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Age and gender differences in adolescents' homework experiences

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ABSTRACT

Extant data collected through the Experience Sampling Method were analyzed to describe adolescents' subjective experiences of homework. Analyses explored age and gender differences in the time adolescents spend doing homework, and the situational variations (location and companions) in adolescents' reported concentration, effort, interest, positive affect and stress while doing homework. Regarding age differences, middle school students reported more positive experiences when homework was done with companions and in locations other than home, whereas high school students reported more positive experiences when homework was done alone and at home. Regarding gender differences, girls, regardless of age, reported greater stress than boys when doing homework alone, and lower stress when doing homework with friends. High school girls reported lower interest than middle school boys when doing homework alone. Findings provide an understanding of age and gender differences in adolescents' perceptions of homework, which might help educators and parents structure engaging homework environments.

Introduction

Both educators and parents believe that homework promotes student learning, achievement, work habits and motivational dispositions (Bempechat, 2004; Warton, 2001). Consistent with that belief, most U.S. adolescents are assigned homework each day (Snyder, 1998). Previous studies have documented the amount of time adolescents spend on homework (Shumow, Schmidt, & Kackar, 2008; Loveless, 2003), its positive relationship to academic achievement during adolescence (Cooper, Robinson, & Patall, 2006), and the contexts in which adolescents do homework. Yet little is known about adolescents' subjective experience and motivation related to homework because only a few researchers have studied those aspects of homework (e.g., Shumow et al., 2008; Leone & Richards, 1989; Xu, 2004). Some available evidence suggests that adolescents' experiences and perceptions of homework may vary by the age and gender of the adolescents. Drawing upon Bronfenbrenner's (1992) conjecture that the "person" characteristics of age and gender are "so potent in influencing the course of future development that they need to be distinguished in every study" (p. 224), this study investigates the role of age and gender in adolescents' homework experiences using the Experience Sampling Method (ESM).

Our study is also framed by several theoretical models of achievement motivation (Csikszentmihalyi, 1990; Eccles, 1983). The expectancy-value model of achievement motivation suggests that adolescents will be more likely to engage in tasks that are perceived as emotionally rewarding, valuable and "worth" the effort (Warton, 2001). In light of this theory, we examined adolescents' reports of emotion (positive affect and stress), interest, and effort when doing homework in various contexts. Csikszentmihalyi emphasizes the importance of positive affective experience and effort in human growth. He argues that positive affect motivates activity choice because someone who experiences positive emotion while engaging in a given activity wants to replicate that feeling, and therefore, is more likely to engage in that activity again. These positive affective experiences are optimal for human learning and growth when they occur in situations that require effort. As one continues to engage in an activity because it is both challenging and enjoyable, the skills relevant to that activity improve (Csikszentmihalyi, 1990, 1997). Accordingly, students who have positive feelings when doing their homework, would be more likely to spend time doing homework.

The method used in the present study (i.e., the ESM) enabled us to compare the time spent on homework by middle and high school students. Additionally, we compared their cognitive, affective and motivational states while doing homework using multiple ratings of adolescents' immediate experiences over a one week period. The in-the-moment responses generated by ESM are generally more valid than those obtained from one-time retrospective surveys or interviews, as the immediacy of the questions in ESM reduces the potential for recall bias, or giving socially desirable answers (Zuzanek, 1999). The ESM has been particularly useful in the study of motivation and affect (see Hektner, Schmidt, & Csikszentmihalyi, 2007, and Pintrich & Schunk, 2002 for reviews) so is especially well suited to addressing

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our questions. The use of ESM, then, is a significant advantage of this study.

In 1989, Leone and Richards conducted a study using the ESM to describe the cognition, affect, and motivation of young adolescents while doing homework in different contexts, but those data were collected during a previous generation and the sample was comprised only of middle school students. A recent study by Shumow, Schmidt, and Kackar (2008) using the ESM uncovered several interesting patterns in adolescents' subjective experience of homework, but variation in adolescents' cognitive, affective and motivational differences related to person level characteristics such as age or gender were left unexamined.

Time spent on homework by age and gender

Framed by Bronfenbrenner's (1992) contention that age and gender are powerful influences in human development, the first issue examined in this study concerns the amount of time spent doing homework by boys versus girls and by middle versus high school students. Time use is a fundamental indicator of cultural practices, values, and behavior (Ver Ploeg et al., 2000). Time spent doing homework is tied to academic success and is an important basic expectation in college. The amount of time adolescents spend doing homework has been the focus of national surveys and international comparisons that have garnered attention from the public and in scholarly circles. Most survey based reports indicate that adolescents do little homework in the United States (Loveless, 2003; Sax, Lindholm, Astin, Korn, & Mahoney, 2002). There is some indication from survey data that the amount of homework assigned and the time spent doing homework is related to the age of the adolescent. NAEP data have consistently shown that older adolescents report having more homework than younger adolescents but older adolescents also are nearly three times more likely than younger adolescents to choose not to do their assigned homework. Consistent with this finding, the NAEP-99 data showed that, while the homework load increased substantially with age, the amount of time students spent on homework increased only a little (Gill & Schlossman, 2003). This is especially problematic given the importance of developing the habit of doing homework for post secondary education following high school.

Few studies have examined gender differences in time spent doing homework. A study conducted more than two decades ago found that adolescent girls spent more time studying and doing homework than adolescent boys (Timmer, Eccles, & O'Brien, 1985). Analyzing data from the American National Educational Longitudinal Study of 1988 (NELS: 88), Mau and Lynn (2000) found that girls reported doing more homework than boys both in 10th and 12th grade which they attributed to a "stronger work ethic" among girls citing several research studies that support this assumption (p. 120). On the other hand, Catsambis (1994) found that 10th grade boys and girls spent about the same amount of time doing mathematics homework.

Recently, several researchers (Rogers & Hallam, 2006; Xu, 2006; Xu & Corno, 2006) who examined time use by asking young adolescents to report on their time management while doing homework found that there were gender differences in those skills. According to Xu (2006) and Xu and Corno (2006), girls were more likely to demonstrate awareness of their time management skills and scored higher in this skill area than boys. It is also the case that girls tend to spend more hours on schoolwork and receive higher grades (Duckworth & Seligman, 2006). In the present study, we investigated whether the actual time spent on homework varies between boys and girls.

