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Examining the temporal directionality between teaching behavior and affect in high school students.

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EXAMINING THE TEMPORAL DIRECTIONALITY BETWEEN TEACHING BEHAVIOR AND AFFECT IN HIGH SCHOOL STUDENTS

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ABSTRACT

EXAMINING THE TEMPORAL DIRECTIONALITY BETWEEN TEACHING BEHAVIOR AND AFFECT IN HIGH SCHOOL STUDENTS

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May 30, 2018

Previous empirical studies demonstrate a cross-sectional association between teaching behaviors and students' positive and negative affect and depressive symptoms. However, only one study comprised only of middle school students has examined the temporal direction of these associations, meaning the temporal direction of associations for high school students remains unclear. Therefore, this two-wave study with high school students investigated the temporal direction of the associations between teaching behaviors and students' positive and negative affect. Participating students from one public high school (N = 188; 88.8% White; 69.7% female) completed the Teaching Behavior Questionnaire and the Positive Affect and Negative Affect Scale for Children. As predicted, results of several Hierarchical Linear Models found that organizational teaching behavior and positive and negative affect were not significantly associated with each other in either direction. Somewhat but not entirely consistent with the hypotheses, negative teaching behavior at wave 1 was positively and marginally significantly associated with negative affect at wave 2. Contrary to the hypotheses, instructional teaching behavior at wave 1 was positively associated with positive affect at wave 2.

Teachers, administrators, and school psychologists may benefit from these findings, as they may help teachers adapt how they interact with students and give instruction in the classroom. Further, teachers and school psychologists should be aware of how each entity's behavior may influence the other. Limitations, future directions, and implications of the study are discussed.

TABLE OF CONTENTS

PAGE

ABSTRACT……... iii
LIST OF TABLES……..... vi

INTRODUCTION……..……..... 1

METHODS……..... 12

Participants……...……...……...……..... 12

Measures……...……...……..... 13

Procedure……..... 16

Statistical Analysis……..……..... 17

RESULTS……..……..……..... 23

Intraclass Correlations……..……..... 23

Descriptive Analyses……..……... 24

Primary Analyses……..……..... 25

DISCUSSION……..……. 27

REFERENCES……..…… 37

CURRICULUM VITA……...…….. 50

LIST OF TABLES

TABLE PAGE

1. Intercorrelations, Internal Consistencies, and Descriptives of TBQ and PANAS-C Scales for African American and European American High School Students……... 46
2. Estimated Fixed Effects of the TBQ Scales at Wave 1 on the PANAS-C Scale Positive and Negative Affect at Wave 2 …….…….. 48
3. Estimated Fixed Effects of the PANAS-C Scale Positive and Negative Affect at Wave 1 on the TBQ Scales at Wave 2……. 49

INTRODUCTION

During adolescence depression is a critical concern (Substance Abuse and Mental Health Services Administration [SAMHSA], 2017). Notably, as many as 27% of adolescents in the United States develop depressive symptoms during their adolescent years (Bertha & Balázs, 2013; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). With regard to clinical levels of depression, in 2015, 12.5% of adolescents (approximately 3 million) in the United States had at least one major depressive episode in the previous year (SAMHSA, 2017). Further, adolescents who experience depression during adolescence are more likely to experience at least one major depressive episode in adulthood (Bertha & Balázs, 2013; Lewinsohn, Rhode, Klein, & Seeley, 1999). These findings become more concerning when considering the many implications that are associated with depression and depressive symptoms in adolescence, such as suicidality, low self-efficacy, interpersonal distress (Stewart et al., 2002), lower quality of life (Bertha & Balázs, 2013), behavioral problems (McClure, Rogeness, & Thompson, 1997), substance use and abuse (Patel, Flisher, Hetrick, & McGorry, 2007), and academic difficulties such as decreased grades, reduced homework completion, and poorer attendance (Humensky et al., 2010; Jonsson et al., 2010). Taken together, these findings point to the importance of investigating depression and depressive symptoms in adolescence in order to identify ways to reduce not only symptomology but also any associated outcomes.

One framework that is used to conceptualize and understand depression and depressive symptoms is the tripartite model (Clark & Watson, 1991). Through this framework, both constructs are conceptualized as a combination of high negative affect and low positive affect. Previous studies demonstrate that the tripartite model is a valid model for assessing depressive symptoms in adolescents in that measuring affect was found to be comparable to measuring depression in this age group (Joiner, Catanzaro, & Laurent, 1996; Phillips, Lonigan, Driscoll, & Hooe, 2002; Turner & Barrett, 2003). In addition, the National Institute of Mental Health has developed the Research Domain Criteria (RDoC) framework as a new approach to understanding psychological disorders (Sanislow et al., 2010). The RDoC framework considers the Negative and Positive Valence Systems as two domains related to depression (Woody & Gibb, 2015), which are similar to positive and negative affect (Sanislow et al., 2010). Consistent with this, empirical findings demonstrate that children and adolescents with a depressive disorder report less positive affect and more negative affect than youth without a depressive disorder (Forbes, Williamson, Ryan, & Dahl, 2004). These findings suggest that conceptualizing depressive symptoms in adolescents as a combination of high negative affect and low positive affect is appropriate. Based on this, the current study will use the tripartite model to conceptualize depressive symptoms in high school students and positive and negative affect will be measured.

Teaching Behavior and Depressive Symptoms: Cross-sectional Findings

Examining depressive symptoms in a school context is critical, given that students spend most of their waking hours in school and under teacher supervision (Hofferth & Sandberg, 2001; Larson, Richards, Sims, & Dworkin, 2001). Further, there is a growing

body of literature suggesting that teacher-related variables have an impact on students' psychosocial outcomes (Barnard, Adelson, & Pössel, 2017; Pittard, Pössel, & Lau, 2017; Pittard, Pössel, & Smith, 2015; Pössel, Rudasill, Adelson et al., 2013; Pössel, Rudasill, Sawyer et al., 2013; Reddy, Rhodes, & Mulhall, 2003). With regard to teacher-related variables, four types of teaching behavior have been established in the literature, including instructional, organizational, socio-emotional, and negative (Pianta & Hamre, 2009; Pössel, Rudasill, Adelson et al., 2013). These teaching behaviors encompass the ways in which teachers approach, engage, and interact with students, structure their classroom, and present class content. Several studies demonstrate that student-report of teaching behavior is more valid than reports from other sources, such teachers and observers (Eccles et al., 1993; Pössel, Rudasill, Adelson et al., 2013; Wubbles & Levy, 1991), pointing to the importance of investigating students' perceptions of their teachers' behavior. Given these findings, and the limitations associated with using other sources such as classroom observation (e.g., requirement of a trained external rater, extensive time and money; Achenbach, McConaughy, & Howell, 1987) and teacher-report (e.g., self-rating bias; Douglas, 2009), the current study focuses on student-report of teaching behavior and depressive symptoms.

More specifically, these four types of teaching behavior have been found to be associated with high school students' depressive symptoms (Pittard et al., 2015) and positive and negative affect (Pössel, Rudasill, Adelson et al., 2013). Notably, previous research investigating the associations between teaching behavior and depressive symptoms or affect have primarily utilized cross-sectional designs and have not examined the temporal directionality of these associations. However, in order to better

understand the associations between teaching behavior and students' affect it is important to establish directionality. This in turn could provide school personnel and clinicians with information that can be used to inform teacher trainings, aid in targeting student-level interventions, and promote positive outcomes in the classroom. Therefore, the current study aims to fill this gap in the literature.

Instructional Teaching Behavior

Instructional teaching behavior comprises a teacher's academically supportive actions, delivery of instruction, provision of feedback to students, and encouragement of student responsibility and autonomy (Allen et al., 2013; Pianta, LaParo, & Hamre, 2008). Pittard and colleagues (2015) examined the association between instructional teaching behavior and depressive symptoms in both a middle and high school sample and found that while there was no significant association for high school students, instructional teaching behavior was negatively associated with depressive symptoms in middle school students. Further, in a retrospective study, college freshmen reported on the teaching behavior of the one teacher whom they felt most similar to during their previous schooling. The results demonstrated a negative association between retrospective report of instructional teaching behavior and students' current depressive symptoms (Pittard et al., 2017), similar to the above reported finding with middle school students (Pittard et al., 2015). With regard to affect, instructional teaching behavior seems to be negatively associated with negative affect in elementary (Barnard et al., 2017) and high school students (Pössel, Rudasill, Adelson et al., 2013) and positively associated with positive affect in elementary school students but not in high school students. In connecting this to the tripartite model (Clark & Watson, 1991), the direction of the findings from the

elementary sample are consistent with Clark and Watson's conceptualization as characterized by affect (Barnard et al., 2017), whereas findings from the high school sample were not (Pössel, Rudasill, Adelson et al., et al., 2013).

Organizational Teaching Behavior

Organizational teaching behavior includes the strategies used by a teacher to manage both the classroom and their students' behavior (e.g., establishing clear rules and expectations for students), provide structure, maximize the use of class time, and encourage productivity (Allen et al., 2013; Connor et al., 2009; Pianta et al., 2008; Pössel, Rudasill, Adelson et al., 2013). Research investigating the association between organizational teaching behavior and depressive symptoms in middle and high school students found a positive association in the middle school sample, but no significant association for high school students (Pittard et al., 2015). However, the retrospective study mentioned above investigating these associations in college freshmen found a third pattern of findings, such that organizational teaching behavior was negatively associated with current depressive symptoms (Pittard et al., 2017). Regarding affect, in high school students a negative association between organizational teaching behavior and negative affect, but no significant association with positive affect was found (Pössel, Rudasill, Adelson et al., 2013). Further, in elementary school students, no significant association was found between organizational teaching behavior and either type of affect (Barnard et al., 2017). Notably, these findings regarding affect and organizational teaching behavior are not consistent with Clark and Watson's conceptualization (1991) as neither study demonstrated a combination of low positive affect and high negative affect.

Socio-emotional Teaching Behavior

Socio-emotional teaching behavior is characterized by teachers' warmth and responsiveness in interactions with students, and it promotes feelings of belonging and acceptance in the classroom (Connor et al., 2009; Pianta et al., 2008). Examinations of the association between socio-emotional teaching behavior and depressive symptoms found no significant associations for either middle or high school students (Pittard et al., 2015). However, college freshmen's retrospective reports of socio-emotional teaching behavior were positively associated with current depressive symptoms (Pittard et al., 2017). Considering affect, previous findings with elementary (Barnard et al., 2017) and high school students (Pössel, Rudasill, Adelson et al., 2013) demonstrate a positive association between socio-emotional teaching behavior and both positive and negative affect. The pattern of these findings regarding affect and socio-emotional teaching behavior are not consistent with Clark and Watson's conceptualization (1991), as the directions of the associations are all positive, rather than an inverse combination as suggested by Clark and Watson (1991; i.e., low positive affect and high negative affect). Instead, this is consistent with Pittard and colleagues' (2015) non-significant findings in middle and high school students.

