

Socioeconomic Status and Sex are Important for Adolescents' Academic Motivation

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Abstract

Adolescents from low socioeconomic status families have less access to role models and are at greater risk for poorer academic motivation than adolescents from high socioeconomic status families. Academic motivation is associated with school achievement and therefore highly important. The social capital theory and the ecological approach emphasize that support from parents, teachers and peers result in a higher academic motivation. In this study we tested whether teacher support, peer support and sex had an influence on the relation between socioeconomic status and academic motivation. The sample included 2230 adolescents from TRAILS (The TRacking Adolescents' Individual Lives Survey), with a mean age of 11 at baseline, and a mean age of 14 at the first follow-up study. For this study data from wave 1 and wave 2 was used. Regression analysis revealed that socioeconomic status measured at age 11 predicted adolescents' academic motivation at age 14. In addition to socioeconomic status, sex was identified as a predictor for academic motivation, whereas boys are less motivated than girls. The main effect that socioeconomic status predicts academic motivation at the age of 14 is a new finding and emphasises the importance of considering socioeconomic status in relation to academic motivation of adolescents.

Keywords: Academic motivation; socioeconomic status; adolescents; sex; peer support; teacher support

Samenvatting

Adolescenten met lage sociaaleconomische status hebben minder toegang tot rolmodellen en een lopen een groter risico om minder academisch gemotiveerd te zijn dan adolescenten met een hoge sociaaleconomische status. Academische motivatie is geassocieerd met schoolsucces en dus van groot belang. De sociaal kapitaal theorie en de ecologische benadering benadrukken dat steun van ouders, leraren en vrienden leiden tot een hogere academische motivatie. In deze studie hebben we onderzocht of sekse en de steun van leraren en vrienden invloed hadden op de relatie tussen sociaaleconomische status en academische motivatie. De steekproef bestond uit 2230 adolescenten van TRAILS (*The TRacking Adolescents' Individual Lives Survey*), met een gemiddelde leeftijd van 11 jaar bij de start en een gemiddelde leeftijd van 14 jaar in de eerste vervolgstudie. Regressieanalyses hebben onthuld dat de sociaaleconomische status op 11jarige leeftijd een voorspeller is voor academische motivatie op 14jarige leeftijd. Daarnaast is gevonden dat sekse ook een voorspeller is voor academische motivatie, waarbij jongens minder gemotiveerd zijn dan meisjes. De hoofdbevinding, dat sociaaleconomische status academische motivatie voorspelt voor adolescenten van 14 jaar is een nieuwe bevinding en benadrukt hoe belangrijk de rol is van de sociaaleconomische status in relatie met academische motivatie.

Trefwoorden: Academische motivatie; sociaaleconomische status; adolescenten; geslacht; leraren

Socioeconomic Status and Sex are Important for Adolescents' Academic Motivation

Research reveals that interventions that focus on improving academic motivation leads to better academic achievement (Fredricks, Blumenfeld, & Paris, 2004). Longitudinal studies indicate that academic motivation is positively associated with school achievement (Anderson & Keith, 1997; Gottfried, Fleming, & Gottfried, 2001; Shernoff & Schmidt, 2007). From research is known that adolescents with high intrinsic academic motivation show good academic outcome, strive for higher levels of achievement and report more positive perceptions of their own competence at school (Howard, Ferrari, Nota, Holberg, & Soresi, 2009). On the contrary, adolescents with less intrinsic academic motivation report lower academic achievement, have more feelings of social anxiety and are more likely to drop out (Gottfried, 1985). In addition, academic motivation seems important for youngsters to acquire new knowledge, and it supports the development of becoming good and competent members of society (Legault, Green-Demers, & Pelletier, 2006; Ratelle, Guay, Larose, & Sénécal, 2004; Richmond, 1990; Stroet, Opdenakker, & Minnaert, 2013; Van Acker & Wehby, 2000). Thus, it can be assumed that academic motivation is of crucial importance in an adolescent's live (McGeown et al., 2014). Academic motivation can be defined in two ways. First, academic motivation can be perceived as an internal process that encourages people to achieve specific academic goals, such as performance and mastery goals (King & Ganotice Jr., 2014; Ratelle et al., 2004; Wenzel, 1998). Another way of defining academic motivation is through classroom engagement. High engagement refers to interest, persistence in learning tasks, effort, and enthusiasm. Low engagement refers to lack of effort and initiation and passivity (Skinner, Kindermann, & Furrer, 2009).

Socioeconomic status and academic motivation

The social capital theory gives an explanation for the different systems that facilitate academic motivation (Garcia-Reid, 2007). The theory states that relationships with parents, teachers and peers are highly valued and provide emotional support, guidance, and relevant information that help adolescents manage situations (Coleman, 1998; Moschetti & Hudley, 2015; Stanton-Salazar & Tai, 2001). According to Brewster and Bowen's study (2004) teacher- and parental support function as social capital for adolescents, which positively influences their academic motivation. Supportive relationships may provide a safety net for adolescents, especially for risk adolescents who experience personal difficulties or academic challenges (Croninger & Lee, 2001). In addition, adolescents with a lack of social capital may be at greater risk for school drop-out (Garcia-Reid, 2007). The latter, lack of social capital is

related with the socioeconomic status (SES) of adolescents. SES can be defined by the combination of parental education, family income and occupational status (Bradley & Corwyn, 2002). Low SES families often have less resources (e.g. money, housing, study materials) and live in a more stressful environment (e.g. debts, unemployment), which may result in less parental involvement and guidance in respect to academic motivation (Bradley & Corwyn, 2002). Adolescents from low SES families have, in comparison to adolescents from high SES families, less access to mentors and role models and are at greater risk for poorer academic motivation (Oscos-Sanchez, Oscos-Flores, & Burge, 2008). Battistich, Solomon, Kim, Watson and Schaps (1995) mention that SES is strongly associated with academic achievement, whereas adolescents from low SES families face more problematic issues with respect to the school. Similarly, Sirin (2005) found the same conclusion after a meta-analysis including 58 studies that evaluated SES in relation to academic achievement. On the contrary, adolescents from high SES families tend to have better social connections, resources, services, and parental advice, youngsters academically benefit from (Brooks-Gunn & Duncan, 1997). Previous studies indicate a relation between SES and academic motivation (e.g. Bradley & Corwyn, 2002; Koutsoulis & Campbell, 2001; Lever, Pinõl, & Uralde, 2005). In one study, Faria (2004) conducted an exploratory study among high school students from low, middle and high SES families. The study revealed that teenagers from low SES families perceived their own will to succeed in school as more unstable than adolescents from middle and high SES families. Young, Johnson, Hawthorne and Pugh (2011) looked further into minority populations and found that SES is a predictor of academic motivation for African American adolescents, but not for European or Hispanic American adolescents. In addition, Perrya, Link, Boelter and Leukefeld (2012) found that White children from high SES families report more positive attitudes towards school than non-White and low SES children. In contrast, McGeown and colleagues (2014) found no evidence supporting the predictive effect of SES on academic motivation. Similarly, Gottfried and colleagues (2001) only found an indirect effect of SES on academic motivation. To conclude, several studies have found a relation between SES and academic motivation. However, the results are inconsistent with respect to SES and its influence on academic motivation.