Contexts in which homework is done by age of the adolescent

In high school, adolescents generally have more autonomy than they do in middle school but it remains unknown whether high schoolers use that relative freedom to do more homework alone or with peers, and whether they spend less time doing homework with parents. Some have speculated that parents have difficulty helping older adolescents with homework because the material is more difficult in high school than middle school (Patrikakou, 2004; Simon, 2001). Bronfenbrenner (1992) identified parents as powerful influencers of development but also pointed out the influence of peers, especially during adolescence. The current study will examine whether parents are indeed more involved with their children's homework in middle than high school, and whether adolescents in middle school spend more time doing homework with peers or with other adults than adolescents in high school. The practice of giving adolescents time to do homework in school appears to be widespread (Shernoff, Csikszentmihalyi, & Schneider, 2003), but it is not clear whether this is more common during middle than high school. We investigate whether middle school students do more homework in school than high school students.

Cognitive, affective and motivational states during homework

Given previous findings that time spent doing homework varies by age and gender together with our theoretical framework which ties emotional and motivational states to time use, it seems important to examine adolescents' motivational states as they are doing homework in various contexts. As a practical consideration, identifying the contexts in which adolescents have more positive experiences could be beneficial information for designing homework. Consistent with theories of achievement motivation used to frame this study (Csikszentmihalyi, 1990; Eccles, 1983), Xu (2004) found that retrospective reports of negative affect while doing homework were associated with lower levels of homework completion.

A few studies suggest that motivation for doing homework varies due to age and gender. In the Xu study (2004), for example, more high school than middle school students reported that their homework was boring and therefore tended not to complete it. In another study, girls reported more self-regulation of homework than boys (Thibert & Karsenti, 1995). On the whole, it was found that girls reported higher levels of intrinsic motivation for homework than boys (Thibert & Karsenti, 1995). The present research extends those studies by comparing reports of positive affect and interest by boys versus girls, and middle versus high school students using data that were gathered while they were doing homework.

We also compare the perceptions of concentration reported by younger versus older adolescents and by boys versus girls while working on homework. To our knowledge, there are no published studies investigating homework experiences grounded in Csikszentmihalyi's (1990, 1997) ideas about the role of concentration while engaged in challenging and enjoyable tasks. To explore the possibility that age might influence adolescents' homework experience we make comparisons by age on perceptions of concentration, effort, interest, positive affect and stress while doing homework.

While there is little research on age and the subjective experience of homework, a few studies have identified gender differences in adolescents' subjective experience while doing homework. These studies suggest that boys and girls are likely to report different degrees of stress and concentration while doing homework. For example, girls have reported higher levels of stress about homework, while boys reported more positive affect toward that task (Rogers & Hallam, 2006). Other research also suggests that girls might be more prone to homework stress. When asked to rate the frequency of their frustration with homework, for example, girls were more likely to report "often" (Xu, 2006). Although girls reported more stress, they also reported better ability to control stress; that is, girls were more likely than boys to report that they "frequently" used emotional regulation techniques such as "calming myself down" when stressed during homework (Xu & Corno, 2006). These findings suggest that it is important to examine data collected with the ESM which measures

emotions reported in the moment that the students were doing homework.

Situational variations in subjective homework experiences

The age and gender differences in motivation, cognition and affect found by Rogers and Hallam (2006), Xu (2006), and Xu and Corno (2006) might be explained in part by contextual factors involved in doing homework (e.g., who they are with and where they are while they are doing their homework). In this study, we further investigate age and gender differences in the relationship between context and cognition, affect, and motivation while doing homework. A few studies indicate that an adolescent's affect and motivation differs depending on who their companions are while they are doing homework. For instance, Leone and Richards (1989) found that when adolescents were doing homework with peers they were happier than when alone or with parents. They were most attentive to their homework, however, when they were with their parents. In previous work, Shumow et al. (2008) found that adolescents reported more positive affect when they were doing homework with a companion (i.e., parents, friends) than alone. Negative emotions (i.e., stress) were more commonly reported when alone than with friends. Effort and concentration, however, were greater when alone than with friends. Greater concentration was also reported both when alone and with parents than with friends. Adolescents did not report being more stressed with parents compared to when they were either alone or with friends. This was particularly interesting because it contradicted the anecdotal reports in the popular press which concluded that "homework is a major battleground for many families" (Kantrowitz & Wingert, 2001, p. 52; Kralovec & Buell, 2000). While these findings pertain to the adolescent population in general, in the current study, we focus our analyses on age and gender comparisons in homework instances where parents were reported to be present.

Parent help with homework might have differential effects on boys' versus girls' homework completion. King and Gurian (2006) studied only boys in an elementary school and found that boys who received homework help from parents reported less negative affect toward homework than boys who did not receive help. In another study, Xu (2006) corroborated those results for boys and, further found that parental homework help did not predict girls' affect. We extend those findings by using ESM data to examine the age and gender variations in adolescents' quality of experience while doing homework with parents, and compare these moments to those when adolescents were doing homework alone, with their peers, or with others.

As suggested by this literature, the following research questions are addressed in this paper:

1. Are there age and gender differences in the amount of time adolescents spend doing homework a) in general, b) with different companions, and c) in different locations?
2. Is adolescents' concentration, effort, interest, positive affect and stress while doing homework related to where and with whom they complete their homework?
3. Are the relationships examined in question 2 above moderated by age, gender, or the interaction of age and gender? For example, does working on homework with a parent impact the concentration levels of girls differently than it does boys? Are patterns of gender differences, if any, different for middle school compared to high school students?

Method

Participants

Data from the University of Chicago Sloan Center 500 Family Study (Schneider & Waite, 2005) were used for secondary analysis. Data were collected between 1999 and 2000. Participants resided in eight middle- and upper middle-class communities which varied in location and demographic characteristics. Participants were recruited through local schools, newspaper advertisements, and snowball sampling. The present study focuses on 331 adolescent participants in grades 6 through 12 (M_{age} = 15.04 years, SD = 1.7, range = 11–18). The sample was 59% girl and 86% Anglo-American. Seventy nine percent of the sample was enrolled in high school at the time of the study. Forty percent of the high school sample was in 9th grade, 20% in 10th grade, 15% in 11th grade, and 25% in 12th grade (M_{age} = 15.66 years, SD = 1.3, range = 13-18). The remaining 21% of the sample was enrolled in middle school. Twenty-eight percent of the middle school sample was in 6th grade, 36% in 7th grade, and 36% in 8th grade (M_{age} = 12.79 years, SD = .97, range = 11–15).

