

**Draft Summary
Preliminary Findings of the PATHS Curriculum**

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**Jason Scott Ph. D.
Rochester Institute of Technology**

**Greg Drake
Rochester Institute of Technology
Center for Public Safety Initiatives**

Background Project Information

Paths Curriculum

The Promoting Alternative Thinking Strategies (PATHS) program is designed to aid youth in development of their emotional competence. It operates under the assumptions that: a child's ability to understand emotions is related to their self control and, a child's ability to understand their own and other's emotions aids in their ability to problem solve. The PATHS curriculum includes supplemental workbooks that offer activities, ideas, pictures, and scripts for teachers. These workbooks cover lessons in self-control, emotional understanding, self esteem support, relationships, and problem solving. School #33 used an enhanced delivery of the PATHS curriculum, engaging PATHS 'coaches' (or Intervention Specialists) from Family Resource Centers of Crestwood (part of Hillside Family of Agencies) that worked directly with the teachers instituting the curriculum. These coaches would aid the teachers with the curriculum, and help organize applied classroom problem solving strategies. Their role as parent educators also included working directly as a resource to the families of identified students in those classrooms, providing monthly home visits to support the parents in their reinforcement of the PATHS principles.

T-CRS rating system

The Teacher-Child Rating System (T-CRS) relies on students' teachers to evaluate and identify which students are at risk of having behavioral problems in a school environment (NA). Teachers evaluate students based on various metrics of four socio-emotional adjustment dimensions. The first, Task Orientation, measures the skills a student needs to focus in a school environment (NA). The second dimension, Behavior Control, measures a student's ability to adapt to limits imposed by teachers (NA). The adjustment dimension Assertiveness, gauges a student's ability and confidence in interacting with peers (NA). The final dimension, Peer Social Skills, measures a student's likability amongst peers. All responses are captured in a 5-point Likert scale and compiled into a 0-40 point measure for the four adjustment dimensions, with students scoring higher being the least prone to having problems.

Brief Resiliency Checklist

The PATHS curriculum was implemented by school #33 in the 2008-2009 school year and again in the 2009-2010 school year. In both years, students who scored particularly low in the T-CRS were selected for home visits by Crestwood staff. The families of these students were asked to complete a Brief Resiliency Checklist (BRC) with the home visit staff. When the home visits began, the families completed a Lifetime Initial Version of the BRC, asking families about current situations and childhood information about the students. In the spring, the families filled out a Present Status of the BCR, asking the same questions of the families as the Lifetime Initial Version without asking about childhood risk factors. The checklist asked families to list a number of school adjustment risk and protective factors. Risk factors included childhood disorders and family stress factors, and protective factors included child social skills and familial protective factors. The individual checklists resulted in a net resiliency score for the students, with higher score indicating less adjustment problems for those students.

Preliminary PATHS Data

Figure 1 is a depiction of various PATHS curriculum students' change in the four socio-emotional adjustment factors measured by the Teacher-Child Rating scale for the first year, 2008-2009, of the program. This table used a T-test statistical measure to determine which PATHS students improved or worsened. The entire sample, males, females, fourth graders, thirds graders, or combinations (i.e. 3rd grade females or 4th grade males, etc.) were examined for changes in the adjustment factors. In regards to Task Orientation, only females as a whole decreased in the T-CRS. Males, however, showed an increase in this adjustment dimension. In regards to Behavioral Control, the PATHS group's score as a whole worsened. In particular, females, 4th graders, 4th grade females, and 4th grade males worsened. No groups showed a statistically significant change in the Assertiveness dimension. In the Peer Social adjustment dimension, only females as a whole showed a change, as they scored lower after the program than before the program began.

