Homework Purpose Scale for High School Students: A Validation Study

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Educational and Psychological Measurement 2010 70: 459 originally published online 31 August 2009
DOI: 10.1177/0013164409344517

Educational and Psychological Measurement
70(3) 459–476

DOI: 10.1177/0013164409344517
http://epm.sagepub.com
SAGE

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Abstract

The purpose of this study is to test the validity of scores on the Homework Purpose Scale using 681 rural and 306 urban high school students. First, confirmatory factor analysis was conducted on the rural sample. The results reveal that the Homework Purpose Scale comprises three separate yet related factors, including Learning-Oriented Reasons, Adult-Oriented Reasons, and Peer-Oriented Reasons. This factor structure is tested with the data from the urban sample. Given an adequate level of configural, factor loading, common error covariance, and intercept invariance, the difference between the group means is further tested. The results reveal that urban high school students, as compared with their rural counterparts, are more likely to do homework for adult-oriented reasons.

Keywords

homework purpose, scale development, factor analysis, high school students

According to an expectancy-value model of achievement-related choices (Eccles, 1983; Eccles & Wigfield, 1995, 2002; Wigfield & Eccles, 2000; Wigfield, Tonks, & Eccles, 2004), various aspects of students' experience and understandings are assumed to directly influence task choice, persistence, and performance (e.g., beliefs about a task and expectancies for success). One of the critical aspects in this model relates to the utility of the academic task at hand (i.e., students' evaluation of how useful a task is). Thus, from the perspective of homework as an achievement-related activity, its utility value bears direct relevance to homework investigation (Warton, 2001).

Defined as "tasks assigned to students by school teachers that are meant to be carried out during non-school hours" (Cooper, 1989, p. 7), homework rarely reflects a

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single purpose (Brock, Lapp, Flood, Fisher, & Han, 2007; Cooper, Robinson, & Patall, 2006; Corno & Xu, 2004; Epstein, 2001; Epstein & Van Voorhis, 2001; Gill & Schlossman, 2003; Muhlenbruck, Cooper, Nye, & Lindsay, 2000; Van Voorhis, 2001, 2004; Warton, 2001). Based on homework literature and their work with educators, Epstein and Van Voorhis (2001), for example, developed a list of 10 purposes for doing homework, including practice, preparation, participation, personal development, parent–child relations, parent–teacher communications, peer interactions, policy, public relations, and punishment. Subsequently, Van Voorhis (2004) further classified these 10 purposes into three groups: instructional (i.e., the first four purposes), communicative (i.e., the next three purposes), and political (i.e., the final three purposes).

From a slightly different angle, Cooper et al. (2006) divided the purposes of homework into two broad categories, including instructional (e.g., review, practice, preparation, extension, and integration) and noninstructional (e.g., communication between parent and child, fulfilling directives from school administrators, public relation, and punishing students). These homework purposes, however, are largely perceived, identified, and viewed as important by adults (e.g., to meet the purposes of the teacher and the school administrator; Cooper et al., 2006; Xu, 2005), thus reflecting an adult point of view (Coutts, 2004; Henderson, 2006; Warton, 2001). Indeed, Warton (2001) argued that some of the purposes—such as policy, public relations, and promoting parent–teacher communication—appear to have no direct relevance to children.

The attention on adult point of view is understandable, because homework is assigned by adults and not solicited by children. On the other hand, it begs an important question of how homework purposes are perceived and identified by children, as their own views about homework play a more important role on their homework behavior than those ascribed by adults (Bryan, Nelson, & Mathur, 1995; Cooper, Lindsay, Nye, & Greathouse, 1998; Leung, 1993; Warton, 2001; Xu, 2004, 2005, in press).

Several recent studies have begun to shed some light on children's understanding of the purposes of homework. In a qualitative study, Xu and Corno (1998) examined purposes of homework held by elementary school students, their parents, and teachers. Data revealed that the parents and teachers shared similar views about purposes for doing homework (e.g., reinforcing school learning). On the other hand, homework was viewed by the children as one route to gain approval from their parents and teachers.