Negative Teaching Behavior

Unlike the aforementioned teaching behaviors, negative teaching behavior refers to counter-productive or unpleasant actions by the teacher that are perceived as threatening or punishing by students (Pössel, Rudasill, Adelson et al., 2013). Previous empirical studies found that while there was no significant association for middle school students (Pittard et al., 2015), negative teaching behavior was positively associated with depressive symptoms in high school students (Pittard et al., 2015) and college freshmen

(Pittard et al., 2017). With regard to affect, in high school students negative teaching behavior was found to have an inverse relation with positive affect and a positive association with negative affect (Pössel, Rudasill, Adelson et al., 2013). In elementary students, while negative teaching behavior is positively associated with negative affect, there seems to be no significant association with positive affect (Barnard et al., 2017). Findings from Pössel, Rudasill, Adelson et al.'s high school sample (2013) are consistent with the tripartite model (Clark & Watson, 1991) and with associations between depressive symptoms and negative teaching behavior in a high school (Pittard et al., 2015) and college sample (Pittard et al., 2017).

However, the aforementioned studies utilized a cross-sectional design to examine the associations between teaching behavior and students' affect or depressive symptoms. Consequently, these studies were not able to investigate the temporal directionality of the associations. In order to better understand the associations between teaching behavior and students' affect it is important to establish directionality, which in turn can aid in better identifying the target of intervention.

Temporal Directionality of Teaching Behavior and Affect

The importance of investigating the associations between teaching behavior and students' affect is clear given the significant amount of time students spend with teachers (Hofferth & Sandberg, 2001; Larson et al., 2001) and the well-established associations between teacher-related variables and students' depressive symptoms and affect (Barnard et al., 2017; Burton & Pössel, 2017; Pittard et al., 2017; Pittard et al., 2015; Pössel, Rudasill, Adelson, et al., 2013; Pössel, Rudasill, Sawyer, et al., 2013; Reddy et al., 2003). However, previous studies examining these associations have almost exclusively used

cross-sectional designs. As a result, the design of these studies did not allow for an exploration of the temporal directionality or possible bidirectional nature of the associations, pointing to the need for more studies that utilize a longitudinal design in order to better understand the associations between these variables. Unfortunately, the few longitudinal studies that do exist have primarily explored the impact of teacher-related variables on student outcomes, such as depressive symptoms (Pössel, Rudasill, Sawyer et al., 2013; Roeser & Eccles, 1998), while the possible impact of students' depressive symptoms or affect on their teachers' behaviors has received little to no attention. Studies examining the temporal directionality of these associations may be useful in identifying where and how to intervene in order to promote positive affect and reduce negative affect in high school students. In addition, these findings could aid in the development of teaching trainings and promote overall positive outcomes in the classroom.

Although there is a gap in the literature regarding longitudinal studies that examine the temporal directionality of the association between teaching behaviors and students' depressive symptoms or affect, findings from those studies that do exist will be used to inform the current study. Reddy and colleagues (2003) conducted a longitudinal study with middle school students in order to investigate the association between teacher support, an element of socio-emotional teaching behavior, and depressive symptoms. The researchers found that students' changes in their depressive symptoms did not predict changes in their perceptions of teacher support; however, changes in students' perceptions of teacher support did predict changes in students' depressive symptoms. Building on these findings, Burton and Pössel (2017) examined the temporal direction of

the associations between the four types of teaching behavior and middle school students' positive and negative affect. The results indicated that middle school students' negative affect was negatively associated with later instructional teaching behavior. With regard to organizational teaching behavior and affect, the researchers found no significant associations in either direction. In addition, only partially consistent with Reddy et al.'s findings (2003), Burton and Pössel (2017) found socio-emotional teaching behavior and negative affect to be positively and bidirectionally associated, such that socio-emotional teaching behavior was positively associated with later negative affect and students' negative affect was positively associated with later socio-emotional teaching behavior. One possible explanation for the discrepancies in the findings from these two studies is that while teacher support is an element of socio-emotional teaching behavior, it is still a separate construct and therefore may have a different pattern of findings compared to socio-emotional teaching behavior. Finally, regarding negative teaching behavior, results demonstrated that negative teaching behavior was positively associated with later negative affect in middle school students (Burton & Pössel, 2017). However, the samples in the aforementioned studies were both comprised of middle school students. Consequently, the temporal direction of the associations remains unclear among high school students, as to my knowledge no study to date has investigated these associations in a sample of high school students. Given the high rates of depression and depressive symptoms in adolescence and particularly in high school students (Bertha & Balázs, 2013; Kessler et al., 2012; SAMHSA, 2017) and the implications associated with these constructs (Bertha & Balázs, 2013; Humensky et al., 2010; Jonsson et al., 2010 McClure et al., 1997; Patel et al., 2007; Stewart et al., 2002), it is critical to identify possible ways

in which teachers' can promote positive outcomes in high school students. In addition, a better understanding of the temporal direction between teaching behavior and students' affect can be useful in identifying targets of intervention and developing intervention plans.

The Current Study

Despite mounting support for the associations between teaching behaviors and students' depressive symptoms (Pittard et al., 2017; Pittard et al., 2015; Reddy et al., 2003) and positive and negative affect (Barnard et al., 2017; Burton & Pössel, 2017; Pössel, Rudasill, Adelson et al., 2013; Pössel, Rudasill, Sawyer, et al., 2013) it appears as though there is a significant gap in the literature. Although the temporal direction of the associations between teaching behaviors and students' affect has been explored in middle school students (Burton & Pössel, 2017), no studies to date have explored these associations in a high school sample. Therefore, the current study aims to fill this gap in the literature by conducting a two-wave study with high school students to investigate whether and which teaching behaviors predict positive and negative affect, or vice versa.

Given the lack of research examining the temporal direction of the associations between the four types of teaching behavior and affect in high school students, the current study will be informed by findings in middle school studies (Burton & Pössel 2017; Reddy et al. 2003). Thus, it is expected that negative affect will be negatively associated with later instructional teaching behavior; organizational teaching behavior and affect will not be significantly associated with each other in either direction; socio-emotional teaching behavior and negative affect will be positively and bidirectionally

associated; and negative teaching behavior will be positively associated with later negative affect.

METHOD

Participants

Students from one public high school located in a small, suburban city in the Southern United States were invited to participate in the current study. The researchers invited 13 teachers to have their classes participate in the study. All of the invited teachers agreed to have their classes participate, resulting in a total of 350 students who either completed the questionnaires at wave 1, wave 2, or both waves. More specifically, 269 students completed the questionnaires at wave 1 and 274 students completed the questionnaires at wave 2. Given that the purpose of the current study is to identify the temporal direction of the associations between teaching behavior and affect, only those students who participated in both wave 1 and wave 2 of data collection were included in the analyses. This resulted in a total of 192 participants; however, after removing outliers based on the results of Mahalanobis distance, the final sample included 188 participants, of which 131 (69.7%) identified as female and 57 (30.3%) identified as male. The ages of the participating students ranged from 14-19 years, with a mean age of 16.02 years (SD = 1.23). About one quarter of the students reported that they were in 9th grade (25.0% or *n* = 47), 23.9% in 10th grade (*n* = 45), 27.1% in 11th grade (*n* = 51), and 23.9% in 12th grade (*n* = 45). A majority of the students identified their race/ethnicity as White (88.8% or n= 167), followed by multiracial (6.4% or *n* = 12), Asian or Pacific Islander (2.1% or *n* = 4), Hispanic (1.1% or *n* = 2), another race/ethnicity (1.1% or *n* = 2), and Black (0.5% or *n* =

1). The 188 students were nested in 38 teachers, with an average of 5 students per teacher (SD= 5.27; range= 1-28). There were no exclusion criteria and students did not receive any incentive for their participation.

The student population at the participating high school is comprised of approximately 51% males and 49% females, with approximately 27.7% in 9th grade, 26.5% in 10th grade, 22.7% in 11th grade, and 22.6% in 12th grade (National Center for Education Statistics [NCES], 2017). Regarding race/ethnicity, students at the participating school predominantly identify as White (87.2%), followed by Hispanic (6.4%), Black (2.7%), multiracial (2.6%), Asian (1%) and American Indian/Alaska Native (0.1%; NCES, 2017). The sample in our study was similar to the total student body of the participating high school with regard to grade and race/ethnicity, but not gender, as the sample in our study had a larger percentage of females. In the state where the study was conducted, approximately 51% of elementary and secondary students identify as male and 49% identify as female (NCES, 2016); the sample in the current study had a larger percentage of females than is commonly seen in secondary schools in this state. With regard to race/ethnicity of elementary and secondary students in this state, a majority of students identify as White (78.9%), followed by Black (10.6%), Hispanic (5.6%), multiracial (3.1%), Asian or Pacific Islander (1.6%), and American Indian/Alaska Native (0.1%; NCES, 2016). Similarly, the sample in our study was predominantly White; however, our sample had a somewhat smaller percentage of Black and Hispanic students compared to students across the state.

Measures

Teaching Behavior Questionnaire (TBQ). The TBQ (Pössel, Rudasill, Adelson, et al., 2013) is a 37-item instrument developed to measure student perceptions of teaching behavior across four types: *Instructional Teaching Behavior* (13 items; e.g. "My teacher uses examples I understand"); *Organizational Teaching Behavior* (5 items; e.g. "My teacher makes sure I understand the classroom rules"); *Socio-Emotional Teaching Behavior* (10 items; e.g. "My teacher talks with me about non-school related problems"); and *Negative Teaching Behavior* (9 items; e.g. "My teacher threatens to punish me when I misbehave"). Students indicated the frequency of each teaching behavior for the one teacher that they perceive to be the most similar to themselves using a four-point Likert type scale (from 1 = *never*, to 4 = *always*). The TBQ scale scores were obtained by calculating the mean of the item responses for each of the four scales, with a higher score representing a higher frequency of a particular teaching behavior.