External support systems and academic motivation

Beyond the social capital approach, the ecological approach provides an explanation for the influence of the adolescents' social context. According to the ecological approach, school and home are the two most important environments for a positive development for youngsters (Bronfenbrenner, 1986). In these environments teachers, peers, and parents are the

main sources that bolster academic motivation and influence the learning and the adolescents' development (Martin & Dowson, 2009; Ryan, Stiller, & Lynch, 1994; Wentzel, 1998). However, during puberty, relationships with adult family members become less important, and adolescents try to find the support of other adults outside the family (Murray, 2009). According to Garmezy (1993) and Ratelle and colleagues (2004) external support systems such as teacher and peer support could work as a buffer and can provide access to resources and services for adolescents from low SES families. It seems that during adolescence those relationships are highly important for adolescents and serve as role models (Midgley, Feldlaufer & Eccles, 1989).

Teacher support. Teacher support is differently defined by researchers (Goodenow, 1993; Stroet et al., 2013). In general, it involves aspects such as understanding, friendliness and caring. It refers to the extent in which adolescents believe teachers appreciate a relationship with them. Previous studies indicate a relation between teacher support and academic motivation. It is recognized that adolescents show academic motivation when they are liked by their teachers, receive positive feedback, perceive that the teachers care about them and that teachers are available for academic and social problems (Davidson, Gest, & Welsh, 2010; Newman, 2000; Roeser, Midgley, & Urda, 1996; Skinner & Belmont, 1993; Wentzel & Asher, 1995; Wentzel, 1997). In a recent study, Ruzek and colleagues (2016) even found that adolescents who perceived their teachers as supportive were more motivated at school and showed a higher level of engagement. Some studies included the socioeconomic background of the adolescents in their research. For example, in a recent qualitative study of William, Bryan, Morrison, and Scott (2017) it is shown that students from low SES families who have a supportive and positive relationship with a teacher are inspired to work harder at school. In line with the latter finding, Roorda, Koomen, Spilt and Oort (2011) found that adolescents from low SES families were more strongly influenced by a supportive relationship with a teacher than adolescents from middle or high SES families. To sum up, teacher support appears to be important for academic motivation, especially for teenagers from low SES families.

Peer support. Peer support can be defined as friendships with mutual liking; whereas adolescents influence each other in a supportive way by e.g. trusting each other's judgements (Molloy, Gest, & Rulison, 2011). The support of peers also seems important for the academic motivation of adolescents (Alfaro, Umaña-Taylor, & Bámaca, 2006). During adolescence, peers have more impact on academic motivation than teachers do (Davidson, et al., 2010; Yun Dai, 2001). Li, Lynch, Kalvin, Liu, and Lerner (2011) found that peer support positively

predicted school engagement among adolescents. Youngsters are more engaged at school when they perceive that peers care about them, when adolescents have a mutual friendship, and when adolescents feel accepted by their peers (Cappella, Kim, Neal, & Jackson, 2013; Goodenow, 1993; Wentzel, Barry, & Caldwell, 2004; Wentzel & Asher, 1995). In contrast, rejection of peers increases the risk of lower interest and participation at school (French & Conrad, 2001). In a recent qualitative study of Williams and colleagues (2017) it is found that adolescents from low SES families with so-called peer supportive relationships academically benefit from this. Those relationships inspire teenagers to set academic goals and promote pro-academical behaviour. Moreover, according to Schneider, Tomada, Normand, Tonci, and Domini (2008) relationships with peers may compensate for distress and vulnerabilities when the home environment is not supportive. Finally, in a longitudinal study of Dennis, Phinney and Chuateco (2005) is found that the lack of needed peer support is a stronger predictor for college grades than family support. Thus, peers are highly important for adolescents and it can be assumed that peers can act as a buffer when family support is lacking.

Sex and academic motivation

Besides teacher and peer support, sex also seems important for academic motivation. Research suggests a sex difference in academic motivation (e.g. Martin and Marsh, 2005; Meece, Glienke, & Burg, 2006; Roorda et al., 2011). Boys often have more negative experiences at school (e.g. being suspended) and experience more peer pressure to engage in deviant behaviour (e.g. drinking alcohol) than girls, which in turn may lead to less academic motivation for boys (Gillock & Reyes, 1999). In one study, Plunkett and Bamaca-Gomez (2003) collected data from three highschools in Los Angeles from adolescents with two parents born in Mexico. They found that female adolescents are more motivated than male adolescents. More recently, Vecchione, Alessandri and Marsicano (2014) questioned Italian adolescents from 9 to 22 years old and found that female adolescents have a stronger intrinsic motivation than male adolescents. Female adolescents report higher effort in all educational tasks and show better achievement than boys. Moreover, Schneider and colleagues (2008) found that boys are less academically motivated than girls, but boys are in greater need of support with respect to academic motivation and school bonding than girls. However, it should be noted that although girls experience higher levels of school motivation, boys and girls experience similar decline rates in school engagement (Wang & Eccles, 2012). To sum up, it seems that boys are less motivated than girls however it is not clear if this differs regarding their SES.

