

Method

Sample and procedures

Study 3 drew on a broader set of measures from multiple sources. Participants were teachers, students and their parents from all public schools in a state in the Northeast. This state and its schools have participated in Project HiPlaces for more than 6 years as part of its statewide accountability and improvement efforts (Felner et al., 2002). Participation required voluntary and informed consent, with consent for students required from both students and their parents.

All teachers, students, and parents completed surveys in the early part of the Spring Semester. Teachers were provided with time to complete surveys and followed the procedures described in Study 1. Students in grades 4 through 12 completed surveys. To ensure that students' reading ability would not interfere with their ability to answer any survey item, the instructions and individual items were read aloud by the teacher as students followed along and completed the surveys at their desks. Across the multiple years of surveying return rates have averaged in excess of 90% of the students who are present on the day of administration and over 80% of the core teachers in the building. For a subset of students, teachers also provided ratings of students' academic potential and achievement. Parent surveys were sent home by the schools and returned in sealed envelopes. Parent return rates are more difficult to estimate as we only ask for the parent to complete the survey on the oldest child they have in the school. We also ask how many students that have in the particular school. When these calculations are performed (number of surveys \times number of students the parent reports having in the building) the overall number of students represented typically exceeds 80% at the elementary level and 70% of the students at the high school level. However because no individual identifying information was collected it is impossible to be certain about the actual rates of return from parents. School administrators also filled out survey instruments as part of the overall study. The survey data obtained from administrators is beyond the scope of this paper as our focus is on teacher, parent, and student responses and achievement. Still, the full set of data collection procedures is worth noting here as it provides the reader a more complete context for the study.

In addition, student achievement data were collected from student record systems from the State Department of Education. Achievement test scores were available at the individual level for a sub-sample of students and schools. All schools administered tests of academic achievement in grades 4, 8, and 10.

For Study 3, we analyzed reports from 2584 core teachers, 83,844 students in grades 4 through 12, and nearly 45,000 parents from 210 elementary, 49 middle, and 51 high schools

who participated in the Project during one academic year. Given that in excess of a third of the parents returning the surveys reported having 2 or more students in the building (many with 3 or more) the derived return rate of parents was in excess of 80% of the students who participated.

Measures

Teacher Parent Contact Scale (TPCS). Based on the work previously described in Study 1 and 2, the TPCS consists of 12 items, each of which is rated on a 7-point scale. Eleven items are summarized on three scales: (a) student performance and problems, (b) information and activities to increase parent involvement, and (c) information/referrals for health and social services needs. One additional item is included in the total scale.

School contact with parents. The Parent Reports of School Program of All Types of Activities Scale (PRSP; Epstein, Salinas & Horsey, 1994) was used to assess parents' perception of school contact performance. This scale was initially comprised of 17 items to which parents are asked to report on a 3-point scale (1 = *does not do*, 2 = *could do better*, 3 = *does well*) how well their child's school does contacting them regarding each item. Two items were added to this scale to bring the total number of items to 19. They were "This school responds to my concerns and requests within a reasonable time" and "This school helps me talk with my child about health-related issues." Parents completed the scale based on their experiences with their oldest child at the school.

Factor analyses with our sample of the PRSP with the two additional items, employed varimax and oblimin rotations with separate samples of 31,789 parents of elementary students, 8651 parents of middle school students, and 4427 parents of high school students suggest a three-factor structure. Across the grade levels, the three subscales that encompass the 19 items that assess school contact performance are (a) individual student issues (9 items), (b) participation requests (5 items), and (c) general information (5 items). Adequate levels of reliability were found for the scores on this measure at the elementary, middle, and high school levels (r ranged from .72–.86; Seitsinger & Felner, 2004). Although the focus of the factors is highly consistent, the factor structure differs slightly from that reported by Epstein, Salinas and Horsey (1994). Variation may be due to differences in the samples and the number of items included in our work versus the original Epstein and colleagues' study.