In another qualitative study, Xu and Yuan (2003) compared homework purposes as perceived by middle school students, their parents, and teachers. All the participants here mentioned that one purpose for doing homework was to review and reinforce what students learned in class. On the other hand, students further stated that they did homework to please significant others or to comply with their expectations.

In a survey study, Cooper et al. (1998) compared homework attitudes as perceived by secondary school students, their parents, and teachers. Results showed that student attitudes toward homework were significantly more negative than were found either

among parents or teachers, suggesting that there is a discrepancy in homework attitudes held by students and adults.

Informed by findings from these studies (as discussed above), along with relevant literature tapping into homework purposes (e.g., Cooper, 1989; Epstein & Van Voorhis, 2001; Murphy et al., 1987; Warton, 2001), Xu (2005) conducted an exploratory factor analysis (EFA) to ascertain the underlying factor structure of a set of homework purposes. The participants were 920 students in Grades 5 to 12, in three rural public schools in a southern state. The sample included 90% Caucasians, 3% Latinos, 3% multiracial students, 2% Asian Americans, 1% African Americans, and 1% Native Americans.

The eight homework purposes in the study ranged from reinforcing school learning, developing a sense of responsibility and good discipline, learning study skills, learning to work independently to gaining approval from teachers, parents, and peers. The EFA results indicated that these purposes could be reduced to a two-factor structure. One factor was labeled as Intrinsic Factor, consisting of five items regarding reinforcement of school learning and the development of self-regulatory attributes (e.g., responsibility and study skills); the second factor was labeled as Extrinsic Factor, including three items relating to gaining approval from teachers, parents, and peers. Thus, it appears that students differentiate homework purposes according to whether they do homework for school learning (e.g., academic and nonacademic outcomes) or to seek approval from their significant others (e.g., parents, teachers, and peers).

To provide a broader perspective on how homework is viewed by rural and urban students from diverse cultural backgrounds, Xu (in press) examined purposes for doing homework as perceived by 1,800 rural and urban secondary school students in the Southeast. The sample was 56% Caucasian, 37% African American, 3% multiracial, 1% Latino, 1% Native American, and 1% Asian American.

The homework purpose instrument consisted of 15 items (see appendix), which retained all eight homework purposes used in the previous study (Xu, 2005), while incorporating 7 new items. Several new items were incorporated to better examine homework as an achievement-related activity (Epstein & Van Voorhis, 2001; Van Voorhis, 2004; Warton, 2001), such as practicing skills from class lessons, preparing for the next lesson, and getting a good grade. Others were included to better reflect the ever-changing reality of doing homework at home, such as opportunities to work with peers presented by the emergence of new technologies (Corno, 2000; Epstein & Van Voorhis, 2001; Foehr, 2006; Lenhart, Madden, & Hitlin, 2005; Lenhart, Simon, & Graziano, 2001; National School Boards Association, 2007).

The EFA results indicated that the 15 homework purpose statements could be reduced to a three-factor structure. One factor was labeled as Learning-Oriented Reasons, consisting of nine items relating to school learning (whether it is about academic progress or self-regulation). The second factor was labeled as Adult-Oriented Reasons, consisting of three items relating to gaining approval from their significant others (parents and teachers). The third factor was labeled as Peer-Oriented Reasons,

consisting of three items relating to their peers. Alpha reliability coefficients for scores on these three factors were .90, 79, and .79, respectively.

Thus, unlike the finding of the two-factor structure in a previous study (Xu, 2005), Xu's recent study (in press) took another step forward, by differentiating peer-oriented reasons from adult-oriented reasons. On the other hand, although the homework purpose instrument was informed by and built on related literature on perceived reasons for doing homework assignments (e.g., C. Chen & Stevenson, 1989; Cooper, 1989; Cooper et al., 1998; Epstein & Van Voorhis, 2001; Warton, 2001; Xu, 1994; Xu & Corno, 1998; Xu & Yuan, 2003) and with adequate alpha reliability coefficients, the validity of scores on the instrument was not tested through the use of confirmatory factor analysis (CFA).

