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The conceptualization of the positive cognitive triad and associations with depressive symptoms in adolescents.

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THE CONCEPTUALIZATION OF THE POSITIVE COGNITIVE TRIAD AND ASSOCIATIONS WITH DEPRESSIVE SYMPTOMS IN ADOLESCENTS

By

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B.A. Elon University, 2013
M.Ed., University of Louisville, 2016

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ABSTRACT

THE CONCEPTUALIZATION OF THE POSITIVE COGNITIVE TRIAD AND ASSOCIATIONS WITH DEPRESSIVE SYMPTOMS IN ADOLESCENTS

Caroline M. Pittard

May 29, 2018

Depressive symptoms during adolescence have been found to be associated with negative outcomes such as decreased academic performance, absenteeism, substance abuse, and poor physical health. The positive cognitive triad has been considered to be a protective factor against adolescent depressive symptoms. The positive cognitive triad is made up of three subfactors of cognitions, specifically, positive cognitions about the self, the world, and the future. This dissertation examined the various conceptualizations of the positive cognitive triad and their relation to depressive symptoms. These conceptualizations included considering the positive cognitive triad as a single overall protective factor (additive model), as multiple possible protective factors made up of the subfactors of the positive cognitive triad (independent factor model), and as considering the most positive subfactor as the most meaningful protective factor (strongest link model).

Two samples were used in order to replicate and provide evidence for the validity of findings. Two samples (n_1 = 2982; n_2 = 2540) of Australian adolescents completed the Positive Cognitive Triad Inventory and the Center for Epidemiological Studies Depression Scale. Structural equation modeling was used to estimate models representing

the multiple conceptualizations of the positive cognitive triad and their relation to depressive symptoms. Percentage of variance explained in depressive symptoms as well as model fit statistics were examined to determine the best conceptualization of the positive cognitive triad in its protection against depressive symptoms. Evidence pointed to the higher-order additive model and independent factor model as the best fitting models to the data and explaining the most variance in depressive symptoms. In the independent factor model, only positive cognitions about the self were significantly related to depressive symptoms. These findings support the notion that the positive cognitive triad is a protective factor for depressive symptoms, and more specifically, the role of positive cognitions about the self in the protection against depressive symptoms. After future studies examining the directionality of the relation between positive cognitions about the self and depressive symptoms, mental health providers using cognitive behavioral approaches may consider examining positive cognitions as a protective factor for their clients.

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CHAPTER I

OVERVIEW OF DEPRESSION AND THE COGNITIVE TRIAD IN ADOLESCENTS

Depression in Adolescents

Adolescent depression is an international concern (Patel, 2015). In the United States alone, around 3 million adolescents had a major depressive episode in 2015, which affected three times as many females as males (SAMHSA, 2017). By 18 years of age, 22-27% of adolescents have experienced depressive symptoms during their lifetime, if not a major depressive episode (Bertha & Balázs, 2013; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Specific to Australia, 25% of adolescents reported being "not happy," "sad," or even "very sad" when reporting their overall satisfaction with life (Cave, Fildes, Luckett, & Wearring, 2015). Annual rates of major depressive disorder increase over time for both males and females during adolescence (Lawrence et al., 2016).

Outcomes Associated with Adolescent Depression

Adolescent depression has implications for both adolescents' current and future functioning. One in 10 Australian adolescents report that mental health concerns are significant barriers to reaching their goals related to employment or schooling (Cave et al., 2015). Adolescents with depression are at risk for decreased academic performance, including decreased homework completion and lower class attendance (Humensky et al., 2008). Further, depression is the reason for more missed days of school than any other

mental health issues including anxiety disorder, attention deficit hyperactivity disorder, and conduct disorder for Australian adolescents (Lawrence et al., 2016). Socially, adolescent depression is associated with lower social support, poorer self-rated physical health, problems in interpersonal functioning, and increased substance abuse (Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013; Stewart et al., 2002; Verboom, Sijtsema, Verhulst, & Pennix, 2014). In addition, experiencing major depressive disorder during adolescence for longer than six months predicted the presence of future major depressive disorder or an anxiety disorder in young adulthood (Patton et al., 2014). Even levels of depressive symptoms that do not reach the criteria for a major depressive disorder increase the risk for a future depressive episode (Georgiades, Lewinsohn, Monroe, & Seeley, 2006). Additionally, experiencing depression is a risk factor for not attending higher education (Jonsson et al., 2010). Clearly, the concurrent and future consequences of depressive symptoms in adolescents make it important to understand the onset and maintenance of these symptoms.

Cognitive Triad

One theory to explain the onset and maintenance of adolescent depressive symptoms is Beck's (1976) cognitive theory of depression. The cognitive triad is one component of this theory, which describes the themes of depressed individuals' sets of beliefs about themselves, the future, and the world (Beck, 1976; Beck, Rush, Shaw, & Emery, 1979). Historically, only a negative cognitive triad has been studied. Distorted, unrealistic thinking styles make up the negative cognitive triad, which contributes to the development and maintenance of depressive symptoms (Beck, 1976; Clark & Beck,

1999). In this conceptualization, views about oneself include thoughts about the self as flawed or undesirable (e.g., “I am worthless”). Views about the future include hopelessness and a belief that current challenges will continue into the future (e.g., “I will never succeed”). Views about the world include beliefs that the world is challenging (e.g., “Bad things always happen to me”). The negative cognitive triad has been shown to be positively associated with depressive symptoms in youth (Braet, Wante, Van Beveren, & Theuwis, 2015; Cole et al., 2011; Greening, Stoppelbein, Dhossche, & Martin, 2005; Jacobs & Joseph, 1997; LaGrange et al., 2008; Timbremont & Braet, 2006) with some evidence pointing to the negative cognitive triad as a predictor of future depressive symptoms during adolescence (Greening et al., 2005; Timbremont & Braet, 2006). Thus, it is clear that cognitions have an important relation with depressive symptoms during adolescence.

As there is a relation between the negative cognitive triad and depressive symptoms (Braet et al., 2015; Greening et al., 2005; Jacobs & Joseph, 1997; LaGrange et al., 2008; Timbremont & Braet, 2006), a relation may also exist between the positive cognitive triad, which includes individuals’ positive cognitions about themselves, the future, and the world, and depressive symptoms. This hypothesis is supported by theoretical considerations and empirical findings for another cognitive construct, the attribution style. Negative attribution style (negative attributions for negative events; Abramson, Metalsky, & Alloy, 1989) is a vulnerability factor for depression, whereas enhancing attribution style (positive attributions for positive events; Needles & Abramson, 1990) is a protective factor against depression (Haeffel & Vargas, 2011). The enhancing attribution style is not merely the inverse of the negative attribution style, but is an independent construct with a separate relation with depressive symptoms (Haeffel &

Vargas, 2011; Needles & Abramson, 1990; Voelz, Haeffel, Joiner, & Wagner, 2003). Similarly, the positive cognitive triad (i.e., positive views about the self, world, and future) may be an independent construct from the negative cognitive triad. The negative cognitive triad is a vulnerability factor for depressive symptoms (Cole et al., 2011; Greening et al., 2005; Jacobs & Joseph, 1997; LaGrange et al., 2008), whereas the positive cognitive triad is expected to be a protective factor against the development of depressive symptoms. In the conceptualization of the positive cognitive triad, positive cognitive content characterizes the views of the self (e.g., "I am proud of myself"), the future (e.g., "My future is looking good") and the world (e.g., "The world is a good place").

Whereas support is generally clear on the relation between the negative cognitive triad and depressive symptoms (Braet et al., 2015; Greening et al., 2005; Jacobs & Joseph, 1997; LaGrange et al., 2008; Timbremont & Braet, 2006), more research is needed to explore the positive cognitive triad (Mak, Ng, & Wang, 2011; Patton et al., 2011; Sawyer, Pfeiffer, & Spence, 2009). The relative lack of research to the positive cognitive triad is associated with the relatively recent shift of the focus from a deficit perspective to a stronger emphasis on a prevention or recovery perspective which is connected with the development of positive psychology (Seligman & Csikszentmihalyi, 2000). Nevertheless, the positive cognitive triad already has been found to mediate the relation between resilience and depressive symptoms in Chinese undergraduates (Mak et al., 2011). As an active ingredient in the relation between resilience and depressive symptoms (Mak et al., 2011), it is important to better understand the positive cognitive triad in adolescence in order to refine prevention and recovery efforts.

Positive Cognitive Triad in Adolescence

In adolescents, the positive cognitive triad is negatively associated with depressive symptoms (Patton et al., 2011; Sawyer et al., 2009). In youth, the level of positive cognitive triad decreases from ages 12 to 14 for females but remains stable for males, and it is a stronger protective factor against depression for females than males (Patton et al., 2011). More specifically, while the positive cognitive triad is negatively associated with depression for both females and males, males are half as likely to be at least mildly depressed (Patton et al., 2011). Longitudinally, the positive cognitive triad has been found to negatively predict depressive symptoms up to 12 months later in adolescent males and females, after controlling for other predictors like coping style and negative life events (Patton et al., 2011; Sawyer et al., 2009). More specifically, one study found sex differences in the prediction of depressive symptoms, with the positive cognitive triad remaining a stronger predictor of future depressive symptoms for females compared to males (Patton et al., 2011). In sum, Patton et al. (2011), Sawyer et al. (2009), and Mak et al. (2011) lay important groundwork in the examination of the positive cognitive triad and its relation with depressive symptoms in adolescents. However, limitations remain in the conceptualization of the positive cognitive triad. Research examining how to best conceptualize the positive cognitive triad and its relation with depressive symptoms is needed.

Conceptualization of the Positive Cognitive Triad

Approaches to Conceptualization

To better understand the relation between the positive cognitive triad and depressive symptoms in general, and in adolescence in particular, it is necessary first to consider how to conceptualize the positive cognitive triad. Authors have debated how to measure and analyze cognitive vulnerability and protective factors when such factors

include multiple subfactors (Abela, Aydin, & Auerbach, 2006; Abela & Sarin, 2002). Conceptualizations include an additive, independent, and weakest link approach. The additive approach considers the combination of all subfactors into one overarching factor predicting depressive symptoms. Thus, in this approach, the positive cognitive triad is treated as a single protective factor against depressive symptoms. The independent factor approach considers each individual subfactor in predicting depressive symptoms. This approach treats each subfactor of the positive cognitive triad (i.e., view of the self, view of the world, and view of the future) as separate protective factors against depressive symptoms, as opposed to a single overall protective factor. The weakest link approach considers only the individual's most extreme subfactor as a cognitive vulnerability or protective factor. As the positive cognitive triad is a protective factor against depressive symptoms (Patton et al., 2011), this approach will be referred to as the *strongest* link. In the strongest link approach, only an individual's most positive (or most protective) subfactor is examined. Thus, the positive cognitive triad is represented as a single construct that reflects the individual's most protective subfactor.