Academic adjustment measures. Academic potential. To assess academic potential held by teachers, classroom teachers of core academic subjects were asked to rate each student's academic potential on a 5-point scale (1 = *has the ability to graduate from middle school*, 5 = *has the ability to complete a graduate degree following college*). Our prior analyses found that students reported higher teacher expectations in schools in which teachers' ratings of students' academic potential were significantly higher ($r = .80$; Brand et al., 2003).

Academic expectations. The Academic Expectations Scale for middle and high school students is comprised of 12 items on three subscales. The Student Expectations scale asked students to indicate how likely it is they would attain each of four academic goals on a 1–5 scale (1 = *definitely won't*, 5 = *definitely will*). The Teacher Expectations scale examined

students' perceptions of teacher expectations by asking them to indicate on the same 5-point scale the degree to which their teachers thought that it was likely that the student would reach each of the four academic goals. The Parent Expectations scale examined students' perceptions of parent expectations by asking them to indicate on the same 5-point scale the degree to which their parents thought that it was likely that the student would reach each of the four academic goals. Scores on the Student, Teacher, and Parent Expectations scales were obtained by computing the average of the item ratings. Adequate levels of reliability were found for the scores on the measures (Brand et al., 2003).

The Academic Expectations Scale for elementary students is comprised of 9 of the 12 items from the middle and high school version. Items which ask about making the honor roll next year are not asked at this level, because most elementary schools do not have academic honor rolls. Students are asked to indicate how likely it is they would attend each of the three academic goals on a 3-point scale (1 = *probably won't*, 3 = *probably will*). Adequate levels of reliability were found for the scores on the measures ($\alpha = .80$).

Academic aspirations and efficacy. In order to measure academic aspirations, students at the middle and high school levels were asked to rate on a 4-point scale the importance of high school graduation and college attendance to themselves and to their parents. The individual student's score on the Academic Aspirations scale was obtained by computing the average of the item ratings. To assess academic efficacy, we asked students to respond to five items pertaining to their effort and persistence in performing schoolwork (e.g., "I think that if I tried harder I could do better in school"). Adequate levels of reliability were found for the scores on the measures of aspirations ($\alpha = .78$) and efficacy ($\alpha = .76$; Brand et al., 2003).

Parent–student academic involvement. The Family Learning Environment Scale (FLES; Seitsinger, Brand, Felner, Shim, & Dumas, 2004), is comprised of 13 items, summarized on four scales: (a) building academic/vocational aspirations, (b) help with homework, (c) reward for school work, and (d) educational enrichment activities. Students in elementary schools respond on a scale ranging from 1 (*hardly ever*) to 3 (*often*) on how often their families do each activity with them. Students in middle and high schools respond to these same items using a 4-point scale ranging from 1 (*never*) to 4 (*often*). Adequate levels of reliability were found for the scores on the measures at the elementary and secondary levels ($\alpha = .81$ and $.88$; National Center on Public Education and Social Policy, 2000a,b; Seitsinger et al., 2004). Within each building level, school-level reports on the FLES averaged close to the midpoint of the scale. Academic efficacy, aspirations, expectations, and potential averaged above the midpoint of the scales, although slightly less so at the high school level.

Academic achievement. Teachers reported students' grade point average (GPA) on a 5-point scale (1 = *Mostly D's and below*, 5 = *Mostly A's and B's*) for a sub-sample of students ($n = 34,923$). In addition, student achievement in core academic content areas was assessed using scores on the statewide performance-based assessments in English language arts and mathematics that were administered to all students in grades 4, 8, and 10. For each test, students' performance was scored on a 5-point scale of proficiency, ranging from 1 (*little evidence of achievement*) to 5 (*achieved the standard with honors*). Student achievement data were then aggregated for each school with the percentage of students scoring at each level of proficiency. For our analyses, we used the percentage of students scoring 4 and 5

(*achieved the standard* and *achieved the standard with honors*) for each school with a tested grade.

