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Off on the Wrong Foot: Task Avoidance at the Outset of Primary School Anticipates Academic Difficulties and Declining Peer Acceptance

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Abstract

The present study examined the academic antecedents of declining peer social status. Participants included 545 (311 boys, 234 girls) Finnish students followed from the 1st through the 4th grade (ages 6–8 at outset). Each year, teachers completed assessments of academic task avoidance and students completed standardized measures of reading and math achievement. Acceptance was assayed through peer nominations. Supporting the hypothesized model, the results indicated that a lack of interest and motivation at the outset of primary school leads to a downward spiral of academic difficulties and diminished peer acceptance. Specifically, academic task avoidance in 1st and 2nd grade anticipated declining math and reading achievement one year later, which in turn, anticipated decreases in peer acceptance the following year. The findings held after controlling for factors known to contribute to school and peer difficulties, such as friendlessness, school readiness, and emotional and behavioral problems.

Keywords

Primary School Children; Task Avoidance; Academic Achievement; Peer Acceptance

School problems are a harbinger of peer problems. During the early primary school years, academic achievement is related to peer group status, such that poor school performance

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Data Availability Statement

The data that support the findings of this study are available from the third, fourth, and fifth authors, upon reasonable request.

anticipates declining peer acceptance (e.g., Véronneau et al., 2010). The present study sheds new light this developmental trajectory during the first years of school, when academic habits are unformed and peer reputations are fluid. Children with behavior and emotional problems struggle with the transition to primary school; they do poorly in classes and their peer relations suffer (Ladd, Birch, & Buhs, 1999). We suspect that another path to early peer difficulties runs through the well-established link between disinterest in school and subsequent difficulties with math and reading (e.g., Georgiou et al., 2011; Hughes & Kowk, 2006). In this hypothesized model, children who are not engaged in academics during the first years of school, struggle to attain basic skills, which alienates them from classmates. We hold that this pathway—from disinterest to poor performance to peer troubles—is independent of problems with origins in disruptiveness and anxiety.

Academic reputations are important contributor to peer relations during the primary school years. Young children value academic achievement. Unlike middle school, when educational effort and attainment may be a social liability in some circles (Galván, Spatzier, & Juvonen, 2011), social stigma is attached to the failure to master academic skills in primary school (Welsh, Parke, Widaman, & O’Neil, 2001). Young children who succeed in reading and mathematics enjoy admiration from classmates and praise from teachers, both of which are withheld from children who are academically challenged (Kiuru et al., 2015).

Children do not begin school equally equipped for success. Considerable attention has focused on children with behavior problems. Disruptive children and children with emotional difficulties struggle to attain basic competencies (Burchinal et al., 2020), and older children evince a downward spiral of maladjustment, poor school performance, and peer difficulties (Véronneau et al., 2010). Less obvious are the challenges confronting students who do not like or are not interested in school, students who are not motivated to do the work required to succeed. Students with maladaptive achievement strategies exhibit off-task behaviors and lack perseverance (Kiuru et al., 2020). Separate studies of primary school students have documented transactional associations between task avoidance and school achievement (Onatsu-Arvilommi & Nurmi, 2000), and between school achievement and peer social status (Chen & Rubin, 1997), but none have addressed their longitudinal unfolding across the first years of primary school.

The starting point for this study is an *a priori* conceptual measurement model that specifies how problems at school snowball into problems with peers. Systems theory emphasizes interconnections between developmental domains: Changes in one domain of functioning lead to changes in other domains, with cumulative effects that have long-term consequences for adjustment (Thelen, 1989). Consistent with this view, we hypothesize downward spreading cascade effects, wherein troubles that begin in one domain of functioning multiply and spill over into other domains (Masten & Cicchetti, 2010). Specifically, we posit a role for task avoidance in the failure model outlined by Patterson and colleagues (Patterson, DeBaryshe, & Ramsey, 1989). Over and above difficulties that have origins in conduct problems, we posit that academic task avoidance should give rise to trouble mastering basic academic skills, which, as they grow, should lead to marginalization by peers, who seek to distance themselves from those who fail to master fundamental developmental tasks.

Using four annual waves of data collected from a large sample of Finnish students, we test the hypothesis that academic task avoidance at the start of school leads to math and reading difficulties the following year, which anticipate declining peer acceptance the year after that. We follow recommended procedures for confirming conceptually driven models and we replicate each hypothesized path at a subsequent lag (Little, 2013). To validate conclusions, the hypothesized model includes covariates that remove the contributions of confounding variables (i.e., school readiness) and variables implicated in alternative pathways to peer difficulties (i.e., friendlessness and adjustment problems).

