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Mothers' Work-to-Family Conflict and Children's Academic Achievement:
Do School Involvement and Work Status Matter?

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A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Science

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ABSTRACT

Mothers' Work-to-Family Conflict and Children's Academic Achievement: Do School Involvement and Work Status Matter?

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Structural equation modeling was used to explore associations between maternal work-to-family conflict, maternal involvement in schooling, and academic outcomes in early adolescents. Among a subsample of 725 fifth graders (and their employed mothers and teachers) from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD), multigroup analyses were used to explore differences in this relationship between groups with mothers working part-time versus full-time. Results revealed that among part-time employed mothers maternal involvement in school fully mediated the relationship between maternal work-to-family conflict and fifth graders' academic achievement. For full-time employed mothers, maternal work-to-family conflict was not related to maternal involvement in school or academic outcomes. These findings suggest that mothers' involvement in school may be an important way in which negative outcomes of work-to-family conflict may be minimized. Prior research has not investigated the associations between work-to-family conflict and child outcomes. The present study suggests a need to further understand how aspects of the work-family interface relate to children. Further, results suggest a need to better understand the differences in the work-family interface between families where mothers are employed part-time versus full-time.

Keywords: maternal employment, work-family conflict, parent school involvement, academic achievement, grades, part-time employment

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Mothers' Work-to-Family Conflict and Children's School Achievement:

Do School Involvement and Work Status Matter?

In the last several decades the incidence of paid work among mothers has increased (U.S. Department of Labor, Bureau of Labor Statistics, 2011, 2012). In 1975, 47.4% of mothers participated in the labor force compared with 70.6% of mothers with children under age 18 were working or looking for paid work in 2011 (U.S. Department of Labor, Bureau of Labor Statistics, 2011; U.S. Department of Labor, Bureau of Labor Statistics, 2012). Further, levels of work-family conflict significantly increased between 1977 and 1997 (Nomaguchi, 2009). In light of these trends, researchers have focused on understanding how maternal employment, including work-to-family conflict, may affect maternal well-being. Researchers have also invested resources in understanding the effect of maternal employment on children's academic achievement (Goldberg, Prause, Lucas-Thompson, & Himsel, 2008), with some evidence that maternal employment hours may impact maternal involvement in children's schooling (Buehler & O'Brien, 2011) and further evidence supporting the important role maternal school involvement plays in children's academic success (Fan & Chen, 2001).

Despite such research on the effects of maternal employment hours on maternal involvement in child schooling, or on child academic achievement, scholars have not examined maternal work-to-family conflict in relation to maternal school involvement or child academic outcomes. However, work hours alone may have less impact on children than the work-to-family conflict mothers are experiencing. By simply looking at work hours, researchers may be missing an important aspect of the way the work-family interface impacts childrearing and child outcomes.

The purpose of this study is to investigate the relationship between maternal work-to-family conflict and child academic outcomes in early adolescence. Understanding the factors contributing to school achievement among children is important because early achievement has been linked with later achievement in school (Chen, Lee, & Stevenson, 1996; Entwisle & Hayduk, 1988; Jimerson, Egeland, Sroufe, & Carlson, 2000). In particular, early adolescence is a pivotal time in children's development as they are preparing to transition into middle school.

Further, this study aims to understand potential mechanisms that could explain a relationship between work-to-family conflict and child academic outcomes. In particular, mothers' involvement in school may be an important pathway by which work-to-family conflict impacts early adolescents' academic achievement. Mothers' employment status (full-time vs. part-time) may also moderate these processes. By investigating work-to-family conflict and children's school achievement, this paper aims to better understand the work-family interface as it relates to maternal school involvement and children's academic success.

Background

Theoretical Foundations

Two theories informed this research: ecological systems theory and role theory. According to Bronfenbrenner's (1986) ecological systems theory, individuals develop within the context of several environmental systems including the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. In the case of the work-family interface, parents' work environments and the family are each part of systems affecting children's development. This perspective suggests that parents' work—an exosystem—affects child development through its influence on family processes (Bronfenbrenner, 1986). In other words, the experiences parents have at work are likely to impact their interactions with children at home, thereby influencing the

children themselves. Additionally, this perspective suggests that parental involvement in school links home and school life thereby forming a mesosystem, which affects child development (Bronfenbrenner, 1986).

Further, role theory posits two competing perspectives relevant to the work-family interface. On the one hand, role strain suggests that individuals experience conflict and stress as they attempt to meet the demands and responsibilities of multiple roles (Goode, 1960). Ultimately, time spent fulfilling the duties of one role takes away from the time available for another role, and stressors associated with one role negatively impact performance in another role (Greenhaus & Beutell, 1985). In the case of working parents, time spent on paid work is time away from family and household responsibilities and vice versa; additionally, stress created at work affects interactions at home and vice versa.

On the other hand, role enhancement proposes that participation in one role brings about rewards and privileges that enhance performance in another role (Marks, 1977; Voydanoff, 2002). For example, praise given at work may increase psychological well-being, which in turn improves parents' interactions with their children at home. Similarly, positive interactions at home may increase self-efficacy thereby improving productivity in the workplace. Being an employee and being a parent both require significant amounts of time and energy. Similar to Buehler, O'Brien, and Walls (2011), it is important to understand the relationship between these competing roles, whether one of conflict or enhancement, and how it affects children in the home.

Empirical Foundations

Maternal employment and work-to-family conflict. Researchers have studied maternal employment in relation to several child outcomes. While it is not the purpose of this study to

examine all of the ways maternal employment may or may not impact children, it is beneficial to acknowledge that characteristics related to the mother's workplace, such as work hours and work schedule, may influence the effects of maternal employment on child outcomes. Goldberg et al. (2008) conducted a meta-analysis covering 45 years of research and found evidence that children whose mothers work part-time tend to have higher achievement outcomes compared to children whose mothers work full-time.