Results

TPCS and parent reports

Our first set of analyses focused on TPCS and the PRSP. MANOVA was computed for the PRSP by building level to determine if levels of intensity differed by building level. Results indicated that significant and meaningful differences were found among the three building levels overall and the three subscales ($F [8, 608]=56.00, p<.001, ES=.67$). Post hoc analyses revealed means were significantly highest at the elementary level. Means were significantly lowest at the high school level. Thus, parents from the elementary schools reported significantly more positive performance on the part of schools to contact them on all types of activities than did parents from the middle schools, who reported significantly higher contact performance than parents from the high schools.

Also consistent with Study 2, for all types of contact practices the differences between the three building levels were significant with a large effect size ($F [8, 590]=32.67, p<.001, ES=.52$). Post hoc analyses again revealed elementary schools reported significantly higher levels of effort to contact parents than high school and middle schools, which reported significantly higher levels of effort than high schools.

Since we found significant differences in these practices by building level, we examined the relationships between teacher/school efforts to contact parents and parent reports of school performance in contacting them separately by building level. As can be seen in Table 5, the relationships between what schools do to reach out to parents is generally positively related to how parents report their school performs in contacting them. Although there are significant relationships at all levels (e.g., at the elementary and middle-levels teachers' actions to increase parent involvement in the home correlate .27 and .35 respectively), these relationships are strongest at the high school level, where teacher efforts to contact parents are reported to occur least often. It seems clear that the degree to which teachers actually attempt to contact parents using practices in the TPCS, particularly practices that involve parents in academics and provide feedback on student performance, are recognized and reflected in parents' reports of their experiences with schools.

TPCS and academic adjustment

We next examined the degree to which greater effort to contact parents was related to students' academic adjustment in a variety of domains. We examined teacher ratings of academic potential and student reports of academic efficacy and expectations at the elementary, middle, and high school levels, as well as academic aspirations at the middle and high school levels. We analyzed the relationships among these variables and TPCS at the elementary, middle, and high school levels separately controlling statistically for the influence of poverty (e.g., the percentage of students in the building eligible for federally subsidized free or reduced price lunch). We discuss each set of analyses separately.

At the elementary level, virtually all associations were positive. TPCS was most strongly associated with student perceptions of academic expectations. Results indicate that the overall TPCS was most strongly related to students' perception of teacher expectations and overall

Table 5

Correlation matrices for parent reports of school programs and teacher–parent-contact practices overall and by building type

Parent reports of school	<i>M</i> (<i>SD</i>) ^a	Teacher–Parent Contact Scale			
		Student performance and problems	Information and activities to increase parent involvement	Information/referrals for health and social services needs	Total
<i>Elementary schools (n = 203)</i>					
Individual student issues	2.34 (.12)	.13	.13	–.10	.08
Participation requests	2.47 (.22)	.13	.26***	–.17*	.13
General information	2.73 (.12)	.17*	.30**	–.20**	.15*
Total	2.48 (.11)	.17*	.27***	–.19**	.14*
<i>Middle schools (n = 48)</i>					
Individual student issues	2.13 (.12)	.17	.26	–.06	.15
Participation requests	2.12 (.27)	.47***	.42**	–.01	.39**
General information	2.48 (.16)	.24	.25	–.15	.17
Total	2.22 (.13)	.30*	.35*	–.12	.25
<i>High schools (n = 48)</i>					
Individual student issues	1.94 (.18)	.43**	.46***	.44**	.53***
Participation requests	1.92 (.27)	.54***	.53***	.27	.52***
General information	2.31 (.21)	.57***	.52***	.33*	.58***
Total	2.03 (.18)	.60***	.60***	.42**	.64***

Note: Responses on the Parent Reports of School Programs Scale range from 1 (*does not do*) to 3 (*does well*). Responses on the Teacher–Parent Contact Scale range from 1 (*never*) to 7 (*daily*). E=elementary schools.

* $p < .05$; ** $p < .01$; *** $p < .001$. All correlations are 2-tailed.