As support for considering these approaches, one can borrow research from another cognitive theory, the hopelessness theory of depression (Abramson et al., 1989). In this theory, cognitive vulnerability for depression is conceptualized as an overall factor, called inferential style, which is made up of three subfactors (Abramson et al., 1989). Both the additive (e.g., Calvete, Orue, & Hankin, 2013) and independent approaches (e.g., Abela, 2001) have been used in studies predicting depressive symptoms in adolescents. Additionally, authors (Abela & Sarin, 2002; Abela et al., 2006) have argued for the use of a weakest link approach. For example, in using the additive approach, an individual who scores high on one of the inferential styles but low on the

other two styles may appear to have an inferential style that is equal to that of an individual who scores in the middle for all three inferential styles (Abela & Sarin, 2002; Abela et al., 2006). Thus, this individual's cognitive vulnerability may actually be more extreme than the additive approach would reflect. Thus, in the weakest link approach, an individual is as vulnerable to depression as their weakest link (Abela & Sarin, 2002). To date, there are no studies examining this approach with a protective factor or with the negative or positive cognitive triad specifically.

Previous Conceptualizations of the Negative Cognitive Triad

Studies with adolescents have yet to examine the strongest link approach or compare all three approaches of how to conceptualize the positive cognitive triad. However, findings regarding the conceptualization of the negative cognitive triad may lend some support to the prediction of outcomes of the hypothesized conceptualizations of the positive cognitive triad. Several studies with youth have used the additive approach when conceptualizing the negative cognitive triad (Greening et al., 2005; Kaslow, Stark, Printz, Livingston, & Tsai, 1992; Pössel, 2016) finding positive associations between the overall negative cognitive triad and adolescents' depressive symptoms. Other studies have used the independent factor approach, finding that all three subfactors of the cognitive triad (Braet et al., 2015; Kaslow et al., 1992), only two subfactors (view of self & world and view of world & future; Jacobs & Joseph, 1997), or only one subfactor (view of future; Timbremont & Braet, 2006) to be positively associated with depressive symptoms. More specifically, when examined separately by sex, males' negative views of the self and world were associated with depressive symptoms, while females' negative views of the world and future were associated with depressive symptoms (Jacobs & Joseph, 1997). In a separate study, only the adolescents' negative view of the future was

associated with depressive symptoms (Timbremont & Braet, 2006). Additionally, no study to date has examined the strongest link approach. Thus, comparing the three approaches and examining the information provided from each conceptualization of the positive cognitive triad will be crucial for our understanding of protective factors of depressive symptoms in general and the positive cognitive triad.

Current Study

The purpose of this study is to compare the different conceptualizations of the positive cognitive triad and how they are related to depressive symptoms in adolescents. These conceptualizations include the additive approach, independent approach, and strongest link approach.

The additive approach to the negative cognitive triad is positively associated with depressive symptoms (Greening et al., 2005; Kaslow et al., 1992; Pössel, 2016). Accordingly, it was expected that previous findings (Patton et al., 2011; Sawyer et al., 2009) would be replicated such that the additive approach to the positive cognitive triad would be negatively associated with depressive symptoms.

Findings for the independent approach to the negative cognitive triad have been mixed (Braet et al., 2015; Jacobs & Joseph, 1997; Kaslow et al., 1992; Timbremont & Braet, 2006). Each of the subfactors have been found to be associated with depressive symptoms (Braet et al., 2015; Jacobs & Joseph, 1997; Kaslow et al., 1992; Timbremont & Braet, 2006); however, across studies, not all subfactors are always significantly related to depressive symptoms. In the current study, it still was expected that each of the independent subfactors would be negatively related to depressive symptoms.

Last, no studies to date have examined the conceptualization of the negative or positive cognitive triad from the weakest or strongest link approach, respectively.

However, based on findings regarding the measurement of inferential style using the weakest link approach (Abela et al., 2006; Abela & Sarin, 2002) it was expected that the strongest link approach would be significantly negatively related to depressive symptoms. As a follow-up to this, whether each strongest link has the same effect or whether there is a strongest link that is most protective also was explored. Due to the dearth of information on the positive cognitive triad in general, and the strongest link approach specifically, this analysis was exploratory in nature.

Percentage variance explained in depressive symptoms by each conceptualization was compared to identify the potential benefits of using a specific approach. The analyses were run in two separate samples to provide a confirmatory analysis to demonstrate robustness of the proposed models.

CHAPTER II

METHOD

Participants

Participants in the current study were members of the first wave (pretest) of a treatment group (Sample 1) and the first wave of a control group (Sample 2) of a large-scale, universal, 5-year depression prevention program in Australia, *beyondblue* schools research initiative. Participants in the study represented three Australian states (Queensland [n = 18 schools], South Australia [n = 16 schools], and Victoria [n =16 schools]). The academic year for students in Australia typically runs from February until early December. Participants were in the second term of grade eight at the baseline measurement (May and June, 2003). Participant characteristics were quite similar across the two samples, which was expected due to research design using matched schools to generate statistically equivalent samples. In Sample 1, 53.9% of participants identified as female and 45.9% of participants identified as male. Of the participants, 92.3% percent identified as Australian origin, while 7.7% did not. Additionally, 4.8% identified as Aboriginal. The average participant age was 13.04 (SD = 0.52). Participants represented 25 schools, with an average of 119 participants per school (SD = 34.47; Range = 67–182). In Sample 2, 52.6% of participants identified as female and 47.4% of participants identified as male. Of the participants, 93.0% identified Australian origin, while 7.0% did not. Additionally, 4.5% identified as Aboriginal. The average participant age was 13.11

(*SD* = 0.56). Participants represented 25 schools, with an average of 102 participants per school (*SD* = 35.65; Range = 48–186).

Procedure

Parents of potential participants received letters describing the study and provided consent for their children's participation. Students, who also provided consent, spent approximately 30 minutes responding to questionnaires in classrooms or auditoriums at school, and there was no incentive for participation. Students who were absent during scheduled administrations were rescheduled to minimize the amount of missing data. Ethics approval was obtained from state education authorities and university human research ethics committees.

Measures

Positive cognitive triad. The positive cognitive triad (PCT; Spence, 2002) measure contains 12 items, making up three subscales. These items measure the frequency of positive cognitions about the self (e.g., "I can do a lot of things well"), future (e.g., "I have plenty of things in life to look forward to") and the world (e.g., "Most people care about others"). Participants responded to these items on a 4-point Likert-type scale (*Not at all* = 0; *All the time* = 3), with higher scores indicating more positive cognitive content. The subscales for the self, future, and world each consist of four items. The PCT was specified as a latent variable as described in the model specification subsection. Cronbach's alphas across both samples for both the overall scale and subscales (Table 1) were greater than the commonly accepted threshold of $\alpha = .80$ (Clark & Watson, 1995; Urbina, 2004)

Depressive symptoms. Current depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale (CESD; Radloff, 1977). This scale

is a widely-used screening instrument to measure the presence of depressive symptoms. The measure includes 20 items (e.g., "During the past week, there were things that upset me that usually do not upset me") to which participants respond on a 4-point Likert-type scale (*Rarely or none of the time [less than 1 day]* = 0; *Most or all of the time [5-7 days] = 3)*. Depressive symptoms were measured using the CESD sum score and were specified as an observed variable. Scores have a possible range of scores from 0 to 60, with higher scores indicating more frequent symptoms of depression. The CESD has been used often with adolescents and has shown good reliability and construct validity (Garrison, Schluchter, Schoenbach, & Kaplan, 1989; Radloff, 1991; Roberts, Andrews, Lewinsohn, & Hops, 1990). Cronbach's alphas (Table 1) across both samples were greater than $\alpha = .80$.

Data Analysis

Missing data. Prior to multiple imputation, the frequency of missing data on the positive cognitive triad subscales and overall CESD scale was examined. In each sample, cases were removed if participants were missing more than 50% of item-level data on each scale or subscale. More specifically, cases were removed if missing three or more items on any subscale of the positive cognitive triad measure or 11 or more items on the CESD. In Sample 1, 55 cases were removed, representing 1.81% of the overall sample. Three cases remained with any missing data (representing 0.10% of the remaining cases). In Sample 2, 57 cases were removed, representing 2.19% of the overall sample. Three cases remained with any missing data (representing 0.31% of the remaining cases). After removing cases missing more than 50% of item-level data on scales and subscales, missing data were addressed with multiple imputation. For each sample, 10 imputations were estimated using Mplus Version 8 (Múthen & Múthen, 1998-2012).

Normality. Data were tested for normality and outliers (Bandalos & Finney, 2010; Osborne, 2013). The assumption of normality was tested for the dependent variable, the CESD sum score. Based on examination of histograms, the skew value, and Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests of normality (Osborne, 2013), the CESD was positively skewed in both Sample 1 and Sample 2. However, it should be noted that a positive skew is expected when measuring depressive symptoms in a community sample (Radloff, 1977). All 10 imputations in Sample 1 had a skew value of 1.21, and all 10 imputations of Sample 2 had a skew value of 1.33. Both of these skew values were outside of the range of -1.00 to 1.00, indicating a non-normal distribution (Osborne, 2013). This was supported by the significance of both the K-S and S-W inferential tests of normality in both samples (Sample 1 K-S = 0.14 [df = 2982], $p < .001$; Sample 1 S-W = 0.89 [df = 2982], $p < .001$; Sample 2 K-S = 0.15 [df = 2540], $p < .001$; Sample 2 S-W = 0.89 [df = 2540], $p < .001$).

A Box-Cox transformation (Box & Cox, 1964; Osborne, 2013) was applied to the data to identify the lambda, which identifies the correct transformation. Both Samples 1 and 2 had lambdas of 0.30, indicating a cubed root transformation should be applied to the data. Prior to making the transformation, values of the CESD were anchored at 1 (Osborne, 2013). Following the transformation, the skew value was equal to 0.17 for Sample 1 across all 10 imputations and 0.20 for Sample 2 across all 10 imputations. Histograms followed a normal distribution over both samples for the transformed data. K-S and S-W tests remained significant; however, this was likely due to the large sample size (Osborne, 2013). Additionally, after reviewing box plots of the transformed data, no outliers remained in either sample.

Model specification. Several different models were specified using maximum likelihood in MPlus Version 8 (Múthen & Múthen, 1998-2012) to test the relationship between the positive cognitive triad and depressive symptoms. Because students are nested in schools, effects of clustering were accounted for by using Complex Samples in MPlus.

Additive models. Two separate additive models were tested to determine the best-fitting additive model (Figures 1 & 2). Marker variables for each factor were determined by selecting the item that had high intercorrelation with other items within the same scale. The first model consisted of the prediction of the observed variable, depressive symptoms, using a single latent factor on which all positive cognitive triad items load. The marker variable for the single factor model was Item 2, "My future is looking good." The second model consisted of the prediction of depressive symptoms using a higher-order factor, on which the three second-order factors (cognitions about the self, future, and world) loaded. The marker variable for the Self factor was Item 1, "I am proud of myself." The marker variable for the Future factor was Item 2, "My future is looking good," and the marker variable for the World factor was Item 4, "The world is a good place." Each of these paths were set to 1.00. In all models using these factors in the study, these items were used as the marker variables. In the higher-order factor model, the factor variance of the positive cognitive triad was set to 1.00.