Previous empirical findings indicate that student-report of teaching behavior is a better predictor of students' positive and negative affect compared to teacher- and observer-report of teaching behavior (Pössel, Rudasill, Adelson et al., 2013). Specifically, Pössel, Rudasill, Adelson and colleagues (2013) found that student-report of both negative and socio-emotional teaching behavior was associated with positive affect, while none of the four teaching behaviors as measured by teacher- or observer-report were associated with positive affect. Further, student-report of all four types of teaching behavior was associated with negative affect, while only observer-report of instructional and organizational teaching behavior was associated with negative affect, and none of the four teaching behaviors as measured by teacher-report were associated with negative affect (Pössel, Rudasill, Adelson et al., 2013). Given these findings, the TBQ was

selected as a measure of student-report of teaching behavior for the current study. With regard to predictive validity, previous studies have used the TBQ to predict middle and high school students' positive and negative affect (Burton & Pössel, 2017; Cauley, Immekus, & Pössel, 2017; Pössel, Rudasill, Adelson et al., 2013) and depression in middle school students, high school students, and college freshmen (Pittard et al., 2015; Pössel & Smith, 2018). In a high school sample, Pössel, Rudasill, Adelson, and colleagues (2013) reported internal consistency reliability estimates for the TBQ scales that ranged from .78 (Organizational Teaching Behavior) to .97 (Instructional Teaching Behavior). The internal consistency reliability estimates for the four teaching behavior scales at wave 1 and wave 2 are presented in Table 1.

Positive Affect and Negative Affect Scale for Children (PANAS-C). The PANAS-C (Laurent et al., 1999) is a student-report instrument used to measure positive affect and negative affect in youth. The PANAS-C includes 30 items that are evenly distributed across two subscales, *Positive Affect* (15 items, e.g., "cheerful," "lively") and *Negative Affect* (15 items; e.g., "ashamed," "gloomy"). Students indicate on a five-point Likert type scale (1 = *very slightly or not at all* to 5 = *extremely*) the extent to which they felt each item during the past few weeks. Typically, in order to calculate the Positive Affect and Negative Affect subscale scores, item responses from each subscale are summed separately. However, because the current study used Available Item Analysis to address missing data, the Positive Affect and Negative Affect subscale scores were obtained by calculating the mean of the item responses for each of the scales. High scores indicate higher levels of affect. Based on the tripartite model, a combination of low levels

of positive affect and high levels of negative affect are conceptualized as depressive symptoms (Clark & Watson, 1991).

In a community sample, Laurent and colleagues (1999) found that the PANAS-C demonstrated good discriminant validity in that the positive affect scale was more strongly correlated with a measure of childhood depression (r = -.55) than anxiety (r = -.30). Consistent with the tripartite model, the negative affect scale was strongly correlated with both measures of childhood depression (r = .60) and anxiety (r = .68). Further, the latter correlations also demonstrate good convergent validity of the PANAS-C. The internal consistency reliability estimates from the scale's development were .89 for Positive Affect and .94 for Negative Affect (Laurent et al., 1999). The internal consistency reliability estimates for positive and negative affect at wave 1 and wave 2 are presented in Table 1.

Procedure

After gaining approval from the Institutional Review Boards of the university and the public school district, a vice principal disseminated study information and an invitation to participate in the study to teachers at the participating high school. Next, researchers collected consent forms from the teachers that agreed to participate. Subsequently, with the help of the participating teachers, the researchers sent home informational letters and parent consents to the parents of all students enrolled in one of the participating teachers' classes three weeks before data collection began. The participating teachers collected the parent consent forms during the class period in which the questionnaires were to be administered. On the date of the questionnaire administration, students were invited to participate if their parent had given consent for

participation. In addition, students were provided with assent forms. The participating teachers administered the questionnaires to students in their classroom who agreed to participate and had parental consent. Thus, student participation was also dependent upon whether the student's teacher agreed to participate in the study. Because students' schedules change at the semester, some students participated in only wave 1, only wave 2, or both waves of the study, depending upon their classroom teachers' participation in the study. Participating students provided demographic information (e.g., sex, grade, age, race/ethnicity) and completed questionnaires twice, with wave 2 of data collection occurring 4 months after wave 1 of data collection. Given that students schedules, and therefore the teacher, in public high schools often change from one semester to the next, this timeframe allows for an examination of the impact teaching behavior has on students' affect after students have left a teacher's classroom.

Statistical Analyses

Missing data. Missing item-level data were examined prior to conducting analyses and it was determined that 62 out of 25,728 data points were missing, representing 0.002% missingness. Based on this small percentage of missing data, Available Item Analysis (AIA) was selected as a means to address missing data (Parent, 2013). AIA addresses missing item-level data by computing the mean for each scale by using data from all available items within each scale. AIA is considered a robust approach to addressing low levels of missing data; specifically, Parent (2013) conducted an analysis using real-world data and a series of simulation studies and found that AIA produced results comparable to multiple imputation in instances of low levels of missing item-level data. Further, AIA has only demonstrated bias when the level of missing item-

level data is severe (e.g., 50%; Schlomer, Bauman, & Card, 2010). Parent (2013) suggests that participants must have responded to at least 75% of the items in each questionnaire in order to be included in the analyses. In the current sample, no cases were excluded from the analyses as all participants responded to a sufficient number of items within each questionnaire.

Assumptions and data cleaning. The relevant assumptions were checked and the data were cleaned prior to conducting analyses. In HLM, the following assumptions must be tested: assumptions of normality, the absence of outliers, and assumptions of homogeneity of variance (Garson, 2013; Raudenbush & Bryk, 2002). First, the assumption that the outcome variables are normally distributed was tested. If the assumption of normality is violated at level-1, this will bias the standard errors (Raudenbush & Bryk, 2002). In order to test for normality of the outcome variables, the "ocular test" was conducted by examining histograms with a normal distribution curve (Osborne, 2013). Next, more sophisticated means were used, including an examination of skew and kurtosis, with -0.80 to 0.80 considered ideal, and an examination of P-P plots (Osborne, 2013). If any of the outcome variables are determined to be non-normal, a Box-Cox transformation will be conducted (Box & Cox, 1964) in order to identify an optimal lambda and correctly transform the data toward normality (Osborne, 2013).

Based on an examination of histograms, skew and kurtosis, and P-P plots, it was determined that all outcome variables were normally distributed except the Negative Teaching Behavior scale at wave 2 (skew = 1.45, kurtosis = 1.92). A Box-Cox transformation (Box & Cox, 1964) was applied to the data to identify the lambda for the Negative Teaching Behavior scale at wave 2 in order to determine the correct type of

transformation to apply to the data. The Box-Cox transformations indicated a lambda of -1.10, which corresponds to conducting a reciprocal (inverse) transformation of the data. Following the transformation, the skew value for Negative Teaching Behavior at wave 2 was equal to -.056 and the kurtosis value was equal to -0.71.

Second, Mahalanobis distance was used to identify multivariate outliers. Any cases identified by Mahalanobis distance will be removed prior to conducting analyses, as Garson (2013) notes that in HLM the presence of outliers will bias the parameter estimates. Mahalanobis distance identified four cases as outliers; consequently, these cases were removed prior to conducting analyses.

Third, the assumption of homogeneity of variance was addressed. A test of homogeneity of level-1 variance was conducted in the HLM software by comparing the model with homogenous variance to a model with heterogeneous variance using the chi-square difference test. If $p > .05$ then the assumption of homogeneity of variance has been met (Singer & Willett, 2003). If the assumption is violated, an additional level-1 variable (e.g., student sex) may be used to model the variability to help explain the heterogeneity of within group variance (Singer & Willett, 2003). Ideally, the additional level-1 variable selected would be the primary variable hypothesized to contribute to the heterogeneity in variance within groups. The test of homogeneity of level-1 variance determined that the assumption was met ($p > .05$ for all models) and therefore, the analyses can be conducted as planned without the inclusion of additional variables in the model (Singer & Willett, 2003).

Analytic plan. In order to test for the hypothesized bidirectional associations between teaching behavior and high school students' positive and negative affect, several

two-level hierarchical linear model (HLM) analyses were analyzed using HLM version 7.01 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). In the analyses, students were nested within the teacher about whom they responded to on the TBQ. HLM models are able to account for nested data, address the unit of analysis problem, and enhance the precision of estimates better than methods that do not account for non-independence (McCoach & Adelson, 2010; Raudenbush & Bryk, 2002). Full maximum likelihood estimation method was used, as recommended for robustness (Garson, 2013) and in order to test for homogeneity of variance (Raudenbush & Bryk, 2002). Prior to conducting the primary analyses, the intraclass correlations (ICC) were calculated in order to determine the proportion of variance in the dependent variables that exists between groups. If the ICC is greater than 0, it is recommended to use HLM with nested data (McCoach & Adelson, 2010). However, if the ICC is equal to 0, the assumption of independence is not violated and therefore the use of HLM is not indicated and OLS regressions will be used. The ICC was calculated for all dependent variables and the results demonstrated that the ICC was greater than 0 for each model and thus, the use of HLM was indicated (McCoach & Adelson, 2010).

In order to examine the associations between teaching behavior at wave 1 and students' positive and negative affect at wave 2, two separate HLMs will be conducted with all four TBQ scale scores at wave 1 simultaneously entered as predictors of both PANAS-C Positive and Negative Affect scale scores at wave 2. In addition, both analyses will control for the respective wave 1 affect score. Next, in order to examine the associations between students' positive and negative affect at wave 1 and teaching behavior at wave 2, four separate HLMs will be conducted with PANAS-C Positive and

Negative Affect scale scores at wave 1 simultaneously entered as predictors of each of the four TBQ scale scores at wave 2. In addition, all analyses will control for the respective wave 1 teaching behavior scores.

In order to test the null hypothesis for organizational teaching behavior and affect, it is important to demonstrate that the current study has enough statistical power to accurately detect an effect for this parameter of interest. Given that there is no closed-form solution for assessing power with continuous variables in HLM (in other words, there are no power calculators or software programs capable of calculating power with multilevel regression models unless the study uses an experimental or quasi experimental design), power must be calculated through a simulation study (Maas & Hox, 2005). Maas and Hox (2005) conducted a series of simulation studies using HLM in order to determine the minimum sample size needed in order to produce unbiased parameter estimates and standard errors. The researchers reported that at least 30 level-2 units (i.e., teachers) were needed in order to produce parameter estimates for the regression slopes and variance components at level-1 and level-2 with little bias in the samples (Maas & Hox, 2005; Raudenbush & Bryk, 2002). Therefore, the current study fulfills this criterion with 38 level-2 units, reducing bias in the sample that may result in Type I or Type II error. In order to accept the null hypothesis that organizational teaching behavior is not associated with affect in either direction, two criteria must be met: $p > .05$ and the percent variance explained ($PVE= \sigma^2_{baseline} - \sigma^2_{final} / \sigma^2_{baseline}$) must be less than 1%.