Fig. 1

Results for the First Year RSS PATHS Curriculum: T-Test Showing Subgroups and their Change in Four Socio-Emotional Adjustment Dimensions as Measured by T-CRS*			
Adjustment Dimension and Sample Subgroup***	Fall and Spring Mean Scores	Change	T-Score
Task Orientation			
Females (n = 89)	28.75 → 26.06	-2.67	2.02
Males (n = 110)**	23.15 → 25.25	+2.09	1.77
Behavioral Control			
Entire Sample (N = 199)	27.45 → 25.65	-1.80	2.06
Females (n = 89)	30.15 → 25.39	-4.75	4.21
4 th Graders (n = 113)	28.48 → 25.73	-2.75	2.45
4 th Grade Females (n = 50)	30.84 → 27.90	-2.94	3.39
4 th Grade Males (n = 63)	26.60 → 24.02	-2.59	3.29
Assertiveness			
No sub-group showed a statistically significant change in this dimension			
Peer Social			
Females (n = 89)	31.61 → 28.65	-2.96	3.20
*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown			
**Shows a change with a P-value of .08			
***Males, Females, 3 rd graders, 4 th Graders, and combinations of these groups were examined for changes in the listed adjustment dimensions			

Figure 2 is a depiction of various PATHS curriculum students' change in the four socio-emotional adjustment factors measured by the Teacher-Child Rating scale for the second year, 2009-2010, of the program. This table used a T-test statistical measure to determine which PATHS students improved or worsened. The same groups were examined for changes in adjustment factors in figure 2 as were in figure 1. In the second year of the program, no groups showed a statistically significant change in the adjustment dimension of Task Orientation. In regards to Behavioral Control, the PATHS group's score as a whole worsened. In particular, males, 4th graders, and 4th grade males worsened. The PATHS students as a whole scored higher in the Assertiveness dimension after the second year of the program. No group showed a statistically significant change in the Peer Social adjustment dimension for the second year of the program.

Fig. 2

Results for the Second Year RSS PATHS Curriculum: T-Test Showing Subgroups and their Change in Four Socio-Emotional Adjustment Dimensions as Measured by T-CRS*			
Adjustment Dimension and Sample Subgroup***	Fall and Spring Means	Change	T-Score
Task Orientation			
No sub-group showed a statistically significant change in this dimension			
Behavioral Control			
Entire Sample (N = 181)	26.79 → 25.57	-1.22	2.70
Males (n = 99)	24.46 → 22.88	-1.59	2.37
4 th Graders (n = 89)	27.09 → 24.85	-2.24	3.51
4 th Grade Males (n = 48)	26.25 → 23.38	-2.88	3.07
Assertiveness			
Entire Sample (N = 181)	27.56 → 28.46	+0.91	2.51
Females (n = 82)	27.79 → 28.98	+1.18	2.28
5 th Graders (n = 92)	27.58 → 29.13	+1.55	2.86
5 th Grade Females (n = 41)	28.10 → 30.00	+1.90	2.43
Peer Social			
No sub-group showed a statistically significant change in this dimension			
*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown.			
***Males, Females, 3 rd graders, 4 th Graders, and combinations of these were examined for changes in the listed adjustment dimensions			

Where Figures 1 and 2 give an overview of how the PATHS curriculum students performed over the years of the program, they do not give a holistic representation of the effectiveness of the PATHS curriculum. In order to gain insight as to how the PATHS students performed, this analysis compared those students' T-CRS scores to the T-CRS scores of a control group of 3rd, 4th, and 5th grade students who did not participate in the PATHS curriculum.

Figures 3 and 4 show the fall mean scores for the PATHS Students and the control group of students for the first and second years of the program, respectively. These mean scores show the baseline for the students before the PATHS program began. In figure 3 the control group of third graders scored higher in the Task Orientation and Assertiveness adjustment dimensions. Also, the mean scores for the other adjustment factors in the two groups in both figure 3 and figure 4 are statistically similar, meaning that the two groups started off in relatively the same place before the program was implemented.