^a Means between elementary, middle, and high schools statistically and meaningfully significant ($F [8, 608] = 56.00, p < .001, ES = .67$).

expectations ($r = .20, p < .01$; $r = .18, p < .05$, respectively). Providing information and suggestions to increase parental involvement in academics was most strongly associated with student perceptions of parental expectations ($r = .18, p < .05$), teacher expectations ($r = .20, p < .01$), and overall expectations ($r = .20, p < .01$). Providing information regarding student performance and problems was significantly associated with teacher expectations ($r = .16, p < .05$).

For the most part, TPCS and students' academic adjustment were weakly associated at the high school level. Teacher ratings of student potential was more meaningfully associated with providing information and suggestions to increase parental involvement in academics ($r = .27$).

Quite different patterns of association emerged at the middle school level. Virtually all associations between TPCS and academic adjustment were positive and statistically significant. As indicated in Table 6, middle schools' efforts to reach out to parents are statistically strong and meaningfully related to student academic adjustment.

TCPS and parent–student academic involvement

Next, we examined the relationships between teacher efforts to contact parents and students' families involvement in education with them at home at the elementary, middle, and high school levels separately, again controlling statistically for the influence of poverty.

Table 6

Partial correlation^a matrices for teacher–parent-contact practices and student academic adjustment by building type

Student academic adjustment	M (SD)	Teacher–Parent Contact Scale			
		Student performance and problems	Information and activities to increase parent involvement	Information/referrals for health and social services needs	Total
<i>Elementary schools (n = 185)</i>					
Academic efficacy	2.60 (.10)	.02	.04	.06	.01
Academic aspiration ^b	NA	NA	NA	NA	NA
Academic potential	2.67 (.06)	.03	.05	–.07	.01
Self-expectations ^c	2.67 (.06)	.01	.08	.04	.07
Parent expectations ^c	2.71 (.06)	.12	.18*	.05	.14
Teacher expectations ^c	2.51 (.09)	.16*	.20**	.10	.20**
Total expectation ^c	2.63 (.05)	.13	.20**	.09	.18*
<i>Middle schools (n = 48)</i>					
Academic efficacy	3.01 (.10)	.50***	.51***	.37**	.50***
Academic aspiration	3.77 (.06)	.52***	.53***	.30*	.51***
Academic potential	3.50 (.38)	.51***	.56***	.19	.50***
Self-expectations	4.05 (.13)	.49***	.45**	.25	.45**
Parent expectations	4.18 (.14)	.62***	.57***	.35*	.58***
Teacher expectations	3.81 (.17)	.58***	.57***	.31*	.54***
Total expectations	4.01 (.14)	.55***	.55***	.31*	.54**
<i>High schools (n = 47)</i>					
Academic efficacy	2.81 (.08)	.23	.10	–.08	.14
Academic aspiration	3.67 (.10)	.16	.14	–.01	.15
Academic potential	3.51 (.36)	.24	.27**	.09	.20
Self-expectations	3.98 (.15)	.14	.06	–.10	.10
Parent expectations	3.98 (.18)	.08	–.02	–.14	.02
Teacher expectations	3.75 (.18)	.15	.08	–.09	.12
Total expectations	3.90 (.16)	.13	.04	–.11	.09

Note: Responses on the Teacher–Parent Contact Scale range from 1 (*never*) to 7 (*daily*).

* $p < .05$; ** $p < .01$; *** $p < .001$. All correlations are 2-tailed.

^a Partial correlation controlling for the influence of poverty.

^b NA = not asked at this building level.

^c Elementary students respond on a 3-point scale (1 = *probably won't*, 3 = *probably will*); middle and high school students respond on a 5-point scale (1 = *definitely won't*, 5 = *definitely will*).

At the elementary level, TPCS was more strongly associated with building academic/vocational aspirations ($r = .16$, $p < .05$). Contacting parents regarding the availability of health and social services was also related to building academic/vocational aspirations as well as helping with homework ($r = .19$, $r = .16$, $p < .05$, respectively).