In order to determine if there were systematic differences between students who participated in only one wave of the study and those who participated in both wave 1 and wave 2, a MANOVA was used to determine whether these student groups reported

different levels of the four teaching behaviors and positive and negative affect. Further, a χ^2 test was conducted to determine whether these student groups differed on their self-reported race/ethnicity or sex. Last, linear regression were used to determine whether these student groups differed by age.

RESULTS

Intraclass Correlations

The ICC was calculated for each of the six models in order to determine the proportion of variance in the dependent variables that exists between groups. The ICC from the unconditional model with the Instructional Teaching Behavior scale at wave 2 as the dependent variable demonstrated that 7.1% of the variability in instructional teaching behavior can be attributed to between-teacher differences, while the remainder (92.9%) can be attributed to within-teacher differences. Further, the ICC for the Organizational Teaching Behavior scale at wave 2 was 6.4%, the Socioemotional Teaching Behavior scale at wave 2 was 8.8%, and the Negative Teaching Behavior scale at wave 2 was 9.3%. Next, the ICC from the unconditional model with the Positive Affect scale at wave 2 was equal to 0.2%, suggesting that there is almost no variance between teachers for this variable. Last, the ICC from the unconditional model with the Negative Affect scale at wave 2 was equal to 12.5%. Overall, only a small portion of the variance in the outcome variables is between teachers and approximately 90% of the variance is accounted for within teachers. In other words, students' clustered within the same teacher (e.g., students who responded about teacher A on the TBQ) shared more variance in their scores compared to students who rated different teachers (e.g., students responding about teacher A compared to students responding about teacher B). Notably, these estimates are

similar to ICCs typically reported in school effects research, which range from 10-20% (McCoach, 2010).

Descriptive Analyses

A set of descriptive analyses were conducted using SPSS to determine whether there were systematic differences between students who participated in only one wave of the study and those who participated in both wave 1 and wave 2. First, a MANOVA was used to determine whether students who participated in only one wave of the study reported different levels of the four teaching behaviors and positive and negative affect compared to students who participated in both waves of the study. Results of the MANOVA demonstrated that instructional teaching behavior at wave 2 significantly differed for students who only participated at wave 2 compared to students who participated at both waves (*M* only participated at wave 2 = 3.28; *M* for students with both waves = 3.43; $F(1, 271) = 4.66$, $p = .032$); all other comparisons were non-significant. Next, a χ^2 test was conducted to determine whether these student groups differed on their self-reported race/ethnicity or sex. Results demonstrated that sex at wave 2 significantly differed for students who only participated at wave 2 compared to students who participated at both waves (χ^2 (2) = 13.20; $p = .001$; males at both waves = 60; males only participated at wave 2 = 42; females at both waves = 132; females only participated at wave 2 = 38); all other comparisons were non-significant. Last, linear regression was used to determine whether these student groups differed by age; the results were not significant. Based on these findings, participants removed from the primary analyses only differed by instructional teaching behavior at wave 2 and sex at wave 2 compared to those participants who were retained. Aside from these two variables,

participants who were removed from the primary analyses were not systematically different from participants retained in the analytic sample, demonstrating that the decision to remove these participants did not significantly alter sample characteristics.

Primary Analyses

Means, standard deviations, internal consistencies, and intercorrelations among all scales are presented in Table 1. Results of the HLMs investigating the bidirectional associations between the four teaching behaviors and positive and negative affect are presented in Table 2 and Table 3. Each of the six models controlled for the wave 1 score of the dependent variable and results demonstrated that in all six models, the wave 1 score significantly predicted the wave 2 score ($p < .05$). Consistent with the hypotheses, the TBQ Organizational Teaching Behavior scale at wave 1 was not significantly associated with the PANAS-C Positive Affect scale at wave 2 ($p = .922$) or the PANAS-C Negative Affect scale at wave 2 ($p = .167$). Specifically in both of these models, organizational teaching behavior accounted for less than 1% of unique variance. Thus, both a priori criteria were met in order to accept the null hypothesis. Further, and consistent with the hypotheses, neither the PANAS-C Positive Affect scale at wave 1 ($p = .797$) nor the PANAS-C Negative Affect scale at wave 1 ($p = .587$) were significantly associated with the TBQ Organizational Teaching Behavior scale at wave 2. In addition, positive and negative affect explained less than 1% of variance in the TBQ Organizational Teaching Behavior scale at wave 2.

However, contrary to the hypotheses, the TBQ Instructional Teaching Behavior scale at wave 1 was positively associated with the PANAS-C Positive Affect scale at wave 2 ($p = .044$), and explained 1.16% of unique variance. The remaining TBQ scales at

wave 1 were not significantly associated with the PANAS-C Positive Affect scale at wave 2, with the addition of socio-emotional teaching behavior at wave 1 explaining 7.13% of variance and negative teaching behavior at wave 1 explaining less than 1% of variance. Next, the TBQ Negative Teaching Behavior scale at wave 1 was positively and marginally significantly associated with the PANAS-C Negative Affect scale at wave 2 (p = .079) and explained less than 1% of variance. The remaining TBQ scales at wave 1 were not significantly associated with the PANAS-C Negative Affect scale at wave 2 and explained less than 1% of variance. Last, none of the predictors were significantly associated with the TBQ Instructional Teaching Behavior scale at wave 2, the TBQ Socio-Emotional Teaching Behavior scale at wave 2, or the TBQ Negative Teaching Behavior scale at wave 2. All predictors explained less than 1% of variance in these outcome variables with the exception of negative affect at wave 1 explaining 1.07% of variance in the TBQ Socio-Emotional Teaching Behavior scale at wave 2.

DISCUSSION

The purpose of our study was to fill a gap in the literature by conducting a two-wave study with high school students to investigate the temporal direction of the associations between teaching behaviors and students' affect. To the researcher's knowledge, only one other study has investigated the longitudinal associations between the four types of teaching behavior and affect (Burton & Pössel, 2017); however, this study's sample was comprised of middle school students, and thus, the temporal direction of the associations remains unclear among high school students. It is important to better understand these associations given the significant amount of time students spend with teachers (Hofferth & Sandberg, 2001; Larson et al., 2001) and the well-established cross-sectional associations between teaching behavior and students' depressive symptoms and affect (Barnard et al., 2017; Burton & Pössel, 2017; Pittard et al., 2017; Pittard et al., 2015; Pössel, Rudasill, Adelson, et al., 2013; Pössel, Rudasill, Sawyer, et al., 2013). Summarized, we found that instructional teaching behavior was positively associated with later positive affect and that negative teaching behavior was positively associated with later negative affect. All other associations were not significant. Next, we will discuss these findings based on our hypotheses.

As expected, organizational teaching behavior and affect were not significantly associated with each other in either direction. This is consistent with findings from

Burton and Pössel (2017), who also investigated the temporal direction of the associations between organizational teaching behavior and affect, using a middle school sample. Further, cross-sectional studies whose samples were comprised of high school students found no significant associations between organizational teaching behavior and positive or negative affect (Cauley, Pössel, Winkeljohn Black, & Hooper, 2017) or depressive symptoms (Pittard et al., 2015). In addition, somewhat consistent with the hypotheses, the association between negative teaching behavior and later negative affect was positively and marginally significant; however, this was not entirely consistent with the hypothesis as this association was expected to be statistically significant at $p < .05$. This is consistent with findings from a previous two-wave study that examined the temporal direction of the associations between negative teaching behavior and affect in a middle school sample (Burton & Pössel, 2017) and cross-sectional findings with a high school sample (Pössel, Rudasill, Adelson et al., 2013).

Contrary to expectations, there were no significant associations between negative affect and later instructional teaching behavior or socio-emotional teaching behavior and negative affect in either direction. One possible explanation for why our study did not replicate Burton and Pössel's (2017) findings regarding these associations may be related to the internal nature of constructs such as affect and depressive symptoms. Previous findings indicate that teachers tend to be good informants for externalizing behaviors, such as attention and hyperactivity, but may not be as good of informants for internalizing behaviors such as depressive symptoms (Barry, Frick, & Kamphaus, 2013). In turn, it may be that teachers are not as impacted by students' affect or depressive symptoms because they are not as easily noticeable by teachers compared to externalizing

behaviors. Specifically, it may be that teachers are more acutely aware of their students externalizing behaviors, as these behaviors are more likely to require the teacher to redirect a student and take time away from instruction. Further, externalizing problems may be a greater source of frustration for teachers, possibly evoking more negative teaching behaviors and making it more difficult to form a positive relationship and consistently respond to students with warmth (i.e., socio-emotional teaching behavior). Although this is one hypothesis as to why our study did not find the predicted associations for affect predicting later teaching behavior, previous studies investigating the temporal direction of these associations have found that students' affect or depressive symptoms are associated with later teaching behavior (Burton & Pössel, 2017; Reddy et al. 2003) making this explanation unlikely. Nevertheless, researchers should consider examining the associations between teaching behavior and students' internalizing and externalizing problems to determine the relative percentages of variance explained in teaching behavior by each construct.

Another possible explanation for why this study did not find the proposed associations between negative affect and later instructional teaching behavior or socio-emotional teaching behavior and negative affect in either direction may be related to differences in sample characteristics. As students transition from elementary to middle school and middle school to high school, the average class size and the number of teachers students have per semester increase with each transition (Akos & Galassi, 2004; Odegaard & Heath, 1992). Therefore, middle school students in Burton and Pössel's (2017) study may have had a longer and/or stronger relationship with the teacher they rated compared to high school students in our study. In turn, it may be that the impact of

teaching behavior had a greater or more enduring effect on those middle school students than on the high school students in our study.