Purpose of the Study

The aim of the present study was to validate scores on the homework purpose instrument for high school students based on rural and urban classification, which represents an important categorical distinction that may be related to homework purposes. Rural settings, as compared with urban settings, tend to hold lower educational aspiration (Arnold, Newman, Gaddy, & Dean, 2005; Cobb, McIntire, & Pratt, 1989; Haller & Virkler, 1993; S. Hu, 2003) and place less importance on academics (Ley, Nelson, & Beltyukova, 1996; Stern, 1994), which may influence students' attitudes toward homework. Thus, rural students may perceive less utility for doing homework and may feel less compelled to do homework.

Specifically, the purposes of the present study were (a) to examine the factor structure of the Homework Purpose Scale (HPS) with a sample of rural high school students, (b) to test the best-fitting model for the rural sample with a sample of urban high school students, and (c) to test construct and concurrent validity by examining the relationship between scores on the HPS and scores assessing relevant homework behaviors (e.g., homework management strategies and homework completion). The focus on how homework purposes as perceived by high school students is particularly important, as they usually have been left out of the public discussions on homework (Loveless, 2003; Warton, 2001; Xu, 2004). Yet homework is found more strongly associated with academic achievement for high school students than middle and elementary school students (Cooper & Valentine, 2001). Meanwhile, as students grow older their own attitudes about homework play an increasingly important role in how much homework they complete in their class grade (Cooper et al., 1998).

Method

Participants and Procedure

The participants were 987 eleventh graders in the southeastern United States, including (a) 681 students in 36 classes in six school districts and (b) 306 students in

16 classes in three urban public schools in two school districts. The survey response rate was 88.9%; and the racial/minority breakdown of the students who responded the survey was comparable with that of these school districts overall.

Of the 681 students in the rural high school sample, 46.4% were male and 53.6% were female. The sample was 53% Caucasians, 40% African Americans, 3% multiracial students, 2% Latinos, 1% Asian Americans, and 1% Native Americans. Among the rural sample, 40.1% received free meals.

Of the 306 students in the urban high school sample, 46.9% were male and 53.1% were female. The sample was 54% African Americans, 38% Caucasians, 3% multiracial students, 3% Native Americans, 2% Asian Americans, and 1% Latinos. Among the urban sample, 35.9% received free meals.

Instrument

The HPS is composed of 15 items using a 4-point response format in which students are asked to select a response from 1 (*strongly disagree*), 2 (*disagree*), 3 (*agree*), or 4 (*strongly agree*). The scale comprises three subscales, including (a) Learning-Oriented Reasons (9-item subscale, e.g., "doing homework helps you understand what's going in class"), (b) Adult-Oriented Reasons (3-item subscale, e.g., "doing homework brings you family approval"), and (c) Peer-Oriented Reasons (3-item subscale, e.g., "doing homework gives you opportunities to learn from classmates"). Based on the results of a previous study of secondary school students (Xu, in press), alpha reliability coefficients for scores on these three subscales were .90 for Learning-Oriented Reasons, .79 for Adult-Oriented Reasons, and .79 for Peer-Oriented Reasons.

Data Analysis

Analyses were conducted in several stages using EQS version 6.1 (Bentler, 2006); each is described fully below.

Stage 1. The validity of a three-factor structure for rural high school students (n = 681) was tested using CFA. Specifically, the model hypothesized a priori that (a) responses to the HPS could be explained by the three factors labeled Learning-Oriented Reasons, Adult-Oriented Reasons, and Peer-Oriented Reasons; (b) each item would have a nonzero loading on each factor that it was designed to measure and zero loadings on all other factors; (c) the three factors were correlated; and (d) the error-uniqueness terms associated with the item measurements were uncorrelated.

Multiple criteria were used in determining the goodness of fit to the data for this hypothesized structure, including the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). CFI values near 1.0 are optimal, with values greater than .90 indicating acceptable model fit (Kline, 2005). Originally, a value of .90 or greater was suggested as evidence of adequate fit. However, it was later suggested a value of .95 as a criterion for adequate fit (L. T. Hu & Bentler, 1999). More recently, others argue

that the cutoff value of .95 is too restrictive (e.g., Marsh, Hau, & Wen, 2004). Consequently, Byrne (2008) suggests that CFI values in the range of .92 through .94 may be considered as reasonable indicators of good model fit. Meanwhile, the RMSEA values less than .05 indicate good fit, with values as high as .08 representing reasonable errors of approximation in the population (Browne & Cudeck, 1993; Byrne, 2008). Finally, the SRMR values less than .08 indicate a well-fitting model (L. T. Hu & Bentler, 1999).