Buehler, O'Brien, and Walls (2011) reviewed the literature on cognitive and socioemotional outcomes for children of mothers with various work statuses. Similar to Goldberg et al. (2008), few differences were found in child achievement outcomes when comparing non-employment and part-time employment in mothers; however, maternal full-time employment had more negative outcomes for children than maternal part-time employment (Buehler, O'Brien, & Walls, 2011). Further, Li et al. (2012) reviewed the literature on nonstandard work schedules and found that nonstandard work is consistently associated with poorer mental health, increased behavioral problems, poorer cognitive development, and greater obesity among children.

While prior research has used maternal work hours to explain the association between maternal employment and child outcomes, role strain theory might suggest that the relationship between maternal employment and child outcomes can be better explained by work-to-family conflict. Heightened work-to-family conflict may exacerbate role strains for some mothers, spilling over into their parenting and into subsequent child outcomes. Other mothers may not experience much work-to-family conflict, meaning the employment experience may have little effect on a mother's role when work-to-family conflict is absent. Despite the abundance of research on maternal employment and various child outcomes and the prevalence of work-to-

family conflict among the United States labor force, no empirical research linking work-to-family conflict and child achievement outcomes could be found. Researchers have established that work-to-family conflict is associated with negative outcomes among parents (Allen, Herst, Bruck, & Sutton, 2000). Consistent with Bronfenbrenner's ecological theory, it is plausible that the negative effects of work-to-family conflict extend beyond mothers themselves to children. The present study helps address this gap in the work-family literature.

Linking work-to-family conflict to child outcomes: School involvement as a possible mediator. As suggested by ecological systems theory, one possible mechanism by which maternal employment and work-to-family conflict may affect child academic outcomes is through family processes such as maternal involvement in schooling (Bronfenbrenner, 1986; Buehler & O'Brien, 2011; Muller, 1995; Youn, Leon, & Lee, 2011). While work-to-family conflict has not been studied in relation to child academic outcomes, maternal work hours have been associated with school involvement (Buehler & O'Brien, 2011; Muller, 1995). Multiple studies have also established a link between parental school involvement and academic outcomes (*e.g.*, Fan & Chen, 2001; Hill & Tyson, 2009; and Jeynes, 2005). Additionally, Youn, Leon, and Lee (2011) investigated the relationship between maternal work hours, parental involvement in school, and students' learning growth in school. Full-time employment was associated with lower rates of school involvement, which negatively impacted learning growth in math and science (Youn, Leon, & Lee, 2011). Taken together, these studies establish a relationship between work hours, school involvement, and academic outcomes. This suggests that exploring pathways from maternal work-to-family conflict to maternal school involvement and to child academic outcomes is an important next step in this literature.

Work status: part-time versus full-time. Role theory suggests that working mothers may experience conflict or enhancement due to their involvement in multiple roles. Using Study of Early Child Care and Youth Development (SECCYD) data, Buehler and O'Brien (2011) found that mothers working part-time experienced less work-to-family conflict than those working full-time. They also found that school involvement was higher for mothers employed part-time as opposed to full-time (Buehler & O'Brien, 2011). Mothers experiencing role strain, particularly those in full-time work arrangements, may lack the time and the energy needed to be fully involved in their children's schooling. Those who experience high levels of role strain may struggle to communicate with their children's teachers, to spend time volunteering at school, to encourage positive attitudes towards education in their children, or to be involved in their children's education for several possible reasons. Mothers might experience scheduling conflicts between work and volunteer opportunities at school. Mothers may miss school events that foster communication between teachers and parents (*e.g.*, parent-teacher conferences). Mothers may come home after homework has been completed, thereby missing an opportunity to be involved. Or mothers may simply lack energy after a long day at work and forgo a trip to the library or museum to enrich their children's education.

Part-time work arrangements may be an adaptive solution whereby mothers can gain some economic benefit while at the same time achieving more time for family and personal activities (Buhler, O'Brien, & Walls, 2011). Indeed, role enhancement theory supports this notion that maternal employment, particularly part-time employment, may be beneficial. Such work arrangements may help reduce mothers' work-to-family conflict thereby increasing their ability to be involved in their children's education (Hill, Märtinson, & Ferris, 2004).

The Present Study

The purpose of the present study is to investigate the relationship between work-to-family conflict, maternal involvement in school, and academic achievement in early adolescents. Further, this study aims to test whether maternal work status (part-time versus full-time) moderates the effects of these variables. Based on established theory and literature, this study hypothesizes the following (see Figure 1):

- (1) Work-to-family conflict will be negatively associated with early adolescents' academic achievement outcomes.
- (2) The relationship between work-to-family conflict and early adolescents' academic achievement outcomes will be mediated by maternal school involvement.
- (3) Work status (part-time versus full-time) will moderate the relationships between maternal work-to-family conflict, maternal school involvement, and early adolescents' academic outcomes.

