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### Title

IMPACTS OF TEACHER SUPPORT ON ADOLESCENT PERSISTENCE DURING THE MIDDLE SCHOOL TO HIGH SCHOOL TRANSITION

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IMPACTS OF TEACHER SUPPORT ON ADOLESCENT PERSISTENCE DURING THE  
MIDDLE SCHOOL TO HIGH SCHOOL TRANSITION

By

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A capstone project submitted for Graduation with University Honors

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## ABSTRACT

Student perception of school climate and teacher support is strongly associated with educational persistence (Gale et al., 2020; Hadre & Reeve, 2003). Persistence is a driving force in motivating students to continue doing well in school, despite changes and challenges (Harris & Kiyama, 2015). Prior work suggests there is a critical time period between middle school to high school where students face changes in adult support both inside and outside the classroom (Alspaugh, 1998; Cohen & Smerdon, 2009). Compounding the fragility of this period, it is common for adolescents to observe changes and limitations in guidance from teachers after the transition to high school (Hadre & Reeve, 2003; Wells, 1996). This has deleterious implications for student persistence (Alspaugh, 2010). This study sought to further understand the relationship between student perception of teacher support and persistence. Furthermore, it examined if this relation differs for middle school students compared to high school students. Participants ( $N = 3,070$ ) include middle and high school students who anonymously completed the California Department of Education's California Healthy Kids Survey during the 2021-2022 academic year. A regression analysis found a significant positive relationship between teacher support and student persistence. However, this relationship did not change or differ due to grade. Further studies must be done to identify the relationship of teacher support and student persistence based on other dominant influencers such as gender, parent education, and peer support.

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## INTRODUCTION

The main factor being studied in this project is student persistence, more specifically, the changes in student persistence that follow shifts in environment and expectations. As a broad topic, the literature reviewing persistence seems to define it differently based on the age group being studied and the context of the research. For this study, I defined persistence as a student's ability to continue working toward a problem or goal, despite setbacks, and with faith that the student has access to support to achieve a goal (Gale et al., 2020; Hadre & Reeve, 2003, Scales et al, 2020).

### Purpose

This project dives into gaps and trends in research identified in the rates of student persistence after school transitions. There is research supporting that persistence is related to factors such as motivation and school climate, based on the support students are given (Scales et al, 2020). Persistence allows students to succeed despite challenges. In an educational setting, this can include classes, difficulty in subjects, and peer relations. During a time of consistent high school reform on current class sizes, course subjects, and more, it is important to research topics that can maintain a positive climate and education system for students. Specifically, this study is focused on the relationship between teacher support and student persistence, as assessed through self-report data and in a population of students attending schools in Inland Southern California. Simultaneously, I am looking for a significant difference in the data taken before and after the transition from middle school to high school.

### Literature Review

#### *Persistence in Detail*

There are a variety of contributors to persistence. Research often identifies it as an outcome of support from adults and teachers (Harris & Kiyama, 2015). Student perception of school climate and teacher support are strongly associated with educational persistence (Gale et al., 2020; Christine, 2006). Persistence can also be influenced by student engagement, as students are more likely to be engaged when teachers are engaged themselves or support their interests. (Crawford, 2000; Hadre & Reeves, 2003). Overall, students are more motivated if they believe they will have positive support. In general, persistence is a valid indicator of student adjustment, especially after transition periods.

#### *Teacher Support and School Climate*

Teacher and adult support are also major indicators of student adaptation to changes and contribute to school climate. As expected, students work better in a positive school climate that allows for strong, safe spaces (Harris & Kiyama, 2015; Jiang et al, 2023). School climate has significant implications on mental health. While independence is important for the adolescent stage, forced independence can be damaging. To combat this, schools often use community programs where students are given support to maintain self-esteem and perception (Cohen & Smerdon, 2009).

