

Effects of Family and Environmental Factors on the Development of Optimism in Children

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Abstract

With all of the recent research connecting optimism to physical well-being, it is logical to wonder when and how the concept of optimism develops in a person. With the lack of research in this area, this project represents a first step at understanding the origins of child optimism by exploring a variety of family and environmental factors believed to influence the development of optimism in children. Kindergarten students were presented with an optimism measure specifically designed for their developmental level. Additionally, the child was presented with a persistence task, where the time the child persevered on an impossible maze was recorded. It was hypothesized that the children's optimism scores and persistence times would be positively correlated, in accordance with the adult literature. Parents of the kindergarteners completed questionnaires dealing with parenting style (verbosity, over-reactivity, and laxness), parent optimism, depression, as well as demographic information. It was predicted that parent optimism would be positively related to child optimism, while ineffective parenting practices and parent depression would be negatively related to child optimism. Although the relationship between child optimism and persistence was in the predicted direction, the statistic failed to reach significance. With respect to family factors, the best model included parent optimism and parent depression, both of which were positively related to child optimism. Results are discussed in terms of future research in optimism development.

Effects of Family and Environmental Factors on the Development of Optimism in Children

The past twenty years have shown a surge of dispositional optimism research in the psychology literature. Much of this research has been in the area of health psychology, where optimism has been shown to be related to several aspects of well-being. Scheier & Carver (1993) give a good review of the health benefits of optimism. They define dispositional optimism as “the belief that good, as opposed to bad, things will generally occur in one’s life” and argue that this trait should remain stable over time. In line with this notion, they show that higher levels of optimism are related to lower incidences of post-partum depression in women, as well as lower levels of distress for college freshmen adjusting to their new lifestyle. In addition to these psychological benefits, Scheier & Carver (1993) also point to certain remarkable physical benefits of optimism. In a study of coronary bypass patients, dispositional optimism was related to a lower incidence of heart attacks during surgery, a faster rate of recovery, and a quicker return to their normal life. With evidence such as this, it is clear that optimism is an important psychological trait to understand.

One question posed by Scheier & Carver (1993) is that of the origin of optimism within a person. As they have pointed out, little research attention has been devoted to this area. Ryback (1970), in a procedure similar to the present study, presented first grade students with a series of short stories. Each story had three possible endings (optimistic, pessimistic, and compromise) from which the child chose the most likely outcome. Prior to story presentation, the child was either induced to feel success (via an easy, relaxed test and verbal praise) or failure (via a difficult, stressful test and verbal reprimand). He found that the manipulation had no effect on optimistic or compromise responses, but that children in the failure condition responded pessimistically significantly more often than children in the success condition. He speculated that continued experience of failure (and its negative consequences) might lead to a permanent shift in dispositional optimism.

Fischer & Leitenberg (1986) endeavored to assess the optimism of elementary school students (ages 9 to 13) and correlate this data with self-esteem and peer popularity data. The scale used to assess optimism in their study was a modified version of the Generalized Expectancy for Success Scale (Fibell & Hale, 1978) that was intended to assess the children's expectancies about distant goals. They found that elementary school children possess the same tendency toward positive expectations (the so-called "optimistic bias") that is found in adults. In addition, the relationships between optimism and the other factors, self-esteem and peer popularity, were weak at best. Fischer & Leitenberg (1986) concluded that success and failure experiences in young children may influence similar situations in the short-term, but not long-term expectations, as was proposed by Ryback (1970).

This apparent discrepancy of opinion between Fischer & Leitenberg (1986) and Ryback (1970) raises another important question: Do the personality traits of young children remain stable enough to predict adult personality traits? Scheier & Carver (1993) discuss dispositional optimism as a trait that remains stable across time and traumatic events, but at what age does it stabilize? Friedman, Tucker, Tomlinson-Keasey, Schwartz, Wingard, & Criqui (1993) attempted to answer this all-important question about the predictive value of childhood personality. Specifically, Friedman et al. wanted to see if childhood personality traits would predict longevity. To accomplish such a task, they used data from one of the longest longitudinal studies on record: L.M. Terman's study of genetic genius. This study, which began in 1921 by Terman and was continued until 1986 by others, recorded massive amounts of data to trace the development of 1,178 bright children. Friedman et al. used data collected in 1922, when the children were on average 12 years old. The data were obtained from parents and teachers and assessed 25 different traits. Friedman et al. factor-analyzed the data to form 6 basic traits: (a) Conscientiousness/Social Dependability, (b) High Motivation/Self-Esteem, (c) Cheerfulness/Humor/Optimism, (d) Sociability, (e) High-