These single-factor and higher-order factor models were compared using a χ^2 difference test. The χ^2 difference test is calculated by computing the difference in χ^2 values from each model in addition to computing the difference in the degrees of freedom (*df*s) from each model to determine the *df* for the test. A significant χ^2 difference value indicates that the model estimating more parameters should be retained, which was the

higher-order factor model. A nonsignificant χ^2 value indicated that both models fit similarly to the data and the model estimating fewer parameters should be retained, which is the single factor model.

Independent model. As shown in Figure 3, the independent model was represented by the three factors of the positive cognitive triad (cognitions about the self, future, and world) independently predicting depressive symptoms. The marker variable strategy described above was used.

Strongest link model. The strongest link model was specified by first calculating the factor scores for each participant. Factor scores for the self, future, and world were calculated by multiplying the factor loading of an item from the independent model described above by its raw score and summing those products across the items within a factor. This was calculated for all 10 imputations in each sample to create a factor score for each imputation. An individual's highest factor score was determined to be that individual's strongest link. If a participant scored a 0 on all factors or if the strongest link shifted between strongest links across imputations, they were removed from the analyses. A single new variable was created for individuals' highest factor scores and, as shown in Figure 4, was estimated as an observed variable predicting depressive symptoms.

Model comparison. For each model, goodness of fit indices and variance explained in depressive symptoms was examined. The goodness of fit indices considered include the χ^2 statistic, root mean squared error of approximation (RMSEA; Steiger & Lind, 1980), comparative fit index (CFI; Bentler, 1990), the Akaike Information Criterion (AIC), and the Baysein Information Criterion (BIC). A nonsignificant χ^2 value indicates good model fit, although this is sensitive to large sample sizes (Kline, 2016; Ullman, 1996). RMSEA values below 0.05 indicate good fit, and values between 0.05 and 0.08

indicate acceptable fit (Hu & Bentler, 1999). Regarding the CFI, values greater than 0.95 indicate good fit, and values ranging from 0.90 to 0.95 indicate acceptable fit (Hu & Bentler, 1999). AIC and BIC are used to compare models, rather than evaluate models independently. Lower AIC and BIC values are preferred. More specifically, for the AIC, changes in 4 to 7 points is considered strong evidence that the models are not equivalent, and more than 10 points indicate very strong evidence that the models are not equivalent (Burnham & Anderson, 2002). Thus, greater reduction in AIC provides support that the model with the lower AIC value is preferred. Regarding the BIC, changes in 2 to 6 points provides positive evidence to support the model with the lower value, changes in 6 to 10 points provides strong evidence to support the model with the lower value, and changes of more than 10 points provide very strong evidence to support the model with the lower value (Raferty, 1995). Each model fit value was considered across the additive and independent models to consider the overall fit of each model. Due to the strongest link model being just-identified, model fit statistics cannot be obtained. Although AIC and BIC values can be estimated, they were not examined due to this path model's vastly different structure compared to the hybrid models. Values for percentage variance explained in depressive symptoms also were obtained.

Secondary analysis. Whether the type of strongest link moderates the relation between the strongest link and depressive symptoms was investigated to better understand the relation between the positive cognitive triad and depressive symptoms within the strongest link model. Multiple group analysis with the groups indicating participants' strongest link was used to determine whether having a certain subfactor as a strongest link moderates the relation between the strongest link and depressive symptoms.

CHAPTER III

RESULTS

Primary Analyses

Table 1 provides descriptive statistics for the study variables. Table 2 provides a correlation matrix of the PCT survey items as well as CESD scores. Table 3 provides model fit statistics for all models.

Additive model. Table 4 provides factor loadings, regression weights, and R^2 values for the single factor model. All items significantly loaded on the PCT factor. As expected, when considered as an overall factor, the PCT was statistically significantly negatively associated with depressive symptoms in both samples (Sample 1: $\beta = -0.515$ [SE = 0.022] $p < .001$; Sample 2: $\beta = -0.534$ [SE = 0.015] $p < .001$). This model explained 27% and 29% of the variance in depressive symptoms across Samples 1 and 2, respectively. χ^2 statistics in both samples were significant, which would indicate poor fit; however, these are likely significant due to the large sample size (Kline, 2016; Ullman, 1996). In both samples, the CFI was in the acceptable range, and the RMSEA was in the marginal range (Hu & Bentler, 1999). The TLI was in the acceptable range in Sample 1 but indicated poor model fit in Sample 2 (Hu & Bentler, 1999).

Table 5 provides factor loadings, regression weights, and R^2 values for the higher-order model. In the higher-order model, all items again statistically significantly loaded onto their respective subfactors, and the higher-order factor of the PCT was statistically

significantly negatively associated with depressive symptoms (Sample 1: β = -0.526 [SE = 0.022] $p < .001$; Sample 2: β = -0.542 [SE = 0.015] $p < .001$). This model explained 28% and 30% of the variance in depressive symptoms across Samples 1 and 2, respectively. Again, χ^2 statistics were significant in both samples, likely due to the large sample size (Kline, 2016; Ullman, 1996). The CFI indicated good model fit, and the RMSEA indicated acceptable model fit in both samples. In Sample 1, the TLI was in the acceptable range while in Sample 2 it indicated good fit (Hu & Bentler, 1999). All fit statistics demonstrated a better model fit for the higher-order model than the single factor model. This was confirmed by a χ^2 difference test, which preferred the higher-order model in both Samples 1 ($\chi^2_{difference} = 768.253$ [$df = 3$], $p < .001$) and 2 ($\chi^2_{difference} = 649.581$ [$df = 3$], $p < .001$). AIC and BIC values were lower in both samples for the higher-order sample, far exceeding the 10-point difference cutoff (Burnham & Anderson, 2002; Raferty, 1995), again indicating better model fit for the higher-order factor model.

Independent model. Table 6 provides factor loadings, regression weights, and R^2 values. All items significantly loaded onto their corresponding factor. The self factor of the positive cognitive triad was statistically significantly negatively associated with depressive symptoms in both samples (Sample 1: β = -0.595 [SE = 0.165] $p = .001$; Sample 2: β = -0.402 [SE = 0.121] $p = .001$). Neither the future nor world factors were statistically significantly associated with depressive symptoms (Sample 1: $\beta_{future} = -0.176$ [SE = 0.108] $p = .104$; Sample 2: $\beta_{future} = 0.068$ [SE = 0.154] $p = .661$; Sample 1: $\beta_{world} = -0.058$ [SE = 0.049] $p = .239$; Sample 2: $\beta_{world} = -0.017$ [SE = 0.048] $p = .724$). This model explained 28% and 30% of the variance in depressive symptoms across Samples 1 and 2, respectively. χ^2 statistics in both samples were significant, which would indicate poor fit; however, these are likely significant due to the large sample size (Kline, 2016;

Ullman, 1996). CFI values indicated good model fit in both samples. RMSEA values were in the acceptable range (Hu & Bentler, 1999). Similar to the higher-order additive model, the TLI indicated acceptable model fit for Sample 1, and good model fit for Sample 2.

Strongest link model. Table 7 provides standardized regression coefficients and R^2 values. The strongest link was statistically significantly negatively associated with depressive symptoms (Sample 1: β = -0.468 [0.020], $p < .001$; Sample 2: β = -0.485 [SE = 0.015] $p < .001$). This model explained 22% and 24% of the variance in depressive symptoms in Samples 1 and 2, respectively.

Model comparisons. Across the three hybrid models (i.e., single factor additive, higher-order additive, and independent models), the higher-order additive and independent models both explained the most variance in depressive symptoms, each explaining 28% in Sample 1 and 30% in Sample 2. Additionally, model fit statistics are quite similar across the higher-order additive and independent models. CFI, TLI, and RMSEA values all fell within acceptable to good ranges for both the higher-order additive and independent models. Changes in AIC values did not provide evidence for the non-equivalence of the higher-order additive and independent model (Burnham & Anderson, 2002). However, changes in BIC values provided strong evidence for the non-equivalence of the higher-order additive and independent models (Raferty, 1995), strongly preferring the higher-order additive model over the independent model.

Secondary Analyses

Using the strongest link model, multiple group analysis was used to indicate participants' strongest link and determine whether having a certain subfactor as a strongest link moderates the relation between the strongest link and depressive

symptoms. Seventeen participants were removed due to having a score of 0 on all factors (Sample 1 $n = 9$; Sample 2 $n = 8$), and 1 participant in Sample 1 was removed due to having a such similar strongest link scores that group membership shifted between "self," "world," and "future" strongest links across three different imputations. Participants were similarly distributed across Self, Future, and World groups across Samples 1 and 2 (Sample 1: Self $n = 738$ [25%], Future $n = 2059$ [69%], World $n = 175$ [6%]; Sample 2: Self $n = 621$ [25%], Future $n = 1738$ [70%], World: $n = 125$ [5%]).

Model fit statistics can be found in Table 8. Models with the path between the strongest link and depressive symptoms constrained across groups were compared to models with the path freely varying to determine whether the path freely varies across groups. The model allowing the path to vary was first compared to a model constraining the paths to be equal. In Sample 1, the χ^2 difference test ($\chi^2_{difference} = 1.792$ [$df = 2$], $p = .408$) and the lower BIC value preferred the model with paths constrained, although the difference in the AIC values indicated the models were essentially equivalent. However, for Sample 2, the χ^2 difference test ($\chi^2_{difference} = 17.215$ [$df = 2$], $p < .001$) and the AIC preferred the model with paths varying, while the difference in the BIC values indicated the models were essentially equivalent. Given the similar path coefficients for the Future and World groups in Sample 2 ($\beta_{self} = -0.306$, $\beta_{future} = -0.208$, $\beta_{world} = -0.206$), a partially-constrained model was tested with this path constrained across the World and Future groups but with the path varying for Self. This partially-constrained model was compared to the model with all paths free ($\chi^2_{difference} = 0.174$ [$df = 1$], $p = .677$), and both the nonsignificant χ^2 difference test and lower BIC values preferred the partially-constrained model (the difference in AIC values indicated the models were essentially equivalent). This partially-constrained model also was tested in Sample 1. The partially-constrained

model was compared to the model with all paths constrained ($\chi^2_{difference} = 1.555$ [$df = 1$], $p = .212$), the model that was preferred after comparison to a fully free model in Sample 1. The chi-square difference test and BIC values indicated that the model with all paths constrained is a better fit to the data (the difference in AIC values indicated the models were essentially equivalent). This makes sense given that the path coefficient for the Self group was more similar to the path coefficients the Future and World groups in Sample 1($\beta_{self} = -0.402$ $\beta_{future} = -0.422$, $\beta_{world} = -0.356$) than in Sample 2.