Teacher expectations and influence can also affect student perceptions of themselves and the classroom climate (Crawford, 2000; Rubie-Davies, 2006, Wells, 1998). For example, students notice when teachers show bias or favoritism (Christine, 2006). Meaning, these student perceptions of how engaged a teacher is already exist in classroom settings. Even if teachers say they give more support to other students, student observations can report otherwise, which is why it is important to examine teacher support in schools.

#### *Persistence and Student Social Relationships*

The transition from middle school to high school involves groups of students typically from thirteen to fifteen years old. This means they are at a critical developmental stage. Adolescence as a developmental stage introduces strong levels of autonomy and self-motivation for students, where they now are exploring personal interests and seek educators who can support the development of student autonomy (Hadre & Reeves, 2003). This delicate period of independence still requires some form of guidance, which is why this project has a focus on the transition between school grades, when the guidance students receive shifts. At this point of development, students are still improving their socio-emotional competencies (National Center on Safe Supportive Learning Environments, 2020). They are also at risk of declining persistence based on lack of support during this change. In fact, a common indicator of high school dropout rates is students falling off track in ninth grade, such as losing motivation in school (Cohen & Smerdon, 2009). Dropout rates also have a significant relationship with self-esteem and limited attention (Alspaugh, 1998). This is especially critical as students observe a change in their perception of teaching style as they advance in school (Stronge, 2018).

As students get older, their observations of school climate and teacher-student relationships shift (Christine, 2006). Still, there is often a discrepancy between student and teacher observations (Crawford, 2004). Educators often underestimate the effect their instruction has on student perceptions of school. According to Wells (1998), students as young as eighth grade already expect a decline in support, after school transitions. Despite this, social relationships are critical for student development (Scales et al, 2020; Harris & Kiyama, 2015). At the same time, high school and secondary schools can be very individualistic, so teachers have the responsibility of mediating this social gap (Crawford, 2000; Harris & Kiyama, 2015).



Persistence and grit are needed to combat the challenges students encounter during these transitions (Jiang et al, 2023; Wells, 1998).

Even the elementary to middle school level's transition offers challenges on social and academic independence, but high school tracks tend to diverge more (Cohen & Smerdon, 2009). School transitions interrupt already formed social relationships, both between peers and teachers. Students also face a higher risk for falling off track in scenarios where they go through school change more than once (Alspaugh, 1998). This change in social relationships leads to changes in support through teacher collaboration and communication. In short, current research suggests that dropout rates and student persistence are influenced by relationships that students have access to. Knowing that ninth grade and post-middle school performance is an indicator of hardships such as dropping out of high school, then there must be a time period before and during ninth grade that makes a student more vulnerable to change and hardship. Without proper support, students are at risk of facing an achievement gap in the transition from school to school. These transitions have avid influences on motivation, secondary effects on mastery of materials, and dropout rates, which in turn all highlight the need to study persistence (Gale, 2020; Strong, 2018; Wells, 1996).

There are a variety of studies focusing on student engagement with close groups. For example, Harris and Kiyama (2015) found, in Latino populations with lower graduation rates, that isolating student populations contributes to increased dropout rates. This finding is especially important, considering that Inland Southern California has a large percentage of Latino/Hispanic students. In fact, research states that Latino/Hispanic students face a higher risk of not succeeding academically (Hersh et al, 2020). This can be due to a variety of different challenges and barriers that they face. What has been consistently shown, though, is that

Latino/Hispanic students and others are more likely to stay motivated to finish school with avid school support (Edgar et al, 1993; Reed, 2015).

Calling back to how teacher support moderates damages from a negative climate, some studies report that teacher support also mediates the influence of other stressors, such as discrimination (Gale, 2020; Hadre & Reeves, 2003; Stronge, 2018). In a study by Gale (2020), students who reported higher levels of support from teachers despite racist interactions with peers, also reported higher levels of persistence. School is also often the first place students learn socially outside of home (Paik et al, 2020). In the case of personal autonomy, supportive teachers support student empowerment (Crawford, 2000).