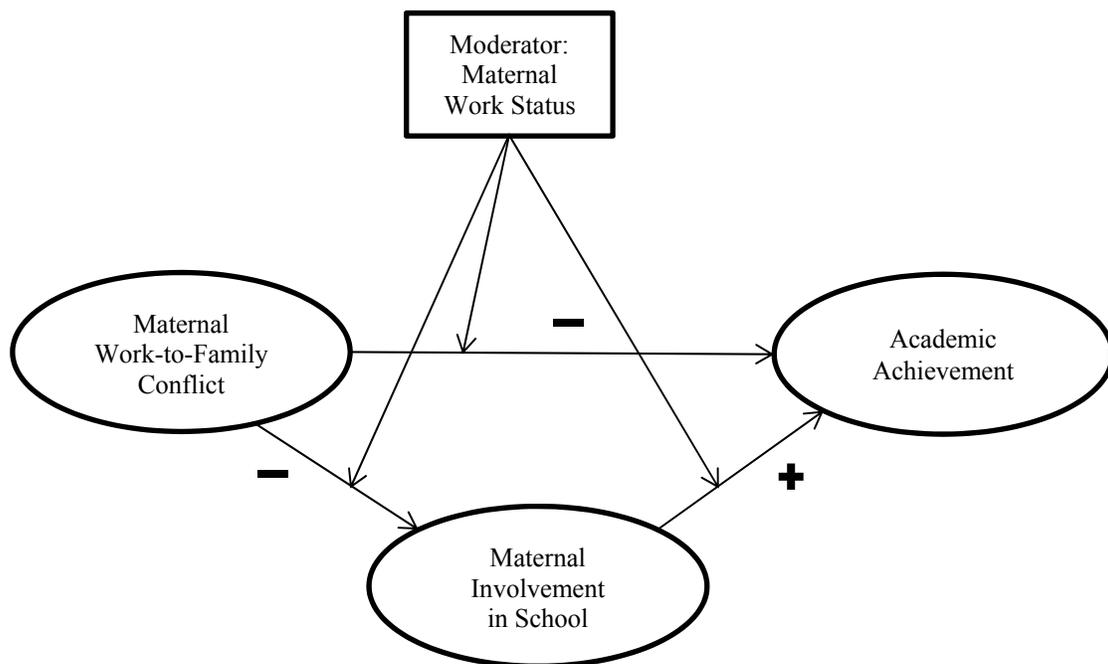


Figure 1. Conceptual Model, Showing the mediation of maternal work-to-family conflict and child academic achievement by maternal involvement in school. Also showing moderational process of maternal work status.

Method

Participants

The sample for this study is a subset of the larger sample in the longitudinal *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD), a study intended to investigate the relationship between child care experiences and characteristics and children's developmental outcomes. The NICHD SECCYD participants were recruited from hospitals in 10 geographic locations around the United States. These participants were demographically similar to the families in the catchment areas though the sample was not representative of the overall United States population (see Early Child Care Research Network [ECCRN], 2001 for a more complete description of sampling procedures).

Data from Phase III when the target child was in fifth grade were used in this study because this is an important transition period in childhood during which children are preparing to enter middle school. Further, work-to-family conflict data were not collected at later time periods. Although the NICHD SECCYD is longitudinal, longitudinal analyses were not conducted as work-to-family conflict has typically shown contemporaneous effects. For the purposes of this paper, the sample was restricted to children whose mothers were working and had a marital status of single, partnered, or married ($n = 725$). Of the children in this subsample, 49.4% were female and 79.7% were White, non-Hispanic. On average mothers completed 14.7 years of education ($SD = 2.4$), with 75.4% of mothers completing more than a high school education. (See Table 1.)

Table 1 Means, Standard Deviations, and Factor Loadings for All Measured Variables for Full Sample

Latent Variables	Mean or %	SD or <i>n</i>	Factor Loadings
Maternal Work-to-Family Conflict			
Creates strains for your children	1.81	.74	.71
Leaves you with too little time	1.93	.92	.84
Causes you to miss out on rewarding aspects	1.95	.91	.76
Leaves you with too little energy	1.92	.89	.88
Have to miss out on home or family activities	1.76	.88	.71
Family time is less enjoyable and more pressured	1.67	.83	.75
Maternal Involvement in School			
Can talk to and be heard by this parent	3.98	1.00	.68
Parent has the same goals for child as school	4.13	.99	.79
Encourages positive attitude toward education	3.81	1.17	.87
Parent volunteers or visits at school	2.50	1.31	.61
Involved in child's education and school life	3.73	1.17	.92
Academic Achievement			
Reading	3.60	1.10	.87
Oral Language	3.63	.97	.87
Written Language	3.36	1.07	.85
Math	3.50	1.07	.84
Science	3.57	.93	.88
Social Studies	3.55	.94	.87
Control Variables			
Child Gender			
Male	50.6	367	
Female	49.4	358	
Child Ethnicity			
White non-Hispanic	79.7	578	
Other	20.3	147	
Maternal Education			
High School or less	24.6	178	
Some College	34.3	172	
College Graduate	41.1	298	
Family Income-to-Needs Ratio	4.57	3.49	
Marital Status			
Married or Partnered	83.7	607	
Single	16.3	118	

Notes. *n* = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time.

Measures

The key measures in this study were maternal work-to-family conflict, maternal involvement in school, child academic achievement outcomes, and maternal work status. All measures were taken at the fifth grade mark except maternal education, which was only available when the study children were one month old.

Maternal work-to-family conflict. Mothers completed a questionnaire adapted from Marshall and Barnett (1993) measuring the strains and gains associated with combining work and family. A latent construct was created representing work-to-family conflict using six items. Items included, "Your working creates strains for your children," "Working leaves you with too little time to be the kind of parent you want to be," "Working causes you to miss out on some of the rewarding aspects of being a parent," "Working leaves you with too little energy to be the kind of parent you want to be," "Because of the requirements of your job(s), you have to miss out on home or family activities that you would prefer to participate in," and "Because of the requirements of your job(s), your family time is less enjoyable and more pressured." Mothers responded on a four-point Likert-type scale ranging from 1 (not at all true) to 4 (very true). Higher scores indicate a higher level of maternal work-to-family conflict. Cronbach's alpha for these combined items was .90. The factors loaded with scores from .71 to .88. These factor loadings meet acceptable standards for the creation of an unobserved variable (Kline, 2010).