Method

Participants

Participants included 545 students (311 boys, 234 girls) who were in 1st grade ($M=7.67$ years-old, $SD=0.31$) at the outset of this study. Participants were drawn from the *First Steps Project*, a longitudinal community study that began in 2006 in four municipalities across Finland. The sample was almost entirely ethnic Finns and most students (96.2%) spoke Finnish at home. Of those reporting family structure, the majority described two-biological-parent households (78.2%); the remainder were from step-parent (7.0%) or single-parent households (14.8%). The sample was representative of the Finnish population in terms of parent education (Statistics Finland, 2007): 6.2% completed comprehensive school (grade 9), 30.7% completed secondary school (grade 12), and 63.1% completed college or vocational school. All students attended the same school throughout the study, retaining most of the same classmates from one year to the next.

Procedure

A total of 2,114 of 2,658 children in 1st grade (79.5%) returned parental consent forms and agreed to participate. All students completed the peer nomination and academic achievement portions of the study. A subsample of approximately one-fourth was selected for in-depth study that included teacher reports of academic task avoidance and problem behaviors. Approximately half were children at risk for reading difficulties based on kindergarten pre-reading assessments; the other half consisted of randomly selected classmates. Target sampling was necessary to reduce data collection demands on teachers. The number of target children selected from a classroom was typically 2 or 3 ($M=2.53$, $SD=0.84$). This subsample is the focus of the present investigation.

Trained researchers administered questionnaires to students and teachers during regular school hours. Participants completed the same instruments each year, during the Spring of the 1st, 2nd, 3rd, and 4th grades. Attrition was low; of the initial 545 students, 97.2% ($n=530$) participated in data collection in the 2nd grade, 96.5% ($n=526$) in the 3rd grade, 92.5% ($n=504$) in the 4th grade. There were no statistically significant differences on any demographic or study variables between those who participated in the in-depth portion of the study and those who did not; nor were there differences between students who did and did not participate in all waves of data collection. The project was approved by human subjects review committee at the University of Jyväskylä (#15.06.2006).

Instruments

Academic task avoidance.—Teachers completed the 7-item Behavioral Strategy Rating Scale (Zhang, Nurmi, Kiuru, Lerkkanen, & Aunola, 2011) that assessed *academic task avoidance* (see Appendix A). Items were rated on a scale ranging from 1 (*not at all*) to 5 (*to a great extent*). Internal reliability was good ($\alpha=0.919$ to $.923$).

Peer Acceptance.—Students completed a standard sociometric inventory. Presented with a roster of all classmates, they circled the names of three with whom they “most liked to spend time with during recess”. *Peer Acceptance* was calculated as the sum of all nominations received. Scores were standardized using a regression-based approach that controls for class size (Velásquez, Bukowski, & Saldarriaga, 2013).

School achievement.—Students completed two standardized measures of academic achievement. To assess *math achievement*, students completed a 24-item basic arithmetic test (Zhang et al., 2014), completing as many written addition and subtraction problems as possible in a three-minute period, receiving one point for each correct answer. Internal reliability was acceptable ($\alpha=.77$ to $.89$). To assess *reading achievement*, students completed a 20-item nationally standardized assessment of accuracy and fluency (Lindeman, 2000), identifying one of four sentences that correctly described a picture during a two-minute period, receiving one point for each correct answer. Reports from other samples indicate that scores on the inventory correlate with teacher assessments of reading ability ($r=.69$ to $.73$) in 1st and 2nd grade students (Parrila, Aunola, Leskinen, Nurmi, & Kirby, 2005).

Potential confounding variables.—Supplemental analyses were conducted to isolate the contributions of academic task avoidance and school achievement on changes in peer acceptance. Potential covariates were assessed at each time period. The analyses included three problem behaviors known to be related to likeability. Teacher reports of *conduct problems*, *emotional problems*, and *hyperactivity* were measured with 5-items (each) from the Strengths and Difficulties Questionnaire (Goodman, 1997). Items were rated on a scale ranging from 1 (*not true*) to 3 (*certainly true*). Internal reliabilities were acceptable ($\alpha=.74$ to $.89$). Friendlessness is also related to peer status. *Friendship participation* was identified through reciprocated liked-most nominations. School readiness is linked to academic interest and achievement. *Preschool participation* served as a proxy for school readiness, derived from parent reports of hours per day and total months in preschool.