Stage 2. After testing the validity of a three-factor structure for the rural sample, I examined whether the best-fitting model for the rural sample could be tested with data from the urban high school sample ($n = 306$).

Stage 3. After the separate determination of a baseline model for the rural and urban samples, tests for factorial invariance were conducted across groups at each of several increasingly stringent levels (Byrne, 2006; F. F. Chen, Sousa, & West, 2005). These included testing for (a) configural invariance, (b) factor loading invariance, (c) invariance of common error covariance, (d) intercept invariance, and (e) latent factor mean invariance. Following the recommendation by Vandenberg and Lance (2000), evidence of invariance was based on the combination of both overall (CFI, RMSEA, and SRMR) and incremental goodness-of-fit indices (ΔCFI and $\Delta\chi^2$). Specifically, in line with the available guidelines (e.g., Byrne, 2006; F. F. Chen et al., 2005; Usher & Pajares, 2008; Vandenberg & Lance, 2000), two indicators were used as criteria for invariance: a nonsignificant change in chi-square and a change in CFI of less than or equal to .01 (Cheung & Rensvold, 2002).

Stage 4. With respect to validity evidence for the HPS scores, the rural and urban students in the present study were asked additional questions about their homework behaviors, relating to (a) Homework Management Scale (HMS; Xu, 2008b, 2008c), (b) the amount of homework they completed, and (c) the reported frequency of coming to class without homework.

The HMS is composed of 22 items using a 5-point response format, in which students are asked to select a response from 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), or 5 (*routinely*). It comprises five subscales, including (a) arranging the environment (5-item subscale, e.g., "find a quiet place"), (b) managing time (4-item subscale, e.g., "set priority and plan ahead"), (c) handling distraction (5-item subscale, e.g., "stop homework to send or receive instant messaging"), (d) monitoring motivation (4-item subscale, e.g., "find ways to make homework more interesting"), and (e) controlling emotion (4-item subscale, e.g., "calm myself down"). Of the 22 items in the HMS, 5 items were reverse scored. Alpha reliability coefficient for scores on the five subscales were .75, .74, .74, .83, and .80, respectively.

In addition, the students were asked, "Some students often complete homework on time; others rarely do. How much of your assigned homework do you usually complete?" Possible responses include 1 (*none*), 2 (*some*), 3 (*about half*), 4 (*most*), and 5 (*all*). The students were also asked, "How often do you come to class without your homework?" Possible responses include 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), and 5 (*routinely*). Finally, Pearson correlation coefficients were calculated (a) between

each subscale of the HPS and each subscale of the HMS, (b) between each subscale of the HPS and the amount of homework completed by students, and (c) between each subscale of the HPS and the reported frequency of coming to class without homework.

Results

Because the data from the present study may be viewed as multilevel in structure (i.e., students nested within classes), data-based intraclass correlations were computed first. The results from the two groups combined (n = 987) revealed that intraclass correlation coefficients were rather small, ranging from .004 to .071 (with mean intraclass correlation coefficient .036). Consequently, the multilevel structure of the data was not modeled in this study, based on the following considerations. First, Muthén (1997) suggests that the multilevel structure of the data should be typically modeled when values of .1 or larger are combined with group sizes exceeding 15. Second, I did explore the multilevel structure based on the combined rural sample (36 classes) and urban sample (16 classes), as multiple analysis usually requires at least 50 to 100 groups to examine the between-class variation (Muthén, 1994). The results indicated that the postulated structure as a multilevel model was unrealistic. For example, for the between-level estimates, of the 15 error variances, none of them were statistically significant.