Child academic outcomes. Teachers filled out a mock report card assessing how children were doing in school. Teachers responded on a five-point scale (1="Below Grade Level," 2="Needs Improvement," 3="Satisfactory," 4="Very Good," and 5="Excellent") indicating how children were performing in six subject areas: reading, oral language, written language, math, science, and social studies. A latent construct was created using all six subject

areas because factor analysis indicated that all six subject areas loaded on a single factor. Cronbach's alpha for these combined items was .95. The factors loaded with scores from .84 to .88. These factor loadings meet acceptable standards for the creation of an unobserved variable (Kline, 2010).

Potential mediator: Maternal involvement in school. Teachers completed the ten-item Parent-Teacher Involvement Questionnaire (Miller-Johnson, Maumary-Gremaud, & Conduct Problem Prevention Research Group, 1995) assessing how involved parents were in the child's education and schooling. A latent construct was created using five items based on factor analysis and correlational analyses. Items included, "How well do you feel you can talk to and be heard by this parent," "How much do you feel this parent has the same goals for his/her child that the school does," "To the best of your knowledge, how much does this parent do things to encourage this child's positive attitude toward education (*e.g.*, take him/her to the library, play games to teach the child new things, read to him/her, help him/her make up work after being absent)," "How often does this parent volunteer or visit at school," and "How involved is this parent in his/her child's education and school life?" Teachers responded on a five-point Likert-type scale ranging from 1 (not at all) to 5 (a great deal). Higher scores indicate a higher level of school involvement. Cronbach's alpha for these combined items was .88. The factors loaded with scores from .61 to .92. These factor loadings meet acceptable standards for the creation of an unobserved variable (Kline, 2010).

Potential moderator: Maternal work status. As part of an interview relating to mothers' employment, mothers responded to a question asking if they would call their primary job part-time or full-time. Of the subsample, 490 mothers worked full-time and 235 mothers worked part-time (See Table 2). Self-reported work status was used as there is evidence that part-

Table 2 Means, Standard Deviations, and Factor Loadings for All Measured Variables by Work Status

Latent Variables	Mean or % FT (PT)	SD or <i>n</i> FT (PT)	Factor Loadings FT (PT)
Maternal Work-to-Family Conflict			
Creates strains for your children	1.87** (1.70)	.76 (.69)	.70 (.76)
Leaves you with too little time	2.11*** (1.56)	.93 (.77)	.83 (.82)
Causes you to miss out on rewarding aspects	2.13*** (1.59)	.92 (.78)	.74 (.76)
Leaves you with too little energy	2.05*** (1.65)	.91 (.77)	.87 (.90)
Have to miss out on home or family activities	1.87*** (1.53)	.93 (.74)	.70 (.65)
Family time is less enjoyable and more pressured	1.75*** (1.50)	.86 (.72)	.75 (.72)
Maternal Involvement in School			
Can talk to and be heard by this parent	3.90** (4.16)	1.03 (.93)	.69 (.66)
Parent has the same goals for child as school	4.08* (4.25)	1.01 (.94)	.82 (.75)
Encourages positive attitude toward education	3.68*** (4.07)	1.19 (1.08)	.88 (.84)
Parent volunteers or visits at school	2.28*** (2.97)	1.21 (1.38)	.59 (.61)
Involved in child's education and school life	3.58*** (4.04)	1.16 (1.11)	.90 (.94)
Academic Achievement			
Reading	3.49*** (3.85)	1.13 (1.00)	.86 (.89)
Oral Language	3.58* (3.75)	.99 (.93)	.87 (.87)
Written Language	3.27** (3.53)	1.10 (1.01)	.85 (.85)
Math	3.43** (3.66)	1.11 (.98)	.86 (.79)
Science	3.52* (3.70)	.95 (.87)	.89 (.83)
Social Studies	3.47** (3.71)	.96 (.88)	.89 (.86)
Control Variables			
Child Gender			
Male	52.4 ^{NS} (46.8)	257 (110)	
Female	47.6 ^{NS} (53.2)	233 (125)	
Child Ethnicity			
White non-Hispanic	76.3** (86.8)	374 (204)	
Other	23.7** (13.2)	116 (31)	
Maternal Education			
High School or less	14.5** (15.0)	2.45 (2.12)	
Some College	28.4* (16.6)	139 (39)	
College Graduate	34.3 ^{NS} (34.5)	168 (81)	
	37.3* (48.9)	183 (115)	
Family Income-to-Needs Ratio			
	4.44 ^{NS} (4.83)	3.35 (3.75)	
Marital Status			
Married or Partnered	80.0*** (91.5)	392 (215)	
Single	20.0*** (8.5)	98 (20)	

Notes. *n* = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time. Sample characteristics listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT). * *p* < .05, ** *p* < .01, *** *p* < .001 indicates difference between part-time and full-time based on independent samples t-tests and chi-square tests.

time versus full-time work status designations vary between occupational fields and do not rely solely upon the number of hours worked. For example, some professional and managerial positions consider 40-hour work weeks to be part-time employment (Williams & Boushey, 2010).

