



WAVES of the FUTURE 2009

Report Of The Findings
from the First Six Years
of the 4-H Study of
Positive Youth Development

Richard M. Lerner, Jacqueline V. Lerner, and Colleagues
*Institute for Applied Research in Youth Development
Tufts University*



Tufts
UNIVERSITY

MESSAGE FROM RICHARD M. LERNER

DIRECTOR, INSTITUTE FOR APPLIED RESEARCH IN YOUTH DEVELOPMENT



I am pleased to once again share a report of the results of the 4-H Study of PYD. The present report presents the findings from the first six waves (Grades 5 to 10) of this singular longitudinal study. The 4-H Study embodies the goals of applied developmental science and of the Institute for Applied Research in Youth Development. Both the Institute and the field of scholarship that frames its work seek to conduct good science that enhances the abilities of practitioners, parents, policy makers, and young people themselves to promote positive human development. The results to date of the 4-H Study provide strong evidence that when the strengths of youth are aligned with the resources for healthy development that are found in families, schools, and communities, youth thrive.

The rich data within the 4-H Study underscore the fact that all of us—as individuals, family members, professionals, advocates for youth, or members of the diverse communities of our nation—have resources available that enable us to act to enhance the lives of young people. I believe this message is vital and timely. I am honored that National 4-H Council and the 4-H system has afforded my colleagues, students, and me the opportunity to ground this message in strong developmental science.

Richard M. Lerner, Ph.D.

Bergstrom Chair in Applied Developmental Science

Director, Institute for Applied Research in Youth Development

SUMMARY OF FINDINGS

In The 4-H Study of Positive Youth Development (PYD) we use a form of what is called a longitudinal sequential design (Lerner et al., 2005). Our study began with fifth graders in the 2002–2003 school year, a time period labeled Wave 1. Since we knew that, as in all longitudinal studies, we would lose some participants over time for a variety of reasons, we added new groups (cohorts) of participants at other waves so that our statistical analyses would maintain their power.

By the end of Wave 6, we had collected data from a total of 6,450 adolescents from 45 states. We gathered data through a student questionnaire, a parent questionnaire, and from school and government sources such as the U.S. Census (Lerner, et al., 2005). We measured several individual characteristics of youth, e.g., behavioral and cognitive strengths (such as whether youth could select positive life goals, optimize what he or she needed to achieve those goals, and compensate for obstacles that stood in the way- we call this SOC: selection, optimization and compensation). In particular, we studied career goals – and, as well, school achievement – related to science, engineering and computer/technology. We also assessed youth civic identity and civic engagement (CICE), a construct that has behavioral, cognitive, and socioemotional components. We assessed sexual behavior and engagement in activities such as exercise and healthy eating. In addition, we appraised engagement in risk/problem behaviors, such as smoking, drinking, bullying and, in addition, we assessed the presence of characteristics related to depression.

We compared youth who participated at least twice per month in 4-H programs to other youth who regularly participated in other out-of-school-time (OST) activities, controlling for gender, race/ethnicity, rural/suburban/urban community, number of parents in the home, family per capita income, mother's education, and region of the country.

In the present report, we present first the results of Grade 10 outcomes of youth who participated in our study at Grade 10 regardless of their participation in other waves (Wave 6; N = 2371). These results are referred to as our point-in-time or cross-sectional findings, with the time in question being 10th grade. Second, we report results of Grade 10 outcomes of youth who participated in our study at least twice from Grades 5 to 10 (Waves 1 to 6; N = 797). We refer to these results as our longitudinal group findings.

SUMMARY

- In general, 4-H youth appear to have higher levels of the developmental assets that the 4-H Study has found most important in promoting PYD: other individuals and, in particular, caring, competent, and committed adults, such as parents, teachers, and mentors. In grade 10, 4-H youth reported that they had more mentors and had dinner with their family more frequently than did comparison youth.
- In the point-in-time sample, 4-H youth are 3 times as likely as youth in other OST programs to have higher scores for Contribution, and 1.6 times as likely to have higher scores for PYD. As in the results from Grades 5 to 9, we find that, through Grade 10, 4-H youth are substantially more likely than other youth to make contributions to their communities.
- For educational measures assessed in the point-in-time sample, 4-H participants are 1.6 times as likely as youth in other OST programs to report better grades (“B and above” grades), 1.4 times as likely as youth in other OST programs to report high academic competence, 1.5 times as likely as youth in other OST programs to report high engagement in school, and 1.8 times as likely as youth in other OST programs to expect to go to college.
- On health measures in the longitudinal analyses, 4-H participants are less likely (.8 times as likely) as youth in other OST programs to have sexual intercourse by Grade 10, and are 1.2 times as likely as youth in other OST programs to spend more hours exercising or being physically active in Grade 10. They were also significantly less likely to use drugs, alcohol or cigarettes and to engage in delinquent behaviors.
- In the point-in-time sample, 4-H participants are 1.9 times as likely as youth in other OST programs to plan to pursue future courses or a career in science, engineering, or computer technology in Grade 10. They are 2.6 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 10. In addition, 4-H participants are 1.4 times as likely as youth in other OST programs to do well in science, engineering, or computer technology in Grade 10.
- In the point-in-time sample, 4-H girls are 1.9 times as likely as girls in other OST programs to plan to pursue future courses or a career in science, engineering, or computer technology in Grade 10, and they are 2.2 times as likely as girls in other OST programs to participate in science, engineering, or computer technology programs in Grade 10. In addition, 4-H participants are 1.5 times as likely as youth in other OST programs to do well in science, engineering, or computer technology in Grade 10.
- Within the participants in the longitudinal group analyses, 4-H youth had lower drug use, higher contribution scores, higher civic identity and civic engagement scores and higher grades than comparison youth.

INTRODUCTION

Early researchers on adolescent development started out with the wrong set of assumptions (Lerner & Steinberg, 2009). Most, including the founder of the field, G. Stanley Hall (1844–1924), viewed adolescents in terms of what they lacked when compared to mature adults (Hall, 1904). For many decades, this perspective subtly colored not only how researchers but also how teachers, parents, youth workers, and public policy makers looked at this period of development. It influenced what they thought they could expect from teenagers, and how they would interpret what teens said and did.

Researchers and clinicians viewed adolescence as a time of “*sturm und drang*” (storm and stress), in which emotional turmoil was a necessary step toward maturity. Hall drew upon Darwin’s writings on evolution for formulating this perspective (Hall, 1904). Hall interpreted each person’s maturation as a retelling of how mankind as a whole evolved from primitive beasts to civilized social animals, with the teenage years reflecting a critical point in that story of transformation. Anna Freud (1969) wrote of emotional upheavals within adolescents and in their close relationships with family and friends. Erik Erikson (1959) described the adolescent’s identity crisis as he or she struggled to achieve a more mature sense of self.

In short, early researchers and clinicians alike based their observations and theories on the underlying assumption that adolescents are inherently “at risk” for behaving in uncivilized or problematic ways; they were “broken” in some way, and needed repair. They were problems to be managed (Roth & Brooks-Gunn, 2003). Given that premise, these deficits are largely what they saw.

THE EMERGENCE OF THE POSITIVE YOUTH DEVELOPMENT (PYD) PERSPECTIVE

This frame of reference shifted in the early 1990s, as growing numbers of researchers viewed adolescence through the lens of systems theories that look at development throughout the life span as a product of relations between individuals and their world (Lerner, 2005). One key aspect of this new focus was plasticity: the potential that individuals have for systematic change across life. This potential is critically important, for it tells us that adolescents’ trajectories of development are not fixed, and can be significantly influenced by factors in their homes, schools, and communities (Lerner, 2006).

Despite the seemingly manifold problems seen during adolescence—drug and alcohol use and abuse, unsafe sex and pregnancy, school failure and dropping out, crime and delinquency, depression, and self-destructive behaviors—most young people do not have a stormy adolescence (Lerner, 2005). Similarly, while teenagers spend much more time with their peers than with their parents and may, sometimes for the first time, openly challenge their parents’ actions and beliefs; they value their relationships with their parents tremendously. They also tend to incorporate their parents’ core values in such areas as social justice, spirituality, and the importance of education into their own values. Indeed, most adolescents select friends in part because they share these core values and similar perceptions of the world.

Integrating the theoretical ideas about the plasticity of adolescent development and the practical findings about the multiple pathways children take through adolescence led to the framework now known as PYD, which views young people as resources to be developed rather than as problems to be managed (Damon, 2004; Larson, 2000; Lerner, 2005).

FEATURES OF PYD

The PYD approach builds upon what have become known as the “Five Cs”: Competence, Confidence, Connection, Character, and Caring (Lerner, et al, 2005).

Researchers theorized that young people whose lives incorporated these Five Cs would be on a developmental path that results in the development of a Sixth C: Contributions to self, family, community, and to the institutions of a civil society. In addition, those young people whose lives contained lower amounts of the Five Cs would be at higher risk for a developmental path that included personal, social, and behavioral problems and risks (Lerner, 2004).