Further, two of five participating middle schools in Burton and Pössel's (2017) study were private Catholic/parochial schools, whereas participants for our study were recruited from one public high school. Oftentimes in private parochial schools, students may have the same teacher for more than one subject during the same semester, and sometimes even have the same teacher across grades 6, 7 and 8. In contrast, public high school students typically have a particular teacher for just one subject, and may even switch to a new teacher for that subject for the second semester (Akos & Galassi, 2004). Therefore, the student-teacher relationship and experiences middle school students in private parochial schools have with their teacher may be quite different from students in public high schools in terms of duration and frequency. Based on the above, it is possible that students in Burton and Pössel's (2017) study may have been under the supervision of the teacher they rated for the complete duration of the study (both wave 1 and wave 2 of data collection) while the high school students in our study may have only encountered the teacher they rated on the TBQ for one semester. Further, high school students in our study were asked to rate the one teacher that they perceived to be the most similar to themselves and as a result, we do not know whether students in our study rated a teacher that they currently have or a teacher from a previous school year. Therefore, it may be that the impact of teaching behavior is greater when students are still under their teacher's supervision, findings which are well-established by cross-sectional studies (Barnard et al., 2017; Pittard et al., 2015; Pössel, Rudasill, Adelson, et al., 2013), but not long after the student has been removed from their teacher's supervision. However, previous studies

investigating the temporal direction of these associations that do exist have found enduring effects (Burton & Pössel, 2017; Reddy et al. 2003). Although, Reddy and colleagues (2003) examined the longitudinal associations between perceived teacher support at grade 6 and depressive symptoms in grades 7 and 8, these researchers asked students to rate their perceptions of teacher support for all teachers at their schools rather than for one specific teacher. In order to test the aforementioned hypotheses as to why our study did not find the predicted associations, researchers should replicate our study using longitudinal designs with three or more time points. Specifically, this would allow researchers to determine how long lasting the impact of teaching behavior is on students' mental health, and vice versa, and whether a pattern of findings exists. Researchers may also consider examining whether the length of time a student spent under their teacher's supervision moderates the relation between teaching behavior and affect, and vice versa.

Finally, and contrary to our expectations, instructional teaching behavior was positively associated with later positive affect. Although this association was not found in Burton and Pössel's (2017) two-wave study with middle school students, cross-sectional findings are consistent with this finding. Specifically, Cauley and colleagues (2017) found a positive association between instructional teaching behavior and positive affect for European American but not African American high school students (Cauley et al., 2017). Further, this association was significantly stronger in European American than in African American students. This cross-sectional finding from a European American high school sample is consistent with findings from our study in which approximately 90% of students identified as White. Thus, it may be that student race/ethnicity has an impact on the strength of and maybe even the temporal direction of the associations between

teaching behavior and affect. Researchers should consider replicating our study with racially/ethnically diverse samples in order to determine whether differences exist in the longitudinal associations between teaching behavior and affect for high school students with different racial/ethnic backgrounds.

Limitations & Future Directions

The results of the current study should be interpreted with a consideration of the study's strengths and limitations. Notably, our study addresses a gap in the literature by examining the temporal direction of the associations between the four types of teaching behavior and affect in high school students. Previous studies examining similar associations in high school students have predominantly used cross-sectional designs to investigate which teaching behaviors predict students' affect or depressive symptoms (Pössel, Rudasill, Adelson et al., 2013; Pössel, Rudasill, Sawyer, et al., 2013; Pittard et al., 2017; Pittard et al., 2015). Thus, on one hand, the design of the current study can be considered a strength in that it allows for an examination of the bidirectional associations between teaching behaviors and student affect, filling a gap in the literature. However, it may also be seen as a limitation, given that the use of only two time points does not allow for longitudinal analyses. Specifically, a longitudinal analysis with three or more time points would allow for an investigation into how enduring the associations are after a student has been removed from their teacher's supervision and would allow us to examine possible non-linear trajectories. Thus, it is recommended that a longitudinal design is utilized in future studies to investigate whether the associations between teaching behavior and affect remain significant after the student is no longer under the supervision of a particular teacher.

Another limitation of the current study is the generalizability of the findings given the composition of the sample. More specifically, participants included students from one public high school located in a small, suburban city in the Southern United States with almost 90% of the students in this sample identifying as White and approximately 70% identifying as female. Consequently, it is unclear whether findings from our study are generalizable to students of other racial/ethnic groups, male students, those in other geographic locations, and students in different school settings (e.g., private or parochial schools, elementary and middle schools). Therefore, authors of future studies may wish to build on the results of our study by including samples that are diverse in both student characteristics and school settings.

In addition to sample characteristics, another limitation related to the current study's sample is that about 45% of participants only participated in one wave of the data collection. In large part, this was because student participation was dependent upon whether the student's teacher agreed to participate in the study, as teachers who agreed to participate administered the questionnaires to students in their classroom. Consequently, because students change teachers and classes from one semester to the next, some students participated in only wave 1, only wave 2, or both waves of the study, depending upon their classroom teachers' participation in the study, which resulted in this loss of data. In order to address missing data, the use of multiple imputation and full information maximum likelihood (FIML) were considered. In their investigation of best practice for managing missing data, Schlomer and colleagues (2010) conducted a simulation study to investigate the use of multiple imputation and FIML when data are missing at 10%, 20%, and 50%. The researchers found that when the amount of data missing is severe (i.e.,

50%), these estimation methods introduce enough bias to be of concern. Given that about 45% of participants are missing all item-level data for one time point, it was determined that the use of multiple imputation or FIML may result in biased estimates and consequently these methods were not used for the current study. Further, when multiple imputation or FIML are used, the HLM software is unable to conduct the test of homogeneity of level-1 variance, and therefore it would not be possible to address the assumption of homogeneity of variance.

Further, researchers suggest that common method variance may occur when an individual provides self-report information on all study variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), as occurred in our study with teaching behavior and affect. Related to this, the mono-method bias describes that if all of the independent or dependent variables are measured using the same method (e.g., self-report), there may be threats to construct validity (Heppner, Wampold, & Kivlighan, 2008; Shadish, Cook, & Campbell, 2002). More specifically, when two constructs are measured using the same method, it is possible that the correlation between variables may result from method variance rather than a true correlation between the constructs (Heppner et al., 2008), which would lead to an overestimation of associations. However, it seems unlikely that this is the case, as many correlations between variables in our study are not significant. Of further possible concern, researchers have noted that adolescents sometimes give inaccurate, invalid, socially desirable, or intentionally false responses on self-report instruments (Fan et al., 2006). However, other research demonstrates that adolescents are a reliable source of information regarding internal processes such as affect and depressive symptoms (Inderbitzen, 1994). Supporting this, student-report of internalizing symptoms

has demonstrated strong predictive validity of actual diagnostic interviews (Gotlib, Lewinsohn, & Seeley, 1995). Regarding teaching behavior, previous empirical findings indicate that student-report is a better predictor of students' positive and negative affect compared to teacher- and observer-report of teaching behavior (Pössel, Rudasill, Adelson et al., 2013), and other researchers have also found that student-report of teaching behavior is more valid than reports from other sources, such teachers and observers (Eccles et al., 1993; Wubbles & Levy, 1991). Therefore, although it is important to consider the possibility of common method variance and mono-method bias, previous findings provide some support for the use of self-report measures of teaching behavior and students' depressive symptoms. Nevertheless, in order to avoid common method variance and mono-method bias, researchers may wish to consider the use of multiple methods in future studies to assess these constructs, such as a combination of student- and parent-reports of affect or student-, teacher-, and observer-reports of teaching behavior.

Conclusion

Summarized, the findings from our study suggest that instructional teaching behavior is associated with later positive affect and that negative teaching behavior is marginally associated with later negative affect. These findings may help us to understand the impact teachers have on students' mental health as well as the impact students' mental health has on teaching behavior, an area of study that has received less attention. Of note, researchers may wish to replicate the current study with more diverse samples in order to increase the generalizability of the findings, as well as replicate the study using a three or more wave design to determine how enduring the associations

between teaching behaviors and affect are. Regarding real world implications, the findings from our study have several implications for teachers, school administrators, and school psychologists. For example, if the association between instructional and negative teaching behavior and students' affect are replicated in future longitudinal studies, teachers may wish to consider adapting the way they give instructions or how they interact with students, as our study found these two types of teaching behaviors to be associated with later student affect. Further, school psychologists and administrators may incorporate these findings into teacher trainings or consult with teachers on such issues throughout the academic year in order to promote students' well-being. In addition, it is important for school psychologists to be mindful of these possible bidirectional and enduring associations, as their work with students may impact teachers and vice versa.

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Table 1

Intercorrelations, Internal Consistencies, and Descriptives of TBQ and PANAS-C Scales for African American and European American High School Students

	Inst W1	Org W1	Soc W1	Neg W1	PA W1	NA W1	Inst W2	Org W2	Soc W2	Neg W2	PA W2	NA W2
Inst W1	.85											
Org W1	.40***	.71										
Soc W1	.39***	.30***	.84									
Neg W1	-.28***	.23**	-.02	.76								
PA W1	.05	.06	.15*	.01	.93							
NA W1	.03	.06	-.07	.22*	-.20*	.92						
Inst W2	.41***	.16*	.21*	-.08	.03	.10	.86					
Org W2	.27***	.41***	.12	.05	.03	.06	.52***	.74				
Soc W2	.17*	.06	.49***	.04	.14†	.05	.53***	.29***	.87			
Neg W2	-.15*	.09	.01	.43***	.02	.12	-.12	.19*	.10	.88		
PA W2	.20**	.11	.22*	-.03	.65***	-.14†	.24**	.14†	.28***	-.21	.92	
NA W2	-.003	.003	-.06	.23*	-.31***	.62***	.05	.16*	.00	.32***	-.29***	.94

Mean ±	3.43 ±	2.84 ±	2.92 ±	1.55 ±	3.20 ±	2.05 ±	3.42 ±	2.94 ±	3.04 ±	1.74 ±	3.34 ±	2.14 ±
SD	0.41	0.62	0.57	0.44	0.80	0.77	0.43	0.63	0.59	0.64	0.73	0.83

Note. Cronbach's alphas are represented in the diagonal, Inst = Instructional Teaching Behavior, Org = Organizational Teaching Behavior, Soc = Socio-Emotional Teaching Behavior, Neg = Negative Teaching Behavior, PA = Positive Affect, NA = Negative Affect, W1 = Wave 1, W2 = Wave 2. *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$.

Table 2

Estimated Fixed Effects of the TBQ Scales at Wave 1 on the PANAS-C Scale Positive and Negative Affect at Wave 2

	Positive Affect Model			Negative Affect Model		
Fixed Effect	Parameter Estimate	*SE*	*p*	Parameter Estimate	*SE*	*p*
Intercept (γ_{00})	3.34***	0.04	< .001	2.11***	0.06	< .001
Instructional TB (γ_{10})	0.24*	0.12	.044	0.06	0.14	.660
Socio-Emo TB (γ_{20})	0.11	0.10	.280	0.01	0.09	.928
Organizational TB (γ_{30})	-0.01	0.07	.922	-0.13	0.09	.167
Negative TB (γ_{40})	-0.01	0.10	.935	0.22†	0.13	.079
Affect at Wave 1 (γ_{50})	0.58***	0.05	< .001	0.62***	0.06	< .001

Note. TB = Teaching Behavior, Socio-Emo = Socio-Emotional, Affect at Wave 1 represents the Wave 1 score controlled for in the respective Positive and Negative Affect Model, *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$.