Most of the research so far has focused on the relationship between SES and academic motivation whereas SES is presented through ethnic minority populations (e.g. Schultz, 1993; Young et al., 2011). In this study we look at adolescents from almost the same ethnicity, therefore we think we will be surer that the effect we may find has only has to do with SES and not with other factors. Research shows that some adolescents from ethnic minorities face difficulties at school. For instance, language problems, prejudice from classmates and teachers and discrimination (McBrien, 2005). In addition, most studies looked at academic achievement and did not include academic motivation (e.g. Vecchione et al., 2014; Battistich et al., 1995). Moreover, the role of teachers and peers is not often investigated in relation with SES and academic motivation. Also, Meece and colleagues (2006) mention that little research is done how sex differences in motivation differ by SES. This study covers the parts that are missing in the existing literature as mentioned above.

Present study

In this study, two waves of TRAILS data will be used to test the relationship between SES and academic motivation. Research suggests that boys are less academic motivated than girls and that peer- and teacher support can buffer the negative effects of low SES on academic motivation. We draw on the social capital theory and the ecological approach (Bronfenbrenner, 1986; Stanton-Salazar & Tai, 2001), which let us understand the relation between low SES and academic motivation. The central question in this study is: *What is the relation between SES and academic motivation and does SES predicts change in adolescents' academic motivation over time?* In addition, several interacting processes are examined. First, we will evaluate whether teacher support influences the relation between SES and academic motivation. Second, we will evaluate whether peer support influences the relation between SES and academic motivation. Lastly, we will look at sex differences whereas we include sex as a moderator in this study. It is expected that adolescents from low SES families have lower academic motivation than adolescents from high SES families. Moreover, it is expected that adolescents from low SES families will benefit more from teacher and peer support for their academic motivation than adolescents from high SES families. Additionally, we hypothesize that the relation between SES and academic motivation will be stronger for girls than boys.

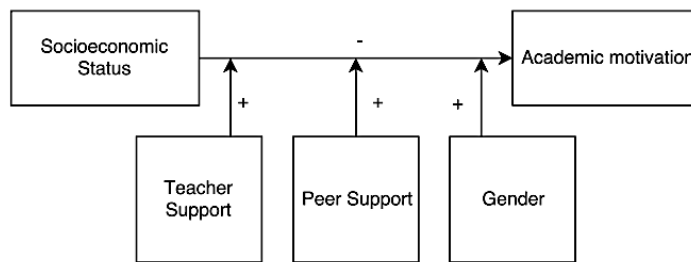


Figure 1. Research model of relation of SES and academic motivation with teacher support, peer support and sex as moderators on that relation.

Method

Participants

The data used for this study were obtained from TRAILS (The TRacking Adolescents' Individual Lives Survey). TRAILS is a cohort longitudinal study of young adolescents from the Netherlands who enrolled at age 10 and followed till at least the age of 24. In this study three waves of the TRAILS data were used. In the first wave (T1) participants were 2230 young adolescents (50.8% girls, $M_{age} = 11.1$ years, age range: 10-12 years). The first follow-up study (T2) was conducted two to three years after T1 among 2149 adolescents (51.0% girls, $M_{age} = 13.6$ years, age range: 12-15 years, dropout rate 3.7%). The second follow-up study (T3) was conducted about 3.5 to 7.2 years after T1 among 1816 adolescents (52.1% girls, $M_{age} = 16.3$ years, age range: 14-18 years, dropout rate 18.6%). The participants were recruited from primary schools in five municipalities in the North of the Netherlands. Within the municipalities, 122 primary schools agreed to participate in the study. After parents agreed to participate they received two brochures, one for their children and one for themselves. Parental permission was obtained through an interview where parents were asked to sign an informed consent form. The children/adolescents were assessed at school, where they filled out questionnaires and had to do some behavioural tasks. Trained interviewers visited the parents at their homes to conduct an interview covering a wide range of topics. Teachers were also asked to fill out a brief questionnaire (De Winter et al., 2005; Huisman et al., 2009; Nederhof et al., 2012; Vollebergh et al., 2005).

In this study, we focused only on wave 1 and 2, because there was a substantial amount of missing data in wave 3 for academic motivation. An attrition analysis was done to deal with the missing data and to compare the group that has missing data in wave 1 and wave 2 with the sample that is still in the sample. An independent sample t-test was done and it was found that SES is significant lower in the group that was missing, $t(2186) = 7.586$, $p < .001$,

meaning that the participants who dropped out have a lower SES than the participants who filled in the whole questionnaire. Further, it was found that academic motivation at T1 was significant lower in the group that was missing, $t(484) = 4.604, p < .001$, meaning that the participants who dropped out were less academically motivated than the group that is still in the sample. In addition, it was found that there were significant more boys in the group that was missing, $t(612) = -3.145, p = .002$. For teacher- and peer support no significant differences were found between the two groups.

Measures

Academic motivation. Academic motivation was assessed using teacher reports including two items of the academic performance scale (Veenstra, Lindenberg, Verhulst, & Ormel, 2009). The 5-item scale consist of two items concerning academic motivation answered by the teacher of the students: ('This student has an excellent work pace') and ('this student shows great effort'). The items were scored on a 5-point scale (1 = completely disagree; 5 completely agree). The internal reliability of the total scale was found to be satisfactory (Cronbach's $\alpha = .85$) as well as the two items alone (Cronbach's $\alpha = .85$). The composite score of academic motivation was conducted by averaging the two items.

Socioeconomic status (SES). SES was operationalized as a composite of five separated scales: occupational level of the mother and the father, level of education of the mother and the father and income (Ganzeboom & Treiman, 1996). There is a three division of the scale, 25% is low, 50% is middle and 25% high. The internal reliability of the combined scale was found to be satisfactory (Cronbach's $\alpha = .84$). A composite socioeconomic score was computed by the average of the five scales and was divided into three divisions: low (in the bottom third, 25%), middle (in the middle third, 50%) and high (in the top third, 25%).

Teacher support. Teacher support was measured with the teacher affection scale (Herba et al, 2008; Van der Laan, Veenstra, Bogaerts, Verhulst, & Ormel, 2010; Veenstra, Lindenberg, Tinga, & Ormel, 2010). The teacher affection scale consists of 4 items (e.g., 'Most teachers help me when needed.') and it was scored on a five-point scale (1 = never; 5 = always). The internal reliability of the scale was found to be acceptable (Cronbach's $\alpha = .76$). A composite teacher support score was computed by averaging the 4 items.