Plan of Analysis

An average of 5.78% (0%–11.33%) of the data were missing on study variables. Little’s MCAR test indicated that data were missing completely at random, $\chi^2(311)=210.96$, $p>.05$.

Analyses were conducted in a structural equation model framework in Mplus v.7 (Muthén & Muthén, 1998–2012). Separate analyses were conducted for math achievement and reading achievement. The Complex function was applied to minimize potential classroom-level effects; the same pattern of statistically significant results emerged without it. We followed recommended procedures for fitting and testing hypothesized longitudinal models (Little, 2013). We began by constructing a null longitudinal model, which served as a

point of contrast for the hypothesized model. The hypothesized model included paths from initial academic task avoidance to changes in academic achievement to subsequent changes in peer acceptance (i.e., Grade 1 academic task avoidance → Grade 2 math or reading achievement → Grade 3 peer acceptance, and Grade 2 academic task avoidance → Grade 3 math or reading achievement → Grade 4 peer acceptance). After finalizing the hypothesized model, we (a) considered model modifications with the addition of auxiliary paths, and (b) compared the hypothesized model against an alternative model in which initial academic achievement predicts academic task avoidance at the next lag, which predicts peer acceptance at the following lag (i.e., Grade 1 math or reading achievement → Grade 2 academic task avoidance → Grade 3 peer acceptance; and Grade 2 math or reading achievement → Grade 3 academic task avoidance → Grade 4 peer acceptance).

The analyses were conducted in four steps. In the first step, we created a null longitudinal model that included (a) autoregressive paths for each variable across consecutive time points and (b) concurrent correlations between variables within each time point. In the second step, we fit the hypothesized model to the data and contrasted it with the null model. Temporal constraints (Widaman & Thompson, 2003) were added to equivalent paths at consecutive time points (e.g., academic task avoidance to reading achievement from Grade 1 to Grade 2 and from Grade 2 to Grade 3) in the hypothesized model. Constraints were retained if they did not significantly worsen ($p < .05$) model fit. Standard fit indices were applied to the null and hypothesized models. The RMSEA should be < 0.08 and the CFI should be > 0.95 (Hu & Bentler, 1999). We do not report the chi-square goodness-of-fit statistic, because it is biased (i.e., suggests poor model fit) with large samples. In the third step, supplemental analyses were conducted to examine changes in model fit following the addition of longitudinal paths not included in the hypothesized model (e.g., peer acceptance to academic task avoidance). When the fit of a theoretically-driven model is good, auxiliary paths should be retained only if their inclusion improves the chi-square value by 10% or if the p -value obtained from the chi-square difference test is less than 0.001 (Little, 2013). The fit of the hypothesized model was contrasted with that of the alternative model using Sample-size Adjusted Bayesian Information Criterion (SABIC). Smaller SABIC values indicate better fitting models. Values between 6 and 10 provide “strong” evidence of differences in model fit; values greater than 10 are considered “decisive” (Raftery, 1995). In the fourth step, we isolated the effects of predictor variables on subsequent likeability. To this end, separate supplemental analyses were conducted in which each potential confounding variable (i.e., conduct problems, emotional problems, hyperactivity, friendship participation, and preschool participation) was added to the final model as a concurrent covariate.

Results

Preliminary Analyses

Table 1 presents interclass correlations. All autocorrelations were statistically significant ($p < .01$). Concurrently and longitudinally, task avoidance was negatively correlated with reading achievement, math achievement, and peer acceptance; reading achievement, math achievement, and peer acceptance were all positively correlated.

Separate 2 (sex) X 4 (grade) repeated measures ANOVAs were conducted with task avoidance, math achievement, reading achievement, and peer acceptance as the dependent variables. There were statistically significant decreases in task avoidance, $F(1, 543)=23.53$, $p<.001$, $\eta^2=.04$, and peer acceptance, $F(1, 543)=4.52$, $p<.05$, $\eta^2=.01$. There were statistically significant increases in reading achievement, $F(1, 543)=3621.76$, $p<.001$, $\eta^2=.87$, and math achievement, $F(1, 543)=5737.77$, $p<.001$, $\eta^2=.91$. Boys were higher than girls on task avoidance, $F(1, 543)=74.73$, $p<.001$, $\eta^2=.12$. Girls were higher than boys on reading achievement, $F(1, 543)=11.95$, $p=.001$, $\eta^2=.02$, and peer acceptance, $F(1, 543)=9.80$, $p<.01$, $\eta^2=.02$.