Table 3

Estimated Fixed Effects of the PANAS-C Scale Positive and Negative Affect at Wave 1 on the TBQ Scales at Wave 2

TB	Instruct TB Model			Org TB Model			Socio-Emo TB Model			Negative Model		
Fixed Effect	Parameter Estimate	*SE*	*p*	Parameter Estimate	*SE*	*p*	Parameter Estimate	*SE*	*p*	Parameter Estimate	*SE*	*p*
Intercept (γ_{00})	3.40***	0.03	< .001	2.93***	0.04	< .001	2.97***	0.04	< .001	0.64***	0.01	< .00
Pos Affect (γ_{20})	0.02	0.04	.641	0.01	0.05	.797	0.04	0.04	.362	-0.01	0.02	.656
Neg Affect (γ_{30})	0.04	0.04	.249	0.03	0.05	.587	0.06	0.04	.197	-0.01	0.02	.652
TB at Wave 1 (γ_{10})	.45***	.09	< .001	0.41***	0.07	< .001	0.40**	0.13	.004	-0.20***	0.03	< .00

Note. Pos Affect = Positive Affect, Neg Affect = Negative Affect, TB = Teaching Behavior, Instruct = Instructional, Org = Organizational, Socio-Emo = Socio-Emotional, TB at Wave 1 represents the Wave 1 score controlled for in the respective TB Model, *** p < .001, ** p < .01, * p < .05, † p < .10.

CURRICULUM VITA

Bridget Cauley, M.Ed.
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EDUCATION

2018 - Present	**Pre-doctoral Internship (APA Accredited)** Nebraska Internship Consortium in Professional Psychology Munroe-Meyer Institute at the University of Nebraska Medical Center Training Director: Allison Grennan, PhD *Rotations*: Behavioral Pediatrics and Integrated Care, Assessment and Consultation in Omaha Public School District
Expected Aug 2019	**Doctoral Candidate, Counseling Psychology (APA Accredited)** University of Louisville, Louisville, Kentucky *Dissertation*: Examining the Temporal Directionality Between Teaching Behavior and Affect in High School Students *Status*: Defended May 2018
May 2017	**Master of Education (M.Ed.) in Counseling Psychology** University of Louisville, Louisville, Kentucky
Dec 2013	**Bachelor of Arts in Psychology and Spanish** University of Wisconsin-Eau Claire, Eau Claire, Wisconsin

PROFESSIONAL LICENSURE

State of Nebraska
Provisional Mental Health Practitioner, 2018 – Current (license #11503)

CLINICAL EXPERIENCE

Pre-doctoral Internship:

July 2018 – Dec 2018	**Munroe-Meyer Institute at the University of Nebraska Medical Center, Omaha, NE** Agency Type: Academic Medical Center, University Center of Excellence for Developmental Disabilities Education, Research and Service (UCEDD) Supervisor: Sara Kupzyk, PhD, BCBA

- Conduct intake interviews, individual therapy, and parent training with youth (ages 1-21) and families to address autism spectrum disorder (ASD), developmental or intellectual disabilities, attention deficit/hyperactivity disorder (ADHD), disruptive behavior disorders, habit disorders, internalizing disorders, trauma-related disorders, toileting problems, and academic/learning problems
    - Provide services in Spanish when needed
- Utilize intervention techniques from various frameworks, including behavior therapy, parent training, cognitive behavioral therapy (CBT), applied behavior analysis (ABA), trauma-focused cognitive behavioral therapy (TF-CBT), parent-child interaction therapy (PCIT), acceptance and commitment therapy (ACT), and academic interventions
- Conduct assessments to provide differential diagnosis of ASD, developmental or intellectual disabilities, specific learning disorders, and ADHD
- Conduct one or more autism evaluations each week, including administration of the ADOS-2 Modules 1-4 and Toddler Module as well as other standardized assessments
- Collaborate and consult with speech language pathologists, parent resource coordinators, psychiatrists, and school personnel
- Receive training in administrative and billing procedures for integrated health clinic services

July 2018 – Dec 2018 **Children's Physicians – Plattsmouth, Plattsmouth, NE**
Agency Type: Integrated Pediatric Primary Care
Supervisor: Sara Kupzyk, PhD, BCBA

- Conduct intake interviews, individual therapy, and parent training with youth (ages 1-21) and families in a primarily rural community for a broad range of concerns, including ASD, ADHD, disruptive behavior disorders, internalizing disorders, trauma-related disorders, and toileting problems
- Co-facilitate the monthly Family Connections Support Group for caregivers of children with ASD and other developmental disabilities
- Conduct assessments to provide differential diagnosis of ASD, developmental or intellectual disabilities, specific learning disorders, ADHD, disruptive behavior disorders, and internalizing disorders
- Collaborate and consult with pediatricians, nurses, and school personnel

July 2018 – **Family Medicine Clinic, Durham Outpatient Center at the**

Dec 2018 **University of Nebraska Medical Center, Omaha, NE**
Agency Type: Academic Medical Center
Supervisor: Sara Kupzyk, PhD, BCBA

- Conduct intake interviews and individual therapy with youth and families for a broad range of concerns, including ADHD, disruptive behavior disorders, internalizing disorders, trauma-related disorders, and habit disorders
- Conduct parent training/parent involved therapy in Spanish

Sept 2018 – May 2019 **Omaha Public School District, Bancroft Elementary, Omaha, NE**
Agency Type: Public Prekindergarten – 6th grade Elementary School
Supervisor: Megan M. Morse, PhD

- Conduct educational evaluations for students in Pre-K – 6th grade, students in the English Language Learners program, and children referred through Early Childhood Special Education
- Provide behavioral consultation to teachers and educational staff
- Participate in Multidisciplinary Team Meetings (MDT) and Individual Education Planning (IEP) meetings to determine special education verification status and develop educational and behavioral interventions

Jan 2019 – June 2019 **Munroe-Meyer Diagnostic Clinic at the University of Nebraska Medical Center, Omaha, NE**
Agency Type: Academic Medical Center, UCEDD
Supervisor: Kathryn Menousek, PhD, BCBA-D

- Conduct assessments to provide differential diagnosis of ASD, developmental or intellectual disabilities, and ADHD
- Conduct multiple autism evaluations each week, including administration of the ADOS-2 Modules 1-4 and Toddler Module as well as other standardized assessments
- Conduct intake interviews, individual therapy, and parent training with youth (ages 2-21) and families for a broad range of concerns, including ASD, developmental or intellectual disabilities, ADHD, disruptive behavior disorders, internalizing disorders, trauma-related disorders, and toileting problems
- Utilize intervention techniques from various frameworks, including behavior therapy, parent training, ABA, CBT, PCIT, and ACT
- Collaborate and consult with developmental pediatricians, pediatric nurse practitioners, social worker, family advocates, and school personnel
- Receive training in administrative and billing procedures for integrated health clinic services

Jan 2019 – **Munroe-Meyer Institute at the University of Nebraska Medical**

June 2019 **Center, Omaha, NE**
Agency Type: Academic Medical Center, UCEDD
Supervisor: Kathryn Menousek, PhD, BCBA-D

- Conduct assessments of ASD, developmental or intellectual disabilities, and ADHD
- Conduct multiple autism evaluations each week, including administration of the ADOS-2 Modules 1-4 and Toddler Module and other standardized assessments
- Provide live supervision and post-session feedback to a doctoral practicum student in applied behavior analysis

Practicum Experiences:

Aug 2017 – May 2018 **University of Louisville Counseling Center, Louisville, KY**
Agency Type: University Counseling Center
Supervisors: Juan Pablo Kalawski, PhD and Geetanjali Gulati, PsyD

- Conducted psychological intake assessments with college students (ages 18-36)
- Provided evidence-based individual therapy to college students
- Conducted psychological evaluations of ADHD and specific learning disorders
- Assisted in outreach presentations and student information tables
- Participated in weekly individual supervision, group supervision, and interdisciplinary team meetings

Aug 2017 – April 2018 **The Brook Hospital – KMI, Louisville, KY**
Agency Type: Psychiatric Hospital
Supervisor: Holly O'Loan, MS, LPP

- Conducted structured psychosocial intake assessments with adolescents and gathered collateral information from family members
- Provided evidence-based individual and family therapy to adolescents (ages 13-18) in the substance abuse program, the acute inpatient unit, and the extended care unit
- Created individualized treatment plans for adolescents in the above programs
- Lead adolescent therapy groups on the acute inpatient unit emphasizing psychoeducation and coping skills using cognitive behavioral therapy
- Worked as part of an interdisciplinary team with psychiatrists, nurses, social workers, and direct care staff
- Participated in weekly individual supervision and interdisciplinary treatment team meetings as well as received live supervision

June 2017 – **Autism Center, Department of Pediatrics, University of Louisville**

Aug 2017; Nov – Dec 2017

School of Medicine, Louisville, KY
Agency Type: Academic Medical Center
Supervisor: Grace Kuravackel, PhD

- Provided empirically-supported individual therapy to children, adolescents, and young adults (ages 3-23) with autism spectrum disorder (ASD) and other comorbid disorders
- Provided empirically-supported individual and parent-involved therapy in Spanish to an adolescent with ASD
- Co-facilitated an interpersonal skills group for adolescents with ASD
- Co-facilitated a 35-hour interpersonal skills and kindergarten readiness summer camp for children with ASD
- Observed administrations of the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2) and the Autism Diagnostic Interview, Revised (ADI-R)
- Administered, scored, and interpreted cognitive, adaptive, and emotional/behavioral assessment instruments
- Participated in weekly individual supervision and received live supervision

June 2016 – May 2017

Weisskopf Child Evaluation Center, Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY
Agency Type: Academic Medical Center
Supervisor: Eva Markham, EdD

- Conducted clinical interviews and psychological evaluations as part of an interdisciplinary team
- Administered, scored, interpreted, and provided feedback on a variety of psychological assessment instruments with youth (ages 1-17)
- As part of the ages 0-3 evaluation team, administered, scored, interpreted, and provided feedback on the ADOS-2 and Bayley Cognitive scales of development (Bayley-III)
- Majority of referrals in the clinic were for autism spectrum disorder, developmental delay, intellectual disability, specific learning disorders, ADHD, anxiety disorders, and disruptive behavior disorders
- Participated in interdisciplinary evaluations of feeding disorders
- Worked as part of an interdisciplinary team with developmental pediatricians, speech-language pathologists, occupational therapists, geneticists, and nutritionists
- Participated in weekly individual supervision, received live supervision, and participated in occasional training seminars