The “5 Cs” of Positive Youth Development

“C”	Definition
Competence:	Positive view of one’s actions in specific areas, including social, academic, cognitive, health, and vocational. Social competence refers to interpersonal skills (e.g., conflict resolution). Cognitive competence refers to cognitive abilities (e.g., decision making). Academic competence refers to school performance as shown, in part, by school grades, attendance, and test scores. Health competence involves using nutrition, exercise, and rest to keep oneself fit. Vocational competence involves work habits and explorations of career choices. Effective entrepreneurial skills may be one instance of vocational competence.
Confidence:	An internal sense of overall positive self-worth and self-efficacy.
Connection:	Positive bonds with people and institutions that are reflected in exchanges between the individual and his or her peers, family, school, and community and in which both parties contribute to the relationship.
Character:	Respect for societal and cultural norms, possession of standards for correct behaviors, a sense of right and wrong (morality), and integrity.
Caring/Compassion:	A sense of sympathy and empathy for others.

This relationship between PYD and risk/problem behaviors, however, was not seen as simple or uniform. The plasticity of development meant that some children from some homes, schools, and communities that lacked resources and supports showed themselves to be resilient and resistant to problems. Others who came from environments filled with resources and supports were drawn nevertheless into numerous troubles. But, on the whole, PYD researchers hypothesized that the availability of activities that supported the Five Cs would help steer young people toward a life of successful contributions (Benson, Scales, Hamilton, & Sesma, 2006; Lerner, 2005).

The potential for change is a core strength of all youth—a strength that can be built upon. This strength is cause for optimism, for it means that we can influence the life paths of all children in a positive direction. The contexts in which they live, learn, and play have resources to promote positive youth development. The resources can become the “social nutrients” young people need for healthy development. Researchers and practitioners agree that this concept of developmental assets is key to understanding how to foster PYD in our homes, classrooms, and community-based programs (Benson, et al., 2006).

Studies suggest a link between PYD and the developmental assets associated with youth programs—especially programs that go beyond simple extracurricular activities to focus specifically on promoting youth development. The “Big Three” features of effective youth-serving programs (Blum, 2003; Lerner, 2004; Roth & Brooks-Gunn, 2003) are:

- Positive and sustained relationships between youth and adults.
- Activities that build important life skills.
- Opportunities for youth to use these life skills as both participants in and as leaders of valued community activities.

Programs having these features may be termed youth development (YD) programs (Lerner, 2004; Roth & Brooks-Gunn, 2003). Key questions about the link between YD programs and the PYD perspective are: How can we translate PYD theory into specific practices that will help young people thrive? Do YD programs do this successfully? To help address these questions, National 4-H Council sponsored research to understand the developmental assets already or potentially present in youth programs, especially the programs led by 4-H.

THE 4-H STUDY OF POSITIVE YOUTH DEVELOPMENT

There are several ways to try to answer the question of whether involvement in specific out-of-school-time (OST) activities predicts positive growth and decreased risk during adolescence. We believe that an especially powerful approach is to conduct a longitudinal study—research that follows young people over a significant period of time and records important changes within individual participants, as well as critical differences between participants, at any given age. We used this approach in this study, which is funded by National 4-H Council through funds provided by *Underage Tobacco Prevention: Philip Morris USA, an Altria Company*.

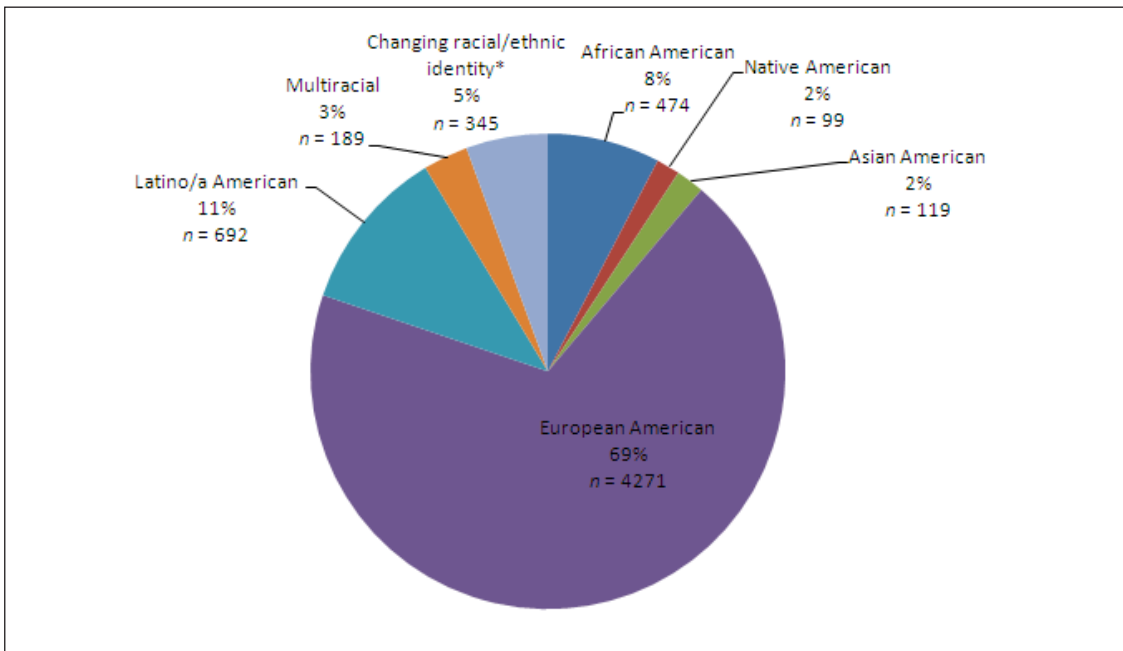
In The 4-H Study of PYD we used a form of what is called a longitudinal sequential design (Lerner et al., 2005). We began with fifth graders in the 2002–2003 school year, a time period labeled Wave 1. Since we knew that, as in all longitudinal studies, we would lose some participants over time for a variety of reasons, we added new groups (cohorts) of participants at other waves so that our statistical analyses would maintain their power.

As in the real world, participants decided on their own to get involved with or to skip OST programs; they were not assigned to a program by the researchers. This distinction is important. We wanted study participants to mirror youth who were not part of the study, who chose their own levels of participation in such programs. To look for possible relationships between involvement in 4-H and positive youth development, we controlled for a variety of demographic and other variables in our analyses.

The first and second Annual Reports from the 4-H Study were issued in spring, 2008 and 2009 and summarized findings published or in press through ninth grade (Wave 5 of the study). The complete reports can be accessed at: www.4-h.org.

Wave 1 included 1,719 fifth-graders and 1,137 of their parents (Lerner, et al., 2005). They came from 13 states and 61 schools in rural, suburban, and urban areas in different parts of the country and represented a variety of racial, ethnic, and religious backgrounds. By the end of Wave 6, we had collected data from a total of 6,450 adolescents from 45 states. The following figures provide more details about the youth comprising the 4-H Study sample.

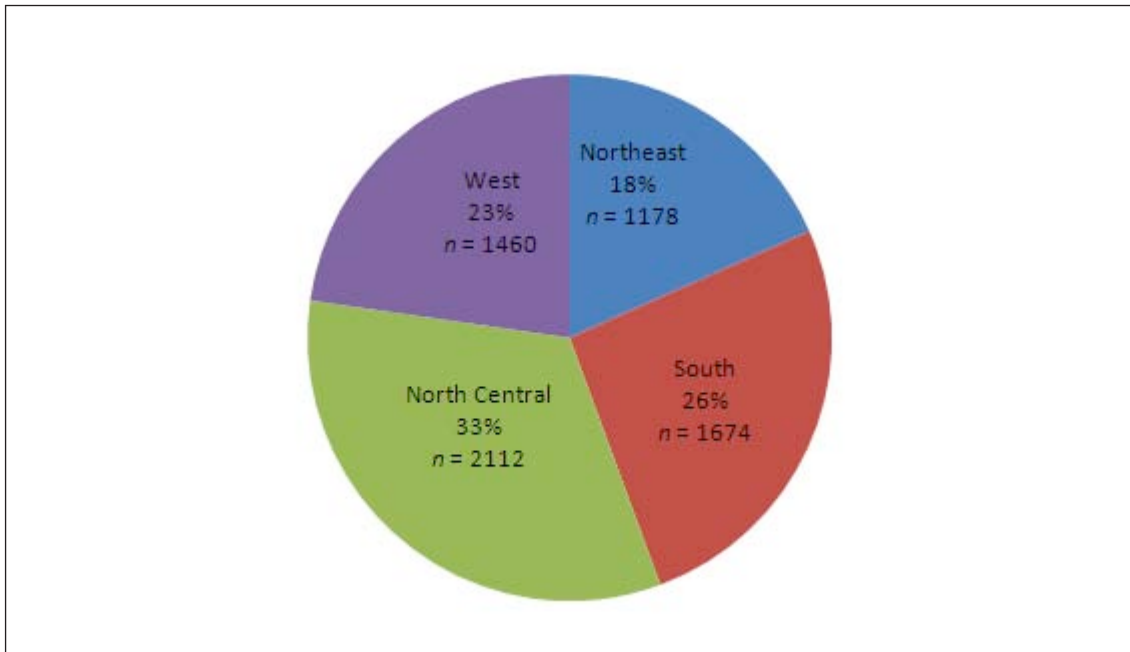
RACE/ETHNICITY IN THE TOTAL 4-H SAMPLE, WAVES 1-6†



† Data about race/ethnicity were missing for 236 of the youth; 25 youth reported “other” for race/ethnicity.