#### *Gap in the Literature and Research Questions*

Altogether, social relationships are a critical component of student success. Still, there is a need for more research. Previous research has emphasized school size and socioeconomic status; suggesting that school size and socioeconomic status also has influence, especially if students don't have access to individualized support (Alspaugh, 1998; Hadre & Reeves, 2003). Despite other possible predictors and what we already know about the impact of teacher support and social relationships, there is little research on whether this relationship differs for persistence in middle and high school based on teacher support.

The research questions for the study ask: Does student perception of teacher support predict academic persistence? Is there a difference between middle and high school students in their perception? I expect to find a significant relationship and difference between the middle and high school groups, with there being a stronger relation in high school than middle school. Implications for this project include drawing attention to the importance of teacher support and the transition period that leaves students vulnerable.

## METHODS

### Data Source

This study used data from the California Department of Education's California Healthy Kids Survey (CHKS; CalSCHLS, 2023). The CHKS is a state-wide survey consisting of various modules covering topics such as school climate, mental health, and relationships. As a whole, the survey aims to improve student health and performance by identifying links between their life and surroundings (calschls.org). Currently, data from available survey modules has already been used to identify relationships between students and staff (Jennings, 2014; Stone et al, 2013).

For this study, all participants were administered the CHKS Core Module (e.g., school climate, student-teacher relationships) and the Social Emotional Health Module (e.g., persistence).

### Sample

Participants ( $N = 3,070$ ) included middle and high school students from two inland southern California counties who anonymously completed the CHKS during the 2021-2022 academic year. Given my focus on understanding whether the relationship between teacher support and persistence varies at the middle vs high school transition, only students in the 6th, 7th, and 9th grades were included in this study's sample. The majority of the sample (61.4%) identified as Hispanic or Latinx. There was a slight middle school majority of 1770 students compared to the 1291 high school students. The seventh and sixth grade students were combined, since the sixth grade group was comparatively smaller.

### *Measures*

Student persistence was measured using the Persistence scale of the Social Emotional Health Survey-Secondary (Furlong et al., 2021), which is included as part of the CHKS's Social

Emotional Health Module. Persistence was operationalized using three items (i.e., “I try to answer all the questions asked in class”; “When I do not understand something, I ask the teacher again and again until I understand”; “When I try to solve a math problem, I will not stop until I find a final solution”). Items were measured on a 4-point response scale (1 to 4). A mean score for the three items measuring Persistence was computed for this study’s analyses.

Teacher support was measured using three scales, reflecting different types of support, from the CHKS Core Survey. Three items measured each of a) caring relationships (e.g., At my school, there is a teacher or some other adult who listens to me when I have something to say), b) high expectations from adults at school (e.g., At my school, there is a teacher or some other adult who believes that I will be a success), and c) meaningful participation at school (e.g., At my school, there is a teacher or some other adult who listens to me when I have something to say). All items followed the same 4-point response scale as the persistence measure. Mean scores were computed for each type of support.

Finally, student grade level was computed from an item indicating student’s grade (based on their self-report, school status, and enrollment). The grade variable was dichotomized to reflect students in middle school (6th and 7th grade) or high school (9th grade).

#### Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software. This research had two primary purposes. First, we were interested in examining the relationship between teacher support (i.e., meaningful participation, caring relationships, and high expectations) and student persistence. Second, we tested for a possible difference in the relation between teacher support and persistence by grade level. Preliminary descriptives were run first to confirm a relationship between the variables chosen.

Hierarchical multiple regression was used to answer this study's research questions, with persistence regressed on the data for meaningful participation, caring relationships, and high expectations from adults. Multiple regression was appropriate because this study investigates various predictor variables (i.e., caring relationships, high expectations, meaningful participation) for one criterion variable (i.e., persistence). Before running any regression, however, the predictor variables were centered to avoid any skew from a single item from the modules. The regression was performed in two steps so that each research question could be examined sequentially. To answer the first research question, focused on the relationship between teacher support and student persistence, the first model examined the centered predictor variables' relationship with persistence as a whole. To answer the second research question, interaction terms between grade-level and each predictor variable were added to the second model to examine whether the relationship between teacher support and persistence varied by grade level. The teacher support variables were centered by subtracting the sample mean from each one. Then, interaction terms were created by multiplying the created grade variable with each centered variable.