March 2016 – Feb 2017

Americana Community Center, Louisville, KY
Agency Type: Community Mental Health Center

Supervisor: Felicia Smith, PhD

- Provided evidence-based individual and group therapy to immigrants, refugees, and native citizens in an underserved, marginalized community (ages 5-65)
- Provided individual therapy in Spanish to immigrants and refugees
- Partnered with trained interpreters to provide individual therapy
- Developed and facilitated social and emotional skills groups with K-2nd and 3-5th graders
- Provided training and consultation to staff members on child psychopathology, child behavior management, and multicultural competency in working with diverse groups
- Attended trainings on cultural competency and immigration laws

Aug 2015 – May 2016 **Cardinal Success Program @ Shawnee Middle and High School, Louisville, KY**

Agency Type: Public Middle and High School/Departmental Clinic
Supervisor: Katy Hopkins, PhD

- Provided empirically-supported individual and family therapy to middle and high school students in a historically underserved community
- Co-facilitated manualized cognitive behavioral therapy groups for depression prevention with 9th grade students
- Conducted strength-based group therapy for in-school suspended students
- Developed and co-facilitated a social and emotional skills group in Spanish for immigrant and refugee students
- Co-facilitated psychoeducational and supportive group therapy for pregnant and parenting high school students
- Partnered with a nearby elementary school in an underserved neighborhood to provide individual therapy and conduct psychological evaluations
- Provided consultation to teachers and school personnel regarding student behavior concerns and classroom behavior management strategies
- Participated in weekly individual and group supervision and interdisciplinary treatment team meetings

PROFESSIONAL EXPERIENCE

2016 – 2017 **Graduate Assistant – Department Training Clinics**
Cardinal Success Program @ Shawnee and Nia
University of Louisville, Louisville, KY

Supervisor: Eugene Foster, PhD
Personal Duties: Assisted in the daily operations of two community-based treatment clinics located in a low socioeconomic status, underserved neighborhood. Helped to facilitate the integration of telepsychiatry, social work, and nursing services and acted as coordinator for the integrated services. Responsible for organizing and facilitating community outreach events and coordinating program development for the clinics. Facilitated trainings and engaged in weekly presentations, trainings and treatment team meetings. Responsible for the annual program evaluation for both clinics.

2011 – 2014 **St. David's Center for Child & Family Development, Minnetonka, MN**
Personal Duties: Supervised children, adolescents, and young adults with autism spectrum disorder and developmental disabilities. Provided individualized care to youth and adults.

2013 – 2014 **Children's Advocate – Bolton Refuge House**
Domestic Violence Shelter, Eau Claire, WI
Personal Duties: Conducted face-to-face and telephone translation and interpretation services from Spanish to English and vice versa. Provided individual crisis intervention to women and children in shelter. Answered crisis calls, conducted intakes, and referred clients to appropriate community resources.

2013 – 2014 **Women's Advocate Intern – Tubman Center**
Domestic Violence Shelter, Maplewood, MN
Personal Duties: Provided individual crisis intervention for women in shelter. Answered crisis calls, conducted intakes, and assisted women in finding financial, housing, job, legal, substance abuse treatment, and counseling resources.

2012 – 2013 **Children's Advocate Intern – Bolton Refuge House**
Domestic Violence Shelter, Eau Claire, WI
Personal Duties: Organized and lead groups providing support to children and adolescents residing in shelter and in the community. Co-developed and co-facilitated a family strengthening group. Provided individual crisis intervention for children and women in shelter. Conducted face-to-face and telephone translation and interpretation services from Spanish to English and vice versa.

PUBLICATIONS

Burton, S., Hooper, L. M., Tomek, S., **Cauley, B.,** Washington, A., & Pössel, P. (2018). The mediating effects of parentification on the relation between parenting

behavior and well-being and depressive symptoms in early adolescents. *Journal of Child and Family Studies, 27,* 4044-4059. doi:10.1007/s10826-018-1215-0

Pössel, P., Burton, S. M., **Cauley, B.**, Sawyer, M. G., Spence, S. H., & Sheffield, J. (2018). Associations between social support from family, friends, and teachers and depressive symptoms in adolescents. *Journal of Youth and Adolescence, 47,* 398-412. doi:10.1007/s10964-017-0712-6

Cauley, B., Pössel, P., Winkeljohn Black, S., & Hooper, L. M. (2017). Teaching behavior and positive and negative affect in high school students: Does students' race matter? *School Mental Health, 9*, 334–346. doi:10.1007/s12310-017-9219-2

Cauley, B., Immekus, J. C., & Pössel, P. (2017). An investigation of African American and European American students' perception of teaching behavior. *Journal of School Psychology, 65,* 28-39. doi:10.1016/j.jsp.2017.06.005

Woo, H., Lu, J., Harris, C., & **Cauley, B.** (2017). Professional identity development in counseling professionals. *Counseling Outcome Research and Evaluation, 8,* 15-30. doi:10.1080/03054985.2017.1297184

Woo, H., Na Mi, B., **Cauley, B.**, & Choi, N. (2017). A meta-analysis: School-based intervention programs targeting psychosocial factors for gifted racial/ethnic minority students. *Journal for the Education of the Gifted, 40,* 199-219. doi:10.1177/0162353217717034

Muehlenkamp, J. J., & **Cauley, B.** (2016). Self-injury (Non-suicidal). In: Friedman, H. (ed.) *Encyclopedia of Mental Health, 2nd edition* (115-119). New York: Elsevier.

MANUSCRIPTS IN PREPARATION & UNDER REVIEW

Toledano-Toledano, F., Moral de la Rubia, J., Cauley, B., & Muñoz Hernández, O. (Under review). Measurement and assessment of resilience in family caregivers of children with chronic diseases. *Boletín Médico del Hospital Infantil de México.*

Toledano-Toledano, F., Moral de la Rubia, J., McCubbin, L. D., Santos Vega, X., Liebenberg, L., Contreras-Valdez, J. A., Luna, D., **Cauley, B.,** Cervantes Castillo, A., & Cabrera Valdés, E. H. (Under review). Factors associated with anxiety in family caregivers of children with chronic diseases. *Journal of Pediatric Psychology.*

Toledano-Toledano, F., McCubbin, L. D., Moral de la Rubia, J., Liebenberg, L., **Cauley, B.**, Martínez Valverde, S., … Muñoz Hernández, O. (Under review). Psychometric properties of the Coping Health Inventory for Parents CHIP in family caregivers of children with chronic diseases. *Health and Quality of Life Outcomes*.

Toledano-Toledano, F., McCubbin, L. D., Santos Vega, X., Moral de la Rubia, J., Villavicencio Guzmán, L., **Cauley, B.,** … & Watterson, K. (Under review). Questionnaire on sociodemographic variables for research on pediatric chronic illness. *Revista Papeles de Población*.

Cauley, B., Pittard, C., & Pössel, P. (In preparation). Examining the temporal directionality between teaching behavior and affect in high school students.

Burton, S., Hooper, L. M., Tomek, S., **Cauley, B.,** Washington, A., & Pössel, P. (In preparation). Psychometric evaluation of the Parentification Inventory in early adolescence: Assessing young caregiving.

Toledano-Toledano, F., Contreras-Valdez, J. A., **Cauley, B.** (In preparation). Validity and reliability of the Beck II Depression Inventory (BDI-II) in family caregivers of children with chronic diseases.

Toledano-Toledano, F., McCubbin, L. D., Luna, D., Santos Vega, X., & **Cauley, B.** (In preparation). Predictors of resilience in family caregivers of children with cancer.

Toledano-Toledano, F., Liebenberg, L., McCubbin, L. D., Santos Vega, X., & **Cauley, B.** (In preparation). Meanings and practices of the social representations of HIV/AIDS in patients and university students.

Toledano-Toledano, F., McCubbin, L. D., Rodríguez-Rey, R., Santos Vega, X. M., & **Cauley, B.** (In preparation). Sociodemographic variables to be included in research with families of children with chronic diseases: An inter-validation study.

Woo, H., Heo, N., & **Cauley, B.** (In preparation). Satisfaction with STEM-related regular and gifted education classes and high school students' academic and career intentions in STEM fields.

Toledano-Toledano, F., McCubbin, L. D., & **Cauley, B.** (In preparation). Psychometric properties of the Resilience Scale in family caregivers of children with chronic illnesses.

Toledano-Toledano, F., McCubbin, L. D., McCubbin, H., Santos Vega, X., & **Cauley, B.** (In preparation). Theory, research and practice of the double ABCX model in the context of pediatric chronic illness.

REPORTS

Citizen Review Panel & **Student Citizen Review Panel.** (June, 2017). *Citizen Review Panels' state fiscal year 2017-2018 annual work report.* Report submitted to the Kentucky Cabinet for Health and Family Services Department for Community Based Services.

Roane, S., **Cauley B.**, Foster, E., & Hopkins, K. (August, 2016). *The Cardinal Success Program program evaluation: June 2015 – June 2016.* Report submitted to the University of Louisville College of Education and Human Development.

CONFERENCE AND PROFESSIONAL PRESENTATIONS

Paper Presentations and Symposia

Cauley B., Pittard, C. M., Snyder, K. E., Pössel, P., & Hooper, L. M. (August, 2017). *Depression in the context of pubertal development and teacher discrimination.* Paper presented as part of a Symposium at the 125th Annual American Psychological Association Convention, Washington D.C., United States.

Pössel, P., Burton, S.M., **Cauley B.**, Sawyer, M.G., Spence, S.H., & Sheffield, J. (August, 2017). *Support from family, friends, and teachers and depression in adolescents.* Paper presented as part of a Symposium at the 125th Annual American Psychological Association Convention, Washington D.C., United States.

Toledano-Toledano, F., McCubbin, L. D., **& Cauley, B.** (March, 2016). *Calidad de vida y funcionamiento familiar en contextos de enfermedad crónica pediátrica* [*Quality of life and family functioning in the context of pediatric chronic illness*]. Paper presented at the 17th Congress of Public Health Research, Cuernavaca, Morelos. Mexico.

Toledano-Toledano, F. & **Cauley, B.** (December, 2015) *Individual, family, and sociocultural factors related to resilience and quality of life*. Paper presented at the University of Louisville ECPY Research Talk. Provided interpretation of presentation from Spanish to English.