Control variables. The control variables used in this study included child gender (50.6% boys, 49.4% girls), child ethnicity (79.7% white non-Hispanic, 20.3% other ethnicities), maternal education (24.6% high school or less, 34.3% some college, 41.1% college graduate), maternal marital status (83.7% married/partnered, 16.3% single), and family income-to-needs ratio (mean = 4.57, SD = 3.49). (See Table 1.) Family income-to-needs ratio was calculated by dividing the total family income by the poverty threshold based on family size. Child gender, child ethnicity, and mother's education were collected when the child was one month, and mother's marital status and family income-to-needs ratio were collected when the child was in fifth grade. These variables were chosen because they have been used in previous research on maternal employment and are important correlates of the primary study variables (*e.g.*, Brooks-Gunn, Han, & Waldfogel, 2002; Buehler & O'Brien, 2011).

Data Analysis

Data for this study were analyzed using Mplus, Version 7.0 (Muthén & Muthén, 2012). Structural equation modeling (SEM) was beneficial because it allows one to test and refine the theoretical model, minimize error, and distinguish between both direct and indirect relationships in the model. Goodness of fit indices compare the observed covariances with the covariances predicted by the hypothesized model. Assessments of "goodness of fit" include the chi-square (χ^2) test, the Root Mean Square Error of Approximation (RMSEA), and baseline comparison indexes such as the Tucker-Lewis Index (TLI) or Comparative Fit Index (CFI). A non-significant

χ^2 statistic is preferable as it reflects “exact fit” between the hypothesized model and the data. The RMSEA reflects good model fit with a score of .06 or lower (the lower the better), while the TLI/CFI reflect good model fit with a score of .95 or higher (on a scale of 0 to 1; Hu & Bentler, 1999).

Building a sound structural equation model is often referred to in two steps: 1) building and refining the measurement model and 2) testing and refining the structural model. Creating latent variables in the measurement model allows for more representative constructs of the variables under study, free of random error (Kline, 2010).

As recommended in the structural equation modeling literature (MacKinnon, 2008; Preacher & Hayes, 2008), mediation was further examined by testing the indirect effects in the model using bias-corrected bootstrap analysis. Confidence limits were estimated on the basis of 2,000 bootstrap samples. Bias-corrected bootstrapping analyses for mediation allow one to decompose direct, indirect, and total effects. Bias-corrected estimates offered a more accurate assessment of the statistical significance and accompanying confidence interval with each effect, and were therefore more reliable (MacKinnon, 2008).

Finally, to test the moderational hypothesis, a multigroup analysis was used to evaluate the equivalency of the model for children whose mothers work part-time versus full-time. Two types of equivalence are determined through chi-square difference tests on a series of nested models: measurement and structural (Vandenberg & Lance, 2000). To begin with measurement invariance, factor loadings are constrained to be equal for both groups. This constrained model is compared to a fully unconstrained model in which factor loadings are free to vary across groups. Significantly worse model fit in the constrained model indicates measurement invariance across groups. If, however, the constrained model does not have worse model fit, then the observed

variable intercepts are constrained to be equal. Significantly worse model fit compared to the previous model indicates partial measurement invariance and the ability to move on and test structural invariance. If this model does not have worse fit, then error variances and error covariances are constrained to be equal across groups. Significantly worse model fit at this point indicates partial measurement invariance while non-significant changes in model fit indicate strong measurement invariance. Both results lead to testing structural invariance. Testing structural invariance involves constraining structural paths individually or in groups and examining changes in model fit as additional constraints across groups are added. Significantly worse model fit as indicated by the chi-square difference test from one model to the next indicates that the structural model is not equal across groups. Non-significant changes in model fit indicate structural invariance across groups.

Results

Preliminary analyses in SPSS investigated differences in the study variables between full-time and part-time employed mothers (see Table 2). Independent samples t-tests and chi-square tests indicated that part-time employed mothers experienced less work-to-family conflict and were more involved in their children's schooling than full-time employed mothers. Children of part-time employed mothers also performed better in school than children of full-time employed mothers.

Using Mplus 7.0 a structural equation model was constructed to evaluate the associations between maternal work-to-family conflict, maternal involvement in school, and child academic achievement. The model fit the data well: $\chi^2 = 336.47$, $df = 177$, $p < .001$, $CFI = .98$, $TLI = .98$, $RMSEA = .04$ (lo = .03, hi = .04) (Hu & Bentler, 1999; see Table 3 for a decomposition of indirect, direct, and total effects). These results supported the first two hypotheses— that

Table 3 *Decomposition of Effects on Maternal Involvement in School and Academic Achievement*

Variable	Indirect	Direct	Total
Maternal Work-to-Family Conflict → Maternal Involvement in School	—	-.14***	-.14***
Maternal Work-to-Family Conflict → Academic Achievement	-.06**	-.02	-.08*
Maternal Involvement in School → Academic Achievement	—	.42***	.42***
Control Variables			
Female → Academic Achievement	.01	.10**	.11**
Other Ethnicities → Maternal Involvement in School	—	-.14**	-.14**
Other Ethnicities → Academic Achievement	-.06**	-.07±	-.13**
Maternal Education → Maternal Involvement in School	—	.38***	.38***
Maternal Education → Academic Achievement	.16***	.16***	.32***

Notes. n = 725. Bootstrap bias-corrected p-values: ± p < .10, * p < .05, ** p < .01, *** p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table.

maternal work-to-family conflict would be negatively associated with academic outcomes and that maternal involvement in school would mediate this relationship between work-to-family conflict and academic outcomes.