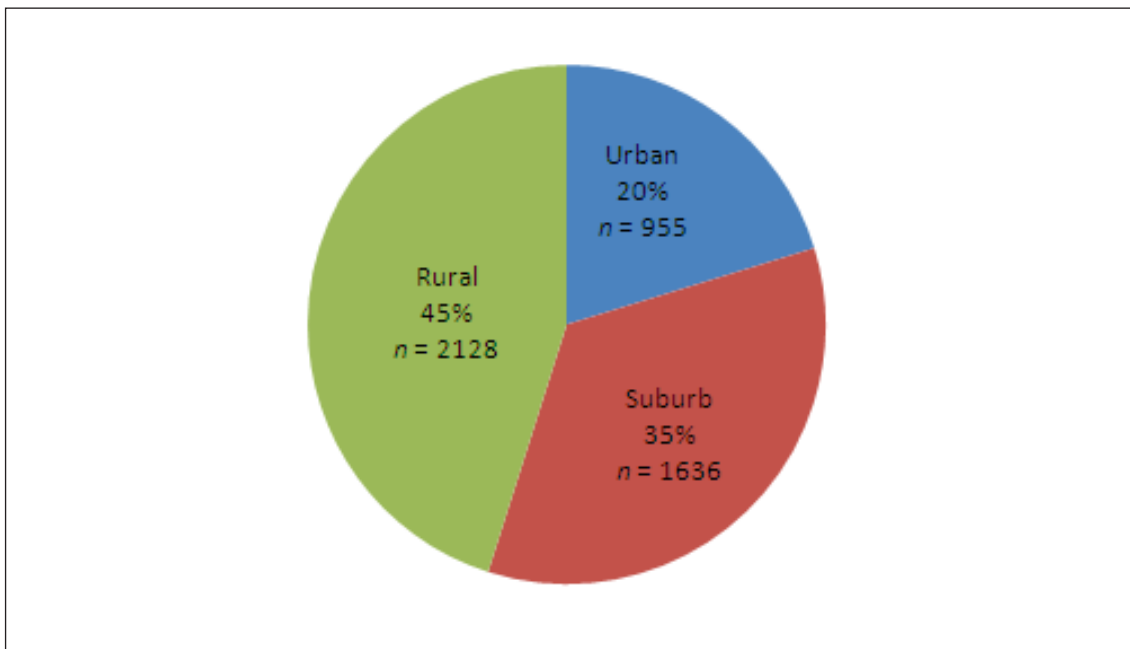
* Some youth change, from one wave to another, the racial/ethnic label they use to describe themselves. The variation may reflect the developmental nature of racial/ethnic identity.

GEOGRAPHIC DISTRIBUTION IN THE TOTAL 4-H SAMPLE, WAVES 1-6**



**Data about geographic distribution were missing for 26 of the youth.

LIVING ENVIRONMENTS IN THE TOTAL 4-H SAMPLE, WAVES 1-6***



***Data about living environments were missing for 1,731 of the youth.

We gathered data through a student questionnaire, a parent questionnaire, and from school and government sources such as the U.S. Census (Lerner, et al., 2005). We measured several individual characteristics of youth, e.g., behavioral and cognitive strengths (such as whether a youth could select positive life goals, optimize what he or she needed to achieve those goals, and compensate for obstacles that stood in the way- we call this SOC: selection, optimization and compensation). In particular, we studied career goals – and, as well, school achievement – related to science, engineering and computer/technology. We also assessed youth civic identity and civic engagement (CICE), a construct that has behavioral, cognitive, and socioemotional components. We assessed sexual behavior and engagement in activities such as exercise and healthy eating. In addition, we appraised engagement in risk/problem behaviors, such as smoking, drinking, bullying and, in addition, we assessed the presence of characteristics related to depression.