Procedures

Multiple methods including questionnaires, semi-structured interviews and the Experience Sampling Method (ESM; Csikszentmihalyi & Larson, 1984) were used to collect data.

The experience sampling method (ESM)

The ESM is a week-long data collection process during which participants wear wristwatches that are programmed to emit eight signals each day. In the present study watches were set to beep randomly in two-hour time blocks during participants' waking hours, with the restriction that no two signals were closer than 20 min apart. In response to each signal, participants completed a brief one-page questionnaire in which they answered a number of open-ended and scaled questions about their location, activities, companions, and psychological states at the time. Each questionnaire took 60–90 s to complete. All adolescents in the sample received a total of 56 signals (eight signals per day for 7 days), and responded to an average of 34 signals over the course of a week. Open ended questions about participants' locations and activities were coded by trained coders using detailed coding schemes. Inter-rater reliabilities for ESM coding, based on person agreement, ranged from .79 to .95 (Schneider & Waite, 2005).

Researchers have established that the ESM has strong psychometric properties (see Hektner et al., 2007; Schneider & Waite, 2005 for reviews). It has a high degree of external or "ecological" validity because it captures participants' responses in everyday life as experience occurs. Importantly, respondents are generally truthful in reporting their immediate subjective experience (Larson & Richards, 1994). Furthermore, there are indications that the internal validity of the ESM is stronger than one-time questionnaires. The immediacy of the questions reduces the potential for either memory failure or the tendency to choose responses on the basis of social desirability (Zuzanek, 1999). The fact that participants are signaled randomly diminishes the reflexivity bias, or attempts of respondents to figure out the purpose of the research and respond accordingly (Kubey, Larson, & Csikszentmihalyi, 1996; Zuzanek, 1999). The logic of the responses themselves provides supplementary evidence of internal validity. That is, emotional states that one would expect to co-occur in fact are reported at the same time, and those that are opposite are not. Traditional methods of test–retest reliability are generally not relevant to ESM data since the purpose of ESM is to measure how states vary by context. Researchers more often rely on what has been called "situational validity" by examining the internal logic of a reported situation, checking whether reported internal states are consistent with what one might expect given the reported activities and context. Individuals report being very relaxed when watching television, and students in school report the highest levels of concentration when they are taking exams. The very fact that the results represent "obvious" or "normal" patterns of experience speaks

well for the validity of the method (see Hektner et al., 2007 for a review).

Measures

Time spent doing homework

We defined *homework* as those ESM responses in which adolescents were doing schoolwork outside of class, and those times when students were in class but reported doing work for a different class. The data set contains 1315 instances of homework. Since the signaling schedule was designed to be within selected time blocks throughout the day, a rough estimate of time use was constructed by computing the percentage of each person's responses that were categorized as "homework", then multiplying this figure by 16 (the assumed number of total waking hours per day). This procedure has been used and justified in previous studies involving the ESM (Csikszentmihalyi & Larson, 1987; Csikszentmihalyi & Schneider, 2000).

Physical location

The physical *location* where adolescents reported doing their homework was also coded. The categories we used were (a) home, (b) at school, not in class, (c) in class (if adolescent specifically was doing homework as opposed to seatwork), and (d) public place. Public place was defined as places other than the adolescent's home or school, which could potentially include places such as a friend's house.

Companionship

Each time they were signaled adolescents recorded who they were with at the time of the signal. The *companionship* categories included (a) alone, (b) with peers, (c) with parents, and (d) with others. It should be noted that these categories reflect adolescents' self-reported perceptions of being alone or being with a companion, and that the judgment of what constitutes being "with" another person was left up to the adolescent. In other words, being "with" a companion in this study indicates that the adolescent noted the presence of the other person which may not necessarily mean that the adolescent and the other person were working together on homework. For example, the adolescent might have simply reported the presence of a parent in the same room, but the parent might have been doing something completely separate from helping the adolescent with his/her homework.

Measures of subjective experience

Each time adolescents were signaled, they responded to a series of Likert and semantic differential scale items in which they reported on their motivational and affective states at the time. The analyses presented in this paper focus on five of these items. Students reported their level of *concentration* ($M = 1.96$, $SD = .68$), *effort* (how hardworking they felt, $M = 1.71$, $SD = .83$), *interest* ($M = 1.33$, $SD = .78$) and *stress* ($M = .86$, $SD = .78$) on a 4-point Likert scale where 0 = *not at all*, and, 3 = *very much*. Students also indicated their level of *positive affect* on a 7-point semantic differential scale where 1 = *very sad*, and 7 = *very happy* ($M = 4.70$, $SD = 1.05$). Correlations among these measures (shown in Table 1) were weak to moderate, suggesting that the measures represent relatively distinct experiential outcomes. Thus, multiple comparison correction was not used in analyses.

As the ESM is designed to capture participants' in-the-moment experiences, we were able to select only those instances in which adolescents reported doing homework, and examine their subjective experiences at these moments. The flexibility of the ESM also allowed us to examine whether adolescents' subjective experience while doing homework varied systematically by their physical location (e.g., home vs. school), and their companions (e.g., with parents vs. peers). Surveys provided indicators of adolescents' demographic characteristics including gender and grade level (coded to middle school vs. high school).

Table 1
Pearson correlations among measures.

Measure	1	2	3	4	5
1. Concentration	–				
2. Effort	.46**	–			
3. Interest	.27**	.20**	–		
4. Positive affect	.15**	.26**	.43**	–	
5. Stress	−.06	.13*	−.15**	−.29**	–

** $p < .01$. * $p < .05$.

Analyses

A set of 2 × 2 ANOVAs were conducted to test for the main effect of age (middle vs. high school), the main effect of gender (girls vs. boys), and the interaction effect of age and gender on the amount of time spent doing homework, and also on time spent doing homework with different companions and in different physical locations. For comparisons of overall homework time, the signal-level ESM data were aggregated to the person level, and the percentage of all signals in which students reported doing homework was computed. For comparisons of subjective experience while doing homework, the signal-level data were again aggregated to the person level. In this aggregated data set however, the subjective experience variables represented the average of a student's cognitive, affective or motivational state during only those signals when the student reported doing homework. In this same aggregated file, the context variables (physical location, companionship) were computed as the percentage of the student's total homework signals in each context.