Inconsistent with previous analyses, these findings were not fully consistent across both Samples 1 and 2. Although some validity evidence was provided for the constraint of both the paths for the World and Future group across each samples, the inconsistency with the Self group, along with the relatively lower percentage of variance explained using the strongest link conceptualization (Table 9) points to the strongest link conceptualization as a less preferred conceptualization of the positive cognitive triad.

CHAPTER IV

DISCUSSION

In this study, I examined the conceptualization of the positive cognitive triad and its relation with depressive symptoms. I tested additive, independent, and strongest link conceptualizations in their relation with depressive symptoms.

As expected, both the single factor and higher-order factor additive models were statistically significantly negatively related to depressive symptoms, explaining from 27% to 30% of variance across models and samples in depressive symptoms. This is consistent with previous studies that have used an additive conceptualization of the positive cognitive triad (Patton et al., 2011; Sawyer et al., 2009) as well as previous findings regarding using an additive conceptualization of the negative cognitive triad's positive relation with depressive symptoms (Greening et al., 2005; Kaslow et al., 1992; Pössel, 2016). Thus, the positive cognitive triad can be conceptualized as a single protective factor, as evidenced by its negative relation with depressive symptoms. In both samples, participants who reported more positive cognitive content reported fewer depressive symptoms. However, when considering the structure of the conceptualization, it is important to highlight the better fit of the higher-order factor model. Although the combination of all parts of the positive cognitive triad are related to depressive symptoms, this overall factor is better represented by three subfactors. This provides further support that although the positive cognitive triad overall is a protective factor, the

distinct subfactors are important to the conceptualization, and thus meaningful, for theory and for practice.

The independent model considered each individual subfactor of the positive cognitive triad (i.e., self, future, world) as a separate, independent protective factor against depressive symptoms, instead of as one overall protective factor, as conceptualized in the additive models. Although conceptualization as one overall protective factor was statistically significantly related to depressive symptoms in the additive model, when considered as individual protective factors, only the self factor was statistically significantly associated with depressive symptoms, explaining 28% and 30% of variance in depressive symptoms across Samples 1 and 2. Both the future and world subfactors shared no statistically significant relation with participants' reported depressive symptoms. This is notable, both because this is the first examination of the subfactors of the positive cognitive triad using the same measure and also because findings have been mixed with regard to this pattern of relations between the subfactors of the negative cognitive triad and depressive symptoms (Braet et al., 2015; Jacobs & Joseph, 1997; Kaslow et al., 1992; Timbremont & Braet, 2006).

The strongest link model again could be considered a protective factor against depressive symptoms. However, although it also has a statistically significant relation with depressive symptoms, this conceptualization explained less variance in depressive symptoms than the independent and additive models, explaining only 22% and 24% of variance in depressive symptoms across Samples 1 and 2. After examining the independent model, I found that neither the future nor world sub-factors were protective factors against depressive symptoms. Thus, the strongest link conceptualization is likely not the most appropriate conceptualization when considering protection against

depressive symptoms. This is also supported by the results of the multiple group analyses, which was used to examine whether strongest link scores vary in their protection against depressive symptoms. The pattern of findings was not replicated across both Samples 1 and 2. There is some evidence pointing toward the similar function of both the world and future subfactors in protection against depressive symptoms, compared to the self subfactor, However, although strongest links may have varying protection against depressive symptoms, the relatively low variance explained in depressive symptoms as well as the differences in patterns of findings support the conclusion of the strongest link not being the most appropriate conceptualization.

The Importance of the Self Subfactor

The subfactor representing positive cognitions about the self was the only subfactor to significantly explain variance in depressive symptoms, as illustrated by the independent factor conceptualization. This sheds light onto the importance of cognitions about the self as a protective factor for depressive symptoms. Given this is inconsistent with the already varied findings of the negative cognitive triad when explored using the independent approach (Braet et al., 2015; Jacobs & Joseph, 1997; Kaslow et al., 1992; Timbremont & Braet, 2006), this finding, replicated in both samples, provides further evidence for the notion that the positive cognitive triad does not simply represent the inverse of the negative cognitive triad.

The importance of positive cognitions about the self and its relation to adolescents' functioning should be considered within the context of adolescent development. During puberty, the salience of social evaluation and related concerns often are heightened (*imaginary audience*; Elkind & Bowen, 1979; Sebastian, Burnett, & Blakemore, 2008). Biologically, brain changes during adolescent development are

associated with increases in self-consciousness as well as reactivity and sensitivity to concerns about social evaluation, a risk factor for depressive symptoms (Davey, Yücel, & Allen, 2007; Somerville, 2013; van den Bos et al., 2014; Westenberg et al., 2004, 2007). Thus, it may be possible that, consistent with the increase in self-consciousness and concerns about social evaluation, cognitions regarding the self are quiet salient, relative to cognitions about the world and the future. Following from this, it is not surprising that adolescents' positive cognitions regarding themselves (e.g., "I can do a lot of things well" and "I am a good person;" Spence, 2002) explained the most variance, and thus had the most protection against depressive symptoms. These negative outcomes associated with increasing concerns about social evaluation and self-consciousness during this developmental stage (Somerville, 2013; van den Bos et al., 2014; Westenberg et al., 2007) may be mitigated by intervening with adolescents' cognitions about themselves.

Implications for Theory and Practice

Considering adolescents' developmental context, their positive cognitions about themselves, and more broadly, Beck's (Beck, 1976; Beck et al., 1979) theory of depression, several implications for both the theory and practice related to the positive cognitive triad arise. First, the positive cognitive triad, and in particular, positive cognitions about the self, should be examined similarly to Beck's (Beck, 1976; Beck et al., 1979) cognitive model. Similar to the consideration of negative schemata in Beck's model of depression, which trigger the negative cognitive triad, a parallel structure of positive schemata should be considered, particularly as positive cognitions about the self are likely not simply the inverse of negative cognitions, and thus should not be conceptualized as low levels of negative cognitions. As a part of an individual's positive schema, these positive cognitions provide protection against, and thus may mitigate

depressive symptoms when stressors are encountered. In the future, researchers may consider examining the role of stress in the activation of these cognitions are warranted.

Future studies examining both the positive cognitive triad and negative cognitive triad with the same sample are needed to further understand the independence and simultaneously the interplay of these constructs. The positive cognitive triad and negative cognitive triad may be independent constructs, similar to the independence of the negative attribution style, a vulnerability factor for depression, and enhancing attribution style, a protective factor for depression (Haeffel & Vargas, 2011; Needles & Abramson, 1990; Voelz, Haeffel, Joiner, & Wagner, 2003). Measuring both the positive and negative cognitive triad in the same sample would allow for more empirical support of the independent patterns of relations with depressive symptoms. Following continued research to assist in the understanding of the function of the cognitive triad, mental health providers working from a cognitive behavioral perspective with youth experiencing depressive symptoms not only should assess the frequency of negative cognitions about the self, world, and future but also should identify the frequency and content of positive cognitions about the self, world, and future. Clinicians may work with youth to build and apply these positive cognitions into their everyday lives.

Limitations & Future Directions

Although this study has strengths, including being the first to examine the conceptualization of the positive cognitive triad with adolescents, using a large sample size, and confirming findings by replicating the analyses in a second sample, several limitations should be noted. First, the reliance on self-report measures to gather all data for the current study can be seen as a limitation, which can result in common method variance (e.g., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In the current study,

adolescents reported their own depressive symptoms by responding to items on a self-report instrument. Although clinical interviews to measure depressive symptoms also may be considered as a method of collecting data on depressive symptoms, it should be noted that self-report measures of depression do have high predictive validity (Gotlib, Lewinsohn, & Seeley, 1995) and that adolescents have been found to be able to report reliably their own depressive symptoms via self-report (Inderbitzen, 1994).

Another limitation of the current study is related to the generalizability of the results. One challenging issue when conducting research with youth is ethical committees' informed consent requirements. The current study required active parent/guardian informed consent as well as participant assent to participate in the study, thus, reducing the generalizability of the sample due the inability to include all students. Due to this, the sample is not representative of all students but rather is representative of students whose parent/guardian signed and returned informed consent information. Some studies have found that the requirement of parent/guardian informed consent when conducting school-based research can limit the number of students participating in the study (Doumas, Esp, & Hausheet, 2015; Unger et al., 2004). Previous studies have reported mixed findings regarding the impact of requiring active consent for study participation on sample demographics in school-based settings. Some studies have found that this also can limit the amount of participation of students who are underrepresented in research such as racial and ethnic minorities or students with high rates of absenteeism (Anderman et al., 1995; Doumas et al., 2015; Unger et al., 2004), while others found no differences in these demographics of students whose parent/guardian did not provide consent (Doumas et al., 2015; Hussemann, Mortimer, & Zhang, 2016; Secor-Turner, Sieving, Widome, Plowman, & Vanden Berk, 2010). The use of the informed consent

process possibly limited the number of participants as well as the demographic makeup of the participants in the current study (Blom-Hoffman et al., 2009; Doumas et al., 2015; Unger et al., 2004). Given all of this information, the results should be interpreted with the composition of the current sample in mind. One strength of the current samples, however, is the wide range of schools and geographic regions represented in the sample. In addition, the sample consists of Australian adolescents, which should be considered when generalizing these findings to other countries due to differences in experiences. However, there are similarities in rates of depressive symptoms in Australia and the United States, for example (Lawrence et al., 2016; SAMHSA, 2017).

Another limitation of the study is the use of a cross-sectional design. Future studies are needed to examine the longitudinal relation between depressive symptoms and the positive cognitive triad, identifying the directionality in those relations. In addition, future studies using longitudinal designs would help us better understand the relation between the positive cognitive triad and depressive symptoms and how it may change over the course of adolescent development. Given this is the first study examining the conceptualization of the positive cognitive triad, it was important to examine the conceptualization of the construct prior to exploring longitudinal relations. Last, researchers also may consider exploring additional participant characteristics, such as gender and age as moderators of the relation between the positive cognitive triad and depressive symptoms. As female youth report higher rates of depressive symptoms in adolescence (e.g., Lawrence et al., 2016) and differences have been found in the pattern of relation between the negative cognitive triad and depressive symptoms when considering gender (Jacobs & Joseph, 1997). In addition, the current sample is relatively young, and depressive symptoms have been documented to increase with age during

adolescence (Lawrence et al., 2016). Further, it is possible that certain subfactors of the positive cognitive triad (i.e., Future, World) may become more salient and thus more impactful as adolescents become older. This may also inform prevention and intervention by providing more information regarding the protective nature of the positive cognitive triad for different subgroups.