Longitudinal Pathways From Task Avoidance to School Difficulties and Diminished Peer Acceptance

Reading achievement.—The null model fit the data, $CFI=.96$, $RMSEA=.07$. Figure 1 presents results for the reading achievement model. The hypothesized model fit the data significantly better than the null model, $\chi^2(4, N=545)=19.26$, $p<.05$. The results confirmed the hypothesis that initial academic task avoidance is negatively associated with subsequent reading achievement, which in turn, is positively associated with subsequent peer acceptance.

No auxiliary paths met the criteria for inclusion in the model. Model fit comparisons indicated that the hypothesized model fit the data significantly better than the alternative model ($SABIC=9.32$).

Math achievement.—The null model fit the data, $CFI=.96$, $RMSEA=.08$. Figure 1 presents results for the math achievement model. The hypothesized model fit the data significantly better than the null model, $\chi^2(4, N=545)=55.53$, $p<.01$. The results confirmed the hypothesis that initial academic task avoidance is negatively associated with subsequent math achievement, which in turn, is positively associated with subsequent peer acceptance.

No auxiliary paths met the criteria for inclusion in the model. Model fit comparisons indicated that the hypothesized model fit the data significantly better than the alternative model ($SABIC=27.87$).

Supplemental Analyses

The addition of each control variable (conduct problems, emotional problems, hyperactivity, friendship participation, and participation in preschool) significantly worsened model fit, but did not change the pattern of statistically significant associations. Multiple-group models utilized scaled Satorra-Bentler chi-square difference tests to compare boys and girls on each path. There were no gender differences on any path in either model.

Discussion

The present study examines the academic origins of peer difficulties. Results from four large community samples of Finnish students confirmed the hypothesis that high levels of academic task avoidance at the start of primary school anticipate math and reading difficulties in the 2nd grade, which forecast declining peer acceptance in the 3rd grade.

Replication bolsters confidence in these findings: The same longitudinal pathway unfolded across the 2nd to 4th grades. The findings held after controlling for factors known to contribute to school and peer difficulties, such as friendlessness, school readiness, and emotional and behavioral problems.

The study is unique in that the academic precursors of peer acceptance are rarely studied. Much is known about the effects of peer status on academic achievement; relatively few studies have examined the effects of academic achievement on peer status, and none have considered this association at the outset of formal schooling. Much is also known about the effects of anxiety and disruptiveness on peer status; of those studies that have considered the effects of academic achievement on peer status, none have identified its antecedents in task avoidance. Nor have any previous studies isolated the pathway of influence by eliminating the concurrent and antecedent confound between behavioral maladjustment and academic difficulties. Academic habits explain a unique portion of the variance in school achievement and school achievement explains a unique portion of the variance in declining peer status, all over and above the contributions of characteristics like anxiety, disruptiveness, and friendlessness.

We hypothesized a downward spiral of troubles, from poor study habits to academic difficulties to declining peer acceptance. The snowballing cascade (Bukowski, Laursen, & Hoza, 2010) is an apt metaphor. The model starts from initially modest adjustment difficulties that progressively accelerate, growing in speed and size as problems accumulate. Much as a snowball expands as it rolls downhill, adjustment problems rapidly amplify as they worsen and spread. Thus, a seemingly harmless habit, task avoidance, grows to the point where it adversely impacts academic achievement; from there, problems spread and threaten peer relations. Our cascade model appears to spread via evocative effects, such that students with bad work habits and poor academic skills elicit a negative (or, at best, a disinterested) reaction from classmates (Kiuru et al., 2020). Of course, the findings do not rule out transactional relations between task avoidance and school difficulties. Task avoidant children perform poorly at the outset of school and initial school difficulties may reinforce this tendency to shun school work (Geogiou, Hirvonen, Manolitsis, & Nurmi, 2017). Nevertheless, the results indicate that school difficulties are a stronger predictor of peer acceptance than is task avoidance and that problems do not remain isolated within the domain of academics but rather spread to damage interpersonal relationships, consistent with the failure model (Patterson et al., 1989).