Peer support. Peer support was measured with the friends' affection scale, and classmates affection scale (Herba et al, 2008; Van der Laan et al., 2010; Veenstra et al., 2010). The friends' affection scale consists of 4 items (e.g., 'My friend likes to be with me') and it was scored on a five-point scale (1 = never; 5 = always). The internal reliability of the scale was found to be good (Cronbach's $\alpha = .84$). The classmates' affection scale consists of 4

items (e.g., 'Most classmates help me when needed') and it was scored on a five-point scale (1 = never; 5 = always). The internal reliability of the scale was found to be good (Cronbach's $\alpha = .84$). A composite peer support score for T1 is computed by averaging the 8 items. For T2 only the classmates' affection scale was available.

Sex. Sex was measured with the question concerning the sex of the child of parents (girl or boys) and was scored on a two-point scale (0 = female; 1 = male) (Veenstra et al., 2008).

Strategy of analysis

SPSS version 24 was used to conduct the several sets of analyses. Prior to the analysis of the results the assumptions of the main variables were checked. A test of normal distribution was computed, and some outliers were detected. We decided to include them in the analysis anyway as important information might be lost when removing them. After that, the descriptive statistics were conducted, as well as Pearson Correlation. All the hypotheses were examined with a stepwise regression analysis with academic motivation as the dependent variable and SES and the three moderators (teacher support, peer support and sex) as the independent variables. The first step consisted of academic motivation T2 as the dependent variable and academic motivation T1 as the control variable. In the second step, the main effect of SES and the main effect of the moderates; teacher support, peer support and sex on academic motivation were tested. In the third step, interaction variables were created between SES and teacher support, SES and peer support, and SES and sex. For teacher support and peer support centred variables were used, to avoid potentially high multicollinearity with the interaction terms (Aiken, West, & Raymond, 1991). The three interactions were placed in separate models to maintain a clear interpretation of each interaction effect.

Results

Descriptive statistics

Table 1 includes an overview of demographic information and sample size for wave 1, and 2, and showed that academic motivation decreased in wave 2.

Table 2 includes the correlations among the study variables. Several significant correlations were found among the main study variables. Significant positive correlations between academic motivation T1 and T2 were found. Higher scores on academic motivation T1 were associated with higher scores on academic motivation T2. Also, a significant positive correlation between academic motivation T2 and teacher support was found. Higher scores on academic motivation T2 were associated with higher scores on teacher support. Finally, for all

study variables (except SES) a significant negative correlation with sex was found, meaning that boys tend to score lower on the study variables than girls. *T*-tests between sex supported these assumptions [for academic motivation T1, $t(1825) = 8.293, p < 0.001$, for academic motivation T2, $t(1513) = 9.561, p < 0.001$, for teacher support, $t(2139) = 3.742, p < 0.001$, for peer support, $t(2164) = 7.116, p < 0.001$].

Table 1

Demographic Information and Descriptive Statistics for Main Study Variables

	<i>n</i>	Mean (<i>SD</i>)
Total sample	2230	
% girls	50.8	
SES T1	2188	2.00 (0.71)
Low SES	553	-1.09 (0.30)
Middle SES	1084	-0.04 (0.34)
High SES	551	0.97 (0.28)
Academic motivation T1	1916	3.91 (1.09)
Academic motivation T2	1534	3.71 (1.12)
Teacher support T1	2173	3.84 (0.78)
Peer support T1	2166	3.71 (0.71)

Table 2

Correlations among Main Study Variables

	1	2	3	4	5	6
1. SES						
2. Academic motivation T1	.25**					
3. Academic motivation T2	.10**	.23**				
4. Teacher support T1	-.02	.07**	.09**			
5. Peer support T1	.00	.09**	.04	.40**		
6. Sex	-.01	-.19**	-.24**	-.08**	-.15**	

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

Main effects

In Table 3 the main effects of SES, academic motivation T1, teacher support, peer support, and sex on academic motivation T2 were presented. As can be seen in Table 3 academic motivation T1 significantly predicted academic motivation T2 ($B = 0.24$, $SE = 0.03$). That is, adolescents with high academic motivation at T1 showed high academic motivation at T2. In step 2, SES significantly predicted academic motivation T2 ($B = 0.11$, $SE = 0.05$). This indicated that adolescents with high SES showed higher academic motivation than adolescents from with low SES. Additional analysis revealed ($F(2,1506) = 7.21$, $p < .001$) that adolescents with the highest SES, scored significantly higher on academic motivation ($M = 3.87$) in comparison with the lowest SES group ($M = 3.56$) and the middle SES group ($M = 3.71$). Further, sex significantly predicted academic motivation T2 ($B = -0.49$, $SE = 0.06$), whereas boys showed less academic motivation compared to girls. Teacher support, and peer support did not significantly predict academic motivation. In step 3, the interaction effects of SES and teacher support, SES and peer support, and SES and sex were not significant.

Table 3

Summary of Regression Analysis for Variables Predicting Adolescents' Academic Motivation T2 with Teacher Support, Peer Support, and Sex as Moderators (N = 1262)

	<i>B</i>	<i>SE (B)</i>	β	<i>p</i> -value (2-tailed)	<i>R</i> ²
Step 1					
Academic motivation T1	0.24	0.03	.23	<0.01	.05**
Step 2					
SES	0.11	0.05	.07	0.01	
Teacher support	0.06	0.04	.04	0.15	.06*
Peer support	0.02	0.05	.01	0.64	.06*
Sex	-0.49	0.06	-.22	<0.01	.10**
Step 3					
SES x Teacher support	-0.08	0.06	-.11	0.15	.06
SES x Peer support	-0.09	0.06	-.11	0.16	.06
SES x Sex	0.14	0.09	.14	0.10	.10

Note: ^a Teacher support and peer support were centred at their mean.

^b Moderators and interaction terms were analysed in separate models.