Conclusion

In sum, the positive cognitive triad is an important cognitive construct to examine in adolescents, particularly with the relatively recent shift of the focus from a deficit perspective to a prevention or recovery perspective, which is connected with the development of positive psychology (Seligman & Csikszentmihalyi, 2000). Specifically, an emphasis on addressing adolescents' positive cognitions about themselves, may prove to be important in work in reducing depressive symptoms with youth. In sum, a better understanding of this construct contributes to a broader understanding of adolescents' functioning, particularly with regard to the protection against depressive symptoms.

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Table 1

Descriptive Statistics for Samples 1 and 2

Variable	Sample 1 (N = 2982)			Sample 2 (N = 2540)		
	Non-Imputed	Imputed	α	Non-Imputed	Imputed	α
CESD	14.81 (11.34)	14.82 (11.34)	.90	14.09 (11.20)	14.11 (11.21)	.90
PCT	23.41 (7.72)	23.41 (7.72)	.93	23.70 (7.81)	23.70 (7.81)	.94
Self	8.17 (2.78)	8.17 (2.78)	.84	8.27 (2.76)	8.27 (2.76)	.84
World	7.07 (2.80)	7.07 (2.91)	.84	7.12 (2.82)	7.12 (2.82)	.85
Future	8.16 (2.91)	8.16 (2.80)	.89	8.32 (2.96)	8.32 (2.96)	.90
Strongest Link		6.90 (2.10)			7.12 (2.18)	

Note. Strongest link values for imputed sample reflects calculation using factor scores.

Standard deviations of Cronbach's alphas all < 0.0001.

Table 2

Correlation Matrix for PCT Items 1-12 and CESD Score

	1	2	3	4	5	6	7	8	9	10	11	12	CESD
1	-	.696	.691	.527	.446	.610	.621	.484	.535	.477	.599	.586	-.431
2	.678	-	.791	.543	.450	.691	.625	.514	.548	.496	.659	.582	-.456
3	.657	.783	-	.583	.461	.687	.633	.516	.565	.504	.679	.590	-.452
4	.512	.509	.564	-	.603	.563	.491	.640	.482	.554	.548	.511	-.403
5	.416	.438	.472	.578	-	.484	.436	.535	.446	.608	.475	.429	-.306
6	.593	.657	.659	.536	.485	-	.647	.551	.560	.534	.689	.586	-.450
7	.602	.599	.608	.471	.433	.614	-	.540	.571	.483	.612	.564	-.402
8	.450	.479	.514	.628	.542	.549	.526	-	.502	.540	.540	.470	-.314
9	.521	.530	.550	.463	.423	.538	.561	.465	-	.539	.610	.538	-.332
10	.468	.448	.488	.518	.597	.516	.487	.546	.535	-	.556	.484	-.332
11	.564	.638	.648	.518	.451	.690	.581	.536	.575	.548	-	.627	-.388
12	.585	.563	.561	.454	.387	.584	.551	.453	.535	.476	.591	-	-.459
CESD	-.454	-.440	-.424	-.342	-.258	-.418	-.362	-.299	-.291	-.308	-.384	-.424	-

Note. Sample 1 below diagonal, Sample 2 above diagonal. All correlations significant at $p < .001$. Self subscale = Items 1, 7, 9, 12. Future subscale = Items 2, 3, 6, 11. World subscale: 4, 5, 8, 10.

Table 3

Model Fit Statistics for Hybrid Models

	χ^2 (*df*)	CFI	TLI	RMSEA	AIC	BIC
Additive SF						
Sample 1	1548.498 (65)	.906	.887	0.087	73551.595	73785.609
Sample 2	1243.641 (65)	.924	.909	0.084	61270.627	61498.384
Additive HOF						
Sample 1	780.245 (62)	.955	.943	0.062	72427.795	72679.810
Sample 2	594.060 (62)	.966	.957	0.058	60322.370	60567.646
Independent						
Sample 1	771.224 (60)	.955	.941	0.063	72426.294	72690.309
Sample 2	590.934 (60)	.966	.956	0.059	60325.829	60582.785

Note. SF = Single factor. HOF = Higher-order factor. χ^2 values significant at $p < .001$.

Table 4

Standardized Loadings, Regression Coefficients, and R^2 Values for Single Factor Additive Model

Factor	Item	Sample 1	Sample 2
		Std. Coefficient (*SE*)	Std. Coefficient (*SE*)
PCT by	Item 1	.764 (.010)	.778 (.007)
	Item 2	.812 (.010)	.831 (.008)
	Item 3	.828 (.007)	.841 (.008)
	Item 4	.689 (.013)	.713 (.014)
	Item 5	.613 (.015)	.618 (.016)
	Item 6	.806 (.010)	.816 (.010)
	Item 7	.748 (.011)	.762 (.012)
	Item 8	.677 (.014)	.682 (.013)
	Item 9	.694 (.014)	.705 (.013)
	Item 10	.664 (.014)	.671 (.014)
	Item 11	.792 (.006)	.807 (.011)
	Item 12	.715 (.011)	.728 (.013)
CESD on	PCT	-0.515 (0.022)	-0.534 (0.015)
CESD R^2		.265 (.022)	.285 (.016)

Note. PCT = Positive Cognitive Triad. Std. = Standardized. SE = Standard error. All loadings, paths, and R^2 values are significant at $p < .001$ (Item 11 and Item 12 $p = .001$ for Sample 1). Self subscale = Items 1, 7, 9, 12. Future subscale = Items 2, 3, 6, 11. World subscale: 4, 5, 8, 10.

Table 5

Standardized Loadings, Correlations, Regression Coefficients, and R^2 Values for Higher-Order

Factor Additive Model

Factor	Item	Sample 1	Sample 2
		Std. Coefficient (*SE*)	Std. Coefficient (*SE*)
Self by	Item 1	.787 (.010)	.794 (.007)
	Item 7	.766 (.011)	.775 (.013)
	Item 9	.703 (.014)	.709 (.014)
	Item 12	.734 (.011)	.739 (.013)
Future by	Item 2	.843 (.010)	.856 (.008)
	Item 3	.853 (.008)	.865 (.008)
	Item 6	.810 (.011)	.821 (.011)
	Item 11	.794 (.007)	.808 (.012)
World by	Item 4	.779 (.014)	.806 (.009)
	Item 5	.730 (.012)	.734 (.015)
	Item 8	.769 (.014)	.764 (.012)
	Item 10	.735 (.012)	.741 (.013)
PCT by	Self	.984 (.007)	.999 (.007)
	Future	.967 (.006)	.966 (.008)
	World	.831 (.011)	.839 (.012)
CESD on	PCT	-0.526 (0.022)	-0.542 (0.015)
CESD R^2		.277 (.023)	.294 (.016)

Note. Std. = Standardized. SE = Standard error. PCT = Positive Cognitive Triad. All loadings, paths, and R^2 values significant at $p < .001$. (Item 11 and Item 12 *p*s = .001 for Sample 1). Self subscale = Items 1, 7, 9, 12. Future subscale = Items 2, 3, 6, 11. World subscale: 4, 5, 8, 10.

Table 6

Standardized Loadings, Correlations, Regression Coefficients, and R^2 Values for Independent Model

Factor	Item	Sample 1		Sample 2	
		Std Coefficient (*SE*)	*p*	Std Coefficient (*SE*)	*p*
Self by	Item 1	.787 (.010)	< .001	.794 (.007)	< .001
	Item 7	.765 (.011)	< .001	.775 (.013)	< .001
	Item 9	.703 (.014)	< .001	.709 (.014)	< .001
	Item 12	.734 (.011)	.001	.739 (.013)	< .001
Future by	Item 2	.843 (.010)	< .001	.856 (.008)	< .001
	Item 3	.853 (.008)	< .001	.865 (.008)	< .001
	Item 6	.810 (.011)	< .001	.821 (.011)	< .001
	Item 11	.794 (.007)	.001	.808 (.012)	< .001
World by	Item 4	.779 (.014)	< .001	.807 (.009)	< .001
	Item 5	.730 (.012)	< .001	.733 (.015)	< .001
	Item 8	.769 (.014)	< .001	.763 (.012)	< .001
	Item 10	.735 (.012)	< .001	.741 (.013)	< .001
Self with	Future	.950 (.007)	< .001	.966 (.006)	< .001
Self with	World	.819 (.014)	< .001	.838 (.013)	< .001
Future with	World	.805 (.011)	< .001	.812 (.015)	< .001
CESD on	Self	-0.402 (.121)	.001	-0.595 (0.165)	< .001
	Future	-0.176 (.108)	.104	0.068 (.154)	.661
	World	0.058 (.049)	.239	-0.017 (0.048)	.724
CESD R^2		.276 (.021)	< .001	.296 (.018)	< .001

Note. Std. = Standardized. SE = Standard error. Self subscale = Items 1, 7, 9, 12. Future subscale = Items 2, 3, 6, 11. World subscale: 4, 5, 8, 10.

Table 7

Regression Coefficients for Strongest Link Model

Predictor	Sample 1		Sample 2	
	Std. Coefficient (*SE*)	*p*	Std. Coefficient (*SE*)	*p*
Strongest Link	-0.468 (0.020)	< .001	-0.485 (0.015)	< .001
CESD R^2	.219 (.019)	< .001	.235 (.015)	< .001

Note. Std. = Standardized. SE = Standard error.

Table 8

Model Fit Statistics for Competing Strongest Link Models

	Fully Free	Fully Constrained	Partially Constrained
Sample 1			
χ^2 (*df*)	0.000 (0)	1.792 (2)	0.237 (1)
AIC	4533.977	4532.317	4532.241
BIC	4587.950	4574.296	4580.217
Sample 2			
χ^2 (*df*)	0.000 (0)	17.215 (2)	0.174 (1)
AIC	3846.106	3861.878	3844.290
BIC	3898.637	3898.735	3890.984

Table 9

Final Models for Multiple Group Analysis with Strongest Link Predicting CESD Scores

Predictor (Group)	Sample 1 Fully Constrained			Sample 2 Partially Constrained[1]		
	Std. Coefficient (*SE*)	*p*	R^2	Std. Coefficient (*SE*)	*p*	R^2
Strongest Link (Self)	-0.364 (0.021)	< .001	.132	-0.511 (0.027)	< .001	.261
Strongest Link (Future)	-0.430 (0.019)	< .001	.185	-0.419 (0.024)	< .001	.176
Strongest Link (World)	-0.395 (0.031)	< .001	.156	-0.388 (0.030)	< .001	.150

Note. Std. = Standardized. SE = Standard error. [1]Paths for Future and World constrained to be equal.