Stage 1

Based on data from the rural high school sample (n = 681), I used CFA to test for validity of the HPS structure as described previously. Among 15 skewness and 15 kurtosis values, only one item with a kurtosis value was larger than the absolute value 1 (i.e., 1.68 for Item 3). However, the multivariate sample statistics were highly suggestive of nonnormality in the sample, as evidenced by Mardia's normalized estimate (43.92), which was greater than the cutoff point of 5.00 suggested by Bentler (2006). Consequently, I used robust statistics, rather than regular statistics, to account for some nonnormality in the data.

As shown in Table 1, initial testing of the hypothesized model for this group yielded a marginally good fit as indicated by the following criteria: *CFI = .909; SRMR = .062; *RMSEA = .073; 90% confidence interval (CI) = .065-.080 (* represents robust statistics). Examination of modification indexes related to these data identified two large correlated errors: one between Items 11 and 12 (teacher approval vs. family approval) and another between Items 14 and 15 (opportunities to work with classmates vs. opportunities to learn from classmates). Given the substantive reasonableness of these two parameters, I specified a final model for the rural sample in which both parameters were estimated freely. The standardized estimates for the correlated errors were .564 and .409 for Items 14 and 15, and Items 11 and 12, respectively. Goodness-of-fit results from the final model revealed a striking improvement in the overall fit (*CFI = .937; SRMR = .046; *RMSEA = .061; 90% CI = .053-.069).

Table 1. Hypothesized Model of the HPS: Goodness-of-Fit Statistics

Model	χ^2	*df*	S-Bχ^2	CFI	RMSEA	RMSEA 90% CI	SRMR
Rural sample							
Initial	524.690	87	384.454	.909	.073	.065-.080	.062
Final (two error covariances[a])	395.445	85	289.865	.937	.061	.053-.069	.046
Urban sample							
Initial	250.055	87	184.499	.921	.065	.051-.077	.073
Final (two error covariances[a])	191.581	85	143.614	.952	.051	.036-.064	.049

Note: HPS = Homework Purpose Scale; S-Bχ^2 = Satorra-Bentler chi-square statistic; *df* = degrees of freedom; CFI = robust comparative fit index; RMSEA = robust root mean square error of approximation; CI = confidence interval (see Steiger, 1990); SRMR = standardized root mean square residual.
a. Between Items 11 and 12 and between Items 14 and 15.

Stage 2

The best-fitting model for the rural high school sample was tested with data from the urban high school sample. First, I used CFA to determine a baseline model for the urban sample (n = 306). Among 15 skewness and 15 kurtosis values, only one item with a skewness value was larger than the absolute value 1 (i.e., –1.08 for Item 8). However, the multivariate sample statistics were again highly suggestive of nonnormality in the sample (i.e., Mardia's normalized estimate = 23.45). Accordingly, robust statistics were used to take this nonnormality into account.

As shown in Table 1, the initial results from the urban sample indicated a marginally good fit to the data (CFI = .921; SRMR = .073; RMSEA = .065; 90% CI = .051, –.077). Following that, the same two error covariances (i.e., one between Items 11 and 12 and another between Items 14 and 15) were included in the final model for the urban sample. The standardized estimates for the correlated errors were .617 and .179 for Items 14 and 15 and Items 11 and 12, respectively. The final model for the urban sample represented a well-fitting model for the validation sample of urban high school students (CFI = .952; SRMR = .049; RMSEA = .051; 90% CI = .036, –.064).

Stage 3

With an established baseline model for the rural and urban high samples, an attempt was made to test the validity of the multigroup model in which both baseline models were tested simultaneously to determine evidence of invariance.

Configural invariance (Model 1). In testing for this level of invariance, the same parameters estimated in the baseline model for each group were estimated across the two groups. The primary purpose was to examine whether the same item was an indicator of the same latent factor in each group (F. F. Chen et al., 2005). The fit of this

configural model provided the baseline value against which all subsequently specified invariance models were compared (Byrne, 2006). As Table 2 shows, results indicated an adequate fit of the model to the data (CFI = .942; SRMR = .048; RMSEA = .041; 90% CI = .036, –.046).