Energy/Activity, and (f) Permanency of Moods. Out of these six factors, two were related to longevity (after controlling for gender, birth year, and intelligence). The Conscientiousness/Social Dependability variable was positively related to longevity, while the Cheerfulness/Humor/Optimism variable was negatively related to longevity. Their interpretation of this latter counterintuitive result is that cheerfulness and optimism might diminish the perception of various health risks. For example, a cheerful and optimistic person might not quit smoking because they are certain it will not harm them. Although this study found relationships with only two of the six factors obtained from the Terman data, it demonstrates the long-term predictive value of childhood personality as no other study has.

Within the relatively small set of studies dealing with childhood optimism, there seems to be little consistency in the ages of the children of interest. For instance, Ryback (1970) studied first-graders, while the Fischer & Leitenberg (1986) and Friedman et al. (1993) looked at children in the range of fourth through eighth grade. By what age, then, should a trait such as optimism be apparent? By definition (Scheier & Carver, 1993), optimism primarily requires a concept of time and the future. Piagetian theory suggests that the sense of time develops in the concrete operational stage, from about age 7 to 12. Thus, by this criterion, the children studied by Ryback (1970) should have been old enough to possess the basic skills for optimistic or pessimistic thinking.

However, there are some developmental researchers who believe that concrete operations can emerge at younger ages. Mossler, Marvin, & Greenberg (1976) showed that 85% of five-year-olds were able to engage in conceptual perspective taking when task demands were lessened. The same group of researchers (Greenberg, Marvin, & Mossler, 1977) also found an earlier emergence of conditional reasoning than postulated by Piaget. They showed that 90% of five-year-olds could reach a logical conclusion based on a given premise, justify their response, and identify a situation where none of the possible responses follow logically from the premise. Finally, Elizabeth Brittan

(1981) found that number, space, and time conceptualization did not emerge simultaneously in children. Since Piagetian concrete operations are usually defined by performance on conservation tasks, temporal understanding may be reasonably developed by the time traditional concrete operations is determined. Given these three studies, it seems plausible that a child's sense of time may be developed by the time the child enters kindergarten.

The goal of the present study was to trace the development of optimism in children via family and environmental factors. It was a direct response to the question of the origin of optimism posed by Scheier & Carver (1993). Contrary to the proposition that repeated experiences of success or failure would gradually alter the development of optimism (Ryback, 1970), the current study explored optimism development in the context of operant conditioning and observational learning. In essence, it was hypothesized that the child learns optimism through interactions with his or her parents. More specifically, it was predicted that parental optimism and depressive symptoms would be strongly correlated with child optimism. As the child witnesses his or her parents' way of dealing with stress and adversity, he or she should acquire the same coping style and expectancy pattern. Another factor predicted to relate to child optimism is parenting style. Ineffective parenting techniques such as losing one's temper, swearing, or hitting (over-reactivity) might lead the child to a more pessimistic coping style. Other ineffective techniques such as lack of consistency in administering discipline (laxness) or forcing the child to explain mistakes (verbosity) may also have a connection to the optimism-pessimism dimension.

An important step that needed to be taken before beginning, however, was to determine exactly how optimism should be measured in children. The scale developed by Fischer & Leitenberg (1986) was constructed as a response to the faults that they found with the Optimism-Pessimism Test Instrument (Stipek, Lamb, & Zigler 1981). The Stipek et al. (1981) measure, however, seemed to be favorable for working with kindergarten students, as it reduces the cognitive

demand on the children while still exploring the nature of the children's expectancies. Thus, the measure created by Stipek et al. (1981) was implemented in a revised form in this study.