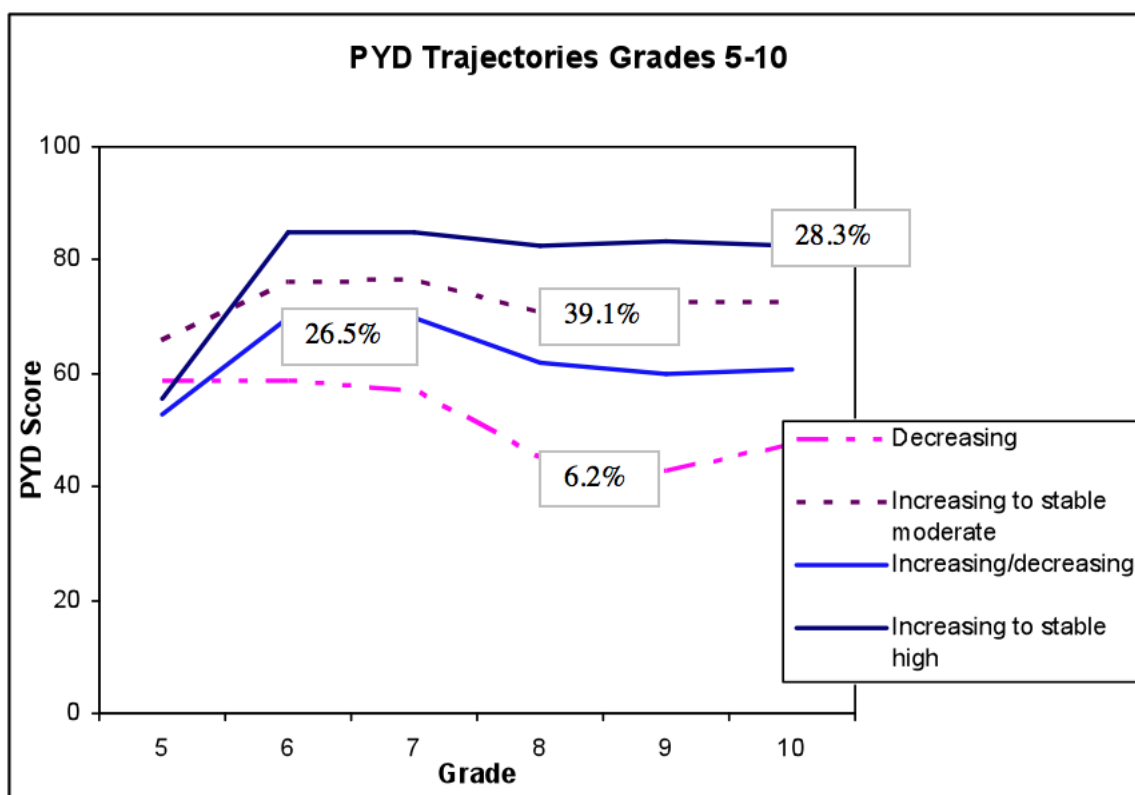
PATHWAYS OF DEVELOPMENT

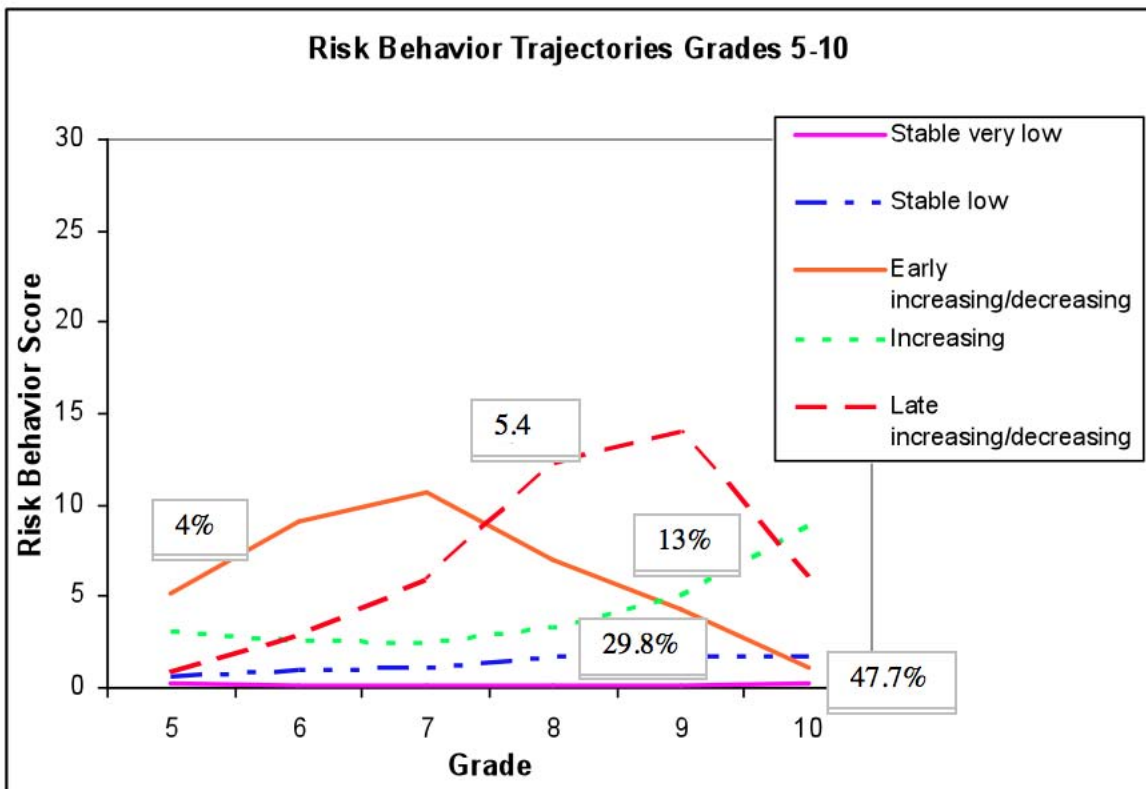
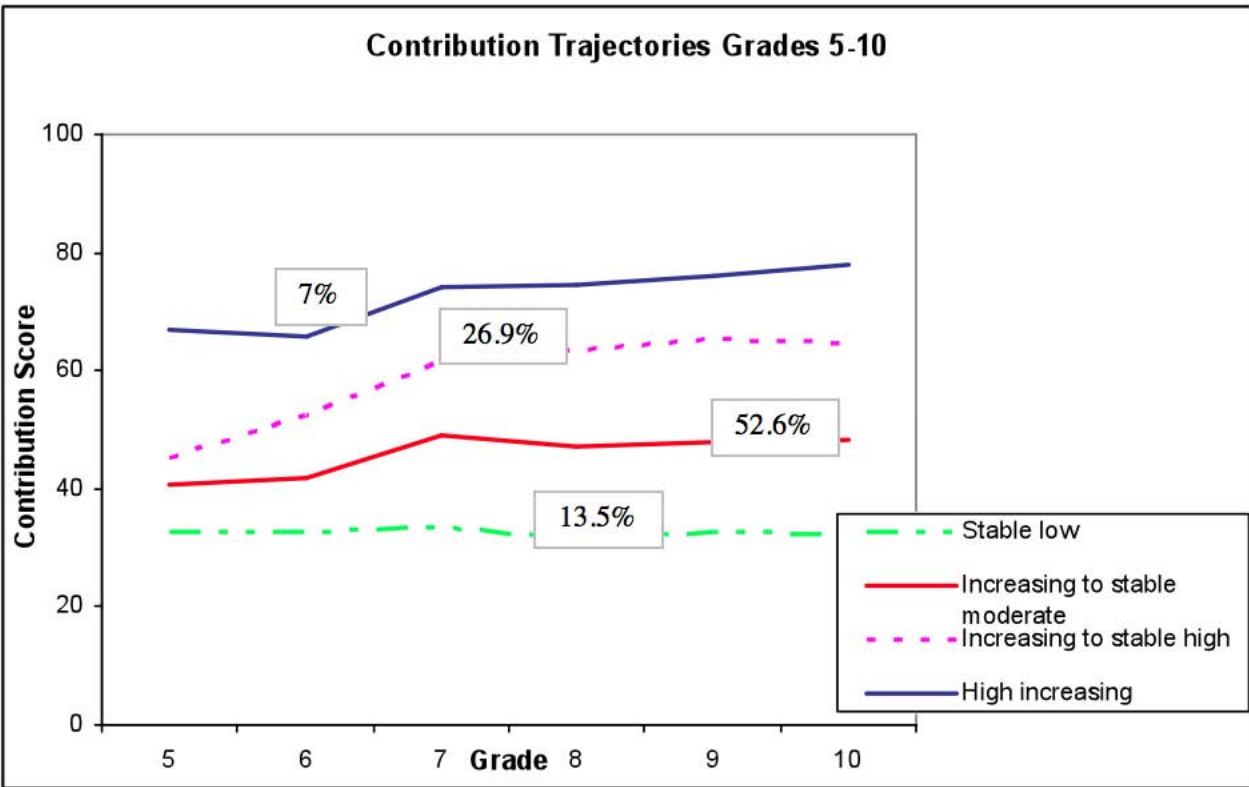
To prepare the data for analyses of the pathways, or trajectories, of development through Grade 10, we used information from students who participated in two or more years of the study, and also who have outcome data on at least one of the variables of interest (PYD, Contribution, depressive symptoms, and risk/delinquent behaviors) (N = 2516). We developed models for several long-term trajectories (optimal, problematic, and gradations in between) involving PYD, Contribution, depressive characteristics, and risk/delinquent behaviors.

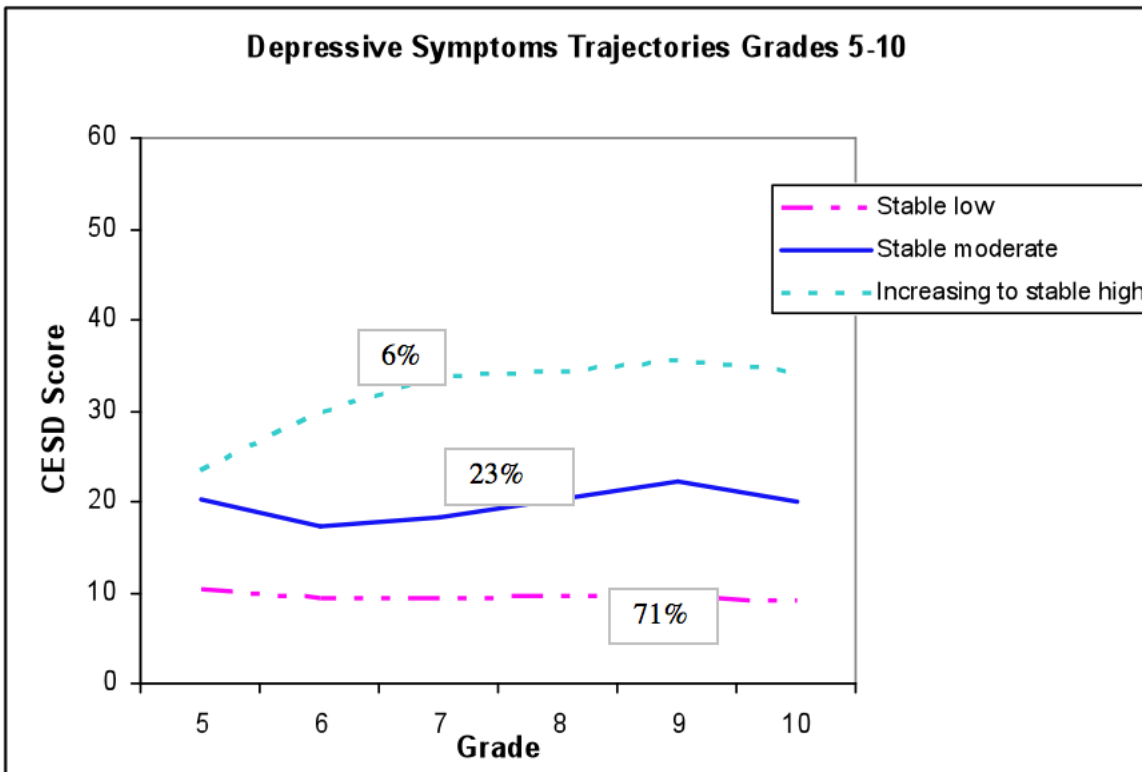
Across Grades 5 through 10, youth show different levels of contribution. About 80% of youth move from low levels of contribution in fifth grade to either moderate or high levels by middle school or high school. Only about 7% of youth show the highest (most desired) levels of contribution.

The course of characteristics related to depression across Grades 5 through 10 takes several forms. Most youth (approximately 71%) show low levels across time; unfortunately, the remaining 29% of youth show variations from this optimal trajectory.

Across grades, most youth (more than 77%) reported no or very low levels of risk behaviors. This finding counters the youth stereotype of storm and stress. In turn, 10% of youth seem to experiment with risk behaviors either in middle school or in high school and, then, significantly decrease their participation in risk behaviors a year or two later. Only about 13% of youth show a steady increase in levels of risk behavior as they move into high school.







4-H PARTICIPATION AND YOUTH DEVELOPMENT

In the first and second Annual Reports we presented findings from Waves 1-5. In these reports we presented the results of analyses aimed at ascertaining the relations between PYD and participation in 4-H clubs and 4-H after-school programs, compared to participation in other OST activities. We compared youth who participated at least twice per month in 4-H programs to other youth who regularly participated in other OST activities, controlling for gender, race/ethnicity, rural/suburban/urban community, number of parents in the home, family per capita income, mother's education, and region of the country.