Factor loading invariance (Model 2). In testing for this form of invariance, I placed equality constraints on all freely estimated factor loadings in both baseline models to see whether the unit of measurement of the underlying factor was identical (F. F. Chen et al., 2005). As can be seen in Table 2, the Satorra–Bentler chi-square difference was not statistically significant, ΔS-Bχ^2 (Δdf = 12) = 15.488, $p > .05$, and ΔCFI = .002. These results indicated that the factor loadings were invariant across the rural and urban samples.

Invariance of common error covariance (Model 3). Testing for invariance of common error covariance is considered extremely stringent (Byrne, 2006; Widaman & Reise, 1997). However, given that the two error covariances (between Items 12 and 11 and between Items 15 and 14) were important parameters in the baseline models for both the rural and high school urban samples, it was important from a psychometric perspective to test for their invariance across the two groups. As Table 2 indicates, the error covariances tested were invariant across the two groups, $\Delta S\text{-}B\chi^2$ (Δdf = 14) = 17.535, $p > .05$, and ΔCFI = .002.

Intercept invariance (Model 4). Model 4 imposed additional constraints to determine whether the two sets of intercepts were invariant. The purpose was to examine whether scores from different groups had the same unit of measurement as well as the same origin. In addition to the constraints already imposed on the factor loadings and two common error covariances (between Items 12 and 11 and between Items 15 and 14), the intercepts of the measured variables were constrained so that they were equal across groups. The Satorra–Bentler chi-square difference test between Model 4 and Model 1 was statistically significant, ΔS-Bχ^2 (Δdf = 29) = 45.007, $p < .05$. However, given that there was hardly any difference in CFI (i.e., ΔCFI = .002), it was reasonable to conclude that there was no appreciable difference between these two groups on the intercepts of the measured variables.

Latent factor mean invariance (Model 5). After intercept invariance was achieved, the factor means could be compared further across the two groups. As the mean of a latent variable cannot be directly estimated (Hancock, 1997), to obtain an estimate of the difference between the latent factor means in the two groups, the rural school group was designated as the reference group and its factor latent means were fixed to zero. Invariance of factor loadings, two common error covariances (Items 12 and 11 and Items 15 and 14), and intercepts of the measured variables were imposed on the rural and urban samples. Estimated latent mean values indicated that urban high school students had significantly higher scores in adult-oriented reasons than rural high school students (estimated latent mean difference = .129; $z = 2.324$; $p < .05$). However, no differences were found between urban and rural high school students on the latent means for learning-oriented reasons (estimated latent mean difference = .067;

Table 2. Tests for Invariance of the HPS: Summary of Goodness-of-Fit Statistics

Model (Invariance)	S-Bχ^2	*df*	CFI	RMSEA	RMSEA 90% CI	SRMR	Model Comparison	ΔS-Bχ^2	Δdf	Δ*CFI
1. Configural	435.130	170	.942	.041	.036-.046	.048	—	—	—	—
2. Factor loading	452.776	182	.940	.040	.036-.045	.056	2 vs. 1	15.488	12	.002
3. Common error covariance	454.512	184	.940	.040	.035-.045	.056	3 vs. 1	17.535	14	.002
4. Intercept	485.806	199	.940	.040	.035-.044	.056	4 vs. 1	45.007*	29	.002
5. Latent factor mean	479.597	196	.940	.040	.035-.044	.056	5 vs. 1	39.396*	26	.002

Note: HPS = Homework Purpose Scale; S-Bχ^2 = Satorra-Bentler chi-square statistic; *df* = degrees of freedom; CFI = robust comparative fit index; RMSEA = robust root mean square error of approximation; CI = confidence interval (see Steiger, 1990); SRMR = standardized root mean square residual. The DS-Bχ^2 represents a corrected value (see Satorra & Bentler, 2001).
*$p < .05$.

$z = 1.479$; $p > .05$) and peer-oriented reasons (estimated latent mean difference = .065; $z = 1.163$; $p > .05$).

Cohen's (1988) *d* effect size measure was computed to investigate the magnitude of the latent mean differences, by dividing the latent mean difference by the pooled standard deviation across groups (Hong, Malik, & Lee, 2003). The computed value of *d* was .183 between urban and rural students on adult-oriented reasons, .116 between urban and rural students on learning-oriented reasons, and .091 between urban and rural students on peer-oriented reasons. All these values can be considered small based on Cohen's (1988) guidelines for interpreting effect size values.