Due to the nested nature of the data, with ESM observations nested within persons, we used two level Hierarchical Linear Modeling (HLM, Raudenbush & Bryk, 2002) to test the relationships between situational variables (companionship and location) and cognitive, affective and motivational states, and the variance in these relationships by age and gender. To test for age and gender interactions in these relationships in all models, interaction terms were constructed by grand mean centering the age and gender variables and computing their product. The HLM analyses involved two separate data files, one for each level being modeled. The person-level (level 2) file included age (dummy coded as "high school" vs. "middle school") and gender (dummy coded as "girl" vs. "boy"). The signal-level (level 1) data file included the 5 subjective experience outcome variables as well as dummy-coded indicators of companionship ("with friend," "with parent," "with other," and "alone") and location ("in class," "in school but not class," "in public," and "at home").

As an illustration of the models used in our analyses of companionship and location, we present the level 1 and level 2 equations built for the concentration outcome.

Sample HLM equations examining companionship

Level 1 model:

$$\text{Concentration}_{ti} = \pi_{0i} + \pi_{1i}(\text{Friend}_{ti}) + \pi_{2i}(\text{Parent}_{ti}) + \pi_{3i}(\text{Other}_{ti}) + e_{ti}$$

Level 2 model:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{High School}_i) + \beta_{02}(\text{Girl}_i) + \beta_{03}(\text{High School} \times \text{Girl}_i) + r_{0i}$$
$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{High School}_i) + \beta_{12}(\text{Girl}_i) + \beta_{13}(\text{High School} \times \text{Girl}_i) + r_{1i}$$
$$\pi_{2i} = \beta_{20} + \beta_{21}(\text{High School}_i) + \beta_{22}(\text{Girl}_i) + \beta_{23}(\text{High School} \times \text{Girl}_i) + r_{2i}$$
$$\pi_{3i} = \beta_{30} + \beta_{31}(\text{High School}_i) + \beta_{32}(\text{Girl}_i) + \beta_{33}(\text{High School} \times \text{Girl}_i) + r_{3i}$$

Sample HLM equations examining location

Level 1 model:

$$\text{Concentration}_{ti} = \pi_{0i} + \pi_{1i}(\text{School}_{ti}) + \pi_{2i}(\text{Class}_{ti}) + \pi_{3i}(\text{Public}_{ti}) + e_{ti}$$

Level 2 model:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{High School}_i) + \beta_{02}(\text{Girl}_i) + \beta_{03}(\text{High School} \times \text{Girl}_i) + r_{0i}$$
$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{High School}_i) + \beta_{12}(\text{Girl}_i) + \beta_{13}(\text{High School} \times \text{Girl}_i) + r_{1i}$$
$$\pi_{2i} = \beta_{20} + \beta_{21}(\text{High School}_i) + \beta_{22}(\text{Girl}_i) + \beta_{23}(\text{High School} \times \text{Girl}_i) + r_{2i}$$
$$\pi_{3i} = \beta_{30} + \beta_{31}(\text{High School}_i) + \beta_{32}(\text{Girl}_i) + \beta_{33}(\text{High School} \times \text{Girl}_i) + r_{3i}$$

Results

Time spent on homework

Using the procedures described in the method section for estimating time use, we calculated that adolescents in our sample reported spending between 2.2 and 3.7 h each day on homework. Because adolescents in this study averaged a 61% response rate, the estimate of 3.7 h per day is viewed as an upper limit which assumes that the way participants spent their time during the 39% of two-hour blocks when they did not respond to their signals is exactly the same as the way they spent their time during the blocks when they did respond. As a lower limit, then, we assumed that participants did no homework at all during those blocks when they did not respond, which resulted in a lower limit estimate of 2.2 h. The time estimates reported hereafter represent the upper limit estimate of time use, and readers should take this into account when interpreting the findings.

Adolescents reported being alone about half of the time that they did homework (105 min/day), followed by being with their friends/peers (21%, 46 min/day), being with others (20%, 44 min/day), and being with parents (11%, 24 min/day). Sixty-six percent (137 min/day) of adolescents' homework responses occurred while adolescents were at home, 18% (45 min/day) occurred at school but not in class, 11% (29 min/day) occurred in class, and 5% (11 min/day) occurred in public places.

The results for the ANOVA indicated a significant main effect of age on the amount of time adolescents spent doing homework: Older adolescents reported doing more homework than younger adolescents [M_{HS} = 24%, 3.81 h; M_{MS} = 20%, 3.21 h; $F(1, 305) = 5.23$, $p < .05$]. Boys and girls did not differ in the total amount of time they spent doing homework, and the interaction between age and gender was also nonsignificant.

Comparisons by age and gender in homework time in relation to situational variations

Findings suggest that adolescents were more similar than different in the amount of time they spent doing homework in different situations. With regard to differences due to location, the only significant main effect was that girls spent more time doing homework in public than boys [M_G = 9%, 20 min/day; M_B = 3%, 6 min/day; $F(1, 305) = 9.08$, $p < .01$] . While statistically significant, this difference is unlikely to be practically significant, given the small amount of time spent doing homework in public places by either gender. There were no other main effects of gender or age, or an interaction effect between gender and age in the amount of time adolescents spent doing homework in any of the other locations.

With regard to differences due to companionship, older adolescents spent more time doing homework alone than younger adolescents [M_{HS} = 51%, 114 min/day; M_{MS} = 37%, 83 min/day; $F(1, 305) = 8.02$, $p < .01$]. Younger adolescents spent more time doing homework with their parents than older adolescents which was statistically significant at $p < .10$ [M_{HS} = 9%, 21 min/day; M_{MS} = 15%, 33 min/day; $F(1, 305) = 3.45$]. Girls spent more time doing homework with their parents than boys which was statistically significant at $p < .10$ [M_G = 15%, 33 min/day; M_B = 9%, 21 min/day; $F(1, 305) = 3.32$]. Younger adolescents spent more time doing homework with their friends than older adolescents which was statistically significant at $p < .10$ [M_{HS} = 19%, 43 min/day; M_{MS} = 27%, 60 min/day; $F(1, 305) = 3.56$]. There were no other main effects of gender or age, or an interaction effect between gender and age in the amount of time adolescents spent doing homework with different companions.