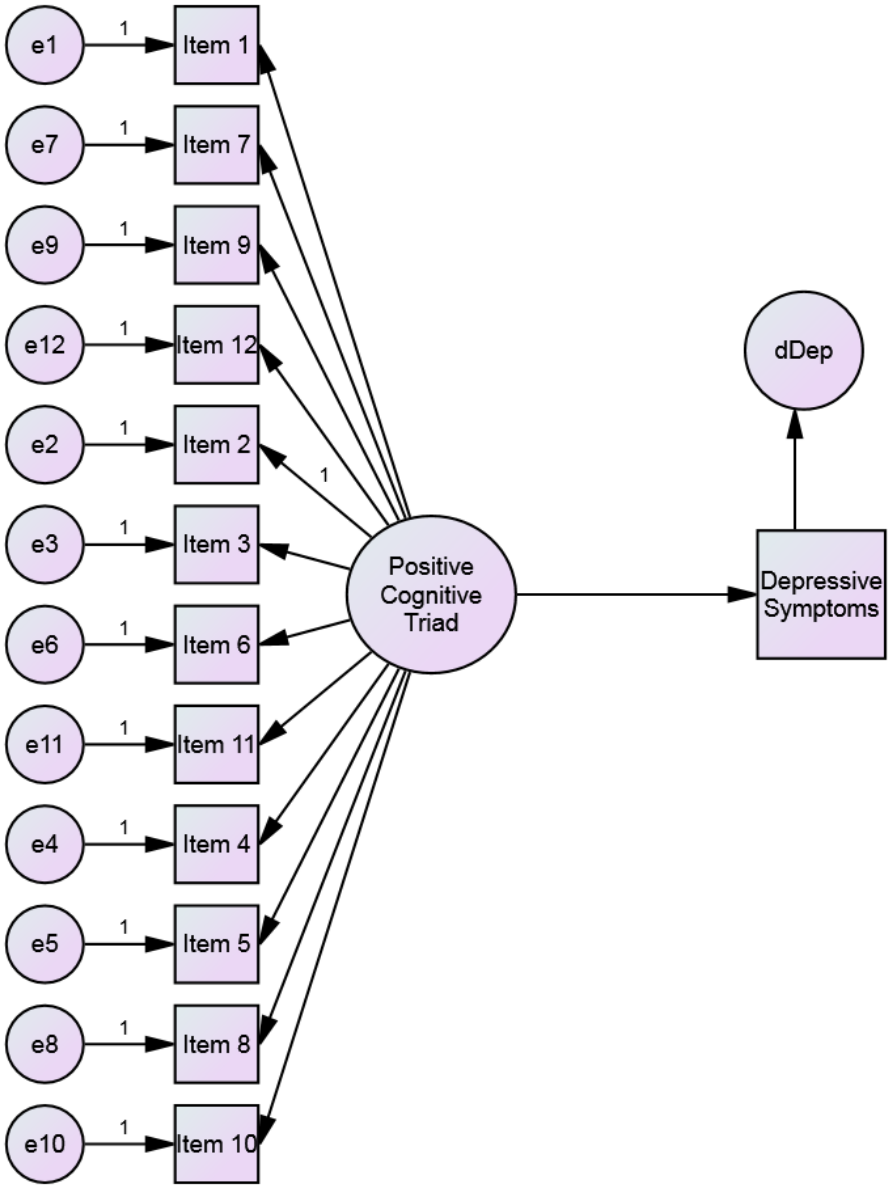

Figure 1. Single-factor additive model

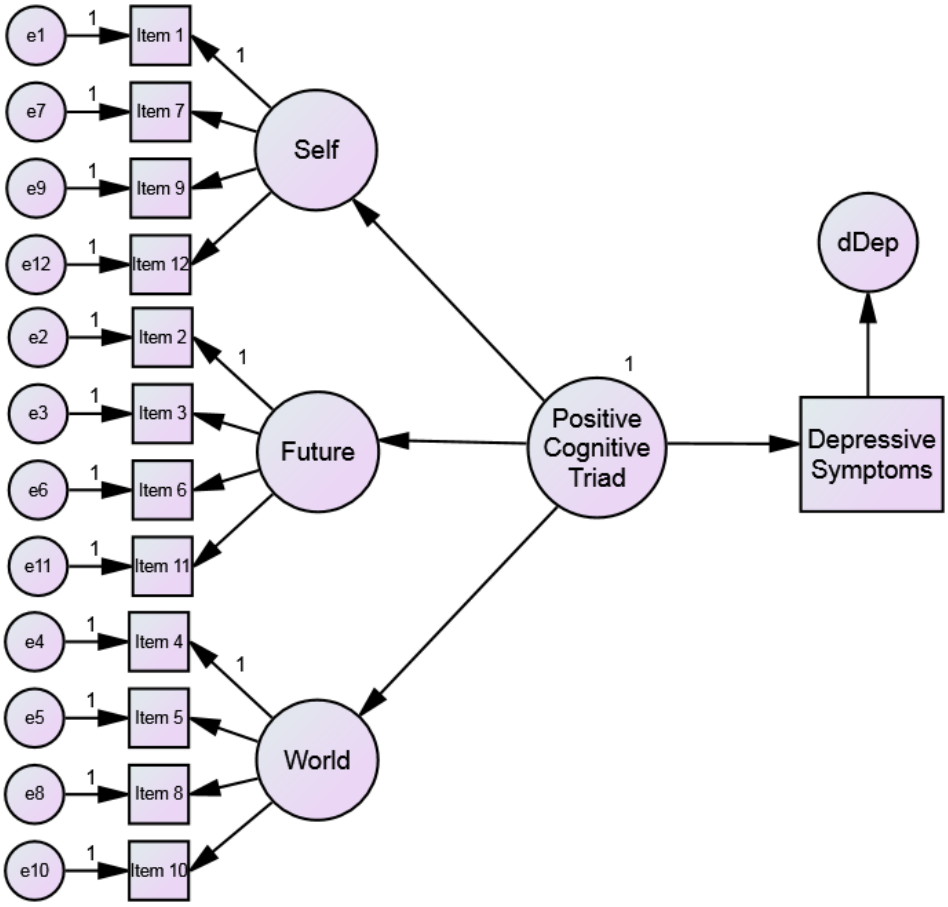

Figure 2. Higher-order factor additive model

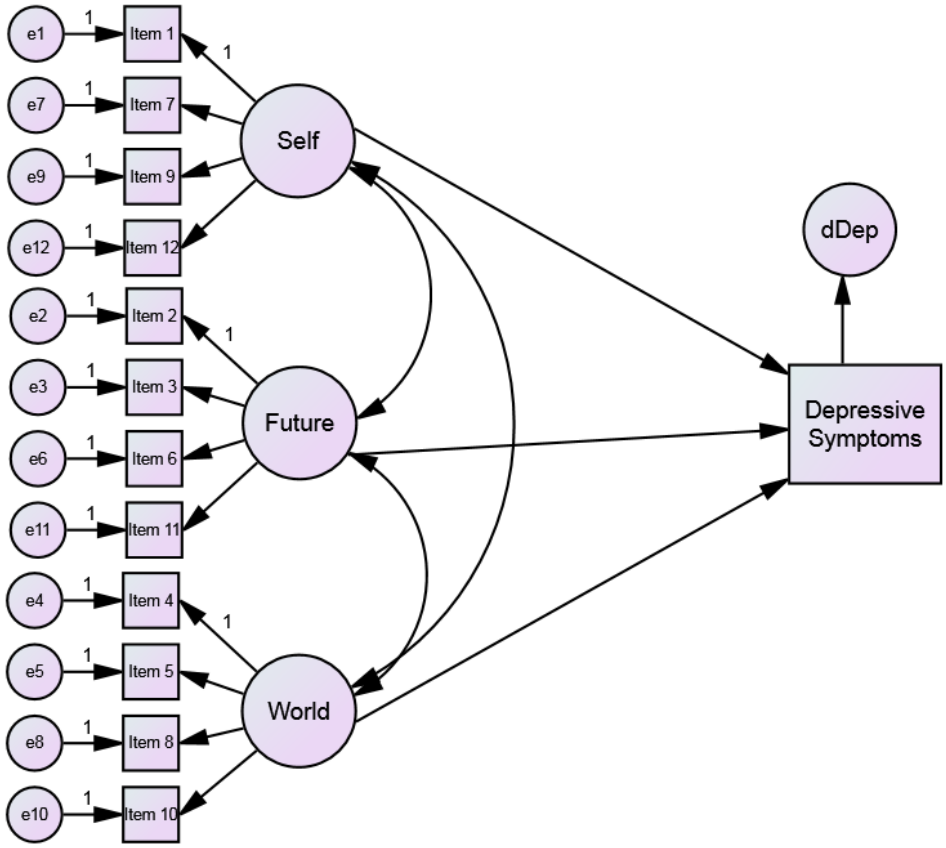

Figure 3. Independent model

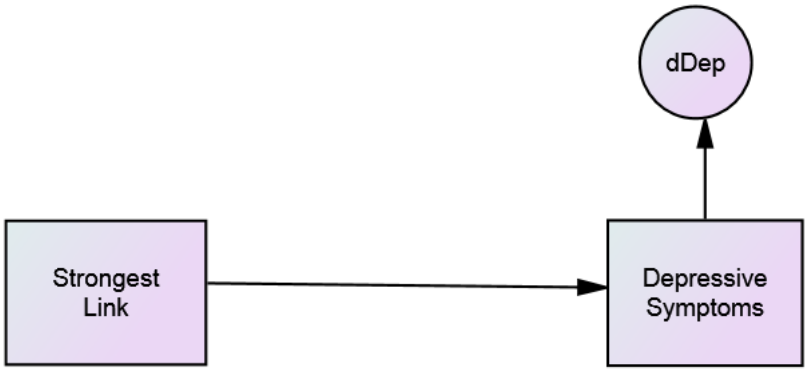

Figure 4. Strongest link model

CURRICULUM VITA

Caroline M. Pittard, M.Ed.
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EDUCATION

Internship	Children's Mercy Kansas City (APA Accredited) Clinical Child Psychology Internship Training Director: Anna Egan, PhD, ABPP	August 2018 – July 2019
Ph.D.	Counseling Psychology (APA Accredited) University of Louisville, Louisville, KY *Dissertation*: The Conceptualization of the Positive Cognitive Triad and Associations with Depressive Symptoms in Adolescents *Status*: Defended, May 2018	In progress
M.Ed.	Counseling Psychology University of Louisville, Louisville, KY	December 2016
B.A.	Psychology Elon University, Elon, NC Magna cum laude, Phi Beta Kappa	May 2013

HONORS AND AWARDS

Pass with Honors, Comprehensive Examinations, Department of Counseling & Human Development, University of Louisville, Louisville, KY — June 2016

Graduate Fellowship, School of Interdisciplinary and Graduate Studies, University of Louisville, Louisville, KY — August 2013 – July 2015

First Place, Kentucky Psychological Association Spring Academic Conference Graduate Research Paper Competition, Paper Title: Teaching Behavior and Depressive Symptoms in School Students — March 2014

CLINICAL TRAINING

Predoctoral Internship

Children's Mercy Hospital (APA Accredited)
Kansas City, MO

Yearlong Rotations August 2018 – present

Outpatient Clinic
Supervisors: Megan Bolch, PhD, Anna Egan, PhD, ABPP, Elizabeth Willen, PhD, & Rachel Moore, PhD