Stage 4

With respect to descriptive statistics for the rural and urban high school samples combined ($n = 987$), the means for the three subscales were as follows: 7.13 ($SD = 2.15$) for Peer-Oriented Reasons, 8.18 ($SD = 2.12$) for Adult-Oriented Reasons, and 26.02 ($SD = 5.20$) for Learning-Oriented Reasons. Reliability coefficients and the 95% CIs (Fan & Thompson, 2001) for scores on the three subscales were .79 (.77, .81) for Peer-Oriented Reasons, .77 (.75, .80) for Adult-Oriented Reasons, and .89 (.88, .90) for Learning-Oriented Reasons. These reliability estimates are in the adequate to good range (Henson, 2001; Nunnally & Bernstein, 1994). Item–total correlations ranged from .478 to .717 (mean item–total correlation .637), indicating good homogeneity.

To examine the concurrent validity of the HPS, I examined the relationship between scores on the HPS and scores assessing related homework behaviors. As the significance students attach to academic tasks is critical for the efforts they will contribute to the endeavor and the persistence they will display (Eccles, 1983; Eccles & Wigfield, 1995, 2002), as their views about homework play an important role on their homework behaviors (Bryan et al., 1995, Cooper et al., 1998; Warton, 2001; Xu, 2005, 2008a), including homework management strategies that they use to aid homework completion regardless of the task's content or difficulty (Xu, 2006, 2007; Xu & Corno, 2003, 2006), I hypothesized that each scale of the HPS would be positively correlated with homework management strategies. As illustrated in Table 3, correlations coefficients among these variables were all positive and statistically significant, with (a) medium-sized coefficients between learning-oriented reasons and homework strategies ($.210 \le r \le .399$), (b) small- to medium-sized coefficients between adult-oriented reasons and homework strategies ($.170 \le r \le .320$), and (c) small- to medium-sized coefficients between peer-oriented reasons and homework strategies ($.095 \le r \le .329$).

The coefficients between adult-oriented reasons and homework strategies were comparable with the coefficients between peer-oriented reasons and homework strategies, except relating to arranging the environment (.267 for adult-oriented reasons and .177 for peer-oriented reasons) and handling distraction (.170 for adult-oriented reasons and .095 for peer-oriented reasons). One possible explanation is that cooperative learning activities often contain peer distractions (Corno, 2004; Rogers & Swan, 2004). Compared with those students with higher scores in adult-oriented reasons,

Table 3. Zero-Order Correlations Between Homework Purpose and Homework Behaviors (*N* Varies From 916 to 959)

Homework Behaviors	Peer-Oriented Reasons	Adult-Oriented Reasons	Learning-Oriented Reasons
Homework management strategies			
Arranging the environment	.177	.267	.368
Managing time	.220	.205	.305
Handling distraction	.095	.170	.210
Monitoring motivation	.329	.320	.399
Controlling emotion	.246	.305	.339
The amount of homework students completed	.152	.170	.287
The frequency of coming to class without homework	−.107	−.090	−.230

Note: All correlations are statistically significant with $p < .01$.

students with higher scores in peer-related reasons are more likely to consult with friends about homework assignments, which may lead them to engage in other social activities unrelated to the homework task at hand and may lead them to take relatively less initiative in arranging a quiet and conducive homework environment.

I further examined correlations of subscales of the HPS with the amount of homework completed by students as well as the reported frequency of coming to class without homework. As expected, all three subscales of the HPS were positively associated with amount of homework completed by students and negatively associated with the frequency of coming to class without homework. In addition, the magnitude of coefficients was similar to the coefficients between subscales of the HPS and homework strategies, in the sense that learning-oriented reasons (as compared with peer-oriented reasons and adult-oriented reasons) was more strongly associated with the amount of homework completed by students and the frequency of coming to class without homework. Taken together, all correlations were of magnitude and direction consistent with theoretical expectations, thereby providing further support to the validity of the HPS.