However, the literature suggests that the relationship between maternal work-to-family conflict, maternal involvement in school, and child academic outcomes may differ between mothers who work full-time and mothers who work part-time. Therefore, measurement and structural invariance was tested across work status groups using a series of nested models. First, a model in which factor loadings were constrained (Model 2) to be equal across groups was

compared to a fully unconstrained model (Model 1) in which factor loadings were free to vary. Model fit was not significantly worse in Model 2 ($\chi^2 = 17.97, df = 14, p > .05$). Second, factor loadings as well as the observed variable intercepts (Model 3) were constrained and compared to Model 2. The model fit was significantly worse ($\chi^2 = 72.54, df = 14, p < .05$). This indicated that there was partial measurement invariance across groups. Third, to test measurement invariance including control variables, factor loadings as well as all regression paths and covariances involving the five control variables were constrained (Model 4). This model was compared with Model 2; model fit was not significantly worse ($\chi^2 = 24.91, df = 25, p > .05$). Fourth, to test structural invariance, factor loadings, all regression paths and covariances involving the control variables, and the regression between maternal involvement and academic achievement were constrained (Model 5). Model fit was not significantly worse in comparison to Model 4 ($\chi^2 = .70, df = 1, p > .05$). Fifth, the regression between maternal work-to-family conflict and academic achievement was constrained in addition to those constraints in Model 5 (Model 6). Model fit was not significantly worse ($\chi^2 = .96, df = 1, p > .05$). Sixth, the regression between maternal work-to-family conflict and maternal involvement in school was constrained in addition to those constraints in Model 6 (Model 7). Model fit was significantly worse in comparison to Model 6 indicating there was a difference across groups in the path between maternal work-to-family conflict and maternal involvement in school: $\chi^2 = 4.66, df = 1, p < .05$. This supported the third hypothesis that work status would moderate the relationship between maternal work-to-family conflict, maternal school involvement, and early adolescents' academic outcomes.

Given this structural difference across groups, separate models were run for full-time and part-time employed mothers to fully understand the differences across groups (see Table 4). As recommended in the structural equation modeling literature (McKinnon, 2008; Preacher &

Table 4 *Decomposition of Effects on Maternal Involvement in School and Academic Achievement in Full-time vs. Part-time Employment*

Variable	Indirect FT (PT)	Direct FT (PT)	Total FT (PT)
Maternal Work-to-Family Conflict → Maternal Involvement in School	—	-.08± (-.20*)	-.08± (-.20*)
Maternal Work-to-Family Conflict → Academic Achievement	-.03± (-.08*)	.003 (-.09)	-.03 (-.17*)
Maternal Involvement in School → Academic Achievement	—	.42*** (.41***)	.42*** (.41***)
Control Variables			
Female → Academic Achievement	.01 (.001)	.10* (.10)	.12** (.10)
Other Ethnicities → Maternal Involvement in School	—	-.13* (-.16*)	-.13* (-.16*)
Other Ethnicities → Academic Achievement	-.05* (-.07*)	-.06 (-.08)	-.12* (-.15)
Income-to-Needs Ratio → Maternal Involvement in School	—	-.03 (.13*)	-.03 (.13*)
Maternal Education → Maternal Involvement in School	—	.39*** (.35***)	.39*** (.35***)
Maternal Education → Academic Achievement	.17*** (.14***)	.17** (.10)	.33*** (.24**)

Notes. n = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time. Effects listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT). Bootstrap bias-corrected p-values: ± p < .10, * p < .05, ** p < .01, *** p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table.

Hayes, 2008), mediation was examined within each group by testing the indirect effects in the model using bias-corrected bootstrap analysis. Bias-corrected estimates were used because McKinnon (2008) suggests they are more reliable. Confidence limits were estimated on the basis of 2,000 bootstrap samples. Among full-time employed mothers, the model explained 19.2% of the variance in maternal school involvement and 35.3% of the variance in academic achievement

($\chi^2 = 304.02$, $df = 177$, $p < .001$, $CFI = .98$, $TLI = .97$, $RMSEA = .04$ (lo = .03, hi = .05)). Among part-time employed mothers, the model explained 30.5% of the variance in maternal school involvement and 29.7% of the variance in academic achievement ($\chi^2 = 198.25$, $df = 177$, $p = .133$, $CFI = .99$, $TLI = .99$, $RMSEA = .02$ (lo = .00, hi = .04)). Contrary to expectations, the results found in the full sample were only replicated among the part-time employed group. Among full-time employed mothers, maternal work-to-family conflict was not related to maternal involvement in school or fifth graders' academic outcomes: a one standard deviation unit increase in maternal work-to-family conflict was linked with a .08 standard deviation decrease in maternal school involvement, which was not significant. Only maternal involvement in school was positively related to academic achievement ($\beta = .42$, $p < .000$). In other words, a one standard deviation unit increase in maternal school involvement was linked with a .42 standard deviation increase in academic achievement.

Among part-time employed mothers, a one standard deviation unit increase in maternal work-to-family conflict was linked with .20 standard deviation decrease in maternal school involvement, and a one standard deviation unit decrease in maternal school involvement was linked with a .41 standard deviation decrease in academic achievement. After controlling for child gender, child ethnicity, family income-to-needs ratio, maternal education, and marital status, maternal involvement in school fully mediated the relationship between maternal work-to-family conflict and fifth graders' academic achievement. The indirect and total effects of maternal work-to-family conflict on academic achievement were significant ($\beta = -.08$, $p < .05$ and $\beta = -.17$, $p < .05$, respectively). Thus, the results supporting the first two hypotheses above only held true for those in the part-time employment group (see Figure 2).