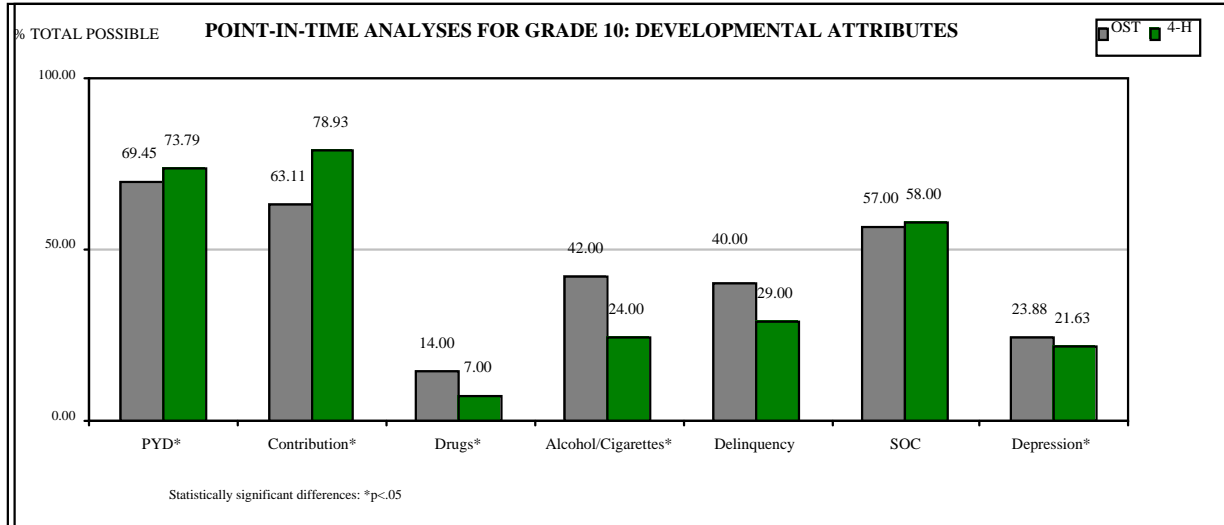
In the present report, we present first the results of Grade 10 outcomes of youth who participated in our study at Grade 10 regardless of their participation in other waves (Wave 6; N = 2371). These results are referred to as our point-in-time or cross-sectional findings, with the time in question being 10th grade. Second, we report results of Grade 10 outcomes of youth who participated in our study at least twice from Grades 5 to 10 (Waves 1 to 6; N = 797). We refer to these results as our longitudinal group findings.

POINT-IN-TIME ANALYSES (GRADE 10)

For the analyses of youth who participated at Grade 10 per se (that is, regardless of their participation in other waves), we found that the 4-H participants had significantly higher scores on PYD and Contribution, as well as lower scores on measures of risk and problem behaviors, including drug use, alcohol and cigarette use, and characteristics related to depression.

Specifically, 4-H youth are 3 times as likely as youth in other OST programs to have higher scores for contribution, and 1.6 times as likely to have higher scores for PYD. As in the results from Grades 5 to 9, we find that, through Grade 10, 4-H youth are substantially more likely than other youth to make contributions to their communities!

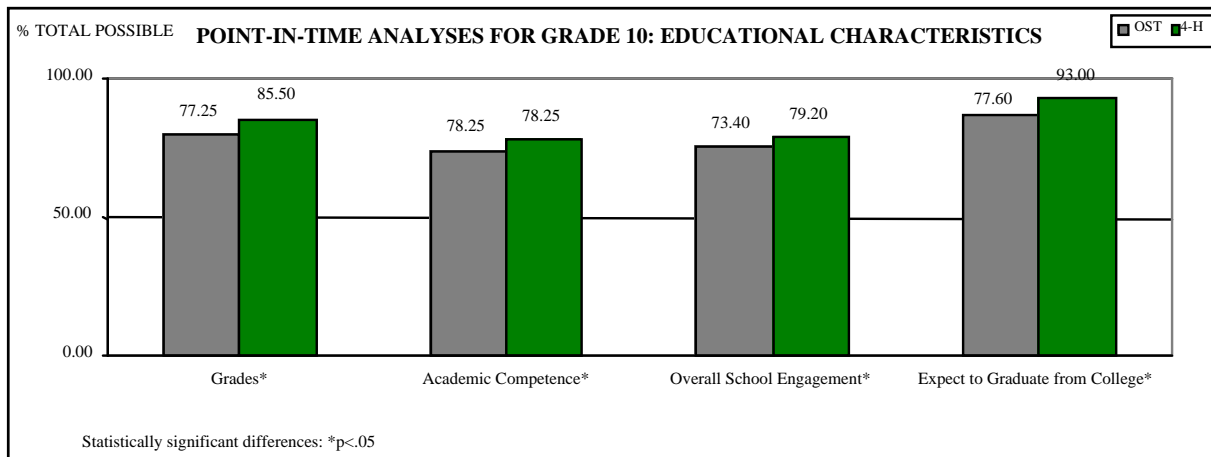
It is important to note here that, odds ratios denote a comparison between 4-H youth and youth in other OST programs in our sample. Note that odds ratios above 1.0 indicate that 4-H youth are more likely to demonstrate the outcome, and an odds ratio below 1.0 indicates that 4-H youth are less likely to demonstrate the outcome than are youth in other OST programs.



On the educational measures, the 4-H participants are 1.6 times as likely as youth in other OST programs to report better grades (“B and above” grades), 1.4 times as likely as youth in other OST programs to report high academic competence, 1.5 times as likely as youth in other OST programs to report high engagement in school, and 1.8 times as likely as youth in other OST programs to expect to go to college.

4-H YOUTH REGARD THEMSELVES AS MORE COMPETENT IN ACADEMICS THAN YOUTH WHO PARTICIPATE IN OTHER OST PROGRAMS. THIS FINDING IS NOT SURPRISING GIVEN THAT 4-H YOUTH ARE MORE LIKELY TO REPORT GOOD GRADES!

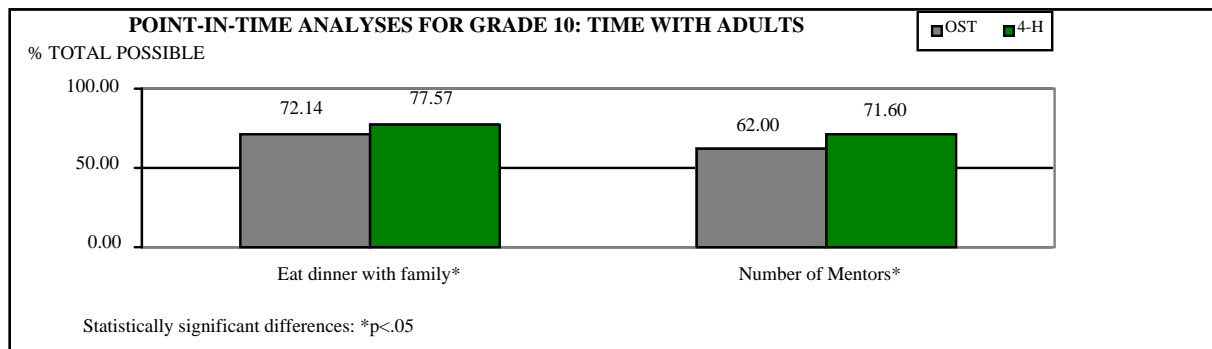
We believe that greater achievement, engagement, and motivation for further education should combine to enhance the likelihood that 4-H youth, more so than other youth, will remain in high school, graduate, and go on to college. We will be able to test this hypothesis only if the 4-H Study is extended beyond the 12th grade, when, at this writing, it is scheduled to end. It may be that 4-H participation inoculates youth against high school dropout, at rates greater than other OST programs. Given the importance of understanding how to prevent high school dropout, it would be critical in our view to enable the 4-H Study to continue so that this hypothesis can be tested.



IN GRADE 10, MOST MEASURES OF POSITIVE DEVELOPMENTAL AND EDUCATIONAL CHARACTERISTICS WERE SIGNIFICANTLY HIGHER AMONG 4-H PARTICIPANTS.

Why do these advantages exist for 4-H youth? There are numerous explanations of course. But one, we believe, is key. 4-H youth appear to have higher levels of the developmental assets that the 4-H Study has found most important in promoting PYD: other individuals and, in particular, caring, competent, and committed adults, such as parents, teachers, and mentors (Theokas & Lerner, 2006). In the tables below, the number of mentors is represented as a percentage of the total possible score that youth could receive on an outcome (in this case, number of mentors). The average 4-H student reports having 3.58 mentors, and the total possible score is 5 (as indicated in the response options on the questionnaire). Therefore, $3.58/5 = 71.60\%$. In this way, we can give each youth a standardized score.

4-H YOUTH APPEAR TO HAVE HIGHER LEVELS OF THE DEVELOPMENTAL ASSETS THAT THE 4-H STUDY HAS FOUND MOST IMPORTANT IN PROMOTING PYD.