Comparisons by age and gender in subjective experience in relation to the context of homework

HLM models examining concentration, effort, interest, positive affect and stress indicated that there was substantial within-person and between-person variation on each of these outcomes to warrant modeling with both situational and person-level predictors. Seventy-five percent of the variance in concentration, 65% in effort, 70% in interest, 76% in positive affect and 60% in stress occurred within persons reflecting variation in student ratings from moment to moment. Twenty-five percent, 35%, 30%, 24% and 40% of the variance in concentration, effort, interest positive affect, and stress respectively, occurred between persons and was attributable to person-level characteristics.

Companionship

Table 2 presents the results of several HLM models exploring the relationship between companionship, age, gender and students' subjective experience while doing homework. When doing homework alone (the omitted companionship category), high school boys (the omitted comparison group) report greater concentration than middle school boys ($\beta_{01} = .29$, $p < .05$). The non-significant gender coefficient and interaction terms indicate that this age-related pattern is similar for girls as well. High school boys also report greater interest than middle school boys when doing homework alone ($\beta_{01} = .23$, $p < .10$). High school girls however, do not evidence similar gains in interest when doing homework alone ($\beta_{03} = -.51$, $p < .05$).

As “alone” is the omitted companionship category in the models presented in Table 2, the HLM coefficients for each companionship category can be interpreted as increments from the mean for middle school boys when alone. When doing homework with friends, middle school boys report greater interest ($\pi_{10} = .54$, $p < .01$) and positive affect ($\pi_{10} = .70$, $p < .01$) compared to when they do homework alone. The non-significant coefficients for age, gender and their interaction indicate similar patterns for older boys and for girls as well. High school boys report lower concentration when doing homework with friends, relative to middle school boys ($\beta_{11} = -.40$, $p < .10$), and this pattern holds true among high school girls as well. Girls generally report lower stress when doing homework with friends than when doing homework alone ($\beta_{12} = -.24$, $p < .10$; $\beta_{13} = -.31$, ns).

While middle school boys report similar levels of concentration when doing homework with parents and alone, high school boys experience a decline in concentration when doing homework with parents ($\beta_{21} = -.40$, $p < .05$), and this pattern is similar for girls. Middle school boys report lower levels of positive affect when doing homework with parents compared to alone ($\pi_{20} = -.62$, $p < .10$), but high school boys report higher levels of positive affect when with parents ($\beta_{21} = 1.02$, $p < .05$). The non-significant coefficients for gender and the age x gender interaction indicate that these same age differences exist among girls as well.

High school boys reported lower concentration levels than middle school boys when doing homework with others ($\beta_{31} = -.73$, $p < .001$).

Table 2
Two-level HLM models of the association between companionship and subjective experience while doing homework.

Fixed effects	Concentration (SEB)		Effort (SEB)		Interest (SEB)		Positive affect (SEB)		Stress (SEB)	
Intercept, π_{00}	1.76***	(.13)	1.79***	(.15)	1.05***	(.12)	4.45***	(.19)	.68***	(.13)
High School, β_{01}	.29*	(.13)	.00	(.15)	.23†	(.13)	−.15	(.20)	.21	(.14)
Girl, β_{02}	.04	(.08)	.10	(.11)	.03	(.10)	.20	(.14)	.20*	(.10)
High school x Girl, β_{03}	.37	(.26)	−.17	(.30)	−.51*	(.25)	−.34	(.39)	.38	(.27)
With Friend, π_{10}	.08	(.21)	−.04	(.20)	.54**	(.19)	.70**	(.25)	−.13	(.16)
High School, β_{11}	−.40†	(.21)	−.22	(.20)	−.30	(.19)	−.23	(.26)	.09	(.16)
Girl, β_{12}	.03	(.15)	−.04	(.16)	−.04	(.17)	.12	(.22)	−.24†	(.13)
High school x Girl, β_{13}	−.37	(.43)	.31	(.40)	.57	(.39)	.33	(.51)	−.31	(.32)
With Parent, π_{20}	.26	(.20)	−.10	(.25)	−.01	(.21)	−.62†	(.37)	.33	(.24)
High School, β_{21}	−.40*	(.19)	−.02	(.24)	−.01	(.22)	1.02*	(.40)	−.14	(.25)
Girl, β_{22}	.24	(.16)	.01	(.21)	.16	(.21)	.07	(.27)	−.32	(.20)
High school x Girl, β_{23}	−.38	(.40)	−.40	(.50)	.14	(.43)	−.38	(.76)	−.15	(.49)
With Others, π_{30}	.27	(.16)	−.19	(.21)	.36	(.22)	.27	(.28)	−.19	(.18)
High School, β_{31}	−.73***	(.17)	−.38†	(.21)	−.47*	(.23)	.18	(.30)	.03	(.19)
Girl, β_{32}	.24†	(.13)	.12	(.16)	−.01	(.16)	−.16	(.22)	.04	(.15)
High school x Girl, β_{33}	−.50	(.33)	−.06	(.42)	.66	(.45)	.22	(.57)	−.07	(.37)

Note. n (level-1 units) = 1235, n (level-2 units) = 309.
***$p < .001$. **$p < .01$. *$p < .05$. †$p < .10$.

Middle school girls, on the other hand, experienced less severe declines in concentration relative to middle school boys ($\beta_{32} = .24$, $p < .10$). Relative to middle school boys, high school boys reported lower levels of effort ($\beta_{31} = -.38$, $p < .05$) and interest ($\beta_{31} = -.47$, $p < .05$) when doing homework with others. The non-significant coefficients for gender and the age x gender interaction suggest that these age-related differences are similar for girls as well.

Location

Table 3 reports the results of HLM analyses examining associations between location of homework activity and subjective experience. In these models, home is the omitted location category. When doing homework at home, high school boys report greater levels of concentration ($\beta_{01} = .21$, $p < .05$), interest ($\beta_{01} = .30$, $p < .05$), and stress ($\beta_{01} = .27$, $p < .01$), than middle school boys. The non-significant interaction coefficients in these models generally indicate similar age-related patterns for middle vs. high school girls. Middle school girls did, however differ from middle school boys in that they reported higher concentration ($\beta_{02} = .11$, $p < .10$), positive affect ($\beta_{02} = .29$, $p < .01$), and stress ($\beta_{02} = .18$, $p < .05$), when doing homework at home.