In order to add validity to the use of this measure, a persistence task was proposed. Persistence tasks have long been associated with positive future expectancies in adults. In a persistence task, the subject is asked to try to complete a difficult (if not impossible) task. The idea is that people with positive future expectancies (i.e., who believe they will succeed) will persevere for a longer amount of time in the face of adversity than people with negative future expectancies (i.e., who believe they are unlikely to succeed). Carver, Blaney, & Scheier (1979) demonstrated this effect experimentally. They were interested in the relationship between expectancies and self-directed attention, and they used persistence as their dependent measure. Carver et al. (1979) predicted that self-directed attention would increase persistence in subjects manipulated to have a positive outcome expectancy and decrease persistence in subjects manipulated to have a negative outcome expectancy. This prediction was at least in part upheld: self-focus caused a decrease in persistence for subjects in the negative expectancy condition, but did not affect persistence in the positive expectancy condition. In fact, neither of the no-self-focus conditions significantly differed from the self-focus/positive expectancy condition. However, the fact remained that positive expectancies were reliably represented by persistence on an impossible task.

Finally, this study used a sample of kindergarteners, which pushed the Piagetian envelope regarding the emergence of the time concept. However, following the lead of other researchers, this study intended to lower the age limit on some concrete operations in children. It was predicted that the 5-year-old children in our sample would display optimism and pessimism, and that the various family factors mentioned above would be reliable predictors of this variable.

Method

Participants

Child subjects were 21 kindergarten students (age 4-6 years, mean age = 5 years) from the Carnegie Mellon University Children's School, a private laboratory school for preschool and kindergarten students. Additionally, participation was requested from the parents of these children. Of the 42 possible parent participants, only 15 parents responded affirmatively to our request. These 15 parents corresponded to 10 of the 21 children, as 5 children had both parents participating. Child participation was recruited via the guidelines of the Children's School, and parent participation was entirely voluntary. Subjects were not reimbursed for their participation. Child data was collected over a period of three weeks, while parent data was collected over a period of two months.

Materials

Child measures. The Optimism-Pessimism Test Instrument (OPTI; Stipek, Lamb, & Zigler 1981) was used to measure child optimism. With this measure, the child is read 20 short scenarios with ambiguous outcomes. Each story has a corresponding picture that the child looks at. After each story, the child is presented with two possible endings, one positive and one negative. The child is asked to choose which ending is likely to happen.

The measure used in this study was modified in a number of ways from its original form. First, no pictures were used in conjunction with the scenarios. It was determined that pictures containing gender, ethnic, and situational information could potentially bias the children's responses. In addition, the items were reworded to make them more personal to the child. For example, an item that began, "Doug is trying to eat his vegetables..." became, "Imagine that you are trying to eat your vegetables..." This modification again circumvented possibly biasing information, in addition to forcing the child to access his or her own personal expectancies about the future. Also, several of the outcome choices were reworded to make the options more explicit. For

example, an item that ended, “Do you think you will be alone or not?” was changed to, “Do you think you will be alone or will you find a new friend?” Finally, the items in the measure were grammatically simplified for easier comprehension. Some sentences contained upwards of five consecutive phrases and clauses that would be difficult for a child to understand. The revised version of the OPTI used in this study is found in Table 1.

A persistence task was also used with the children. The materials for this task were four mazes, one of which was made unsolvable by closing off the correct path. The mazes were expanded in size so that each maze filled a normal sheet of paper. An example maze, the unsolvable maze, is displayed in Figure 1.

Parent measures. In addition to demographic information, the parents completed a number of other questionnaires. The first was the Parenting Scale (Arnold, O’Leary, Wolff, & Acker 1993). The Parenting Scale is a 30-item measure that addresses three important factors associated with ineffective discipline: laxness, over-reactivity, and verbosity. In this measure, parents read a leading statement (e.g. “When we’re not at home...”) followed by a 7-point Likert scale with behavioral anchors on either end (e.g. “I handle my child the way I do at home.” and “I let my child get away with a lot more.”).