Our study is not without limitations. First, failure to disentangle within- from between-person variance can make it difficult to interpret the parameter estimates; between-person associations (e.g., task-avoidant children may, on average, be liked less than children who are not task avoidant) may yield associations that are mistaken for within-person associations (e.g., task avoidant children are liked less over time) (Berry & Willoughby, 2016). In the absence of a random intercept model, conclusions about within-individual cross-lagged associations must be tempered. Changes we attribute to within-person variance may instead be a product of between-person effects (Hamaker, Kuiper, & Grasman, 2015). Second, the use of a limited nominations to assess peer acceptance probably increased error variance by failing to capture low ranking affiliates (Babcock et al., 2014). Typically,

this makes it harder, not easier to find statistically significant results that replicate. Third, the findings focus on peer acceptance, which is distinct from peer rejection. Although rejection and acceptance are moderately inversely correlated (Bukowski et al., 2000), it is worth noting that the prognosis for children who are not well-liked is not as dire as it is for children who are rejected (e.g., Véronneau & Dishion, 2010). Fourth, although the sample included a full SES range as indexed by parent education, state support ensures that children in Finland enjoy a relatively high minimum standard of living. The findings may not readily generalize to contexts where families cannot take food and housing for granted. Nor is it certain that the findings will replicate in urban contexts characterized by transience and ethnic heterogeneity. Fifth, self-concept and self-esteem are known to play a role in school interest and performance (Denner et al., 2019; Ferguson, Hafen, & Laursen, 2010). We suspect they play an intervening role in the links between task avoidance and school achievement. Finally, primary school children in Finland keep the same classmates and the same teacher from one year to the next. Peer acceptance scores are apt to be more stable under these circumstances than in settings marked by turnover in each.

The findings have important implications for parents, teachers, and school professionals who seek to forestall the onset of troubled peer relations. Considerable effort is currently invested in interventions for children with behavioral and emotional problems, because they are known to be at-risk for academic and interpersonal failure. Results from the present study indicate that task avoidant behaviors are also a precursor to peer troubles, because primary school children who are not fully engaged in their coursework struggle to master basic academic skills and are shunned by classmates as a consequence. Such findings matter because they suggest that poor work habits, independent of psychosocial maladjustment, are an important first step on a path that leads to academic and social difficulties.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

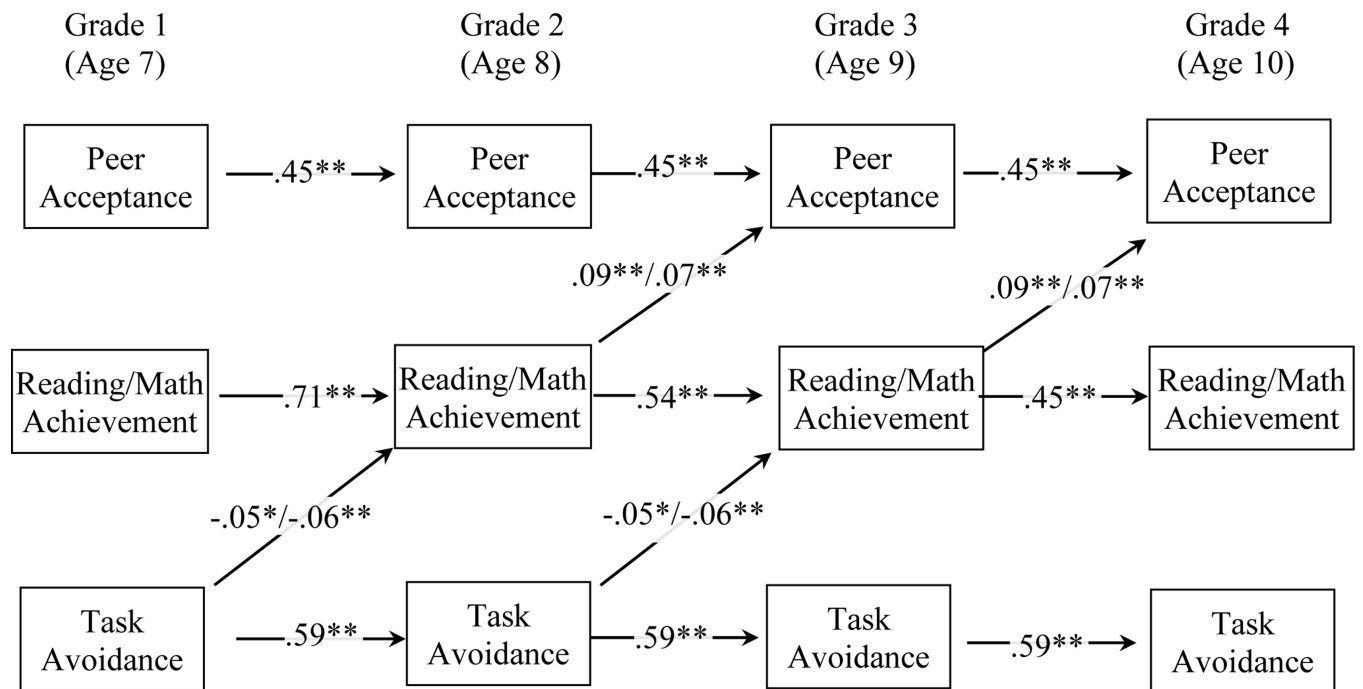
Authors after Richmond are listed in alphabetical order. Brett Laursen received support for the preparation of this article from the US National Institute of Child Health and Human Development (HD096457). Funding for First Steps data collection was provided by the Academy of Finland to the Centre of Excellence in Learning and Motivation Research (213486). We acknowledge the late Jari-Erik Nurmi's contribution to the project from which the data were drawn and to the conceptualization of this particular inquiry.