## RESULTS

### Descriptives

As mentioned above, data used for this study was taken from self-report responses from students within Inland Southern California. Of the sample population, there was a slight male majority (49.4%), while female students (44.7%) made up the smaller group. The remaining students identified as transgender/nonbinary (3.2%), or something else (2.8%). In terms of Race/Ethnicity, there was a Hispanic/Latinx majority (61.4%), with a secondary majority of White (30.7%), Black or African American (10.0%), and other (11.6%) outside of the minority demographics of American Indian or Alaska Native (4.4%), Asian or Asian American (7.9%),

and Native Hawaiian (2.2%). For grade, there is a slight majority for the middle school population of sixth and seventh graders (58.0%). The ninth grade, high school population was much smaller (42.1%). As a final interest that was not utilized for the main model of this study, we also looked at parent education level. More than a quarter (28.1%) of students reported that their parents had at least one college degree. A majority either did not finish high school (10.3%), at minimum graduated high school (19.9%), or completed some college (14.8%).

*Table 2: Sample Demographic Information*

Characteristic	%
<b>Gender</b>	
Male	49.4
Female	44.7
Transgender/Nonbinary	3.2
Something Else	2.8
<b>Race or Ethnicity</b>	
American Indian or Alaska Native	4.4
Asian or Asian American	7.9
Black or African American	10.0
Hispanic or Latinx	61.4
Native Hawaiian	2.2
White	30.7
Other	11.6
<b>Grade</b>	
6th	7.5
7th	50.5
9th	42.1
<b>Parent Highest Education Level</b>	
Did Not Finish High School	10.3
Graduated High School	19.9
Finished Some College	14.8
Graduated from College	28.1
Don't Know	25

Preliminary descriptive statistics were run to examine assumptions for regression. Scatterplots were used to identify at least a partial relationship between the measures for

persistence and teacher support. The direction, however, was not easily followed in a graph, so initial correlations were run as well to better isolate the relationship. I identified moderate and statistically significant correlations between persistence and caring relationships ( $r = .37$ ), persistence and high expectations from adults ( $r = .38$ ), and persistence and meaningful participation ( $r = .43$ ).

*Table 3: Correlations*

Variable	1	2	3	4
1. Mean of Persistence Items	-			
2. Mean of Caring Relationships Items	.37**	-		
3. Mean of High Expectations from Adults	.38**	.77**	-	
4. Mean of Meaningful Participation	.43**	.55**	.44**	-
<i>M</i>	2.19	2.51	1.99	1.94
<i>SD</i>	0.87	0.84	0.84	0.73
* $p < .05$ , ** $p < .01$ , *** $p < .001$				

#### Model 1

A hierarchical multiple regression was performed to examine the relation between teacher support and student persistence. We hypothesized teacher support would have a positive effect on persistence scores of middle and high school students overall and that grade level would have a significant influence on the relationship between teacher support and persistence. Table 3 presents the regression results. The first part of the regression model examined the teacher support variables as predictors of student persistence. As shown in Table 3, this model was significant,  $F(3, 2899) = 303.228$ ,  $R^2 = .238$ ,  $p < .001$ . The independent variables of teacher support accounted for 23.8% of variance in persistence. Out of the three types of support, meaningful participation was the most positive predictor of persistence ( $\beta = .32$ ,  $t = 17.27$ ,  $p < .001$ ). The model suggests that as meaningful participation increases, so does student-reported

persistence. This was followed by high expectations from adults ( $\beta = .16, t = 6.22, p < .001$ ), and caring relationships ( $\beta = .10, t = 3.94, p < .001$ ).