The second measure that the parents completed was the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges 1994). LOT-R is a 10-item measure of dispositional optimism. Subjects read a statement about themselves (e.g. “In uncertain times, I usually expect the best.”) and are asked to rate the extent to which they agree with the statement. They respond on a scale of 1 (“Strongly disagree”) to 5 (“Strongly agree”) for each statement.

The final measure completed by the parents is the Center for Epidemiological Studies Depression Scale (CES-D; Radloff 1977). The CES-D is designed only to identify depressive symptoms in people, not to diagnose clinical depression. Similar to the LOT-R, subjects read a

statement about themselves (e.g. “I felt that everything I did was an effort”) and determined how closely that statement matched their own feelings and behaviors over the previous two weeks. The responses ranged from 0 (“Rarely or none of the time (less than 2 days)”) to 3 (“Most of the time (10 to 14 days)”). In this study, the 10-item version of the CES-D was used.

Procedure

Parent questionnaire packs were sent home via the Children’s School approximately two months prior to the beginning of the child portion of the study. One pack was sent home to each family. Each pack contained a letter requesting the parents’ participation and two sets of questionnaires, one for each parent. The parents each received two consent forms (one to return and one to keep), a demographic questionnaire, the Parenting Scale, LOT-R, and CES-D. The final completed questionnaires were received by the experimenter approximately two weeks after the beginning of the child portion of the study.

The experimenter met with the child participants individually in one of two research rooms located at the Children’s School during normal school hours. The experimenter told the child that they would be playing two games together, the first being the Imagination Game. The Imagination Game corresponded to the administration of the revised OPTI. In order to maintain the children’s attention throughout the OPTI administration, a secondary task was added. The task consisted of twenty note cards, numbered 1 to 20 on the back and decorated with stickers on the front. The child was allowed to “choose” the order of the scenarios by selecting a card before each scenario. In actuality, the experimenter read the items in the same order for each child regardless of the order chosen by the child. The task simply engaged the children and gave them a sense of participation in a game. After each scenario, the experimenter recorded whether the child responded optimistically or pessimistically. The Imagination Game took approximately 10 to 15 minutes to complete.

Upon completion of the Imagination Game, the children were informed that the second game would be a Maze Game. Subjects were asked whether they had done mazes before. If they had not, the experimenter explained the concept while demonstrating on an example maze. Subsequently, subjects were told to try to trace from the circle to the star on each maze. Additionally, they were told that some of the mazes would be easy and others might be difficult. They were told to work on each maze for as long as they liked until they solved the maze or wished to move on to the next maze.

The first maze presented to the children was one of the easier mazes, in order to familiarize them with the task. The second maze was the impossible maze, and the experimenter warned the children that this was one of the hard mazes and reminded them that they could move on to the next maze if they were having trouble. As soon as the child began working on the maze, the experimenter began timing using a digital stopwatch. The timer was stopped when the child expressed a desire to move on to the next maze. The experimenter reassured the child that this was the hardest maze and that few people actually solve it. Finally, the child was presented with two additional easy mazes to restore self-confidence. The Maze Game took approximately 5 minutes to complete. Each child was then thanked for their participation and returned to class. A study description was sent home with the child to debrief the parents on the nature of the study.

Results

Child Measures

Several pieces of data were collected for the children, including their OPTI scores, maze persistence times, age, and gender. Prior to analysis, raw scores from the OPTI measure were converted to fractional scores (i.e., number of optimistic responses out of the total number answered). The reason for this adjustment was that two of the children responded to some of the scenarios neither optimistically nor pessimistically (e.g., “I don’t know”), even after the

experimenter repeated the scenario. For one of the children this corresponded to four items, and for the other child only one item. The remaining analyses were performed using this OPTI fraction.

The main purpose for analyzing the children data independent of the parent data was to see whether the predicted correlation existed between OPTI scores and maze persistence. Preliminary analyses showed the mean OPTI fraction to be 0.77 with a standard deviation of 0.13, while the maze times had a mean of 96.6 sec and a standard deviation of 63.7 sec. It appeared that there was high variability in both measures, particularly maze times, thus making it more difficult to obtain a significant correlation. A plot of OPTI fraction vs. maze time (Figure 2) demonstrated this relationship more clearly. This plot showed a general tendency for OPTI scores to increase with maze persistence, but statistical analysis was needed to test the significance of this relationship. Pearson correlational analysis showed that this relationship is not statistically significant ($r = 0.213$, $p > 0.3$, ns).