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**Figure 1.**

Final Model from Initial Task Avoidance to Reading and Math Achievement to Peer Acceptance.

Note. $N=545$. Results for reading achievement are to the left of the slash; results for math achievement are to the right of the slash. Concurrent correlations were included in the model but are not depicted. Model fit Reading Achievement: $CFI=.97$, $RMSEA=.06$. Model fit Math Achievement: $CFI=.97$, $RMSEA=.06$.

Table 1.

Correlations, Means, and Standard Deviations

| Variable | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | Mean (SD) |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|-----|--------------|
| 1st Grade | | | | | | | | | | | | | | | | |
| 1. Task Avoidance | - | | | | | | | | | | | | | | | 2.69 (1.13) |
| 2. Reading Achievement | -.26 | - | | | | | | | | | | | | | | 16.13 (8.79) |
| 3. Math Achievement | -.29 | .50 | - | | | | | | | | | | | | | 9.73 (4.25) |
| 4. Peer Acceptance | -.17 | .20 | .21 | - | | | | | | | | | | | | 2.00 (1.61) |
| 2nd Grade | | | | | | | | | | | | | | | | |
| 5. Task Avoidance | .64 | -.24 | -.40 | -.23 | - | | | | | | | | | | | 2.70 (1.09) |
| 6. Reading Achievement | -.24 | .73 | .46 | .20 | -.26 | - | | | | | | | | | | 22.69 (7.63) |
| 7. Math Achievement | -.28 | .45 | .72 | .22 | -.43 | .47 | - | | | | | | | | | 15.10 (4.98) |
| 8. Peer Acceptance | -.24 | .24 | .24 | .51 | -.32 | .31 | .27 | - | | | | | | | | 1.94 (1.59) |
| 3rd Grade | | | | | | | | | | | | | | | | |
| 9. Task Avoidance | .58 | -.28 | -.38 | -.23 | .71 | -.27 | -.37 | -.32 | - | | | | | | | 2.61 (1.06) |
| 10. Reading Achievement | -.23 | .61 | .40 | .18 | -.26 | .70 | .43 | .21 | -.28 | - | | | | | | 33.72 (8.74) |
| 11. Math Achievement | -.23 | .44 | .64 | .20 | -.37 | .49 | .73 | .24 | -.30 | .49 | - | | | | | 18.73 (4.87) |
| 12. Peer Acceptance | -.24 | .28 | .21 | .38 | -.27 | .23 | .21 | .54 | -.29 | .23 | .21 | - | | | | 1.85 (1.62) |
| 4th Grade | | | | | | | | | | | | | | | | |
| 13. Task Avoidance | .54 | -.18 | -.31 | -.17 | .64 | -.18 | -.39 | -.20 | .71 | -.21 | .37 | -.21 | - | | | 2.49 (1.00) |
| 14. Reading Achievement | -.26 | .61 | .45 | .15 | -.28 | .68 | .45 | .24 | -.27 | .71 | .50 | .24 | -.22 | - | | 34.54 (8.73) |
| 15. Math Achievement | -.27 | .42 | .61 | .21 | -.37 | .44 | .69 | .27 | -.40 | .45 | .77 | .23 | -.35 | .50 | - | 22.26 (4.16) |
| 16. Peer Acceptance | -.23 | .26 | .17 | .44 | -.25 | .26 | .21 | .55 | -.29 | .26 | .25 | .63 | -.16 | .25 | .24 | 1.86 (1.43) |

Note. $N=547$. Task avoidance was rated on a scale from 1 (*not at all*) to 5 (*very much*). All correlations significant $p<.01$.