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

Discussion

This study tested the effect of SES and the moderation effects of teacher support, peer support and sex on academic motivation among adolescents from 10 to 14 years of age. The results indicated that SES in early adolescence (age 11) was a significant predictor of academic motivation in early- and mid-adolescence (age 11 and 14). This result supported the hypotheses of the studies of Faria (2004) and Perrya and colleagues (2012), indicating that adolescents from low SES families show less academic motivation than adolescents from average or high SES families. Faria (2004) studied adolescents in the age group of 12 to 17 and Perrya and colleagues (2012) focused on sixth graders (age 11 and 12). Extending previous findings, the current study is longitudinal, and it is more specific and an addition to literature mentioned earlier. Where Perrya and colleagues (2012) ended at the age of 12, we continued to the age of 14. Where Faria (2004) took the age range of 12 to 17 we were more specific and found that SES is only a predictor for the early- and mid-adolescence. It should be noted that the effect we found would probably be stronger if there was no dropout. With an attrition analysis it is found that adolescents who are missing in the sample are from lower SES families. The result we found is in line with the significant positive correlations we found, however it should be noted that the correlations we found between SES and academic motivation at T1 and T2 cannot be considered as large. One should be aware of this. An explanation for our findings is that adolescents from high SES families hold many of the early advantages in respect to education (e.g. resources, role models) and adolescents from low SES families do not have these advantages.

Sex and academic motivation

We found that sex was a predictor for adolescents' academic motivation at age 14. Whereby boys had lower academic motivation than girls regardless their SES. An explanation for the main effect of sex on academic motivation can be found in the different expectations of parents and teachers regarding to boys and girls (Wang & Eccles, 2012). For instance, Eccles (2007) found that teachers often respond differently to girls and boys and that this might affect adolescents believe that their sex is associated with certain behaviour patterns of teachers. It should be noted that the effect we found, that boys are less motivated than girls would even be stronger if there was less dropout. Another explanation can be found in the study of Vecchione and colleagues (2014) in which the authors mention that boys often need other specific attention than girls and possibly need a different pedagogical/educational approach. Furthermore, Bembenuddy (2007) found that girls show more connectedness to

school than boys and is it less socially accepted for boys to have high levels of connectedness to school.

The results do not support a moderation of sex on the relation between SES and academic motivation. The results suggested that the effect of SES on academic motivation in this study was similar across adolescents' sex. This is not in line with previous research where it is found that boys from low SES families are less motivated than adolescents from high SES families (Plunkett et al., 2003; Vecchione et al., 2014). However, this non-finding can be explained by studies who found that sex is a predictor for academic motivation (Martin and Marsh, 2005; Meece et al., 2006; Roorda et al., 2011; Wentzel et al., 2010).

The role of external support systems and academic motivation

Teacher support. The results do not support a moderation of teacher support. This is not in line with previous studies, as discussed by William and colleagues (2017), who found that students from low SES families who have a supportive and positive relationship with a teacher are inspired to work harder at school. Similarly, Roorda and colleagues (2011) who found that adolescents from low SES families are more strongly influenced by a supportive relationship with a teacher than adolescents from middle- or high SES families. Nevertheless, we did not find support of a moderation of teacher support. In addition, the correlation between SES and teacher support is not significant, suggesting that other explanations are needed. An explanation can be found in the measurement of teacher support. We measured teacher support by the Affection Scale with four items. For instance, William and colleagues (2017), conducted interviews with the students. The difference in measurement could be an explanation for the difference in effect. Another explanation can be found in the study of Crosnoe, Johnson and Elder (2004) who stated that especially girls are sensitive to the quality of the teacher-student relationships. This would assume that boys are less sensitive to the quality of the teacher-student relationships and therefore report less teacher support than girls. It is also possible that the assessments of academic motivation by the teachers could have influenced the results. When boys have lower grades or a worse relationship with the teacher than girls, teachers may have scored boys' academic motivation lower than girls' academic motivation, which means that there might be a bias in the results. Additional analysis should be done to check if this is the case.

Peer support. The results do not support a moderation of peer support. This is not in line as reported in previous studies (Delgado, Etekal, Simpkins, & Schaefer, 2016; Dennis et al., 2005; Schneider et al., 2008; Willem et al., 2017) that indicate that adolescents from low SES families academically benefit from support peer relationships. The correlation between

SES and peer support is not significant, suggesting that other explanations are needed. An explanation can be found in the longitudinal study of Dennis and colleagues (2005) and the study of Pittman and Richmond (2010): The authors found that the lack of needed peer support is a stronger predictor for older adolescents than the family support. These studies focused on older adolescents, suggesting that the effect of peer support might be more important for older adolescents compared to younger adolescents. Future research should therefore also include older adolescents. Another explanation can be found in the study of Bradshaw and Richardson (2009). They found that adolescents in the Netherlands scored high on peer relationships. For the current study this explains why we did not find an effect for peer support as a buffer, because adolescents scored relatively high on peer relations. This could mean that despite the SES, all adolescents have good peer relations and the effect of peer support will disappear. Finally, an explanation can be that adolescents who report low levels of academic motivation are getting negative input from their antisocial peers, while those reporting high levels of academic motivation are getting encouragement from their social peers (Wang & Eccles, 2007). Future research should include the different sorts of peer groups in order to control for this possible effect.

Implications

The results of this study provide some possible implications for intervention approaches and future research regarding academic motivation. Giving the result where SES is related to academic motivation, it will be good to focus on parents with lower levels of education. Wang and Eccles (2012) mention that those parents often have less understanding of the school systems and therefore are also less able to help and guide adolescents in their academic motivation. A solution would be to try to involve those parents more into the school systems with for example home-visits by teachers or more open house days at school. Also, teachers could be more informed about sex differences that exist between boys and girls in their academic motivation, and the teachers can adjust their approach of teaching and therefore try to motivate girls and boys differently.

Limitations and conclusion

This study has strengths, such as the longitudinal design and the large sample however, several limitations needs to be noted. Firstly, academic motivation is only measured through two items filled in by the teachers. There was no questionnaire available for adolescents' self-report about academic motivation. The two items 'this student has an excellent work pace' and 'this student shows great effort' come closest to academic motivation. Future research should consider adolescents' self-reports as well as teacher

reports, because then a methodological stronger approach is used because academic motivation is measured by two persons. Secondly, the two items about academic motivation are filled in by the teacher, however it is unclear who this teacher is (e.g. mentor, Dutch teacher, PE teacher). Furthermore, there might be a bias in the reported academic motivation. It is possible that the more academically motivated adolescents also enjoy supportive relations with their teachers and the other way around. This may have affected the reported score on academic motivation. Taken all this into account, this could have influenced the results. Thirdly, we did not control for adolescents' education level. This could have influenced the results, because different studies indicate that academic motivation is associated with school achievement (Anderson & Keith, 1997; Gottfried, Fleming, & Gottfried, 2001; Shernoff & Schmidt, 2007), assuming that adolescents with lower school achievement have lower academic motivation. We chose not to include education level as a confounder because part of the adolescents at T1 were still at primary school and parental SES was already included. Finally, we did not control for ethnicity. The participants were drawn from the North of the Netherlands and in our sample 89% of the adolescents were Dutch and 11% were originally non-Dutch. Because only a small percentage was non-Dutch we chose not to include ethnicity as a confounder. Previous studies indicated that academic motivation is different for different ethnicities (Schultz, 1993; Young et al., 2011). One should be cautious in generalizing the results to other adolescent samples due to ethnic composition.