Cauley, B., Pössel, P., & Winkeljohn Black, S. (August, 2015). *Teaching behavior and students' positive and negative affect: Does students' race/ethnicity matter?* Paper presented as part of a Collaborative Program at the 123rd Annual American Psychological Association Convention, Toronto, Canada.

Poster Presentations

Cauley, B., Cox, J., Kupzyk, S., Reelfs, H., & Kupzyk, K. (April, 2019). *Effects of cybercycling on academic engagement, stereotypy, and health outcomes of children with autism spectrum disorder.* Poster presented at the Munroe-Meyer Institute for Genetics and Rehabilitation Student and Faculty Poster Session, Omaha, Nebraska.

Cauley, B., Immekus, J. C., & Pössel, P. (August, 2016). *Teaching Behavior Questionnaire's factor structure: Does race/ethnicity matter?* Poster presented at

the 124th Annual American Psychological Association Convention, Denver, Colorado.

Kuo, P., Watterson, K., **Cauley, B.**, Roane, S., Schmuck, D., & Leach, M. (August, 2016). *Research mentor attrition and psychology doctoral students' academic outcomes and mental health*. Poster presented at the 124th Annual American Psychological Association Convention, Denver, Colorado.

Toledano-Toledano, F., McCubbin, L. D., & **Cauley, B.** (August, 2016). *Coping Health Inventory for Parents among caregivers of children with chronic illnesses in Mexico*. Poster presented at the 124th Annual American Psychological Association Convention, Denver, Colorado.

Toledano-Toledano, F., McCubbin, L. D., & **Cauley, B.** (August, 2016). *Psychometric properties of the Resilience Scale among caregivers of children with chronic illnesses*. Poster presented at the 124th Annual American Psychological Association Convention, Denver, Colorado.

Toledano-Toledano, F., McCubbin, L. D., & **Cauley, B.** (April, 2016). *Coping Health Inventory for Parents among caregivers of children with chronic illnesses in Mexico.* Poster presented at the 29th Annual Great Lakes Regional Counseling Psychology Conference, Bloomington, Indiana.

Cauley, B., Pössel, P., Winkeljohn Black, S., & Hooper, L. M. (November, 2015). *Teaching behavior and positive and negative affect in high school students: Does students' race/ethnicity matter?* Poster presented at the 49th Annual Convention of the Association for Behavioral and Cognitive Therapies, Chicago, Illinois.

Cauley, B. & Pössel, P., & Winkeljohn Black, S. (March, 2015). *Teaching behavior and depressive symptoms among African American and European American high school students.* Poster presented at the 28th Annual Great Lakes Regional Counseling Psychology Conference, Muncie, Indiana.

RESEARCH EXPERIENCE

2018 – Present **Diagnostic Practices of ADHD Research Team Member**
Munroe-Meyer Institute at the University of Nebraska Medical Center
Supervisor: Kathryn Menousek, PhD, BCBA-D
Personal Duties: Develop research study investigating psychologists, pediatricians, and family medicine providers' accuracy and comfort in diagnosing ADHD

2018 – Present **Effects of Cybercycling on Academic Functioning, Behavior, and Physical Health Outcomes for Children with Autism Spectrum Disorder Research Team Member**
Munroe-Meyer Institute at the University of Nebraska Medical Center

Supervisors: Sara Kupzyk, PhD, BCBA
Personal Duties: Assist in observational data collection

2015 – 2018 **International Research Team Member**
University of Louisville, Department of Counseling & Human Development

Children's Hospital – Federico Gómez, National Institute of Health, Mexico City, Mexico
Supervisors: Laurie "Lali" McCubbin, PhD & Filiberto Toledano-Toledano, PhD
Personal Duties: Collaborate on research projects examining psychosocial well-being and resilience in family caregivers of children with chronic illnesses. Translate manuscripts from Spanish to English.

2014 – 2018 **Teacher Variables and Depression in Students Research Team Member**
University of Louisville, Department of Counseling & Human Development
Supervisor: Patrick Pössel, Dr. rer. soc.
Personal Duties: Collaborate on research projects examining the associations between school-related variables and students' mental health. Facilitate lab meetings. Write APA style manuscripts. Collect and enter data in middle school, high school, and hospital settings. Analyze data using SPSS and Hierarchical Linear Modeling. Read and provide feedback on lab members' manuscripts.

2015 – 2016 **Graduate Research Assistant**
University of Louisville, Department of Counseling & Human Development
Supervisor: Hongryun Woo, PhD
Personal Duties: Program evaluation committee member for the Cardinal Success Program's community-based mental health clinics. Prepared and reviewed APA style manuscripts. Conducted literature searches. Entered data.

Spring 2016 **Graduate Research Volunteer**
University of Louisville, Department of Counseling & Human Development
Supervisor: Jill Adelson, PhD
Personal Duties: Facilitated group administration of Naglieri Nonverbal Ability Test and Measures of Academic Progress (MAP) as part of the Primary Grades for Reaching Academic Potential grant in elementary schools. This was a large-scale, district-wide project.

2014 – 2016 **Graduate Research Assistant**

University of Louisville, Department of Counseling & Human Development
Supervisor: Patrick Pössel, Dr. rer. soc.
Personal Duties: Project coordinator of the depression prevention program LARS&LISA. Organized a longitudinal research study with five middle schools. Led research team meetings. Collected and entered data. Searched for and coded articles for meta analysis on hopelessness model of depression in African American youth. Analyzed data using SPSS and HLM. Conducted literature reviews and wrote grants.

2014 – 2015 **Mind-Body Research Team Member**
University of Louisville, Department of Counseling & Human Development
Supervisor: Patrick Pössel, Dr. rer. soc.
Personal Duties: Collected saliva, blood pressure, and survey data from nurses on the bone marrow transplant unit at a local hospital.

2013 – 2014 **Research Assistant**
University of Wisconsin-Eau Claire, Department of Psychology
Advisor: Jennifer Muehlenkamp, PhD
Personal Duties: Reviewed empirical studies on non-suicidal self-injury and suicide. Prepared a comprehensive review of non-suicidal self-injury and suicide for publication.

AWARDS, HONORS, AND GRANTS

2017 **Pass with Honors in Orals Comprehensive Examination,** Department of Counseling and Human Development, University of Louisville

2017 **Travel Grant ($350),** Graduate Student Council, University of Louisville

2016 **Travel Grant ($350),** Graduate Student Council, University of Louisville

2015 **Travel Grant ($100),** Research and Faculty Development Travel Match Grant, College of Education and Human Development, University of Louisville

2015 **Travel Grant ($350),** Graduate Student Council, University of Louisville

2015 **Academic Presentation Award ($750),** Department of Counseling and Human Development, University of Louisville

2015 **Research Grant ($2,110),** "Influence of Teaching Behavior on Academic Achievement and Well Being in Middle-School Students." Women Investing in Education.

TEACHING EXPERIENCE

Teaching Assistant, Munroe-Meyer Institute at the University of Nebraska Medical Center
Masters Level, Psychology with Concentration in Applied Behavior Analysis

- Psychology 9040, Proseminar: Learning (Fall 2018)

Teaching Assistant, University of Louisville
Masters and Doctoral Level

- ECPY 621, Differential Diagnosis and Treatment in Counseling (Fall 2017, Section I)
- ECPY 648, Psychological Assessment I (Spring 2016)
- ECPY 605, Human Development (Fall 2015)
- ECPY 648, Psychological Assessment I (Spring 2015)
- ECPY 722, Advanced Theories (Fall 2014)

Guest Lecture, University of Louisville
Masters and Doctoral Level

- ECPY 621, Differential Diagnosis and Treatment in Counseling (Fall 2017, Section II)

Guest Lecture, University of Louisville
Undergraduate Level

- EDTP 107, Human Development and Learning (Spring 2015)

SERVICE

2018 – 2019	**Intern Board Representative – Committee Member** Nebraska Internship Consortium in Professional Psychology
	Ad Hoc Reviewer for Journals
March 2019	Journal of Research on Adolescence (invited reviewer)
July 2018,	Journal of Behavioral Education (student co-reviewer)
Feb 2018,	Educational Psychology (student co-reviewer)
Sept 2017	Journal of Black Psychology (invited reviewer)
April 2017 – June 2018	**Student Member – Citizens Review Panel of Kentucky Child Welfare** Kentucky Cabinet for Health & Family Services Project focus: Perspectives of family court judges on factors leading to multiple foster care placements for Jefferson County youth
March 2018	**Student Reviewer** APA Division 45 Society for the Psychological Study of Culture, Ethnicity, and Race Research Conference

Sept – Oct 2017	**We Are Here USA, Hidden Voices Vision Wall** Community outreach event to promote awareness of sexual violence
April 2017	**Undergraduate Poster Session Judge** Kentucky Psychological Foundation Spring Academic Conference
Jan 2017	**Student Interviewer for Doctoral Interviews** University of Louisville
Jan – June 2016	**Committee Member – Prevention, Education, and Advocacy on Campus and in the Community** University of Louisville
April 2016	**Undergraduate Poster Session Judge** Kentucky Psychological Foundation Spring Academic Conference
Aug 2014 – June 2015	**Doctoral Student Organization Member** University of Louisville
Jan 2014	**Guest Speaker at Bolton Refuge House – Domestic Violence Shelter** Topic: Suicide Awareness and Prevention Training

TRAININGS COMPLETED

2019	**Integrated Behavioral Health Certificate Program** online training course, University of Nebraska Medical Center and Behavioral Health Education Center of Nebraska
2018	**Autism Diagnostic Observation Schedule – Second Edition (ADOS-2) Training for Clinicians**, 3-day workshop presented by the University of Missouri Thompson Center for Autism and Neurodevelopmental Disorders, hosted by the University of Nebraska Medical Center
2017	**Parent Child Interaction Therapy (PCIT)** for Traumatized Children online training course, University of California Davis Children's Hospital
2017	**Assessment, Diagnosis and Treatment of Autism Spectrum Disorder,** Kentucky Psychological Association
2015	**Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT)** online training course, Medical University of South Carolina

2015 **Motivational Interviewing and Brief Alcohol Screening and Intervention of College Students (BASICS)**: A Harm Reduction Approach. Training at University of Louisville

PROFESSIONAL MEMBERSHIPS

American Psychological Association of Graduate Students (APAGS)

-Society of Counseling Psychology, Division 17, Student Member
-Society for Family Psychology, Division 43, Student Member
-Society of Clinical Child and Adolescent Psychology, Division 53, Student Member