Fig. 3

T-test Results Comparing Fall Socio-Emotional Adjustment Dimensions as measured by the T-CRS between 3rd and 4th grade PATHS Students from 2008-2009 and 3rd and 4th graders from a Control Group of Students*				
Adjustment Dimension	3rd Graders		4th Graders	
	PATHS Mean	Control Mean	PATHS Mean	Control Mean
Task Orientation	25.42	28.43	No Sig. Difference	
	T-Score: 2.30			
Behavioral Control	No Sig. Difference		No Sig. Difference	
Assertiveness	27.99	30.54	No Sig. Difference	
	T-Score: 2.59			
Peer Social	No Sig. Difference		No Sig. Difference	

*Only those differences that were statistically significant with a T-Score of 1.96 or greater are listed, other differences are denoted with No Sig. Difference

Fig. 4

T-test results Comparing Fall Socio-Emotional Adjustment Dimensions as measured by the T-CRS between 4th and 5th grade PATHS Students from 2009-2010 and 4th and 5th graders from a Control Group of Students*				
Adjustment Dimension	4th Graders		5th Graders	
	PATHS Mean	Control Mean	PATHS Mean	Control Mean
Task Orientation	No Sig. Difference		No Sig. Difference	
Behavioral Control	No Sig. Difference		No Sig. Difference	
Assertiveness	No Sig. Difference		No Sig. Difference	
Peer Social	No Sig. Difference		No Sig. Difference	

*Only those differences that were statistically significant with a T-Score of 1.96 or greater are listed, other differences are denoted with No Sig. Difference

Figures 5 and 6 show the mean scores in the socio-emotional adjustment dimensions for the PATHS students and the control group of students for the first and second year of the program, respectively. The two groups in both figures show no statistical differences in any of the adjustment dimensions. Seeing that the control group began the year significantly higher than the PATHS students and finished the year on par with the same students suggests that the 3rd grade students who partook in the first year of the PATHS curriculum either improved in the adjustment dimensions of Task Orientation and Assertiveness more so than the students in the control group, or the PATHS students worsened less than did the control group. Regardless of which took place, it appears that the first year of the PATHS curriculum may have been a benefit to the 3rd grade students involved regarding the adjustment factors of task orientation and assertiveness.

Fig. 5

T-test Results Comparing Spring Socio-Emotional Adjustment Dimensions as measured by the T-CRS between 3rd and 4th grade PATHS Students from 2008-2009 and 3rd and 4th graders from a Control Group of Students*				
Adjustment Dimension	3rd Graders		4th Graders	
	PATHS Mean	Control Mean	PATHS Mean	Control Mean
Task Orientation	No Sig. Difference		No Sig. Difference	
Behavioral Control	No Sig. Difference		No Sig. Difference	
Assertiveness	No Sig. Difference		No Sig. Difference	
Peer Social	No Sig. Difference		No Sig. Difference	

*Only those differences that were statistically significant with a T-Score of 1.96 or greater are listed, other differences are denoted with No Sig. Difference

Fig. 6

T-test Results Comparing Spring Socio-Emotional Adjustment Dimensions as measured by the T-CRS between 4th and 5th grade PATHS Students from 2009-2010 and 4th and 5th graders from a Control Group of Students*				
Adjustment Dimension	4th Graders		5th Graders	
	PATHS Mean	Control Mean	PATHS Mean	Control Mean
Task Orientation	No Sig. Difference		No Sig. Difference	
Behavioral Control	No Sig. Difference		No Sig. Difference	
Assertiveness	No Sig. Difference		No Sig. Difference	
Peer Social	No Sig. Difference		No Sig. Difference	

*Only those differences that were statistically significant with a T-Score of 1.96 or greater are listed, other differences are denoted with No Sig. Difference

Figures 7 and 8 offer an alternate way to compare the progress of the PATHS students to the progress of the control group of students. They show the change over the course of the year in the mean scores for the adjustment dimensions among 3rd, 4th, and 5th grade PATHS students and 3rd, 4th, and 5th grade students from the control group. In these charts one can infer, if either the control group mean or the PATHS group mean changes significantly over the year, which group faired better. In both figure 7 and figure 8 the 4th grade PATHS students showed a significant decrease in the Behavioral Control adjustment dimension, indicating that those in the program worsened while those outside of the program remained constant over the year. Also, figure 8 shows that 5th graders in the second year of the PATHS program improved in the Assertiveness adjustment dimension while 5th graders in the control group remained constant.