Discussion

The primary purpose of this study was to test the validity of scores on the HPS for high school students. Factor-analytic results revealed that the HPS comprised three separate yet related factors: Learning-Oriented Reasons, Adult-Oriented Reasons, and Peer-Oriented Reasons. Given an adequate level of configural, factor loading, common error covariance, and intercept invariance, the difference between the group means was further tested. Results showed that there was a small but statistically significant difference between urban and rural high school students on adult-oriented reasons for doing homework. In addition, results showed that the three subscales of the HPS were

positively associated with homework management strategies and the amount of homework completed by students and were negatively associated with the frequency of coming to class without homework.

What do we make out of the finding that urban high school students were more likely to do homework for adult-oriented reasons than their rural counterparts? One possible explanation is that rural parents, teachers, and community members tend not to hold educational aspirations for their youth that are as high as those held by urban adults (Arnold et al., 2005; Budge, 2006; Howley, 2006), thereby placing less emphasis on academic tasks such as homework. As a result, rural youth may feel less motivated to do homework for adult approval.

Another possible explanation is that rural high school students, as compared with their urban counterparts, spent less time with their families and reported significantly less satisfactory relationships with their parents, as their parents tended to be more traditional and whose expectations therefore were more likely to be in conflict with their peer culture (Gandara, Gutierrez, & O'Hara, 2001). Thus, rural high school students may be less likely to do homework to seek parental approval, in particular.

At this time, the HPS appears to be an efficient, practical, and factorially valid measure of homework purpose of high school students. This is further substantiated by findings from the present study, which suggest (a) the results relating to latent factor means between the rural and urban samples were in line with relevant literature in the field, and (b) scores on the HPS were positively related to desirable homework behaviors (i.e., homework management strategies and the amount of homework completed by students) and was negatively related to undesirable homework behaviors (i.e., the frequency of coming to class with homework), in line with relevant literature on the role of student attitudes in the homework process (e.g., Cooper et al., 1998; Xu, 2005; Xu & Corno, 2003).

Future research on the HPS could benefit from focusing on the following three areas. Although the present study revealed that the HPS was positively related to homework management strategies and the amount of homework completed by students, and negatively related to the frequency of coming to class without homework based on self-reported data, there is a need to include other measures of homework behaviors (e.g., as recorded by teachers) and academic achievement to complement students' self-reports.

In addition, there is a need to evaluate the appropriateness of the factorial structure of the HPS across cultures, as student attitudes toward homework (e.g., utility and interest) may be influenced by cultural differences relating to perceived values of doing homework by significant others (Wigfield et al., 2004) and the availability of other out-of-school activities (C. Chen & Stevenson, 1989). Another important line of research could examine the validity of scores on the HPS with middle school students. Although the HMS was currently examined with high school students, its items are not high school specific. Thus, the HMS may hold promise as a general measure of homework purpose for preadolescents as well as adolescents, as alluded to by the findings from exploratory factor analysis in a previous study (Xu, in press). However,

additional research (e.g., with the use of CFA in the framework of structural equation modeling) is needed to determine its applicability to the middle school level.

Appendix

Homework Purpose Scale

Learning-Oriented Reasons

1. Doing homework helps you understand what's going on in class.
2. Doing homework helps you learn how to manage your time.
3. Doing homework gives you opportunities to practice skills from class lessons.
4. Doing homework helps you develop a sense of responsibility.
5. Doing homework helps you learn to work independently.
6. Doing homework helps you develop good discipline.
7. Doing homework helps you learn study skills.
8. Doing homework helps you get a good grade.
9. Doing homework helps you prepare for the next lesson.

Adult-Oriented Reasons

1. Doing homework makes your family more aware of your learning at school.
2. Doing homework brings you family approval.
3. Doing homework brings you teacher approval.

Peer-Oriented Reasons

1. Doing homework brings you approval from classmates.
2. Doing homework gives you opportunities to work with classmates.
3. Doing homework gives you opportunities to learn from classmates.

Acknowledgment

I would like to thank Robin Henson and the reviewers for their helpful suggestions.

Declaration of Conflicting Interests

The author declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Financial Disclosure/Funding

The author received no financial support for the research and/or authorship of this article.

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