- Perform diagnostic interviews, individual therapy and parent training for children with a wide variety of presenting concerns including ADHD, anxiety, autism, disruptive mood dysregulation disorder and nonadherence to treatment for chronic health conditions
- Establish treatment plans primarily using behavioral and cognitive-behavioral frameworks
- Administer targeted psychological assessments for concerns including ADHD, learning disorders, and disruptive behavior disorders

Evening/Weekend On-Call Service August 2018 – present

- Provide on-call phone and inpatient psychology consultation coverage for evenings and weekends (10 weeks/year) to address urgent needs related to suicidal ideation or attempt, ingestion, conversion disorder, mood, or behavior problems interfering with inpatient care

Four-Month Rotations

Special Needs (August – November)
Supervisors: Cynthia Call, PsyD, Jo Ann (Bo) Youngblood, PhD, Brian Belden, PhD

- Conduct assessment of autism spectrum and related disorders in children ranging from school age to adolescent using ADOS-2 and other standardized assessments
- Conduct outpatient behavior therapy/parent training to address disruptive behaviors (tantrums, aggression, noncompliance), developmental problems (social/communication, toileting, sleep), and rigid/repetitive behaviors
- Provided behavioral consultation to families in the interdisciplinary Down Syndrome Clinic

Behavioral Pediatrics/ADHD (Expected December – March)
Supervisors: Vincent Barone, PhD & Trista Perez-Crawford, PhD

- General Child Management Clinic: Will work with children and parents with common behavior problems such as compliance, sleep, mealtime behaviors, and behavioral concerns at school, using functional behavioral assessment and behavior therapy interventions
- ADHD Assessment and Treatment Clinic: Will conduct diagnostic evaluations and treatment of children with ADHD with an interdisciplinary team

Eating Disorders Clinic (Expected April – July)
Supervisor: Sara Gould, PhD, ABPP

- Will conduct therapy with pediatric patients and their families seeking treatment for eating disorders
- Will conduct diagnostic interviews with parents and patients including use of standardized assessments for treatment planning

- Will observe appointments with other interdisciplinary team providers, including nutrition, social work, medical providers, and family therapists to participate in care coordination

Summer Treatment Program for ADHD (Expected June – July)
Supervisors: Carla Allan, PhD, Simone Moody, PhD, Trista Perez-Crawford, PhD

- Will provide supervision to undergraduate counselors facilitating behavioral management techniques in the summer treatment program, which is based on Pelham's model
- Will conduct daily treatment integrity and fidelity checks as a component of program evaluation, gather data for medication assessments, and develop individualized treatment plans for children that have not responded to the standard treatment within the program
- Rotation experience will include two full clinic days of direct patient contact hours

Practica Experiences

Uspiritus, Psychiatric Residential Treatment Facility
Louisville, KY August 2017 – April 2018
Supervisor: Dan Guy, Psy.D.

- Provided evidence-based individual and family therapy with youth (ages 7 to 12) including Trauma-Focused CBT
- Conducted group therapy with youth (ages 13 to 17)
- Participated in weekly consultation and case conference with psychiatrist, nurse, direct care staff, teachers, insurance case manager, and state social workers

Cardinal Success Program – Nia, Departmental Clinic/Community Mental Health Center
The Nia Center January – August 2017
Louisville, KY
Supervisor: Katy Hopkins, Ph.D.

- Provided evidence-based individual and family therapy to individuals (ages 7 to 50) in an underserved community
- Conducted clinical interviews and administered, scored, and interpreted psychological assessments with children and adults (ages 2 to 30)
- Partnered with a local elementary school in an underserved neighborhood to provide individual therapy to youth (ages 7 to 9)
- Partnered with a pediatric primary care clinic to provide psychological assessments for children referred for suspected developmental delay, autism spectrum disorder, ADHD, oppositional defiant disorder, anxiety, learning and intellectual disability

Cardinal Success Program – Shawnee, Departmental Clinic in a Public Middle & High School
Louisville, KY May 2015 – May 2016
Supervisor: Katy Hopkins, Ph.D. January 2017 – May 2017

- Provided evidence-based individual and family therapy to youth (ages 13 to 18) in an underserved community
- Facilitated multiple group therapy programs including: psychoeducational and supportive groups for pregnant and parenting students, manualized CBT depression prevention groups, and strengths-based groups for students in in-school suspension
- Provided consultation to teachers and school staff regarding student behavior concerns
- Provided crisis support for students and teachers following community and school violence
- Partnered with a local community center to facilitate strengths-based psychoeducational groups for youth during summer break (ages 6 to 18)
- Co-facilitated peer supervision group for master's-level practicum students

Weisskopf Child Evaluation Center, Department of Pediatrics
University of Louisville School of Medicine May 2016 – December 2016
Louisville, KY
Supervisor: Eva Markham, Ed.D.

- Conducted clinical interviews and administered, scored, and interpreted psychological assessments with children (ages 1 to 17) primarily for autism spectrum disorder, developmental delay, intellectual disability, learning disability, ADHD, anxiety, and disruptive disorders
- Conducted clinical interviews and mental status exams for adults receiving genetic counseling (ages 25 to 65)
- Worked as a part of an interdisciplinary team including a developmental pediatrician, speech-language pathologist, occupational therapist, geneticist and nutritionist

The Brook Hospital KMI, Psychiatric Hospital
Louisville, KY August 2014 – April 2015
Supervisors: Stelios Stylianou, Psy.D. & DeDe Wohlfarth, Psy.D.

- Provided evidence-based individual and family therapy to adolescents in the acute and residential units (ages 13 to 17)
- Facilitated dialectical behavior therapy skills groups with adolescents in the residential unit and partial hospitalization program (ages 13 to 17), adults in the dual-diagnosis unit (ages 18 – 65), and adults in the partial hospitalization program (ages 18 – 55)
- Worked as a part of an interdisciplinary team including a psychiatrist, nurse, social worker, psychologist, and direct care staff

PEER-REVIEWED PUBLICATIONS

Amos, D. A., **Pittard, C. M.,** & Snyder, K. E. (2018). Active learning, student performance and perceptions in a material and energy balances course. *Chemical Engineering Education, 52,* 277-286.

Pössel, P., & **Pittard, C. M.** (2018). Integrating the hopelessness model and the response

style theory in an adolescent sample. *Journal of Abnormal Child Psychology,* doi:10.1007/s10802-0180465-z [Published ahead of print].

Harbour, K. E., Adelson, J. L., Karp, K. S., **Pittard, C. M.** (2018). Examining the relationships among mathematics coaches and specialists, student achievement, and disability status: A multi-level analysis using NAEP data. *Elementary School Journal, 118*, 654-679. doi:10.1086/697529

Snyder, K. E., Barr, S. M., Honken, N. B., **Pittard, C. M.,** & Ralston, P. (2018). Navigating the first semester: An exploration of short-term changes in motivational beliefs among engineering undergraduates. *Journal of Engineering Education, 107,* 11-29. doi:10.1002/jee.20187

Pittard, C. M., & Pössel, P. (2017). Inferential style, school teachers, and depressive symptoms in college students. *International Journal of Emotional Education, 9,* 20-36.

Pittard, C. M., Pössel, P., & Smith, R. J. (2015). Teaching Behavior Questionnaire: Verifying factor structure and investigating depressive symptoms in catholic middle and high schools. *Psychology in the Schools, 59,* 892-905. doi:10.1002/pits.21865

Vandermaas-Peeler, M., & **Pittard, C.** (2014). Influences of social context on parent guidance and low income preschoolers' independent and guided math performance. *Early Child Development and Care, 184*, 500-521. doi:10.1080/03004430.2013.799155

Vandermaas-Peeler, M., Boomgarden, E., Finn, L., & **Pittard, C**. (2012). Parental support of numeracy during a cooking activity with four-year-olds. *International Journal of Early Years Education, 20*, 78-93. doi:10.1080/09669760.2012.663237

MANUSCRIPTS UNDER REVIEW

Pittard, C. M., Pössel, P., Adelson, J. L., Sheffield, J., Spence, S. H., & Sawyer, M. G. (Under review). The conceptualization of the positive cognitive triad and associations with depressive symptoms in adolescents.

Adelson, J. L., Cash, K. M., **Pittard, C. M.,** Sherretz, C. E., Pössel, P, & Blackburn, A. D. (Under review). Measuring reading self-perceptions and enjoyment: Development and psychometric properties of the Reading and Me Survey.

Snyder, K. E., **Pittard, C. M.,** Fowler, A., & Watson, C. T. (Under review). "Epic Genetics": An exploration of pre-service helping professionals' (mis)understanding of epigenetic influences on human development.

MANUSCRIPTS IN PREPARATION

Pittard, C. M., Snyder, K., Pössel, P., & Hooper, L. (In preparation). The relationship

between puberty timing, discrimination, and depressive symptoms in the context of stage-environment fit theory.

Berghuis, K. J., Pössel, P., & **Pittard, C. M.** (In preparation). Perceived discrimination and depressive symptoms: Is the cognitive triad a moderator or mediator?

BOOK CHAPTERS

Pittard, C. M., & Pössel, P. (In press). Cognitive distortions. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* New York City, NY: Springer.

Pittard, C. M., & Pössel, P. (In press). Learned helplessness. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* New York City, NY: Springer.

Pössel, P., & **Pittard, C. M.** (In press). Cognitive triad. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* New York City, NY: Springer.

Pössel, P., & **Pittard, C. M.** (In press). Depressive schemata. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* New York City, NY: Springer.

Pössel, P., & **Pittard, C. M.** (In press). Self-referent cognitions. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* New York City, NY: Springer.

PRESENTATIONS

Paper Presentations, Symposia, and Roundtables

Pittard, C. M., Adelson, J. L., Little, C. A., Kelly, K. L., O'Brien, R. Summer program effects on geometry achievement. Roundtable to be presented at the 2019 American Educational Research Association Annual Meeting, Toronto, Canada.

Little, C. A., Kearney, K. L., O'Brien, R., Adelson, J. L., & **Pittard, C. M.** Access and identification: Gifted program identification following early referral for high-potential behaviors. Paper to be presented at the 2019 American Educational Research Association Annual Meeting, Toronto, Canada.

Adelson, J. L., Little, C., & **Pittard, C. M.** (2018, November). *Recognizing potential in the early grades: Supporting opportunities for access.* Paper presented at the 2018 National Association for Gifted Children Annual Convention, Minneapolis, MN.

Adelson, J. L., Kearney, K. L., O'Brian, R., & **Pittard, C. M**. (2018, May). *Early*

attention to advanced potential: Supporting advanced learning in Diverse Populations at K-2. Paper presented at the 2018 Wallace Symposium, Baltimore, MD.

Kearney, K. L., Adelson, J. L., Little, C. A., O'Brian, R., Cash, K., & **Pittard, C. M**. (2018, April). *More of a good thing? One- and two-year summer program effects on mathematics achievement.* Roundtable presented at the 2018 American Educational Research Association Annual Meeting and Exhibition, New York, NY.