Within the limitations of the study, future research should investigate the mechanisms through which SES operates for academic motivation and why it is different for boys and girls. Also, future research needs to identify other possible factors that may decrease or increase academic motivation (e.g. personal traits like self-esteem and efficacy, education level and ethnicity). In conclusion, these findings demonstrated that both SES and sex are important for academic motivation. Adolescents from low SES families show lower academic motivation than adolescents from middle or high SES families, whereas adolescents from high SES families show the highest academic motivation. An explanation lies in the many advantages (e.g. resources, role models) adolescents from high SES families have in contrast with adolescents from low SES families who have for example less access to role models. Furthermore, it is found that boys reported lower academic motivation than girls. This study gave knowledge that SES and sex are important determinants for academic motivation in mid-adolescence. This knowledge can be used for interventions to make adolescents more academically motivated and may teachers more aware of possible sex differences, which is important for the school achievement and later career of adolescents.

References

- Aiken, L. S., West, S. G., & Raymond, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.
- Alfaro, E. C., Umaña-Taylor, A. J., & Bámaca, M. Y. (2006). The influence of academic support on Latino adolescents' academic motivation. *Family Relations, 55*, 279-291. doi:10.1111/j.1741-3729.2006.00402.x
- Anderson, E. S., & Keith, T. Z. (1997). A longitudinal test of a model of academic success for at-risk high school students. *Journal of Educational Research, 90*, 259-268. doi:10.1080/00220671.1997.10544582
- Battistich, V., Solomon, D., Kim, D., Watson, M., & Schaps, E. (1995). Schools as communities, poverty levels of student populations, and students' attitudes, motives, and performance: A multilevel analysis. *American Educational Research Journal, 32*, 627-658. doi:10.3102/00028312032003627
- Bembenuity, H. (2007). Self-regulation of learning and academic delay of gratification: Gender and ethnic differences among college students. *Journal of Advanced Academics, 18*, 586-616. doi:10.4219/jaa-2007-553
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*, 371-399. doi:10.1146/annurev.psych.53.100901.135233
- Bradshaw, J., & Richardson, D. (2009). An index of child well-being in Europe. *Child Indicators Research, 2*, 319-315. doi:10.1007/978-90-481-3377-2_22
- Brewster, A. B., & Bowen, G. L. (2004). Teacher support and the school engagement of Latino middle and high school students at risk of school failure. *Child and Adolescent Social Work Journal, 21*, 47-67. doi:10.1023/B:CASW.0000012348.83939.6b
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723-742. doi:10.1037/0012-1649.22.6.723
- Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *Future Child, 7*, 55-71. doi:10.2307/1602387
- Cappella, E., Kim, H. Y., Neal, J. W., & Jackson, D. R. (2013). Classroom peer relationships and behavioral engagement in elementary school: The role of social network equity. *American Journal of Community Psychology, 52*, 367-379. doi:10.1007/s10464-013-9603-5
- Coleman, J. S. (1998). Social capital in the creation of human capital. *The American Journal*

- of Sociology*, 94, 95-120.
- Croninger, R., & Lee, V. (2001) Social capital and dropping out of high school: Benefits to at-risk students of teachers' support and guidance. *Teachers College Record*, 103, 548-581. doi:10.1111/0161-4681.00127
- Crosnoe, R., Johnson, M. K., & Elder, G. H. (2004). Intergenerational bonding in school: The behavioral and contextual correlates of student-teacher relationships. *Sociology of Education*, 77, 60-81. doi:10.1177/003804070407700103
- Davidson, A. J., Gest, S. D., & Welsh, J. A. (2010). Relatedness with teachers and peers during early adolescence: An integrated variable-oriented and person-oriented approach. *Journal of School Psychology*, 48, 483-510. doi:10.1016/j.jsp.2010.08.002
- Delgado, M. Y., Ettekal, A. V., Simpkins, S. D., & Schaefer, D. R. (2016). How do my friends matter? Examining Latino adolescents' friendships, school belonging, and academic achievement. *Journal of Youth Adolescence*, 45, 1110–1125. doi:10.1007/s10964-015-0341-x
- Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46, 223-236. doi:10.1353/csd.2005.0023
- De Winter, A. F., Oldehinkel, A. J., Veenstra, R., Brunnekreef, J. A., Verhulst, F. C., & Ormel, J. (2005). Evaluation of non-response bias in mental health determinants and outcomes in a large sample of pre-adolescents. *European Journal of Epidemiology*, 20, 173-181. doi:10.1007/s10654-004-4948-6
- Eccles, J. S. (2007). Where are all the women? Gender differences in participation in physical science and engineering. In S. J. Ceci & W. M. Williams (Eds.), *Why aren't more women in science?* (pp. 199–210). Washington, DC: American Psychological Association.
- Faria, L. (2004). Dimensions of causality as a function of socioeconomic status in a sample of Portuguese adolescents. *Psychological Reports*, 94, 827-832. doi:10.2466/pr0.94.3.827-832
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59–109. doi:10.3102/00346543074001059
- French, D. C., & Conrad, J. (2001). School dropout as predicted by peer rejection and