In order to account for the high variance of both measures, median splits were performed to make the two dependent variables categorical. This procedure created four categories of people: low OPTI/low persistence, low OPTI/high persistence, high OPTI/low persistence, and high OPTI/high persistence. Translating our hypotheses to these categories, it was predicted that the congruent (high/high and low/low) groups should be statistically more prevalent than the incongruent (high/low and low/high) groups. This hypothesis was tested using a Chi-Square analysis, which found no significant differences among the four groups ($\chi^2(3) = 1.29$, $p > 0.7$, ns). In fact, although the difference was not significant, there were more children in the incongruent groups than in the congruent groups.

The remainder of the child analyses were aimed at the relationship between the available demographic factors and the two dependent variables. Separate t-tests showed that there was no significant effect of gender on either OPTI scores or maze persistence times. Similarly,

correlational analyses showed that the children's ages (measured in weeks old at the time of testing) were not significant predictors of either OPTI scores or maze times.

Parent Measures

In addition to the child data, several pieces of information came from the parent questionnaires. These data included the desired measures of parenting style (verbosity, over-reactivity, laxness, and overall), parent optimism, and parent depression, as well as several demographic variables. The purpose of the parent-only analyses was to test for relationships between the demographic details and the parent measures of interest (parenting style, optimism, and depression). Any results that emerged in these analyses would be considered when relating parents and children.

Several important results came from analyzing the parent information. First, noting that every participating parent was the child's biological parent and that every participating parent was married or living together as married, these demographic variables were eliminated from further analysis. Additionally, separate independent samples t-tests found no significant gender differences on any of the dependent variables ($|t(13)| < 1.1$, $p > 0.2$ in all cases). Thus, when comparing a parent variable to a child variable, the individual parent scores could be collapsed across gender to create a single value for each family. This result greatly simplified the task of relating parent and child variables in later analyses. Finally, a correlation matrix was constructed, which included the remaining demographic factors, the individual parenting style dimensions, parent optimism, and parent depression; it showed no significant relationships, except for correlations among the components of the parenting scale.

Relating Child and Parent Measures

The analyses relating children to parents only involved those children who had at least one parent participating. Thus, it was meaningful to see whether the children's OPTI fractions were

better correlated to their maze times under this restriction. Although the quality of the relationship improved, it still did not attain statistical significance ($r = 0.41$, $p > 0.2$, ns). Additionally, none of the parent demographic variables was significantly related to either OPTI scores or maze times.

A regression was performed to relate all of the parenting factors (laxness, over-reactivity, verbosity, overall parenting, optimism, and depression) to the children's persistence times. None of these regression coefficients approached significance, so no further analysis was done relating parent measures to maze times.

The next major analysis relating parent data to child data was a linear regression of all of the parent factors onto the children's OPTI fractions. Prior to performing the regression, all of these variables were converted to standard scores. In this equation, parent optimism was positively related to OPTI scores, however the significance was only marginal ($\beta = 1.03 \pm 0.41$, $p < 0.09$). Surprisingly, however, parent depression was also positively related to OPTI scores, and this coefficient did reach a standard level of significance ($\beta = 1.24 \pm 0.36$, $p < 0.05$). No other coefficients approached significance. This model explained approximately 81% of the variance in OPTI scores.

In order to further explore the significance of these effects, the regression was repeated with only these two factors. Under this model, both coefficients reached statistical significance. The regression equation was:

$$OPTI = 0.71 \pm 0.27 \cdot Optimism + 0.98 \pm 0.27 \cdot Depression \quad (1)$$

The standardized optimism and depression coefficients were 0.71 ± 0.27 and 0.98 ± 0.27 , with significance levels of $p < 0.05$ and $p < 0.01$, respectively. This two-factor model explained about 66% of the variance in OPTI scores.