Fig. 7

T-Test results for Changes Between Fall and Spring Means in Four Socio-Emotional Adjustment Dimensions among 2008-2009 3rd and 4th Grade PATHS Curriculum Students and a Control Group of 3rd and 4th Grade Students*				
Adjustment Dimension	3rd Grade Control	3rd Grade PATHS Students	4th Grade Control	4th Grade PATHS Students
Task Orientation	No Sig. Change	No Sig. Change	No Sig. Change	No Sig. Change
Behavioral Control	No Sig. Change	No Sig. Change	No Sig. Change	28.48 \longrightarrow 25.73 T-Score: 2.45
Assertiveness	No Sig. Change	No Sig. Change	No Sig. Change	No Sig. Change
Peer Social	No Sig. Change	No Sig. Change	No Sig. Change	No Sig. Change

*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown. Others are denoted with 'No Sig. Change'

Fig. 8

T-Test results for Changes Between Fall and Spring Means in Four Socio-Emotional Adjustment Dimensions among 2009-2010 4th and 5th Grade PATHS Curriculum Students and a Control Group of 4th and 5th Grade Students*				
Adjustment Dimension	4th Grade Control	4th Grade PATHS Students	5th Grade Control	5th Grade PATHS Students
Task Orientation	No Sig. Change	No Sig. Change	No Sig. Change	No Sig. Change
Behavioral Control	No Sig. Change	27.09 \longrightarrow 24.85 T-Score: 3.51	No Sig. Change	No Sig. Change
Assertiveness	No Sig. Change	No Sig. Change	No Sig. Change	27.58 \longrightarrow 29.13 T-Score: 2.86
Peer Social	No Sig. Change	No Sig. Change	No Sig. Change	No Sig. Change

*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown. Others are denoted with 'No Sig. Change'

Figure 9 depicts a comparison in the change in socio-emotional adjustment factors over the two years of the program between PATHS students who received home visits and those that did not. Those PATHS students who received home visits either year showed no significant change, improvements or otherwise, in the four adjustment factors. Those who did not receive home visits showed significant reductions in Behavioral Control both years, and significant improvements in Assertiveness in the second year of the home visits. Thus, it can be inferred that those who received home visits, while not increasing their behavioral control scores as a whole, did not worsen in that dimension at the same pace over the course of the year as those who did not receive home visits did. Also, this table shows that those who received home visits appear not to improve in the Assertiveness adjustment dimension as the other PATHS students did.

Fig. 9

T-test results for Changes Between Fall and Spring Means in Four Socio-Emotional Adjustment Dimensions between First year and Second Year Students who did and did not Receive Home Visits in the PATHS Curriculum as measured by T-CRS*				
First Year (2008-2009)			Second Year (2009-2010)	
Received Home Visits (n = 26)	No Home Visit (n = 160)	Adjustment Dimension	Received Home Visits (n = 34)	No Home Visit (n = 146)
No Sig. Change	No Sig. Change	Task Orientation	No Sig. Change	No Sig. Change
No Sig. Change	27.94 → 25.59 T-Score: 4.72	Behavioral Control	No Sig. Change	27.15 → 26.06 T-Score: 2.35
No Sig. Change	No Sig. Change	Assertiveness	No Sig. Change	27.90 → 28.75 T-Score: 2.03
No Sig. Change	No Sig. Change	Peer Social	No Sig. Change	No Sig. Change

*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown. Others are denoted with 'No Sig. Change'

Figure 10 shows the change in the mean number of reported risk and protective factors between the Lifetime Initial Version and the Present Status Version for all of those PATHS students who received home visits. Those PATHS students who received home visits were not likely to report more protective factors; they were likely to report significantly less risk factors. This is indeed what we found in comparing these scores.