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.

Pittard, C. M., & Pössel, P. (2017, April). *Discrimination, negative inferential style, and depressive symptoms in adolescence.* Paper presented at the 2017 Great Lakes Counseling Psychology Conference, Muncie, IN.

Pittard, C. M., (2017, January). *Discrimination as a stressor for adolescents in the model of hopelessness depression.* Paper presented at the Commission for Diversity and Racial Equality January Meeting. University of Louisville, Louisville, KY.

Pittard, C. M., & Pössel, P. (2015, August). *Inferential style, school teachers, and depressive symptoms in college students.* Paper presented as a part of a Collaborative Proposal at the 123rd Annual American Psychological Association Convention. Toronto, Canada.

Pittard, C. M., Pössel, P., & Smith, R. J. (2014, March). *Teaching behavior and depressive symptoms in middle and high School Students.* Paper presented at the Kentucky Psychological Association Spring Academic Conference. Wilmore, KY. First place, Kentucky Psychological Association Spring Academic Conference Graduate Research Paper Competition.

Pittard, C. (2012, September). *Parental guidance of numeracy in context*. Paper presented at the September Symposium on Undergraduate Research and Creative Endeavors, Elon University, Elon, NC.

Poster Presentations

Adelson, J. L., Little, C., & **Pittard, C. M.** (2018, November). *Above-level achievement in the early grades: Classroom and assessment implications.* Poster presented at the 2018 National Association for Gifted Children Annual Convention, Minneapolis, MN.

Berghuis, K. J., Pössel, P., & **Pittard, C. M**. (2017, November). *Does the cognitive triad*

moderate the relation between discrimination and depressive symptoms among adolescents? Poster presented at the 51st Annual Convention of the Association of Behavioral and Cognitive Therapies. San Diego, CA.

Adelson, J. L., Snyder, K. E., **Pittard, C. M**., Frazier, L., & York, H. E. (2017, April). *Improving the diversity of the primary talent pool: Evidence from the Reaching Academic Potential project.* Poster presented at the 2017 American Educational Research Association Annual Meeting and Exhibition, San Antonio, TX.

Pittard, C. M., Snyder, K., E., Pössel, P., & Hooper, L. M. (2017, April). *Examining pubertal timing, racial discrimination from teachers, and depressive symptoms using stage-environment fit theory*. Poster presented at the Society for Research in Child Development Biennial Meeting, Austin, TX.

Berghuis, K. J., Pössel, P., & **Pittard, C. M**. (2017, April). *Does the cognitive triad moderate the relation between discrimination and depressive symptoms among adolescents?* Poster presented at the Kentucky Psychological Foundation Spring Academic Conference, Louisville, KY

Pittard, C. M., Adelson, J. L., Pössel, P., & Blackburn, A. D. (2016, August). *Examining socio emotional well-being and mathematics attitudes in elementary school boys and girls*. Poster presented at the 124th American Psychological Association Annual Convention. Denver, CO.

Pittard, C. M., & Pössel, P. (2015, November). *Teaching Behavior Questionnaire: Investigating depressive symptoms in middle and high school students.* Poster presented at the 49th Annual Convention of the Association of Behavioral and Cognitive Therapies. Chicago, IL.

Pittard, C. M., & Pössel, P. (2015, March). *The effect of school teacher behavior and inferential style on college students' depressive symptoms.* Poster presented at the 2015 Great Lakes Regional Counseling Psychology Conference. Muncie, IN.

Pittard, C. M., & Pössel, P. (2014, August). *Teaching behavior and depressive symptoms in school students.* Poster presented at the 122nd Annual American Psychological Association Convention. Washington, DC.

Pittard, C. (2013, March). *Parent guidance of preschoolers' numeracy across contexts.* Poster presented at the 59th annual meeting of the Southeastern Psychological Association. Atlanta, GA.

Pittard, C. (2013, January). *Parental guidance of numeracy in context.* Poster presented at the National Collegiate Research Conference, Harvard University, Cambridge, MA.

RESEARCH TEAM INVOLVEMENT

ADHD Clinic Outcomes Research
Children's Mercy Hospital August 2018 – present
Supervisor: Carla Allan, Ph.D.

- Research focus: Examining ADHD clinic outcomes and impact of receiving a dyadic treatment with psychologist and physician collaboration

Research Team Member August 2013 – May 2018
Working In and With Schools Lab
University of Louisville, Department of Counseling & Human Development
Supervisor: Patrick Pössel, Dr. rer. soc.

- Collected survey data from students at elementary, middle, and high schools
- Collected biological data (i.e., saliva samples, blood pressure) from students at a high school
- Data entry, data management, and data analyses using SPSS, HLM, Mplus and Amos
- Co-wrote NIH grant submission
- Preparation of manuscripts for publication and conference presentations
- Mentorship of a masters-level student in manuscript writing for publication

Graduate Research Assistant July 2017 – June 2018
University of Louisville, Department of Counseling & Human Development
Supervisor: Jill Adelson, Ph.D.
Grant: Project SPARK (Supporting and Promoting Academic Readiness in Kids)

- Responsible for managing dataset including multiple waves of data collection
- Perform data analyses using SPSS, Mplus, Amos, and HLM for presentation and publication
- Maintain consistent communication with research collaborators at the University of Connecticut during ongoing project work

Graduate Research Assistant May 2017 – April 2018
University of Louisville, Department of Early Childhood and Elementary Education
Supervisor: Jill Jacobi-Vessels, Ph.D.
Grant: Metro United Way Ready 4 K Through Play

- Facilitation of focus group and survey data collection with early childhood educators about kindergarten readiness
- Responsible for transcribing and coding focus group interviews, survey data entry, data management, and data analyses using SPSS
- Coordinated with and visited child development centers to facilitate participant recruitment
- Preparation of manuscripts and presentations

Graduate Research Assistant July 2015 – June 2017
University of Louisville, Department of Counseling & Human Development
Supervisor: Jill Adelson, Ph.D.

- Administered Naglieri Nonverbal Ability Test – 3rd Edition, and Measures of Academic Progress for a research project examining identification of gifted and talented students in elementary schools

- Analyzed data using SPSS, Mplus, Amos, and HLM
- Manuscript and presentation preparation
- Collaborated with researchers at Harvard University and international researchers in Turkey

Graduate Research Assistant July 2015 – June 2017
University of Louisville, Department of Counseling & Human Development
Supervisor: Kate Snyder, Ph.D.

- Coded articles for meta-analyses on interventions for academic underachievement and goal orientation
- Collaborated with University of Louisville Speed School of Engineering faculty on project evaluating teaching practices in engineering
- Developed and facilitated training for the College of Education & Human Development on the use of organizational tools for research
- Participation in Snyder's Motivation & Achievement Research Team which included monthly professional development

Research Team Member September 2013 – August 2014
Mind-Body Lab
University of Louisville, Department of Counseling & Human Development
Supervisor: Patrick Pössel, Dr. rer. soc.

- Collection of survey and biological (i.e., saliva sample and blood pressure) data from caregivers in a local cancer treatment center and cancer caregiver support group

RESEARCH AND TRAVEL GRANTS RECEIVED

Research Grant ($180). Principal Investigator. "Discrimination as a stressor for adolescents in the model of hopelessness depression." Commission on Diversity and Racial Equality, University of Louisville.	May 2016
Travel Grant ($250). Graduate Student Council, University of Louisville.	April 2016
Research Grant ($157). Feb 2016. Co-Principal Investigator, "Discrimination as a stressor in the model of hopelessness depression in adolescents." University of Louisville, College of Education and Human Development, Research and Faculty Development Grant.	February 2016
Travel Grant ($350). Graduate Student Council, University of Louisville.	May 2015
Travel Grant ($100). Research and Faculty Development Graduate Student Travel Match, University of Louisville.	April 2015
Travel Grant ($350). Graduate Student Council, University of Louisville.	May 2014
Student Travel Award ($300). American Psychological Association.	March 2014

TEACHING EXPERIENCE

Instructor, University of Louisville
Masters and Doctoral Level

- ECPY 619, Empirical and Theoretical Foundations of Counseling and Psychotherapy (Fall 2017)
- Mean course evaluation: 4.10/5.00

Teaching Assistant, University of Louisville
Masters and Doctoral Level

- ECPY 629, Theories and Techniques of Counseling (Spring 2016)
- ECPY 755, Hierarchical Linear Modeling (Spring 2016)
- ECPY 765, Structural Equation Modeling (Fall 2016)
- ECPY 605, Human Development (Fall 2014)

Guest Lecture, University of Louisville
Masters and Doctoral Level

- ECPY 670, Psychology of Career Development (March 2016)

SERVICE

Editorial Responsibilities

Assistant Editor, *Gifted Child Quarterly* May 2017 – present

Reviewer, National Multicultural Conference and Summit
July 2018

Reviewer, APA Division 45 Research Conference
March 2018

Student Reviewer, APA Division 17 Program Committee December 2016, 2017

Student Reviewer, APA Division 17 Positive Psychology SIG December 2015

Committee Participation

Citizens Review Panel of Child Welfare, Student Committee April 2017 – May 2018
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

State Advocacy Coordinator July 2016 – July 2018
APAGS Advocacy Coordinating Team

Liaison to the Kentucky Psychological Association Board July 2016 – July 2018
APAGS Advocacy Coordinating Team

Student Representative for Faculty Search January – April 2017
Counseling Psychology Doctoral Program, University of Louisville

University of Louisville Campus Representative July 2015 – July 2016
APAGS Advocacy Coordinating Team

Undergraduate Poster Session Judge April 2015
Kentucky Psychological Association Spring Academic Conference

Graduate Student Council Representative August 2013 – May 2014
University of Louisville

PROFESSIONAL DEVELOPMENT & TRAININGS COMPLETED

Psychological Interventions for Pediatric Chronic Pain with Tonya Palermo, PhD	October 2018
Parent-Child Interaction Therapy (PCIT) for Traumatized Children Web Course, PCIT Training Center	October 2017
HB 309 Mandatory Reporting/Referral Requirements for Professionals: Domestic/Dating Violence, Child Abuse, and Vulnerable Adult Abuse, Kentucky Coalition Against Domestic Violence	June 2017
Neuropsychology for the Non-neuropsychologist, Kentucky Psychological Association	May 2016
Mindfulness and Compassion in Clinical Practice, Kentucky Psychological Association	February 2016
Trans* 101 Training, Spalding University Counseling Center	March 2015
Trauma-Focused Cognitive Behavioral Therapy Web Training	December 2014

PROFESSIONAL MEMBERSHIPS

American Psychological Association (APA)
- *American Psychological Association of Graduate Students (APAGS)*
- *Society of Counseling Psychology (Division 17)*
- *Society of Clinical Child and Adolescent Psychology (Division 53)*
- *Society of Pediatric Psychology (Division 54)*

National Association for Gifted Children (NAGC)