When doing homework at school (not in class), middle school boys report greater levels of interest ($\pi_{10} = .53$, $p < .05$) and positive affect ($\pi_{10} = .56$, $p < .05$) compared to doing homework at home. The non-significant gender coefficients indicate similar patterns for middle school girls as well. High school students (both boys and girls) differ somewhat from younger students in their experience when doing homework at school in that high school students report lower levels of concentration ($\beta_{11} = -.38$, $p < .05$; $\beta_{13} = -.32$, ns), and lower levels of positive affect ($\beta_{11} = -.47$, $p < .10$; $\beta_{13} = -.02$, ns).

For middle school boys, the experience of doing homework in class does not differ significantly from the experience of doing homework at home. The one exception is that they report slightly higher interest in class relative to being at home ($\pi_{20} = .51$, $p < .10$). Middle school girls report similar experiences when doing homework in class, as indicated by the non-significant gender coefficients in the models. High school students (both boys and girls) differed from middle school students in their experience of homework in class. High school students report lower concentration ($\beta_{21} = -.58$, $p < .05$; $\beta_{23} = .02$, ns), lower effort ($\beta_{21} = -.34$, $p < .10$; $\beta_{23} = .59$, ns), and lower interest ($\beta_{21} = -.62$, $p < .05$; $\beta_{23} = .85$, ns) than middle school students.

When doing homework in public, middle school boys report lower concentration ($\pi_{30} = -.72$, $p < .10$), lower effort ($\pi_{30} = -.82$, $p < .10$), and greater positive affect ($\pi_{30} = 1.12$, $p < .10$) compared to doing homework at home. Middle school girls differed from middle school boys in their experience of homework in public. Middle school girls reported greater concentration ($\beta_{32} = .72$, $p < .05$), greater effort ($\beta_{32} = .60$, $p < .10$), and greater interest ($\beta_{32} = .72$, $p < .05$) relative to middle school boys in this context. High school boys and girls differed slightly from middle school boys in their experience of homework

Table 3
Two-level HLM models of the association between place and subjective experience while doing homework.

Fixed effects	Concentration (SEB)		Effort (SEB)		Interest (SEB)		Positive affect (SEB)		Stress (SEB)	
Intercept, π_{00}	1.82***	(.09)	1.78***	(.14)	1.01***	(.13)	4.32***	(.13)	.66***	(.10)
High School, β_{01}	.21*	(.09)	.01	(.13)	.30*	(.12)	.03	(.13)	.27**	(.10)
Girl, β_{02}	.11†	(.07)	.04	(.10)	.11	(.10)	.29**	(.10)	.18*	(.08)
High school x Girl, β_{03}	.09	(.17)	−.37	(.27)	−.36	(.25)	−.34	(.27)	.27	(.19)
At School (not class), π_{10}	.12	(.17)	−.04	(.22)	.53*	(.21)	.56*	(.27)	.06	(.19)
High School, β_{11}	−.38*	(.17)	−.27	(.23)	−.32	(.21)	−.47†	(.28)	−.02	(.19)
Girl, β_{12}	−.08	(.14)	.07	(.17)	−.11	(.18)	.24	(.22)	−.23	(.15)
High school x Girl, β_{13}	−.32	(.34)	.70	(.45)	.18	(.43)	−.02	(.55)	−.03	(.38)
In Class, π_{20}	.22	(.22)	−.22	(.19)	.51†	(.31)	.38	(.36)	−.25	(.26)
High School, β_{21}	−.58*	(.23)	−.34†	(.18)	−.62*	(.31)	.08	(.38)	.07	(.28)
Girl, β_{22}	.01	(.17)	.09	(.16)	−.14	(.20)	−.28	(.27)	.01	(.19)
High school x Girl, β_{23}	.02	(.45)	.59	(.38)	.85	(.62)	.60	(.73)	.28	(.54)
In Public, π_{30}	−.72†	(.40)	−.82†	(.46)	.09	(.46)	1.12†	(.63)	−.55	(.45)
High School, β_{31}	−.33	(.36)	.22	(.39)	−.68†	(.40)	−.96†	(.56)	.22	(.40)
Girl, β_{32}	.72*	(.31)	.60†	(.34)	.72*	(.33)	−.17	(.48)	.13	(.34)
High school x Girl, β_{33}	−.30	(.79)	−.87	(.89)	.14	(.87)	−.60	(1.23)	−.51	(.87)

Note. n (level-1 units) = 1235, n (level-2 units) = 309.
***$p < .001$. **$p < .01$. *$p < .05$. †$p < .10$.

in public. High school students reported lower levels of interest ($\beta_{31} = .68$, $p < .10$; $\beta_{33} = .14$, ns) and positive affect ($\beta_{31} = -.96$, $p < .10$; $\beta_{33} = -.60$, ns) relative to middle school boys.

Discussion

This study makes several important contributions to the research on homework. First, it provides a detailed description of the contexts in which adolescents do homework. Relatively little is known about age and gender patterns in where and with whom adolescents do homework, and these factors are important in understanding how homework can be most beneficial for adolescents. Second, the study systematically examines adolescents' subjective perceptions of their homework experiences: few studies have considered the student perspective in the analysis of homework. Our results indicate that situational variations in companionship and physical location influence adolescents' subjective experiences of homework. Further, we find that the impact of these situational variables on adolescents' homework experience varies by age. While we found only a few gender differences in adolescents' experience of homework (e.g., girls were generally more stressed than boys when doing homework alone and at home, and less stressed than boys when doing homework with friends), our analyses revealed several age-related differences that are suggestive of developmental patterns in adolescents' homework experiences.

As one might expect, high school students spent more time doing homework than middle school students, though the size of this difference is only about 30 min each day. This finding may be attributed to the fact that these reports came from middle and upper-middle class students who expect to attend college and are therefore already committed to fulfilling their academic responsibilities from an early age. This relatively small difference in the total time spent doing homework may also be reflective of a pattern observed by Gill and Schlossman (2003) in their analysis of NAEP data where they found that while older adolescents reported substantially heavier homework loads than younger adolescents, they were also more likely not to complete their assignments. The net result of this pattern, as indicated by our data may be a very slight increase in the actual amount of time spent on homework with age. We also found that younger adolescents were far more likely than older adolescents to be doing homework with companions, rather than alone. Half of high schoolers' homework reports occurred when they were alone, while only about a third of middle schoolers' homework reports were characterized this way. This trend may reflect developmental differences in children's cognitive independence and need for autonomy.