This result suggested that somehow parent optimism and depression were not only related to OPTI scores, but might also be related to each other. Even though the zero-order correlation

between them did not approach significance ($\beta = -0.36, p > 0.19$), the specific relationship was more closely inspected. A plot of parent depression as a function of parent optimism (Figure 3) shows not a linear relationship, but rather an inverted quadratic. Including a quadratic optimism term in the regression on depression returned a highly significant relationship:

$$Depression = (0.64 \pm 0.25) + (\beta 0.94 \pm 0.25) \cdot Optimism + (\beta 0.69 \pm 0.19) \cdot Optimism^2 \quad (2)$$

where $p < 0.05$, $p < 0.005$, and $p < 0.005$ for constant, optimism, and optimism squared respectively. Accounting for 58% of the variance in depression, this quadratic optimism model suggests that both high and low optimism parents are low in depression, while parents moderately optimistic are actually higher in depressive symptoms.

Taking this relationship into consideration, the relationship between optimism, depression, and OPTI scores was reevaluated. However, neither adding a quadratic optimism term nor an optimism-depression interaction term improved the model over Equation 1. Thus, Equation 1 was maintained as the best model for family factors influencing child OPTI scores.

Discussion

This study was intended to test two major hypotheses. The first of these hypotheses was that, as has been shown in the adult literature, child optimism would be related to persistence time on a difficult or impossible task. The second hypothesis was that the extent to which kindergarteners expressed optimism or pessimism was a function of a variety of family and environmental factors. Results supporting the latter hypothesis were much more conclusive than for the former in this study.

There are several reasons that the children's OPTI scores would not be statistically related to their persistence times. First of all, many extraneous factors could have been influencing performance on the two tasks. For example, the experimenter noted a wide variation in the speed with which the children progressed through the mazes. This variation might have interfered with

the intended measure of persistence. To illustrate this influence, a fast child might parse the entire maze in the time that a slower child traces only a single path. Any possible difference in persistence between these children would be consumed by their individual differences in ability. Perhaps a better measure of persistence for the children would have been the number of paths traced through or the number of attempts at solving the maze. Still yet, a baseline maze speed rating for each child (possibly obtained by timing one of the solvable mazes) would have accounted for differences in ability in the maze task.

An alternative interpretation would be that the children in our sample had not yet developed optimistic or pessimistic tendencies. Several pieces of evidence point away from this explanation, however. First, despite the lack of significance, the general trend (Figure 2) showed persistence times increasing with OPTI scores. Secondly, the fact that some of the parent measures reliably predicted OPTI scores (but not maze times) suggests that the OPTI measure was truly measuring child optimism levels, while the persistence task was a function of too many uncontrolled factors. Another possible explanation, which relates to the findings of Mossler et al. (1976) and Greenberg et al. (1977), is that the concept of optimism has developed in some, but not all of the students in the sample.

This study was plagued throughout by what is probably the most common complaint among researchers: small sample size. The number of children in the sample was limited by the size of the kindergarten class at the Children's School. In theory, the number of parents would then be limited by twice that number (i.e., two parents per child). However, response from the parents was much lower than anticipated. In addition to the size of the sample, the children in this study tended to be from elevated SES households with highly educated parents. A repetition of this study using a sample such as that of Fischer & Leitenberg (1986)—all appropriately aged children from three

public school districts—might provide the number and diversity of subjects necessary for more general relationships among the factors.

Despite the sample, however, some significant relationships did emerge from the data. The regression equation (Equation 1) showed that together parent optimism and parent depression accounted for two-thirds of the variance in OPTI scores. The significance of the parent optimism coefficient confirmed the hypothesis that parent optimism would be related to child optimism. This result certainly fits with the explanation that children learn optimism by observing their parents' coping strategies and expectations. However, as the study is correlational, causal inference is not possible.