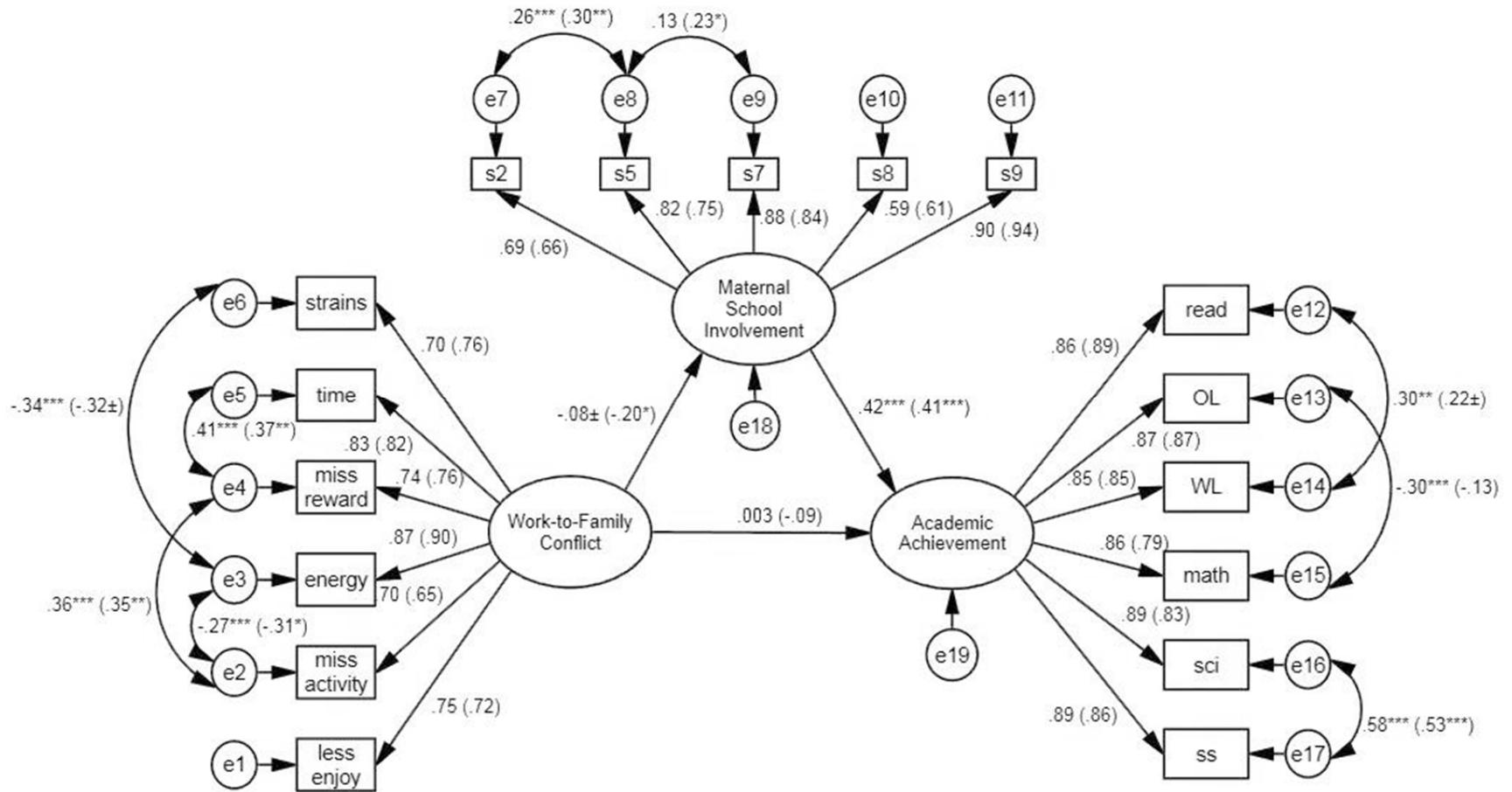


Figure 2. Final Model Showing Standardized Effects for Maternal Work-to-Family Conflict, Maternal Involvement in School, and Child Academic Achievement Outcomes. Effects listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT). All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Significant controls reported table 2. Bootstrap bias-corrected p-values: $\pm p < .10$, $* p < .05$, $** p < .01$, $*** p < .001$

Child gender, child ethnicity, family income-to-needs, and maternal education were each significantly associated with at least one latent variable (see Table 4). Of particular note are the strong associations between maternal education and maternal involvement in school ($\beta = .39, p < .001$ for full-time and $\beta = .35, p < .001$ for part-time) and maternal education and academic outcomes ($\beta = .17, p < .001$ for full-time).

Discussion

The purposes of this study were two-fold. First, a structural equation model was tested hypothesizing that maternal involvement in school would mediate the relationship between maternal work-to-family conflict and child academic outcomes. Second, multigroup analyses were used to test whether maternal work status (part-time versus full-time) would moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes among children.

The results replicated the findings of Goldberg et al. (2008) and Buehler and O'Brien (2011) providing evidence that part-time employed mothers experience less work-to-family conflict, are more involved in school, and have children who perform better in school than full-time employed mothers. Further, the results of the present study expanded the current body of literature in two primary ways. First, this is the only empirical test investigating the association between maternal work-to-family conflict and child outcomes. Results indicated that work-to-family conflict, at least in mothers working part-time, is associated how children perform academically in school through its relationship with mothers' involvement in school. Second, results indicated that there may be more that needs to be understood about work-to-family conflict in relation to whether a mother works part-time or full-time. Like Buehler O'Brien (2011), mothers working full-time tended to experience more work-to-family conflict than their

part-time counterparts. However, results indicated that work-to-family conflict was only associated with mothers' involvement in school and child academic outcomes among those mothers employed part-time.