At the high school level, the overall TCPS and efforts to provide information regarding student performance and problems were significantly ($p < .05$) associated with family engagement in educational activities at home ($r = .29$ and $.37$, respectively).

At the middle school level, positive and statistically significant associations between TPCS and nearly all aspects of students' perception of their families involvement in their education at home emerged (see Table 7). Middle schools' efforts to reach out to parents are

Table 7

Partial correlation^a matrices for teacher–parent-contact practices and parent–student academic involvement by building type

Family learning environment scale ^b	M (SD)	Teacher–Parent Contact Scale			
		Student performance and problems	Information and activities to increase parent involvement	Information/referrals for health and social services needs	Total
<i>Elementary schools (n = 185)</i>					
Building academic/vocational aspirations	2.03 (.13)	.07	.13	.19*	.16*
Help with homework	2.48 (.10)	.06	.08	.16*	.08
Educational enrichment activities	1.99 (.08)	.06	.12	.08	.09
Reward school work	2.18 (.08)	.08	.08	.06	.11
Total	2.12 (.07)	.08	.13	.14	.14
<i>Middle schools (n = 48)</i>					
Building academic/vocational aspirations	2.85 (.12)	.54***	.53***	.22	.50***
Help with homework	3.13 (.11)	.66***	.69***	.48***	.72***
Educational enrichment activities	2.58 (.12)	.67***	.73***	.36*	.67***
Reward school work	2.97 (.09)	.63***	.68***	.34*	.64***
Total	2.83 (.09)	.70***	.73***	.38**	.70***
<i>High schools (n = 47)</i>					
Building academic/vocational aspirations	2.72 (.11)	-.21	-.03	-.22	-.17
Help with homework	2.50 (.12)	-.06	.01	-.13	-.05
Educational enrichment activities	2.23 (.21)	.37*	.21	.06	.29*
Reward school work	2.55 (.13)	.14	.22	-.01	.17
Total	2.56 (.11)	.03	.11	-.11	.04

Note. Responses on the Teacher–Parent Contact Scale range from 1 (*never*) to 7 (*daily*).

* $p < .05$; ** $p < .01$; *** $p < .001$. All correlations are 2-tailed.

^a Partial correlation controlling for the influence of poverty.

^b Elementary students respond on a 3-point scale (1 = *hardly ever* to 3 = *often*); middle and high school students respond on a 4-point scale (1 = *never* to 4 = *often*).

statistically strong and meaningfully related to parent–student academic involvement at home.

TCPS and student achievement

Next, we examined the relationships among schools' efforts to contact parents and teacher ratings of student performance and student achievement in literacy and numeracy. Once again we statistically controlled for the influence of school-level poverty. We found no statistically significant relationships at the elementary school level (see Table 8).

At the middle school level, students' GPA was negatively, and in most cases significantly, related to TPCS (correlations coefficients ranged from $-.23$ to $-.48$). Our

Table 8
 Partial correlation^a matrices for teacher–parent-contact practices and student achievement by building type

Academic achievement	Teacher–Parent Contact Scale			
	Student performance and problems	Information and activities to increase parent involvement	Information/referrals for health and social services needs	Total
<i>Elementary schools (n = 184)</i>				
Academic performance ^b	.09	.02	.07	.08
Reading basic understanding	.03	.10	.07	.10
Reading analysis and interpretation	.02	.06	.05	.07
Writing conventions	–.05	.03	–.03	–.01
Writing effectiveness	–.06	.02	–.03	–.01
Mathematics skills	.04	.04	–.02	.05
Mathematics concepts	.02	–.03	–.06	.01
Mathematics problem solving	.02	–.05	–.03	–.01
<i>Middle schools (n = 41)</i>				
Academic performance	–.48***	–.38**	–.23	–.40**
Reading basic understanding	.15	–.10	.05	–.04
Reading analysis and interpretation	–.14	–.17	.07	–.09
Writing conventions	.20	.15	–.03	.17
Writing effectiveness	.26	.19	–.01	.25
Mathematics skills	.25	.34*	.02	.34*
Mathematics concepts	.09	.08	–.19	.09
Mathematics problem solving	.12	.20	–.12	.16
<i>High schools (n = 43)</i>				
Academic performance	–.1	–.1	–.01	–.04
Reading basic understanding	.35	–.31*	–.40**	–.42**
Reading analysis and interpretation	–.30	–.26	–.38*	–.38*
Writing conventions	–.13	–.32*	–.36*	–.29
Writing effectiveness	–.18	–.10	–.23	–.24
Mathematics skills	–.06	–.23	–.34*	–.24
Mathematics concepts	.09	–.13	–.24	–.12
Mathematics problem solving	.14	–.03	–.19	.06