While parent depression was also hypothesized to be related to child optimism, the sign of the coefficient was the opposite of what was predicted. This result is intriguing and is open to interpretation. It would seem that these children might be too young to perceive the negative consequences of their parents' depressive symptoms and modify their own behavior to avoid such consequences, although this type of learning may be common among adults. Another explanation is that depressive symptoms reported in the CES-D (since it is a non-clinical measure) do not necessarily have negative consequences. The work of James Pennebaker (see Pennebaker, 1997 for a review) shows that disclosure of negative self-information can lead to stress reduction (along with a plethora of additional benefits). Thus, parents better able to disclose such negative information might have less stress and operate under fewer cognitive demands than those withholding the same information. These parents would then be more pleasant as a result of the reduced stress and more perceptive to the needs of their children as a result of the reduced cognitive load. None of these possibilities are provable with this correlational design, however, and additional research would be needed to test their validity.

A final note of interest was the peculiar quadratic relationship between parent optimism and parent depression. Figure 3 suggests that parents at both the high and low ends of the optimism scale are low in depression, while the parents moderately optimistic show higher signs of depressive symptoms. One might expect high levels of optimism to be related to low levels of depression, but it is the low depression found at the low end of the optimism spectrum that seems counterintuitive. Examining the figure, however, it seems that this relationship could have been a statistical anomaly associated with the small sample. The person lowest on the optimism scale may have had a particularly low optimism score for their depression level, or vice versa. Without this point, it would seem that the quadratic relationship would disappear. It is difficult to say whether the linear relationship would be significant in this case, but the quadratic term almost certainly would not be.

This study has shown to be a moderately successful first step at measuring child optimism and the family factors that influence its development. With an additional measurement of baseline maze speed, it seems that the persistence task might correlate nicely with OPTI scores. It also seems likely that a significant fraction of the kindergarten sample have developed a concept of optimism. In addition, a repetition of this study with a larger, more diverse sample could refine the relationships uncovered in this study and expand the understanding of optimism development.

References

- Arnold, D.S., O'Leary, S.G., Wolff, L.S., & Acker, M.M. (1993). The Parenting Scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment, 5*, 137-144.
- Brittan, E. (1981). Number, space, and time conceptualization: The role of sensorimotor activity. *The Journal of Genetic Psychology, 139*, 307-308.
- Carver, C.S., Blaney, P.H., & Scheier, M.F. (1979). Reassertion and giving up: The interactive role of self-directed attention and outcome expectancy. *Journal of Personality and Social Psychology, 37*, 1859-1870.
- Fibel, B. & Hale, W.D. (1978). The generalized expectancy for success scale—A new measure. *Journal of Consulting and Clinical Psychology, 46*, 924-931.
- Fischer, M. & Leitenberg, H. (1986). Optimism and pessimism in elementary school-aged children. *Child Development, 57*, 241-248.
- Friedman, H.S., Tucker, J.S., Tomlinson-Keasey, C., Schwartz, J.E., Wingard, D.L., & Criqui, M.H. (1993). Does childhood personality predict longevity? *Journal of Personality and Social Psychology, 65*, 176-185.
- Greenberg, M.T., Marvin, R.S., & Mossler, D.G. (1977). The development of conditional reasoning skills. *Developmental Psychology, 13*, 527-528.
- Mossler, D.G., Marvin, R.S., & Greenberg, M.T. (1976). Conceptual perspective taking in 2- to 6-year-old children. *Developmental Psychology, 12*, 85-86.
- Pennebaker, J.W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*, 162-166.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.

Ryback, D. (1970). Optimism-pessimism as a consequence of success or failure in children.

Psychological Reports, 26, 385.

Scheier, M.F. & Carver, C.S. (1993). On the power of positive thinking: The benefits of being

optimistic. *Current Directions in Psychological Science*, 2, 26-30.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism

(and trait anxiety, self-mastery, and self-esteem): A re-evaluation of the Life Orientation

Test. *Journal of Personality and Social Psychology*, 67, 1063-1078.

Stipek, D.J., Lamb, M.E., & Zigler, E.F. (1981). OPTI: A measure of children's optimism.

Educational and Psychological Measurement, 41, 131-143.

Terman, L.M. & Oden, M.H. (1947). *Genetic studies of genius: IV. The gifted child grows up:*

Twenty-five years follow-up of a superior group. Stanford, CA: Stanford University Press.