## Model 2

For the second goal of the study, the cross products (grade x meaningful participation, grade x high expectations from adults, grade x caring relationships) were added to the linear equation. The second model,  $F(6, 2896) = 152.49, R^2 = .24, p < .001$ , remained statistically significant. However, as seen in Table 3, there was little to no change to the  $R^2$  value. The addition of the cross-product terms did not lead to a statistically significant increase in  $R^2$  ( $\Delta R^2 = .001, \Delta F = 1.57, p = .19$ ). This means that the interaction is not significant. Grade was not a significant predictor of persistence ( $\beta = .05, t = .50, p = .62$ ). The overall influence stands as this: Grade x Caring Relationships ( $\beta = -.00, t = -.46, p = .97$ ), Grade x Meaningful Participation ( $\beta = -0.02, t = -1.07, p = .33$ ), Grade x High Expectation ( $\beta = -0.07, t = -1.32, p = .47$ ). There overall appears to be a similar relationship between teacher support and persistence, regardless of grade level.

*Table 3: Summary of Hierarchical Regression Models with Grade Interactions Entered in Block*

2

Predictors				
Model 1	$F(3, 2899) = 303.23^*$			
	$adj R^2 = .238$			
	<b>B</b>	<b>SE B</b>	<b><math>\beta</math></b>	<b><i>p</i></b>
Centered Caring Relationships	0.11	0.03	0.10	< .001
Centered High Expectations	0.17	0.03	0.16	< .001
Centered Meaningful Participation	0.38	0.02	0.32	< .001
Grade (1 = High School)	-0.03	0.02	-0.02	< .243
Model 2	$F(6, 2896) = 152.49^*$			
	$adj R^2 = .238$			
	$\Delta R^2 = .001$			
	<b>B</b>	<b>SE B</b>	<b><math>\beta</math></b>	<b><i>p</i></b>



Grade x Caring Relationships	0.00	0.06	0.00	.97
Grade x High Expectations	-0.40	0.05	-0.07	.47
Grade x Meaningful Participation	-0.44	0.04	-0.02	.33

## DISCUSSION

### Summary

As shown in the results of this study, there is a significant and moderate relationship between teacher support and student persistence. Findings from this study add onto earlier research stating that student perception of adult support does have a positive impact on student mindset and achievement. Based on similar research, I expected that the impact of teacher support would have a stronger relationship with student persistence after the transition from middle school. This was taken from earlier readings supporting the new development of student autonomy needed and early surveys stating that students observe a change in support and classroom expectations from teachers (e.g., Cohen & Smerdon, 2009; Hadre & Reeves, 2003). It is known that students thrive with adult support, so it was assumed that as they develop more, teacher support would be seen as vital. Still, the results point to an understanding that adult support does not differ in its importance between the middle and high school transition. This goes against my earlier assumptions for the study.

Despite there being no significant differences in the impact of teacher support and student persistence between high school and middle school students, this does not diminish the importance of teacher support on persistence. Teacher support still holds value in its influence on motivation, classroom climate, and student achievement (Scales et al., 2020). Even now, as education climates are changing, it is continuously vital to ensure that students are engaged in

academics and are able to persist through change and challenges. Now, results from this study suggest focusing on other, direct factors that influence student persistence. It is possible that while perceived teacher support does not have a significant difference on persistence between grades, there are other factors that are more influential. At the same time, there are many possible paths and factors that contribute. In the case of research in modern education, we can follow this direction.

Diving into reasons for the lack of a significant difference between groups, a possible reason for this is that as students age, they naturally gain a sense of autonomy that allows them to persist by themselves (Hadre & Reeves, 2003). The age range that this project focuses on lies in the adolescent stage of development. This stage is characterized by new social relations, and a new capacity for cognitive development. Prior research has indicated that development of the adolescent level increases autonomy, so students in the high school group may have learned to problem solve in a newly rigorous high school environment (Cohen & Smerdon, 2009; Hadre & Reeves, 2003). This does not mean that teacher support is not valuable at this stage. Instead, students are beginning to diverge from depending on adult support.