- antisocial behavior. *Journal of Research on Adolescence*, *11*, 225–244.
doi:10.1111/1532-7795.00011
- Ganzeboom, H. B. G. & Treiman, D. J. (1996). Internationally comparable measures of occupational status for the 1988 international standard classification of occupations. *Social Science Research*, *25*, 201-239. doi:10.1006/ssre.1996.0010
- Garcia-Reid, P. (2007). Examining social capital as a mechanism for improving school engagement among low income Hispanic girls. *Youth & Society*, *39*, 164-181.
doi:10.1177/0044118X07303263
- Garnezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry*, *56*, 127-136.
doi:10.1080/00332747.1993.11024627
- Gillock, K. L., & Reyes, O. (1999). Stress, support, and academic performance of urban, lowincome, Mexican-American adolescents. *Journal of Youth and Adolescence*, *28*, 259-282.
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence*, *13*, 21–43. doi:10.1177/0272431693013001002
- Gottfried, A. E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Psychology*, *77*, 631-645. doi:10.1037//0022-0663.77.6.631
- Gottfried, A. E., Fleming, J. S., & Gottfried, A. W. (2001). Continuity of academic intrinsic motivation from childhood through late adolescence: A longitudinal study. *Journal of Educational Psychology*, *93*, 3-13. doi:10.1037/0022-0663.93.1.3
- Herba, C. M., Ferdinand, R. F., Stijnen, T., Veenstra, R., Oldehinkel, A. J., Ormel, J., & Verhulst, F. C. (2008). Victimization and suicide ideation in the TRAILS study: Specific vulnerabilities of victims. *Journal of Child Psychology Psychiatry*, *49*, 867-876. doi:10.1111/j.1469-7610.2008.01900.x
- Howard, K. A. S., Ferrari, L., Nota, L., Holberg, S. V., & Soresi, S. (2009). The relation of cultural context and social relationships to career development in middle school. *Journal of Vocational Behavior*, *75*, 100-108. doi:10.1016/j.jvb.2009.06.013
- Huisman, M., Oldehinkel, A. J., Winter, A. D., Minderaa, R. B., Bildt, A. D., Huizink, A. C., Verhulst, F. C., & Ormel, J. (2009). Cohort profile: The Dutch 'tracking adolescents' individual lives' survey; TRAILS. *International Journal of Epidemiologie*, *38*, 379-384. doi:10.1093/ije/dym273
- King, R. B., & Ganotice Jr. F. A. (2014). The social underpinnings of motivation and

- achievement: Investigating the role of parents, teachers, and peers on academic outcomes. *Asia-Pacific Education Research*, 23, 745–756. doi:10.1007/s40299-013-0148-z
- Koutsoulis, M. K., & Campbell, J. R. (2001). Family processes affect students' motivation, and science and math achievement in Cypriot high schools. *Structural Equation Modeling*, 8, 108-127. doi:10.1207/s15328007sem0801_6
- Legault, L., Green-Demers, I., & Pelletier, L. (2006). Why do high school students lack motivation in the classroom? Toward an understanding of academic amotivation and the role of social support. *Journal of Educational Psychology*, 98, 567–582. doi:10.1037/0022-0663.98.3.567
- Lever, J. P., Pinõl, N. L., & Uralde, J. H. (2005). Poverty, psychological resources and subjective well-being. *Social Indicators Research*, 73, 375–408. doi:10.1007/s11205-004-1072-7
- Li, Y., Lynch, A. D., Kalvin, C., Liu, J., & Lerner, R. M. (2011). Peer relationships as a context for the development of school engagement during early adolescence. *International Journal of Behavioral Development*, 35, 329-342. doi:10.1177/0165025411402578
- Martin, A. J., & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and educational practice. *Review of Educational Research*, 79, 327–365. doi:10.3102/0034654308325583
- Martin, A., & Marsh, H. (2005). Motivating boys and motivating girls: Does teacher gender really make a difference? *Australian Journal of Education*, 49, 320–334. doi:10.1177/000494410504900308
- McBrien, J. L. (2005). Educational needs and barriers for refugee students in the United States: A review of the literature. *Review of Educational Research*, 75, 329-364. doi:10.3102/00346543075003329
- McGeown, S. P., Putwain, D., Simpson, E. G., Boffey, E., Markhamc, J., & Vince, A. (2014). Predictors of adolescents' academic motivation: Personality, self-efficacy and adolescents' characteristics. *Learning and Individual Differences*, 32, 278-286. doi:10.1016/j.lindif.2014.03.022
- Meece, J. L., Glienke, B. B., & Burg, S. (2006). Gender and motivation. *Journal of School Psychology*, 44, 351–373. doi:10.1016/j.jsp.2006.04.004
- Midgley, C., Feldlaufer, H., & Eccles, J. S. (1989). Student/teacher relations and attitudes

- toward mathematics before and after the transition to junior high school. *Child Development, 60*, 981–992. doi:10.2307/1131038
- Molloy, L. E., Gest, S. D., & Rulison, K. L. (2011). Peer influences on academic motivation: Exploring multiple methods of assessing youths' most "influential" peer relationships. *Journal of Early Adolescence, 31*, 13-40. doi:10.1177/0272431610384487
- Moschetti, R. V., Hudley, C. (2015). Social capital and academic motivation among first-generation community college students. *Community College Journal of Research and Practice, 39*, 235–251. doi:10.1080/10668926.2013.819304
- Murray, C. (2009). Parent and teacher relationships as predictors of school engagement and functioning among low-income urban youth. *Journal of Early Adolescence, 29*, 376–404. doi:10.1177/0272431608322940
- Nederhof, E., Jorg, F., Raven, D., Veenstra, R., Verhulst, F. C., Ormel, J., & Oldehinkel, A. J. (2012). Benefits of extensive recruitment effort persist during follow-ups and are consistent across age group and survey method. The TRAILS study. *BMC Medical Research Methodology, 12*, 93. doi:10.1186/1471-2288-12-93
- Newman, R. S. (2000). Social influences on the development of children's adaptive help seeking: The role of parents, teachers, and peers. *Developmental Review, 20*, 350–404. doi:10.1006/drev.1999.0502
- Oscos-Sanchez, M. A., Oscos-Flores, L. D., & Burge, S. K. (2008). Interest in a medical career predicts college enrollment among economically disadvantaged ethnic minority students *Journal of Adolescent Health, 42*, 284–293. doi:10.1016/j.jadohealth.2007.11.108
- Perrya, B. L., Link, T., Boelter, C., & Leukefeld, C. (2012). Blinded to science: gender differences in the effects of race, ethnicity, and socioeconomic status on academic and science attitudes among sixth graders. *Gender and Education, iFirst Article*, 1–19. doi:10.1080/09540253.2012.685702
- Pittman, L. D., & Richmond, A. (2007). Academic and psychological functioning in late adolescence: The importance of school belonging. *The Journal of Experimental Education, 75*, 270-290. doi:10.3200/JEXE.75.4.270-292
- Plunkett, S. W., & Bamaca-Gomez, M. Y. (2003). The relationship between parenting, acculturation, and adolescent academics in Mexican-origin immigrant families in Los Angeles. *Hispanic Journal of Behavioral Sciences, 25*, 222-239. doi:10.1177/0739986303025002005
- Ratelle, C. F., Guay, F., Larose, S., & Senécal, C. (2004). Family correlates of trajectories of