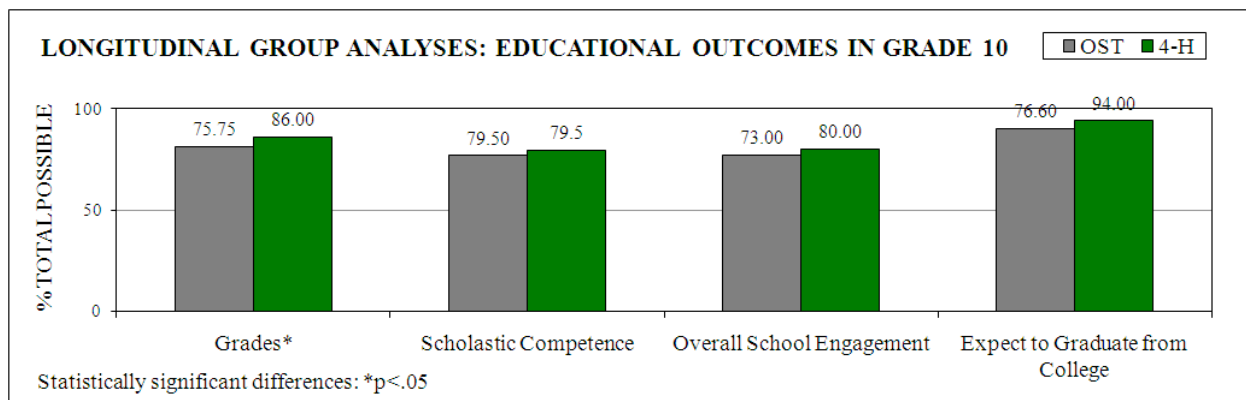
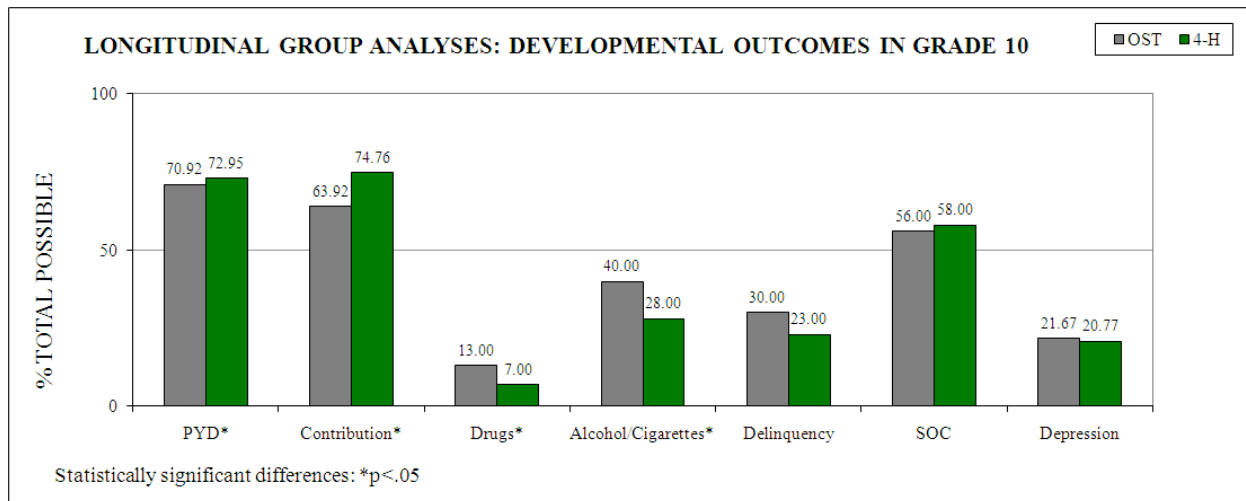


IN GRADE 10, 4-H YOUTH REPORTED THAT THEY HAD MORE MENTORS AND HAD DINNER WITH THEIR FAMILY MORE FREQUENTLY THAN DID COMPARISON YOUTH.

LONGITUDINAL GROUP ANALYSES

In the analyses of youth who participated in our study at least twice from Grades 5 to 10 (that is, in the longitudinal group analyses pertinent to behavior and development at Grade 10), 4-H participants reported significantly higher levels of contribution than among the comparison group. The 4-H youth also reported significantly better grades than youth who were involved in other OST activities. In turn, 4-H youth are less likely than youth in other OST programs to be involved in drug use. Last, 4-H participants are 0.5 times as likely as youth in other OST programs to have sexual intercourse by Grade 10. In other words, 4-H youth are only half as likely as youth in other OST programs to be involved in drug use and to have had sexual intercourse by Grade 10.

Some of the differences between the 4-H and other youth involved in the point-in-time analyses that were found in Grade 10 were not seen among the sample of youth involved in the longitudinal group analyses. We believe that a key reason for this difference is that different sub-samples of youth were involved in the two sets of analyses. Simply, somewhat different samples may eventuate in somewhat different results. In turn, there may be substantive differences between youth who repeatedly participate in a longitudinal study and youth who have not repeatedly participated; and it may be that these substantive differences exist in contrasting ways among 4-H youth and among youth participating in other OST programs. Future analyses, from subsequent waves of data from the 4-H Study, will be aimed at evaluating these interpretations.

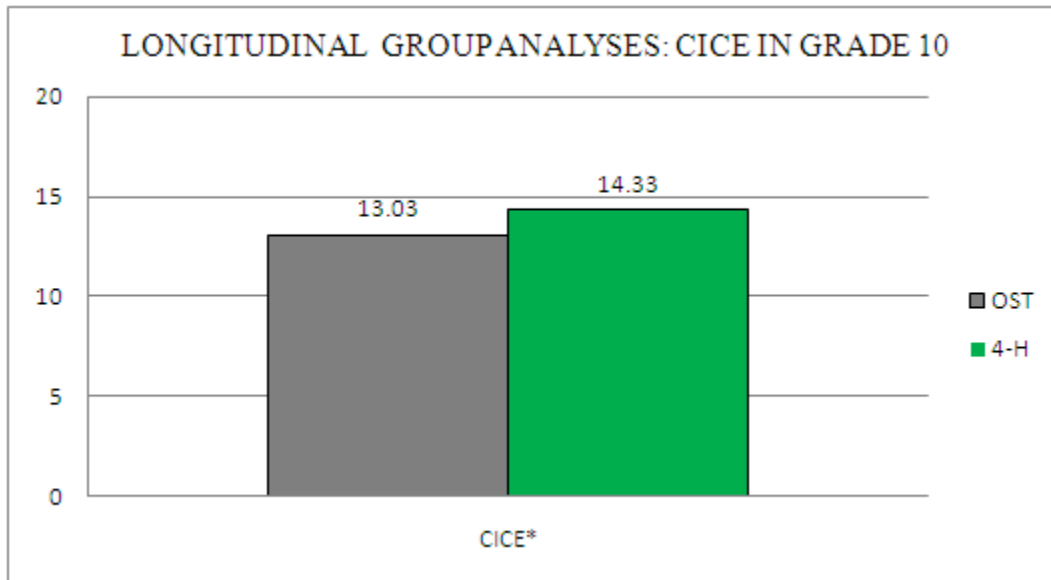


WITHIN THE PARTICIPANTS IN THE LONGITUDINAL GROUP ANALYSES, 4-H YOUTH HAD LOWER DRUG USE, HIGHER CONTRIBUTION SCORES, HIGHER CIVIC IDENTITY AND CIVIC ENGAGEMENT SCORES AND HIGHER GRADES THAN COMPARISON YOUTH.

In regard to youth civic identity and civic engagement (CICE), participants in the 4-H programs had significantly higher scores on the overall CICE score, compared to youth who were involved in other programs. CICE is a construct that reflects young people’s responses to measures of civic duty, civic voice, consumption of civic information (e.g., watching the news), and civic activities, such as helping in one’s community or participating in volunteer activities. In addition, CICE captures the neighborhood, peer, and adult social capital in an adolescent’s life.

The eight different factors which yield an overall CICE score are:

- Neighborhood social capital/social trust –mutually beneficial relations, trust, and bonding with other people in the community.
- Peer social capital/social trust – mutually beneficial relations, trust, and bonding with friends and classmates.
- Adult social capital/social trust – mutually beneficial relations, trust, and bonding with adults and teachers.
- Civic duty – a sense of obligation to something larger than oneself.
- Civic information – a commitment to gathering political and civic knowledge.
- Civic voice – the ability to express oneself about community issues.
- Civic helping – time spent helping others in informal settings, such as helping a neighbor.
- Civic activities – time spent in formal activities giving back to others, such as volunteering, tutoring, serving in a civic organization, participating in student government.



SPECIAL FOCUS SECTION: HEALTHY BEHAVIORS

As displayed in the figure on Page 15, at Grade 10 4-H participants had significantly lower scores on measures of risk and problem behaviors, including drug use, alcohol and cigarette use, and characteristics related to depression. In the longitudinal analysis, the first figure on Page 18 shows that 4-H youth were less likely than youth in other OST programs to be involved in alcohol, smoking, and drug use. When additional measures of healthy behaviors were examined, 4-H participants were less likely than youth in other OST programs to have sexual intercourse by Grade 10, and are 1.2 times as likely as youth in other OST programs to spend more hours exercising or being physically active in Grade 10.

What are the odds? Healthy Behaviors

Compared to non 4-H Youth, 4-H Youth are...		
<i>Point-in-Time Analyses (Grade 10)</i>	...0.8 times as likely	to have had sexual intercourse by Grade 10
	...1.2 times as likely	to spend time exercising or being physically active

Note: Both findings are significant at $p < .05$.

Note: Odds ratios above 1.0 indicate that 4-H youth are more likely to demonstrate the outcome than are youth in the comparison group. Odds ratios below 1.0 indicate that 4-H youth are less likely to demonstrate the outcome than are youth in the comparison group.