The notion that these age-related differences in time use reflect adolescents' developing cognitive abilities and autonomy needs is further supported by the analysis of adolescents' subjective experience while doing homework in different contexts. Middle school students report similar levels of concentration at home, in school, and in class, but generally report higher levels of interest and affect when homework is done in locations other than home. The school, class, and public locations are generally associated with greater interest and affect than the home among middle school students. High school students, on the other hand, seem to view home as a more productive place for homework: They report higher levels of concentration, and interest when doing homework at home relative to the other physical locations and relative to middle school students. This suggests that high schoolers perceive their home as a place for serious study more so than middle schoolers, which is further supported by the finding that relative to middle school students, high school students report greater levels of stress when doing homework at home.

The findings regarding companionship are consistent with those for the location of homework activities. Middle school students generally report more positive subjective experiences when they are doing homework in the company of others relative to doing homework alone. Middle schoolers report greater interest and positive affect when they do homework with friends, and their reported concentration levels with companions of any type does not differ statistically from their concentration levels when alone. High school students, on the other hand, seem to generally report more positive experiences when homework is completed alone, as indicated by high levels of concentration and interest.

A particularly noteworthy finding was that high school students in our sample were happier than their younger counterparts when doing homework with their parents. This finding is consistent with transformations in the parent-adolescent relationship between early and late adolescence (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996) and contrasts with anecdotal reports in the popular press about family battles and stress associated with parent assistance with homework. Instead, our finding may provide support for the assumption that as children grow older they are still likely to welcome and benefit from their parents' help in completing their homework. As suggested by Xu (2005), homework help might be particularly beneficial in fostering adolescents' intrinsic motivation to do homework. Examining homework experiences of 5th through 12th graders in three rural public schools in a southern state, Xu (2005) found that receiving family homework help had a positive effect on particularly boys' intrinsic reasons to do homework (it had no effect on girls' intrinsic reasons for doing homework).

Any conclusion about adolescents' experience with parents (or any other companions) should be made with caution, as the measure of companionship in these data was subjective and depended entirely upon adolescents' individual perception of what being "with" somebody meant. This limitation should be taken into account not only with regard to adolescents' reports of their quality of experience (as in our findings regarding how adolescents feel when doing homework with parents), but also in the interpretation of our findings regarding time use. For example, high schoolers in our study reported spending more time than middle schoolers doing homework alone. While it is highly likely that high schoolers would spend more time alone, it also might be the case that high schoolers may be more cognitively independent than middle schoolers. As a result, high schoolers would be more likely than middle schoolers to report doing homework "alone" when other people are physically present but not actively involved in the adolescents' activity at the time.

This caveat about the subjective nature of companionship notwithstanding, the findings seem to suggest that the presence of others may serve a supportive role in the homework experience of middle school students, while serving as a distraction when high school students are doing their homework. Middle school students may still be developing the self-regulatory strategies necessary to complete homework alone. By the time adolescents reach high school, however, they appear to have developed the skills to engage in homework by themselves, and in less structured environments like their homes. Parents and educators would be advised to take such effects of peer/friend presence during homework completion into consideration in structuring homework environments. As such, doing homework with friends might be more advisable for middle school students than high school students.

While our results are more suggestive of age differences than gender differences, a few gender differences are noteworthy. In general, doing homework alone and at home was associated with greater stress for girls than boys, and companions such as friends seemed to reduce girls' stress levels. These findings add to existing research reporting greater levels of homework stress among girls (Rogers & Hallam, 2006) by suggesting that gender differences in stress levels may be dependent on the context in which homework is done. Interestingly, girls also reported greater positive affect than boys when they were doing homework at home — a finding which suggests that, compared to boys, girls may experience more emotional fluctuation at home; girls experience both positive and negative emotional reactions to homework in this context.

Looking across all HLM models, there was only one significant age x gender interaction, suggesting lower interest in homework done alone

among high school girls. The fact that an interaction effect emerged in only one of many models indicates that firm conclusions cannot be drawn until more evidence is forthcoming. However, if similar age by gender interactions are borne out in future studies, this might suggest a benefit of more social homework contexts like the after school homework programs common in many schools for maintaining interest levels among older girls.

This study has several limitations that could be addressed in future research. First, the participants in this study were drawn from middle and upper middle class communities in the Midwestern United States and were predominately Anglo-American, and many of our results were marginally significant. Readers should take care not to over generalize the results of this study to other groups of adolescents. Second, this is a cross sectional study. A longitudinal study might be able to examine possible reciprocal effects of homework and affect across time, within subjects. Third, there are many different types of homework ranging from rote drill and practice to work on creative and complex projects. It would be of great interest to educators to know about how adolescents' subjective experiences vary when doing different types of homework. Finally, the data were collected a decade ago. There is no evidence that students do more or less homework now than they did then. In fact, a recent study we conducted suggests that the time spent doing homework is very similar in the new sample (Shumow, Lyutykh, & Schmidt, in press). There might be changes in the quality of homework time, however, because more students appear to be multitasking with media when doing homework (Rideout, Foehr, & Roberts, 2010).

The present study contributes to our core knowledge about how homework is perceived by youth. The age and gender differences identified in this descriptive study can inform more specific hypotheses to be developed and tested in future research.

A plethora of advice about homework is available for adolescents, parents, and educators but little of that advice has been drawn from research tailored for particular groups of students. It is important for educators, parents, and others who work with adolescents to know about probable variations in adolescents' experience of homework so that they can better plan for and help adolescents to structure their homework. Given the importance of fostering a homework habit for academic success in high school and beyond, it is necessary to understand adolescents' perspectives about this important activity.

References

Bempechat, J. (2004). The motivational benefits of homework: A social-cognitive perspective. *Theory into Practice*, *43*(3), 189–196.

Bronfenbrenner, U. (1992). Ecological systems theory. In R. Vasta (Ed.), *Six theories of child development* (pp. 187–249). London: Jessica Kingsley.

Catsambis, S. (1994). The path to math: Sex and racial-ethnic differences in mathematics participation from middle school to high school. *Sociology of Education*, *67*(3), 199–215.

Cooper, H., Robinson, J., & Patall, E. (2006). Does homework improve academic achievement?: A synthesis of research 1987 – 2003. *Review of Educational Research*, *76*(1), 1–62.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: HarperCollins.