- academic motivation during a school transition: A semiparametric group-based approach. *Journal of Educational Psychology*, *96*, 743–754. doi:10.1037/0022-0663.96.4.743
- Richmond, V. (1990). Communication in the classroom: Power and motivation. *Communication Education*, *3*, 181–195. doi:10.1080/03634529009378801
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, *88*, 408–422. doi:10.1037//0022-0663.88.3.408
- Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher-student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, *81*, 493-529. doi:10.3102/0034654311421793
- Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and Instruction*, *42*, 95-103. doi:10.1016/j.learninstruc.2016.01.004
- Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, *14*, 226–249. doi:10.1177/027243169401400207
- Schneider, B. H., Tomada, G., Normand, S., Tonci, E., & Domini, P. de. (2008). Social support as a predictor of school bonding and academic motivation following the transition to Italian middle school. *Journal of Social and Personal Relationships*, *25*, 287–310. doi:10.1177/0265407507087960
- Schultz, G. F. (1993). Socioeconomic advantage and achievement motivation: Important mediators of academic performance in minority children in urban schools. *The Urban Review*, *25*, 221-232. doi:10.1007/bf01112109
- Shernoff, D. J., & Schmidt, J. A. (2007). Further evidence of an engagement–achievement paradox among U.S. high school students. *Journal of Youth and Adolescence*, *37*, 564–580. doi:10.1007/s10964-007-9241-z
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*, 417–453. doi:10.3102/00346543075003417.

- Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*, 571–581. doi:10.1037//0022-0663.85.4.571
- Skinner, E. A., Kindermann, T. A., & Furrer, C. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and Psychological Measurement, 69*, 493-525. doi:10.1177/0013164408323233
- Stanton-Salazar, R. D., & Tai, R. H. (2001). School personnel as sources of social and institutional support: Prevalence and predictors. In R. D. Stanton (Ed.), *Manufacturing hope and despair: The school and kin support networks of U.S. -Mexican youth* (pp. 218-247). New York: Teachers College.
- Stroet, K., Opendakker, M. C., & Minnaert, A. (2013). Effects of need supportive teaching on early adolescents' motivation and engagement: A review of the literature. *Educational Research Review, 9*, 65-87. doi:10.1016/j.edurev.2012.11.003
- Van Acker, R., & Wehby, J. H. (2000). Exploring the social contexts influencing student success or failure: Introduction. *Preventing School Failure, 44*, 93–96. doi:10.1080/10459880009599789
- Van der Laan, A., Veenstra, R., Bogaerts, S., Verhulst, F.C., & Ormel, J. (2010). Serious, minor, and non-delinquents in early adolescence: The impact of cumulative risk and promotive factors. *Journal of Abnormal Child Psychology, 38*, 339-351. doi:10.1007/s10802-009-9368-3
- Vecchione, M., Alessandri, G., & Marsicano, G. (2014). Academic motivation predicts educational attainment: Does gender make a difference? *Learning and Individual Differences, 32*, 124-131. doi:10.1016/j.lindif.2014.01.003
- Veenstra, R., Lindenberg, S., Oldehinkel, A.J., De Winter, A.F., Verhulst, F.C., & Ormel, J. (2008). Prosocial and antisocial behavior in preadolescence: Teachers' and parents' perceptions of the behavior of girls and boys. *International Journal of Behavioral Development, 32*, 243-251. doi:10.1177/0165025408089274
- Veenstra, R., Lindenberg, S., Tinga, F., & Ormel, J. (2010). Truancy in late elementary and early secondary education: The influence of social bonds and self-control. *International Journal of Behavioral Development, 34*, 302-310. doi:10.1177/0165025409347987
- Veenstra, R., Lindenberg, S., Verhulst, F.C., & Ormel, J. (2009). Childhood-limited versus

- persistent antisocial behavior: Why do some recover and others do not? *Journal of Early Adolescence*, 29, 718-742. doi:10.1177/0272431608325501
- Vollebergh, W. A., ten Have, M., Dekovic, M., Oosterwegel, A., Pels, T., Veenstra, R., de Winter, A., Ormel, H., & Verhulst, F. (2005). Mental health in immigrant children in the Netherlands. *Social Psychiatry Psychiatric Epidemiology*, 40, 489-496. doi:10.1007/s00127-005-0906-1
- Wang, M. T., & Eccles, J. S. (2012). Social support matters: longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development*, 83, 877-895. doi:10.1111/j.1467-8624.2012.01745.x.
- Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology*, 89, 411-419. doi:10.1037//0022-0663.89.3.411
- Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology*, 90, 202-209. doi:10.1037//0022-0663.90.2.202
- Wentzel, K. R., & Asher, S. R. (1995). Academic lives of neglected, rejected, popular, and controversial children. *Child Development*, 66, 754-763. doi:10.1111/j.1467-8624.1995.tb00903.x
- Wentzel, K. R., Barry, C., & Caldwell, K. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology*, 96, 195-203. doi:10.1037/0022-0663.96.2.195
- Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social support from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, 35, 193-202. doi:10.1016/j.cedpsych.2010.03.002
- Williams, J. M., Bryan, J., Morrison, S., & Scott, T. R. (2017). Protective factors and processes contributing to the academic success of students living in poverty: Implications for counsellors. *Journal of Multicultural Counselling and Development*, 45, 183-200. doi:10.1002/jmcd.12073
- Young, A., Johnson, G., Hawthome, M., & Pugh, J. (2011). Cultural predictors of academic motivation and achievement: A self-deterministic approach. *College Student Journal*, 45, 151-163. Retrieved from <https://www.researchgate.net/publication/260970420>
- Yun Dai, D. (2001). A comparison of gender differences in academic self-concept and motivation between high-ability. *Journal of Secondary Gifted Education*, 13, 22-33. doi:10.4219/jsge-2001-361