We were also able to conduct analyses on the 691 youth in Wave 6 who say they had an Anti-smoking/Healthy Decision Making Program at some point in their life. Of this total, 450 youth are 4-Hers. Many of these 4-H youth are likely to have participated in the 4-H Healthy Decision Making Program called HeathRocks! (HR!). However, since HR! has been called other names and integrated into health education curriculum, the responses to the survey did not allow for an exact count of how many youth were exposed to the HR! program. In addition, youth who are not in 4-H could also have had the HR! program. For this reason we conducted analyses on the group of youth who reported participation in an Anti-Smoking/Healthy Decision Making program, whether or not they were in 4-H.

As shown in the table below, for both the point-in-time and the longitudinal analyses, youth who had participated in an anti-smoking or healthy decision making program were less likely to smoke, less likely have smokers in the home, less likely to approve of peers smoking, and less likely to expect to smoke in the future.

In addition, youth who participated an anti-smoking or healthy decision making program were more likely to have higher PYD and contribution scores, and more likely to have higher grades, academic competence, and report high engagement in school. These youth are also less likely to engage in delinquent behaviors. These results are similar when boys and girls are analyzed separately.

What are the odds? Anti-Smoking Program Participation and Youth Outcomes Smoking Attitudes and Behaviors

Compared to Youth who did <i>not</i> participate in an Anti-Smoking Program, Youth who participated are...		
<i>Longitudinal Analyses (Grades 5-10)</i>	...0.6 times as likely	to have smokers in the home
	...0.3 times as likely	to smoke
	...0.5 times as likely	to expect to smoke in the future

Compared to Girls who did <i>not</i> participate in an Anti-Smoking Program, Girls who participated are...		
<i>Longitudinal Analyses (Grades 5-10)</i>	...1.6 times as likely	to have higher contribution scores
	...2.0 times as likely	to have higher grades
	...1.6 times as likely	to have high academic competence

Compared to Boys who did <i>not</i> participate in an Anti-Smoking Program, Boys who participated are...		
<i>Longitudinal Analyses (Grades 5-10)</i>	...2.3 times as likely	to have higher PYD scores
	...3.9 times as likely	to have higher contribution scores
	...3.8 times as likely	to have higher grades
	...2.6 times as likely	to have high academic competence
	...2.8 times as likely	to report higher school engagement

Compared to Youth who did <i>not</i> participate in an Anti-Smoking Program, Youth who participated are...		
<i>Longitudinal Analyses (Grades 5-10)</i>	...1.7 times as likely	to have higher PYD scores
	...2.2 times as likely	to have higher contribution scores
	...0.7 times as likely	to engage in delinquent behaviors
	...2.7 times as likely	to have higher grades
	...1.9 times as likely	to have high academic competence
	...1.9 times as likely	to report higher school engagement

Note: Both findings are significant at $p < .05$.

Note: Odds ratios above 1.0 indicate that 4-H youth are more likely to demonstrate the outcome than are youth in the comparison group. Odds ratios below 1.0 indicate that 4-H youth are less likely to demonstrate the outcome than are youth in the comparison group.

SPECIAL FOCUS SECTION:

SCIENCE, ENGINEERING, and COMPUTER TECHNOLOGY

Beginning at Grade 10 we measured youth participation in after-school science, engineering and computer technology programs, as well as youth performance in these areas and their future plans to take courses and pursue careers in science, engineering, and computer technology. In Grade 10, we found that the items clustered into three composite scales listed below.

For the point-in-time sample, on the **FUTURE PLANS** composite, 4-H participants are 1.9 times as likely as youth in other OST programs to plan to pursue future courses or a career in science, engineering, or computer technology in Grade 10. For the **PARTICIPATION** composite, 4-H participants are 2.6 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 10. Last, for the **PERFORMANCE** composite, 4-H participants are 1.4 times as likely as youth in other OST programs to do well in science, engineering, or computer technology in Grade 10. For the **FUTURE PLANS** composite, 4-H girls are 1.9 times as likely as girls in other OST programs to plan to pursue future courses or a career in science, engineering, or computer technology in Grade 10.

We also conducted longitudinal group analyses of youth participation in after-school science, engineering and computer technology programs, as well as their performance in these areas and their future plans to take courses and pursue careers in science, engineering, and computer technology. In these analyses we used the same three composites as employed in the point-in-time analyses. For the **FUTURE PLANS** composite, 4-H participants are 1.4 times as likely as youth in other OST programs to plan to pursue future courses or a career in science, engineering, or computer technology in Grade 10. For the **PARTICIPATION** composite, 4-H participants are 1.7 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 10.

What are the odds? Science, Engineering, and Computer Technology

Compared to non 4-H Girls, 4-H Girls are...		
<i>Point-in-Time Analyses (Grade 10)</i>	...1.9 times as likely	to have plans to pursue science, engineering, or computer technology courses or careers
	...1.5 times as likely	to report doing well in science, engineering, or computer technology courses
	...2.2 times as likely	to participate in afterschool science, engineering, or computer technology programs

Compared to non 4-H Boys, 4-H Boys are...		
<i>Point-in-Time Analyses (Grade 10)</i>	...1.8 times as likely	to have plans to pursue science, engineering, or computer technology courses or careers
	...3.6 times as likely	to participate in afterschool science, engineering, or computer technology programs

Compared to non 4-H Youth, 4-H Youth are...		
<i>Point-in-Time Analyses (Grade 10)</i>	...1.9 times as likely	to have plans to pursue science, engineering, or computer technology courses or careers
	...2.6 times as likely	to participate in afterschool science, engineering, or computer technology programs
	...1.4 times as likely	to report doing well in science, engineering, or computer technology courses

Note: All findings are significant at $p < .05$.

Note: Odds ratios above 1.0 indicate that 4-H youth are more likely to demonstrate the outcome than are youth in the comparison group. Odds ratios below 1.0 indicate that 4-H youth are less likely to demonstrate the outcome than are youth in the comparison group.

CONCLUSIONS

We have found important relations between 4-H participation and the characteristics and correlates of PYD. These findings have been identified in both the point-in-time and the longitudinal analyses. Of course, the true value of 4-H programs may come not from short-term results or even the effects over a few years. The value may come from the program's influence on life-long pathways of development. Extension of the 4-H Study beyond the high school years will be needed to assess whether such longer-term influences exist. Nevertheless, there is great value in ascertaining if, during middle and high school, youth with a history of 4-H participation appear to be on a healthy trajectory and, if so, whether and how they differ from other youth.

NEXT STEPS FOR THE STUDY OF PYD

The 4-H Study is a first-of-a-kind longitudinal investigation that continues to yield important information about the bases and implications of PYD, information that can help launch young people into healthy and productive lives. The findings also continue to be used widely by youth program professionals and, to increasing extents, by policy makers. These impacts on application move the 4-H Study towards its chief objective: To provide strong scientific evidence about actions that may be taken to enhance the lives of the diverse young people of America.

One of the conclusions we have drawn from our findings to date is that youth programs cannot remain static; they must expand and change so that they address the diverse and changing needs and interests of adolescents and their families (Balsano, Phelps, Theokas, Lerner, & Lerner, 2009; Theokas, Lerner, Lerner, & Phelps, 2006; Zarrett & Lerner, 2008). We also have concluded that youth programs must address both prevention and promotion; contrary to popular belief, focusing on one does not necessarily affect the other (Lewin-Bizan, Lynch, Fey, Schmid, McPheran, Lerner, & Lerner, 2010; Phelps et al., 2007).

We are excited about the possibility of continuing this study through Grade 12 and beyond, so that we can gather and analyze additional information to help the youth of today and tomorrow. By building upon and extending this longitudinal study, we will gain powerful and practical insights into what guides an adolescent into a productive and successful adulthood. We will also be able to determine which PYD assets are related to critical life events, such as completing high school, going to college, and successful entry into the workforce (Lerner, 2007).

If we are able to extend the 4-H Study beyond the high school years, we will provide previously unavailable information about how youth development programs such as 4-H can move adolescents into a productive and healthy adulthood, one benefiting both individuals and their communities. Such knowledge would be of inestimable value for science, for practitioners, and for developing effective social policy.

MESSAGE FROM THE ADVISORY BOARD

The amount of research on PYD is small, especially when compared to research about the problems of adolescents. The largest portion of research on adolescent development proceeds from the assumption that adolescents are broken, in danger of being broken, or display deficits. A new perspective, that of positive youth development, tries to counterbalance the deficit assumption with the perspective that youth are developing individuals who display considerable strengths, and who can be guided to become positive and constructive contributors to society. Acknowledging that adolescents may face developmental problems, it is the goal of the positive youth development perspective to promote positive outcomes. This idea is in stark contrast to a perspective that focuses on punishment and the idea that adolescents are broken.

The 4-H Study of PYD is being conducted at the Institute for Applied Research in Youth Development at Tufts University by Richard M. Lerner, Jacqueline V. Lerner, and their colleagues and students. This research constitutes a first, major step toward filling the research gap concerning PYD. The 4-H Study Advisory Board believes that the study conducted by this team constitutes a milestone in developmental research. The 4-H Study has shown, for the first time, that PYD exists, and that youth development programs can play a major role in promoting PYD. The methods that the researchers employ for design, data analysis, and interpretation of results are state-of-the-art. The unique importance of the results speaks for itself.