These findings hold a few implications for future research. First, scholars in the work-family field have focused their research on understanding how mothers' work hours or work status influences child outcomes, including academic outcomes (Buehler, O'Brien, & Walls, 2011; Goldberg et al., 2008). Given the evidence found in this paper that work-to-family conflict is associated with academic outcomes through its relationship with mothers' involvement in school, these studies may be missing an important aspect of how the work-family interface relates to children, particularly among mothers working part-time. Consistent with Bronfenbrenner's (1986) ecological theory, negative associations between work-to-family conflict and maternal outcomes seem to extend beyond mothers themselves to influence their children, at least among mothers who consider their employment to be part-time.

Second, work-to-family conflict seems to function differently within families where the mother is working part-time as opposed to full-time. Consistent with role theory, this study expected that part-time work arrangements would help reduce a mother's work-to-family conflict thereby increasing her ability to be involved in her children's education (Hill, Mårtinson, & Ferris, 2004). Similar to Buehler and O'Brien (2011), mothers working part-time did experience less work-to-family conflict on average than mothers employed full-time; however the results in the present study showed that work-to-family conflict was related to a mother's involvement in school only if she was employed part-time. There are a few possible explanations for this unexpected finding. First, mothers employed full-time may expect to feel work-to-family conflict in their lives, whereas mothers employed part-time may not have this same expectation.

If a part-time employed mother then experiences work-to-family conflict contrary to her expectations, she may feel more overwhelmed or be impacted more by the conflict than had she expected work-to-family conflict in the first place. Second, mothers working full-time may proactively create a support system of resources (*e.g.*, stay-at-home father or flexible scheduling) to help manage work-to-family conflict, whereas mothers working part-time may not have these same types of support in place, particularly if there was no expectation for work-to-family conflict. Third, the structure of part-time as opposed to full-time employment may potentially be different, thereby resulting in different experiences with work-to-family conflict. For example, full-time employment may have more consistent hours and may offer more flexibility in when and where work is performed, thereby offering ways to better cope with work-to-family conflict. On the other hand, although part-time employed mothers work fewer hours than full-time employed mothers, part-time employment may provide inconsistent scheduling and lack of flexibility, making it more difficult to handle work-to-family conflict. Although part-time employed mothers on the whole experience lower levels of work-to-family conflict, when these mothers do experience work-to-family conflict, it appears to be negatively associated with their involvement in school, which, in turn, may influence early adolescent's school achievement. These findings fall in line to some extent with role theory (Goode, 1960). Perhaps expanding the theoretical frameworks used in the work-family conflict literature to include a family stress model (Hill, 1949; McCubbin & Patterson, 1983) that involves taking into account a mothers' expectations about her work and the resources she has available to her for support would be beneficial in more fully understanding how the work-family interface may impact early adolescent school achievement.

Third, mothers' involvement in school does mediate the relationship between mothers' work-to-family conflict and academic achievement in school for fifth graders of part-time employed mothers. Research on work-to-family conflict has primarily focused on how it affects parents themselves without extending the research to investigate relationships with child outcomes. However, the results in this paper suggest that work-to-family conflict does relate to how children do in school. Expanding on research linking parental school involvement and academic outcomes (*e.g.*, Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2005), the results of the present study suggest that mothers' involvement in their children's schooling may be in an important way to help alleviate any potentially negative effects of work-to-family conflict on children. This falls in line with Bronfenbrenner's (1986) ecological systems theory suggesting that experiences mothers have at work can influence their involvement in school thereby influencing children at home and in school, pointing to the importance of further investigating how work-to-family conflict relates to child outcomes. It seems that work, school, and home are all part of an integrated ecological system affecting child development.

Limitations and Directions for Future Research

These preliminary explorations of maternal work-to-family conflict, maternal involvement in school, and child academic outcomes point out the need for further inquiry about the processes involving how the work-family interface relates to children. First, the current findings focus on one time period. Although the variables used in this study were also measured at third grade (but no other time points), assessments closer together in time than two years seemed more appropriate given that work-to-family research has typically shown contemporaneous effects. However, longitudinal analyses may help further explain the relationship between mothers' work-to-family conflict and child academic outcomes. For

example, it is possible that there is a reciprocal relationship between work-to-family conflict and academic outcomes such that mothers' perception of work-to-family conflict increases when children are not performing well in school while at the same time, children may do better in school when mothers experience less work-to-family conflict and are therefore more involved in school. Longitudinal analyses may best clarify these processes.

Second, further investigating mothers' involvement in schooling is important for understanding how to alleviate any negative impact of work-to-family conflict on children. Perhaps future research can address whether encouraging increased levels of mothers' involvement in school in the face of work-to-family conflict can bring about improvements in school outcomes for children. Third, future research should attempt to better understand the differing processes involved in work-to-family conflict among part-time and full-time employed mothers. More specifically, researchers should address the role mothers' expectations for role conflict, mothers' support resources, and work characteristics (*e.g.*, flexibility) play in this relationship. Including variables accounting for the number and ages of other children in home may also be an important piece to understanding how work affects family life.

It should be noted that shared method variance was minimized by selecting the teacher response for mothers' involvement in school as opposed to the mother self-report on involvement in school. Although there may be shared method variance between the measure for mothers' school involvement and the measure for children's academic outcomes, it was important to minimize the effects of this limitation between the measure for mothers' work-to-family conflict and mothers' involvement in school as this was the path of primary importance.

Conclusion

The findings of this paper suggest that mothers' experience of work-to-family conflict is negatively related to academic outcomes in fifth graders of part-time employed mothers through its association with mothers' involvement in school. Mothers' involvement in school may be an important way in which negative outcomes of work-to-family conflict may be minimized.

Further research should attempt to understand the different family processes present in families where mothers are employed part-time versus full-time.

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