Table 1

Optimism-Pessimism Test Instrument – Revised

1. Imagine that you are trying to eat all of your vegetables. If you finish them, your aunt has promised you a dessert that you have never tasted. Do you think you will like the dessert or will it taste bad?
2. Imagine that you and a friend are walking home from school. You suddenly see something shiny near a stream, but you're not sure what it is. Do you think you will find a shiny new quarter or just part of an old tin can?
3. Imagine that you have been learning to play the trumpet. Tomorrow you are playing in a contest. Do you think that you are going to win a prize tomorrow or do you think you will lose?
4. Imagine that the baseball / softball season is just beginning. This year you will be playing in the older league for the first time. Do you think you will play badly or will you play well?
5. Imagine that you are riding on your bicycle when you suddenly see a \$5.00 bill blow in front of you. Will the money blow away before you can get to it or will you catch it?
6. Imagine that you have been looking for your cat all day. You're afraid that if you don't find her today, she will be stuck without food. Do you think you will find your cat or will your cat stay hidden?
7. Imagine that your parents just left you at nursery school for the first time. You are so sad that you start to cry. The teacher picks you up and tries to make you feel better. You are afraid because your brother said nursery school was horrible. Do you think you are going to be sad at school or will you like it there?
8. Imagine that you and your friend spent all day collecting bird's eggs. You found so many eggs that you had to leave some where you found them. Now you are worried that someone may have taken them. Do you think your eggs are stolen or are you looking in the wrong spot?
9. Imagine that your friend is moving out of the house next door. You are hoping that a new boy or girl your age will move in that you can play with—otherwise you will be all alone on the block. Do you think you will be alone or will you find a new friend?
10. Imagine that you went to the store for your mother. On the way home, you can't find the money you had left over. You are looking for the change in the street. Do you think you lost the change or do you think you will find it?
11. Imagine that you are trying to carry home a heavy paper bag. You're trying to carry it without the bag breaking. Do you think you'll get the bag home okay or do you think the bag will break?
12. Imagine that you have just moved into a new home, and you are taking a walk around the block. Then you meet three other children from the neighborhood. Two of them don't look very friendly. Do you think they'll be mean to you or do you think they will want to make friends?
13. Imagine that you just saw a beehive behind a tree. You are afraid that one of the bees will sting you. Do you think that you will be able to get home without a bee sting or will one of the bees get you?
14. Imagine that you like to play ball with your friends. But every time you go to play you have to sit and watch because there are too many children who want to play. Do you think you will have to watch again today or do you think that you'll get a chance to play?
15. Imagine that somebody just gave you something to eat that you have never had before. Do you think you are going to like it or do you think you are going to hate it?
16. Imagine that you found a little puppy in the park. The puppy doesn't have a home, and your parents won't let you keep the puppy. Do you think you will be able to find a new home for the puppy or will you have to leave the puppy in the park?
17. Imagine that your mother took you and a friend to a sleep-over camp for the first time. None of the other children are there yet. You wonder if you are in the wrong place! Do you think you are in the wrong place and the other children won't come or do you think the other children will come soon?
18. Imagine that you are waiting for your friend to give you a turn with the jump rope. Recess is going to be over soon, and you are afraid that you won't get to jump rope before the bell rings. Will the bell ring before you get a turn or will you have a chance to jump rope?
19. Imagine that you and your family are at the beach for the day. When your father left you and your older sisters, he gave your sister some money to buy lunch. Now you can't find the money near the towel where you left it. Do you think you will find the money in the sand or do you think you'll have to stay all day without food?
20. Imagine that you and your friends are all drawing pictures for the local art contest tomorrow. First prize is a big box of paints and crayons, which you have wanted for a long time. Do you think you will win the prize or will someone else win it?

Figure Captions

Figure 1: Unsolvable maze presented to the children as part of the persistence task. As in all four mazes, the circle represented the starting point and the star represented the target point.

Figure 2: Plot of maze time (in seconds) vs. OPTI fraction.

Figure 3: Plot of parents' depression scores vs. optimism scores, including the regression curve representing Equation 2.