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: HarperCollins.

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent: Conflict and growth in the teenage years.* New York, NY: Basic Books.

Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience – sampling method. *The Journal of Nervous and Mental Disease*, *175*, 526–536.

Csikszentmihalyi, M., & Schneider, B. (2000). *Becoming adult:* how teenagers prepare for the world of work. New York, NY: Basic Books.

Duckworth, A. L., & Seligman, M. E. P. (2006). Self-discipline gives girls the edge: Gender in self-discipline, grades, and achievement test scores. *Journal of Educational Psychology*, *98*(1), 198–208.

Eccles, J. (1983). Expectancies, values and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 75–146). San Francisco, CA: Freeman.

Gill, B. P., & Schlossman, S. L. (2003). A nation at rest: The American way of homework. *Educational Evaluation and Policy Analysis*, *25*(3), 319–337.

Hektner, J., Schmidt, J. A., & Csikszentmihalyi, M. (2007). *Experience sampling method: measuring the quality of everyday life.* Thousand Oaks, CA: Sage.

Kantrowitz, B., & Wingert, P. (2001). The parent trap. *Newsweek*, *137*(5), 49–55 January 29.

King, K., & Gurian, M. (2006). Teaching to the minds of boys. *Educational Leadership*, *64* (1), 56–58, 60-61.

Kralovec, E., & Buell, J. (2000). *The end of homework: How homework disrupts families, overburdens children, and limits learning.* Boston, MA: Beacon.

Kubey, R., Larson, R., & Csikszentmihalyi, M. (1996). Experience sampling method applications to communication research questions. *The Journal of Communication*, *46*, 99–120.

Larson, R., & Richards, M. (1994). *Divergent realities: the emotional lives of mothers, fathers, and adolescents*. New York, NY: Basic Books.

Larson, R., Richards, M., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology*, *32*(4), 744–754.

Leone, C., & Richards, M. (1989). Classwork and homework in early adolescence: The ecology of achievement. *Journal of Youth and Adolescence*, *18*(6), 531–548.

Loveless, T. (2003). *The 2003 Brown Center report on American education: How well are American students learning?* Retrieved July 13, 2006 from. Washington, DC: Brookings Institute. http://www.brook.edu/gs/brown/20031001.pdf.

Mau, W., & Lynn, R. (2000). Gender differences in homework and test scores in mathematics, reading and science at tenth and twelfth grade. *Psychology, Evolution & Gender*, *2*(2), 119–125.

Patrikakou, E. (2004). *Adolescence: Are parents relevant to students' high school achievement and post-secondary attainment.(Family Involvement Research Digest).* Retrieved November 16, 2008, from. Cambridge, MA: Harvard Family Research Project. http://www.hfrp.org/family-involvement/publications-resources/adolescence-are-parents-relevant-to-students-high-school-achievement-and-post-secondary-attainment.

Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications*. Upper Saddle River, NJ: Merrill, Prentice Hall.

Raudenbush, S. W., & Bryk, A. S. (2002). Hierarchical linear models: Applications and data analysis methods. Newbury Park, CA: Sage.

Rideout, V., Foehr, U., & Roberts, D. (2010). *Generation M2: Media in the lives of 8 to 18 year olds.* Retrieved September 28, 2010 from. Menlo Park, CA: Henry J. Kaiser Foundation. http://www.kff.org/entmedia/8010.cfm.

Rogers, L., & Hallam, S. (2006). Sex differences in approaches to studying for the GCSE among high-achieving pupils. *Educational Studies*, *32*(1), 59–71.

Sax, L., Lindholm, J. A., Astin, A. W., Korn, W. S., & Mahoney, K. M. (2002). *The American freshman: National norms for fall 2002*. Los Angeles, CA: Higher Education Research Institute, UCLA.

Schneider, B., & Waite, L. J. (2005). *Being together, working apart: Dual-career families and the work-life balance*. New York, NY: Cambridge University Press.

Shernoff, D., Csikszentmihalyi, M., & Schneider, B. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly*, *18*(2), 158–176.

Shumow, L., Lyutykh, E., & Schmidt, J. A. (in press). Predictors and outcomes of parental involvement with students enrolled in science classes during high school. *School Community Journal.*

Shumow, L., Schmidt, J. A., & Kackar, H. (2008). Adolescents' experience doing homework: Associations among context, quality of experience and outcomes. *The School Community Journal*, *18*(2), 9–27.

Simon, B. (2001). Family involvement in high school: Predictors and effects. *NASSP Bulletin*, *85*(627), 8–19.

Snyder, T. (1998). Trends in education. *Principal*, *78*(1) 40, 42, 44, 46-48.

Thibert, G., & Karsenti, T. P. (1995). *Motivation profile of adolescent boys and girls: Sex differences throughout schooling.* Paper presented at the annual conference of the American Educational Research Association, San Francisco, CA, April 8–12.

Timmer, S. G., Eccles, J., & O'Brien, K. (1985). How children use time. In F. Juster & F.P. Stafford (Eds.), *Time, goods, and well-being* (pp. 353–382). Ann Arbor, MI: Institute for Social Research.

Ver Ploeg, M., Altonji, J., Bradburn, N., DaVanzo, J., Nordhaus, W., & Samaniego, F. (2000). *Time-use measurement and research: Report of workshop.* Retrieved October 31, 2007, from. Committee on National Statistics, National Research Council, Washington, DC: National Academy Press. http://books.nap.edu/openbook.php?record_id=9866&page=R1.

Warton, P. (2001). The forgotten voices in homework: Views of students. *Educational Psychologist*, *36*(3), 155–165.

Xu, J. (2004). Family help and homework management in urban and rural secondary schools. *Teachers College Record*, *106*(9), 1786–1803.

Xu, J. (2005). Purposes for doing homework reported by middle and high school students. *Journal of Educational Research*, *99*(1), 46–55.

Xu, J. (2006). Sex and homework management reported by high school students. *Educational Psychology*, *26*(1), 73–91.

Xu, J., & Corno, L. (2006). Sex, family help, and homework management reported by rural middle school students. *Journal of Research in Rural Education*, *21*(2), 1–13.

Zuzanek, J. (1999). *Experience sampling method: Current and potential research applications.* Paper presented at the Workshop on Measurement of and Research on Time Use, May 27–28.