Another possible factor is the student's home life. More specifically, if the student already has a positive role model at home, then the school supports do not have as much as a direct impact on the student. In preparation for the study, descriptives on parent education and demographics were run. There may be a relationship between parent education and their expectations, which would interact with student persistence. With a lack of adult support at home, the importance of teacher support may also lie in a student's risk level, instead of the grade level. Harris and Kiyama (2015) found that students who are at risk of dropping out of school often lack a positive role model. When offered a mentor in an academic setting, such as a

teacher, their achievement rates increased significantly. Therefore, while there can be other factors that influence student persistence, teacher support is still a valuable topic to discuss.

### Limitations

While a moderate relationship between teacher support and student persistence was identified with the data, there are various factors that could interfere with results stemming from this study that could explain the lack of a significant difference between grade levels.

To start off this study used data from a very limited sample of students from Inland Southern California. The students surveyed had a predominately homogenous racial and economic population; the dominant race was Hispanic/Latinx. Harris and Kiyama (2015) highlighted Hispanic and Black students to be the most at risk without adequate teacher support. Knowing this, there is a possibility that there are significant differences within the model tested, but by race. I did not isolate a specific race in my model, therefore, I would not be able to identify whether the relationship between teacher support and persistence varies by race.

Another important topic to discuss regarding the population is how the grade levels were divided. The purpose of this study was to study the differences in the influence of teacher support in the middle to high school transition, which would typically introduce the eighth to ninth grade transition. The survey used for the study was not administered to eighth graders, so I generalized the middle school population by combining the sixth and seventh grade groups. There is a possibility that this generalization is what allowed for a lack of significant difference between grades.

Outside of the populations, a third possible limitation that appears minimal but will require future attention is the distribution of data when examining our assumptions for multiple regression. Examining the assumptions for the variables showed an extremely wide distribution,

which made identifying the direction of the relationship difficult. Looking back to Table 2 and 3, the data indicates a positive relationship between the measures for persistence and teacher support.

A final limitation to be considered for this research project is the flexible definition of persistence. While I offered my definition for the sake of the project, the truth of the matter is that persistence and its definition has been consistently debated throughout research (Gale et al., 2020). When identifying measures for persistence, I only took questions from the Social Emotional Health module, which were labeled as measuring ‘persistence’. However, there were other questions from other modules that were also related to persistence, but I did not use them to avoid separating question groups.

Nevertheless, even with these limitations, this capstone contributes to the conversation of teacher effects on student performance. I established a relationship between the measures listed and now, knowing these limitations, I have a direction to go into that will allow me to further explore any possible relationships between persistence and these other variables. The results of this study reaffirm that there is a relationship between teacher support and student persistence.

#### Further Steps

Expanding on this project would require a closer look at the limitations that I listed above. Acknowledging that Hispanic and Black student populations are at risk for negative school performance without social support, I would like to separate racial groups that have historically faced more academic risks in the model, so as to observe whether there are any differences in persistence across groups before and after the transition to high school. I also saw variability in the education of the parents of the student population. It would be interesting to

examine the persistence of students who have not only adult support at home, but also educated adult support. The influence of student gender is of avid interest as well.

The model could have also been more intricately studied by using other portions of the California Healthy Kids Survey. There is a version of the survey that focuses not on student responses, but teacher responses. Earlier in my literature review, I identified how there is often a discrepancy between how supportive teachers and students view their classroom environment to be (Christine, 2006). Taking in teacher opinion and comparing their observations to that of students from the same school district could identify other variables that contribute to persistence that I am missing from just looking at student responses.

Most notably, I would like to investigate how other social relationships affect student persistence, especially as there is a more recent focus in research on the influence of peer support over teacher support. With the new dependence on social media and the tendency for adolescents to slowly develop structured friend groups, there is a new emphasis on the relationship between peer support and student persistence (Hoferichter et al., 2022). As the CHKS also includes modules asking about the different social supports students have access too, I believe this would be the strongest direction to continue with. All in all, there is sufficient research to support the idea of teacher support having a positive relationship with student persistence. While it does not vary by grade, there are various other variables of interest that should be considered to further this research and reaffirm that there is no significant difference across grade levels.

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