Note: Responses on the Teacher–Parent Contact Scale range from 1 (*never*) to 7 (*daily*).

* $p < .05$. ** $p < .01$. *** $p < .001$ All correlations are 2-tailed.

^a Partial correlation, controlling for school-level poverty.

^b Teacher rating of GPA; responses on a 5-point scale (1 = *Mostly D's and below*, 5 = *Mostly A's and B's*).

prior research indicated that students who reported higher frequency of family rewards for school work received lower grades than their classmates (Brand & Felner, 1996; Seitsinger et al., 2001). This may be due to a tendency of middle schools to more often contact parents of students who may be having difficulty in school. However, academic performance in mathematics skills was positively and moderately associated with school efforts to contact parents ($r = .34$, $p < .05$).

The patterns that emerged at the high school level showed an even more consistent association between TPCS and negative levels of student academic achievement, especially in literacy. High schools with smaller percentages of students achieving the standard on the statewide assessments in literacy and numeracy reported more frequent efforts to contact

parents, again making it appear that, at least the direct, rather than mediated relationship between teacher efforts to engage parents and student achievement is such that when students have greater academic needs, whatever their socioeconomic status, teachers are more often making significant efforts to inform and engage them.

Discussion

Parent involvement in education has been identified as an essential component of high performing schools, yet the specific practices that schools and teachers employ to better facilitate and support such involvement, in the context of comprehensive whole-school improvement, has been the subject of few studies, particularly few large-scale studies. As a next step in the enhancement of this research base, the present work was conducted to help create a set of indices and scales for efficient assessment and further study of these practices. That is, we sought to: (1) Develop a reliable and stable measure of parent-contact practices in schools that broadly represent teachers and schools across building levels and localities; (2) As part of that work we sought to begin to clarify the relationships between these parent-contact practice dimensions and reports from teachers, students, and parents relating to teacher beliefs, student academic adjustment, parent engagement in the school and with their child at home in schooling, and finally, student academic achievement. Additionally, we sought to understand how these practices may be differentially implemented and related to the target variables of concern at different grade levels. Because of the uniquely large number and diversity of schools sampled in the present work, as well as the dense sampling of students within schools, we were able to address these concerns. More specifically, we were able to (a) investigate the underlying dimensional structure of a measure of parental contact by teachers, (b) examine the consistency of the measure over time, and (c) examine the concurrent and predictive validity of the measure.

The results of exploratory and confirmatory factor analyses in Study 1 and Study 2 identified three discrete dimensions that characterize sets of strategies that teachers typically employ to engage parents at the classroom level. The dimensions identified represent the items retained in the TPCS and include teacher efforts that fall into the broader domains of their practices employed to: (a) provide information to parents regarding student performance and problems (Student Performance and Problems), (b) provide information and suggestions to increase parental involvement in academics, particularly at home (Information and Activities to Increase Parent Involvement), and (c) provide for necessary connections with health and community services (Information/Referrals for Health and Social Services Needs).