Fig. 10

T-Test Results for the Change in the Mean Number of Reported Risk and Protective Factors between the Lifetime Initial Version and the Present Status Version for those Receiving Home Visits as a Part of the PATHS Curriculum			
Protective Factors		Risk Factors	
Change in Mean	T-Score	Change in Mean	T-Score
No Sig. Difference	1.18	5.44 → 2.31	5.35

The next analysis further examines the students who received home visits as a part of the PATHS curriculum. We were interested in determining which specific risk factors showed the most improvement, and used the students' Brief Resiliency Checklists, completed at the start (LIV) and the end (PSV) of the school year during the home visits, to determine the extent to which students improved or worsened in the recorded risk factors over the course of the program. Forty students were on record as having completed both a LIV and PSV.

The table below, figure 11, shows the risk factors from the Brief Resiliency Checklist. Additionally, the net number and net percentage of the students who improved in each risk factor are shown. The four risk factors that the most students improved in were school failure, the students' families being public assistance, the students' parents having a substance abuse problem, and the students having an incarcerated parent. However, few of the risk factors hold a theoretical link with the structure of the home visits. For example, it is highly unlikely that the home visits were responsible for a large number of students reporting that they no longer had a parent that was incarcerated. The program could have had an effect primarily in two areas. Firstly, a moderately large number of students, 30%, who reported failing school at the start of the home visits were no longer failing school near the program's end. Secondly, a moderate number of students, 12.5%, no longer displayed patterns of fighting, aggression, and violence.

Fig. 11

BRC Risk Factor	Net number of Students who improved (n = 40)	Net percentage of students who improved
Child shows patterns of fighting, aggression, or violence.	5	12.5
Child is involved in juvenal court or is often delinquent.	2	5.0
Child abuses drugs or alcohol.	0	0
Child is diagnosed with behavioral/emotional problems.	6	15.0
Child currently has long term medical problems.	5	12.5
Child has a neurological disorder, has seizures, or a head injury.	5	12.5
Child has an IQ less than 70.	0	0
Child is currently failing school.	12	30.0
Child hangs out with a negative peer group.	2	5.0
Child is currently pregnant.	0	0
Family is on public assistance, Medicaid, or lives in poverty.	14	35.0
Family is single parent, or parents are divorced or separated.	6	15.0
Family has five or more children living at home.	2	5.0
There has been a family move.	1	2.5
Parents have a substance abuse problem.	11	27.5
Parents have emotional or mental disorders.	5	12.5
Parents are criminally involved or incarcerated.	12	30.0
Child is in an out-of-home placement.	7	17.5
Child witnesses violence or extreme conflicts at home.	6	15.0
Child is subject to neglect.	2	5.0
Child is at risk for physical abuse or extreme punishment.	3	7.5
Child is at risk for sexual abuse.	2	5.0
Child has a mostly negative relationship with parents.	-1	-2.5

Figure 12 compares the change in the mean adjustment dimension scores over the course of their stay in the program between those who participated in the program for one year and those that participated in the program for both years. Those who participated in the program one year showed similar changes in means over the course of the year as those who participated in two full years of the program. This indicates that the relationship between time spent in the PATHS program and changes in socio-emotional adjustment factor scores may be spurious, at least when comparing between two groups with such a small difference in program tenure.

Fig. 12

T-Test results for Changes Between Fall and Spring Means in Four Socio-Emotional Adjustment Dimensions among Students who Participated in One Year and Two Years of the PATHS Curriculum as measured by T-CRS*		
Only One Year in Program (n = 47)	Adjustment Dimension	Two Years in Program (n = 183)
No Sig. Change	Task Orientation	No Sig. Change
27.21 → 24.70 T-Score: 2.47	Behavioral Control	27.06 → 25.76 T-Score: 2.22
No Sig. Change	Assertiveness	No Sig. Change
No Sig. Change	Peer Social	29.45 → 28.29 T-Score: 2.02
*Only those groups which show a change that is statistically significant with a T-Score of 1.96 or higher are shown. Others are denoted with 'No Sig. Change'		