The 4-H Study is a landmark investigation. If the researchers continue on their scientific path, they will have produced a study of truly historic importance. The study will be able to provide compelling information about the special and vital role that 4-H may play in the lives of America's young people.

Alexander von Eye, Ph.D.

*Professor of Psychology, Michigan State University
Chair, The 4-H Study of Positive Youth Development Advisory Board*

Advisory Board Members

Drs. Dale A. Blyth, University of Minnesota; Lynne M. Borden, University of Arizona; Constance A. Flanagan, The University of Wisconsin; Suzanne LeMenestrel, United States Department of Agriculture; Daniel F. Perkins, The Pennsylvania State University; Michael J. Rovine, The Pennsylvania State University; Linda Jo Turner, University of Missouri

ACKNOWLEDGMENTS

The Institute for Applied Research in Youth Development thanks the many contributors who have made this study possible. We especially thank National 4-H Council, under the leadership of Donald T. Floyd, Jr., for its vision, support, and dedication. We gratefully acknowledge the financial support from Philip Morris USA, an Altria Company. Together, the prescience, vision, commitment, and generosity of Don Floyd and the colleagues at Altria created the research field of positive youth development!

We are grateful also for the support we receive from our colleagues at Tufts University and in the Eliot-Pearson Department of Child Development. We are thankful for the support and guidance of Drs. Joan and Gary Bergstrom. Joan Bergstrom's untimely passing this year was an enormous loss to all of the colleagues and students within the Institute and at Tufts University. We dedicate this report to her memory, as but a small way to acknowledge her unflagging commitment to enhancing the lives of the diverse youth of America and the world.

We appreciate greatly the numerous contributions of the members of the institute, both past and present, for sharing their skills, dedication, and spirit. Finally, and most importantly, we are grateful to the youth and families involved in the 4-H Study. They are creating a world wherein the strengths possessed by all young people are being used to promote positive development and contributions to civil society. Their energy and optimism are profound and impressive.

We acknowledge and value the contributions of the 4-H Study Advisory Board, chaired by Professor Alexander von Eye, and the faculty and staff from numerous land-grant universities in the Extension/4-H system who have been

instrumental in gathering data and sharing the findings. They are:

- | | |
|------------------------------|---------------------------------|
| University of Alaska | Rutgers University |
| University of California | North Carolina State University |
| Colorado State University | North Dakota State University |
| University of Delaware | Texas A & M |
| Purdue University | Washington State University |
| University of Massachusetts | University of Wyoming |
| University of Minnesota | Cornell University |
| Mississippi State University | Ohio State University |
| University of Missouri | University of Maryland |
| Lincoln University | University of Nebraska |
| Oregon State University | |

REFERENCES

- Balsano, A., Phelps, E., Theokas, C., Lerner, J. V., & Lerner, R. M. (2009). Patterns of early adolescents' participation in youth developing programs having positive youth development. *Journal of Research on Adolescence*, 19(2), 249-259.
- Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma, A., Jr. (2006). Positive youth development: Theory, research, and applications. In R. M. Lerner (Ed.), *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.) (pp. 894-941). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken, NJ: Wiley.
- Blum, R. W. (2003). Positive youth development: A strategy for improving adolescent health. In F. Jacobs, D. Wertlieb, & R. M. Lerner (Eds.), *Handbook of applied developmental science: Promoting positive child, adolescent, and family development through research, policies, and programs: Vol. 2. Enhancing the life chances of youth and families: Contributions of programs, policies, and service systems*. (pp. 237-252). Thousand Oaks, CA: Sage Publications.
- Damon, W. (2004). What is positive youth development? *The Annals of the American Academy of Political and Social Science*, 591, 13-24.
- Erikson, E. H. (1959). Identity and the life cycle. *Psychological Issues*, 1, 50-100.
- Freud, A. (1969). Adolescence as a developmental disturbance. In G. Caplan & S. Lebovici (Eds.), *Adolescence* (pp. 5-10). New York: Basic Books.
- Hall, G. S. (1904). *Adolescence: Its psychology and its relations to psychology, anthropology, sociology, sex, crime, religion, and education*. New York: Appleton.
- Larson, R. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55, 170-183.
- Lerner, R. M. (2004). *Liberty: Thriving and civic engagement among America's youth*. Thousand Oaks, CA: Sage Publications.
- Lerner, R. M. (2005, September). *Promoting Positive Youth Development: Theoretical and Empirical Bases*. White paper prepared for the Workshop on the Science of Adolescent Health and Development, National Research Council/Institute of Medicine. Washington, DC: National Academies of Science.
- Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories of human development. In R. M. Lerner (Ed.), *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.) (pp. 1-17). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken, NJ: Wiley.
- Lerner, R. M. (2007). *The Good Teen: Rescuing Adolescents from the Myths of the Storm and Stress Years*. New York, NY: The Crown Publishing Group.
- Lerner, R. M., Lerner, J. V., Almerigi, J., Theokas, C., Phelps, E., Gestsdottir, S., Naudeau, S., Jelicic, H., Alberts, A. E., Ma, L., Smith, L. M., Bobek, D. L., Richman-Raphael, D., Simpson, I., Christiansen, E. D., & von Eye, A. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: Findings from the first wave of the 4-H Study of Positive Youth Development. *Journal of Early Adolescence*, 25(1), 17-71.
- Lerner, R. M., & Steinberg, L. (2009). The scientific study of adolescent development: Past, present, and future. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology: Vol. 1. Individual Bases of Adolescent Development* (pp. 3-14). New York: Wiley.
- Lewin-Bizan, S., Lynch, A. D., Fay, K., Schmid, K., McPherran, C., Lerner, J. V., & Lerner, R. M. (2010). Trajectories of positive and negative behaviors from early- to middle-adolescence. *Journal of Youth and Adolescence*, 39(7), 751-763.
- Phelps, E., Balsano, A., Fay, K., Peltz, J., Zimmerman, S., Lerner, R. M., & Lerner, J. V. (2007). Nuances in early adolescent development trajectories of positive and of problematic/risk behaviors: Findings from the 4-H Study of Positive Youth Development. *Child and Adolescent Clinics of North America*, 16(2), 473-496.
- Roth, J. L., & Brooks-Gunn, J. (2003). What is a youth development program? Identification of defining principles. In F. Jacobs, D. Wertlieb, & R. M. Lerner (Eds.), *Handbook of applied developmental science: Promoting positive child, adolescent, and family development through research, policies, and programs: Vol. 2. Enhancing the life chances of youth and families: Contributions of programs, policies, and service systems*. (pp. 197-223). Thousand Oaks, CA: Sage Publications.
- Theokas, C., Lerner, J. V., Lerner, R. M. & Phelps, E. (2006). Cacophony and change in youth after school activities: Implications for development and practice from the 4-H Study of Positive Youth Development. *Journal of Youth Development: Bridging Research and Practice*, 1(1).
- Theokas, C., & Lerner, R.M. (2006). Observed Ecological Assets in Families, Schools, and Neighborhoods: Conceptualization, Measurement and Relations with Positive and Negative Developmental Outcomes. *Applied Developmental Science*, 10(2), 61-74.
- Zarrett, N., & Lerner, R. M. (2008, February). Ways to promote the positive development of children and youth. *Child Trends Research-to-Results Brief*. Publication 2008-11.

Waves of the future - 2009

Report Of The Findings from the First Six Years of the 4-H Study of Positive Youth Development

Richard M. Lerner, Jacqueline V. Lerner, and Colleagues

*Institute for Applied Research in Youth Development
Tufts University*



Tufts University
Lincoln-Filene Center
Medford, MA 02155
617.627.5558
<http://ase.tufts.edu/iaryd>



7100 Connecticut Avenue
Chevy Chase, Maryland 20815-4934
Phone: 301.961.2801
Fax: 301.961.2894
www.4-H.org
email: info@4-H.org

The 4-H Name and Emblem are protected by 18 USC 707.

National 4-H Council works to advance the 4-H Youth Development movement, building a world in which youth and adults learn, grow, and work together as catalysts for positive change. National 4-H Council partners with the Cooperative Extension System of Land-Grant Universities and Colleges, 4-H National Headquarters at USDA, communities, and other organizations to provide technical support and training, develop curricula, create model programs, and promote positive youth development to fulfill its mission. National 4-H Council also manages National 4-H Youth Conference Center, a full-service conference facility, and National 4-H Supply Service, the authorized agent for items bearing the 4-H Name and Emblem. National 4-H Council is a non-profit 501(c)(3) organization. National 4-H Council is committed to a policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, sex, religion, religious creed, ancestry or national origin, age, veteran status, sexual orientation, marital status, disability, physical or mental disability. Mention or display of trademark, proprietary product, or firm in text or figures does not constitute an endorsement by National 4-H Council and does not imply approval to the exclusion of suitable products or firms. The 4-H Name and Emblem are protected by 18 USC 707. Produced by National 4-H Council Marketing and Communications Team 1/11-mkt001.

©2011 NATIONAL 4-H COUNCIL