The robust dimensional structure of the TPCS was replicated across multiple samples of core classroom teachers and across building/grade levels. It was found to possess high levels of internal consistency across items, building type, and locality, and to exhibit stability over time. The three dimensions of the TPCS align closely with several types of parent involvement posited by Epstein (1995).

The findings of Study 2 also revealed that across building levels clear patterns of association were present between the rates at which teachers engage in practices to involve parents and the actual percentage of students' parents who then attend regularly scheduled conferences. That is, these data suggest that the more often teachers reach out to parents, at all grade levels, the more often parents are more likely to make reciprocal efforts to engage

with schools, across all socioeconomic levels. Additionally, it appears that heightened levels of efforts by teachers to engage parents, as reflected on the TCPS are also “symptomatic” of broader dispositions by those teachers to engage parents. Teachers who report more often engaging in TPCS practices also both more strongly endorse the importance of parental contact and, critically, engage more often in other strategies to inform and communicate with parents. So, for example, the frequency of use of the TCPS practices was positively associated with teachers reporting that they more often sought and held non-regularly scheduled conferences with parents.

The above patterns suggest that at least some of the variation in parental involvement across schools, within-grade levels, may be a function of the degree to which teachers in those schools actually systematically work on such engagement. Importantly for those concerned with developing more effective reforms at the middle and secondary level, the data also suggest that the declines in parental engagement often seen as students move up through the grades is neither inevitable nor fully a function of developmental issues or parental declining interest. Instead the data in Study 2 show that there are differences between grade levels in how often teachers contacted parents, with the declines over grade levels being both statistically significant and dramatic when we consider the actual levels of efforts by teachers to contact parents on a regular basis from their classrooms. On average, teachers in elementary schools reported that they contacted parents at least monthly, with a large minority of buildings exceeding those levels. By contrast, teachers at the middle schools reported that typically they reached out to parents in ways reflected on the TCPS and for ad hoc weekly conferences no more than quarterly, and high schools teachers engaged in such practices even less often, on average roughly two to three times a year. Hence, what is very clear is that when there is a level of decline in the focus of teachers, across grade levels, on reaching out to parents, it is mirrored by the decline in parent involvement that has been frequently cited in the literature and raised as of significant concern by Hamburg and others (Hamburg & Takanishi, 1996). That such declines in parental engagement may not be unavoidable, at least to the extent they currently emerge, is suggested by our within-grade-level analyses. These analyses reveal that at all grade levels, even more advanced ones where there are relatively lower intensities of such efforts, when teachers more often work on engaging parents, then parents and students report heightened levels of engagement with each other in school related-activities at home and parents and teachers report better attendance at school conferences.

Another important focus of the current work was to address the paucity of studies that have linked teacher and/or school reports of parent involvement with converging sources of data reports, such as other key stakeholders (e.g., parents and students). Of particular concern were the patterns of associations that among specific strategies employed by teachers to engage parents, and the differential student and parent experiences and outcomes of concern in Study 3. In this work we found that parents reported both higher and more effective levels of school contact as measured by PRSP at the elementary school level than at the middle and high school levels. Here again parental reports of the efficacy with which schools reached out to them were consistently correlated with teacher reports of the levels of practices they engaged in as assessed by the TPCS, particularly at the high school level. Clearly, across levels of schooling when teachers work more often to engage parents on TCPS dimensions, parents recognize and report more successful and satisfying experiences.

For those concerned with factors that may influence the levels at which teachers reach out to parents, a clear if unsurprising finding of the current work is that teachers' beliefs may play a strong role. But, importantly, our work also reveals that structural/organization conditions in the building, at latter grade levels, may also play a critical role. Teacher attitudes toward parent involvement at the middle school level as well as their practices were more similar to teachers at the elementary school level than to high schools. These middle schools, in many cases, had reorganized in important ways that may have allowed their teachers to reach out to parents at levels similar to elementary schools (Felner et al., 2001). That is, the structure in elementary schools is such that one teacher is usually responsible for teaching a small number of students (e.g., approximately 25 students) for most of the day. By contrast, traditional junior high and high schools have typically been organized so that teachers may be responsible for instructing 150 or more students each day often with little systematic overlap among teachers. School reform models for middle and secondary grades (Felner et al., 2001; Task Force on Education of Young Adolescents, 1989) call for large impersonal schools to be reorganized into teams of teachers and students, usually about 100–120 students or less shared by 4–5 teachers. Teaming is an organizational structure that allows teachers, among other benefits, to better know their students and their families. High schools, along with middle schools, are beginning to adopt similar personalizing structures based on national and state recommendations (e.g., National Association of Secondary School Principals, 1996; Rhode Island Board of Regents for Elementary and Secondary Education, 2003). When one teacher has instructional responsibility for such a large number of unduplicated students, as in traditional junior and senior high schools, maintaining regular communication with each student's family may be impractical. Yet, in our study, we saw that when schools and teachers are reorganized to facilitate systematic efforts to reach out to parents, increases in levels of such practices actually do accrue. Implementing more personalized structures at the later school levels may help address issues of declining parental contact by teachers and associated declines of parental engagement in the education of their children.

Levels of TCPS practices were also found to be linked to actual levels of student school experiences, adjustment and achievement. Illustratively, when middle school teachers do more often reach out to parents, students' levels of academic adjustment were significantly better as reflected by students reporting higher levels of academic efficacy, aspirations and expectations. They also reported their families were more engaged in supporting their education. Teachers also reported viewing those students who self-reported higher levels of academic adjustment as having higher academic potential. Hence, when schools do systematically use research-based practices such as those on the TCPS, it does seem to make a difference for the quality of students' experiences in school and at home.

The negative association between student achievement levels, at the school level, and TCPS practices is not surprising, particularly in the later grades. There are at least two issues at work here that may underlie these patterns. Recall there is an overall decline in parental involvement levels, and TCPS practices, across grade level, to levels that are very infrequent by the high school grades. Somewhat surprisingly even these low levels of TCPS practices appear to make a difference in student adjustment levels and experience in schools, that have previously been shown to link, positively, to student achievement. But, these levels may not have reached levels of intensity that are required to enhance student experiences to the point where they can compensate for initially lower preparation and

achievement when they reach these grades. The “third variable” here appears to be that, particularly in schools where teachers reach out to parents relatively infrequently as part of regular practice, they are more likely to attempt to reach out to parents of students who are having greater difficulties in terms of achievement. In subsequent studies, where we are able to follow individual students over time, it will be important to clarify the levels at which TCPS practices become sufficient to either directly, or through pathways mediated by their impact on student experiences and parent engagement at home, to actually result in gains in student achievement. Such understandings may be important contributors to efforts to close gaps in achievement scores among groups of students as well as for guiding efforts to address efforts to enhance to achievement of individual students.

As schools work to make adequate yearly progress, they need the support of all parents. To be effective partners, parents need to know what is happening in schools and what is expected of them at home so they can create a supportive learning environment that ensures success for all students (Conley, 1993). The Teacher–Parent Contact Scale of the *HiPlaces Assessment* (Felner, 1997; Felner et al., 2001) provides schools with a reliable, valid, and useful instrument of teacher and school practices regarding contact with parents as part of their school improvement efforts. Knowledgeable and involved parents are critical to student success (Epstein & Sanders, 2000; Fan & Chen, 2001; Henderson & Berla, 1994; Henderson & Mapp, 2002). By providing families with information about their children, ways to engage with the students in schooling, and about the availability of health and social services, teachers and schools can help parents better support their student’s learning. The use of this measure as part of a school improvement assessment may lead to a better understanding of schools’ current efforts to engage parents and progress in this area. The specific practices measured by the TPCS provide a useful guide for schools in their efforts to increase parent involvement. The current work may also be useful to teacher preparation efforts in helping to focus and clarify more specific practices that can be incorporated into preparation efforts that better prepare new and continuing teachers in how to reach out to parents in their own, individual work.

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