

# THE POSITIVE DEVELOPMENT OF YOUTH

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

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

## OVERVIEW

The 4-H Study was designed to test the idea that when the strengths of youth are aligned across adolescence with family, school, and community resources, positive youth development will occur. These resources include those provided by community-based, out-of-school time youth development programs, such as 4-H, Boys & Girls Clubs, Big Brothers/Big Sisters, YMCA, and scouting. Positive youth development is operationalized by the Five Cs of competence, confidence, character, connection, and caring, leading to youth contributions, the “sixth C” of PYD (Bowers et al., 2010; Jellicic et al., 2007; Lerner et al., 2005; Phelps et al., 2009).

In the 4-H Study of Positive Youth Development (PYD) we use a form of 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. As in all longitudinal studies, we knew we would lose some participants over time for a variety of reasons. Hence, we added new groups (cohorts) of participants at other waves so that statistical analyses would maintain their power.

By the end of Wave 8, the research team and our land-grant university partners had collected data from more than 7,000 participants from 44 states. We gathered data through a student questionnaire, a parent questionnaire, and for a subset of the sample 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 term this process SOC: selection, optimization and compensation; Gestsdottir & Lerner, 2008). In particular, we studied career goals related to science, engineering and computer/technology, as well as school engagement and achievement. 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 the presence of characteristics related to depression.

In this report, we first show models for several long-term trajectories involving PYD, Contribution, depressive characteristics, and risk/delinquent behaviors. For the trajectories of development through Grade 12 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;  $N = 2,974$ ).

Next, we present findings related to a range of outcomes for youth in 4-H, including positive and negative indicators of development, academic achievement, and civic engagement. For these analyses, 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. (The technique we use to control for demographic characteristics when making comparisons of 4-H youth and youth who participate in other OST activities is called *propensity score analysis*, described in the “What we Did and Why We Did It” section”. We show these findings in two ways. First, we present the analyses of Wave 8 (Grade 12) outcomes of youth who participated in our study at Grade 12 regardless of their participation in other waves (Wave 8;  $N = 1,137$ ). These results are referred to as our point-in-time or cross-sectional findings, with the time in question being 12th grade. Second, we report results of Wave 8 (Grade 12) outcomes of youth who participated in Wave 8 and in at least one other Wave between Grades 5 to 12 (Waves 1 to 8;  $N = 553$ ). We refer to these results as our longitudinal group findings.

## SUMMARY OF KEY FINDINGS

- **Contribution and Civic Identity/Civic Involvement:** In the point-in-time sample, 4-H youth are 1.8 times as likely as youth in other OST programs to have higher scores for Contribution. Consistent with the results from Grades 5 to 11, we find that, through Grade 12, 4-H youth in the longitudinal sample are 1.8 times more likely than other youth to make contributions to their communities. These same youth are also 2.5 times more likely to have higher scores on measures of civic involvement and civic identity. The estimated odds that youth who were *ever* in 4-H are in the optimal trajectories of Contribution is 3.4 times higher than the estimated odds for youth who were *never* in 4-H; in other words, in comparison to youth who were either in programs or activities other than for 4-H, or (the small proportion of) youth who were in no programs/activities at all, 4-H youth were substantially more likely to show the highest levels of Contribution.

- **Education:** For educational measures assessed in the point-in-time sample, 4-H participants are 2.2 times as likely as youth in other OST programs to report higher grades and 2.1 times as likely as youth in other OST programs to report high engagement in school. In addition, 4-H youth in the point-in-time sample are 4.9 times as likely to expect to graduate from college as comparison youth.
- **Healthy Living:** On health measures in the Grade 12 sample, 4-H participants are 2.8 times as likely as other youth to report healthy habits and in the longitudinal sample 4-H youth are about half as likely to use drugs and 3.4 times as likely to delay sexual intercourse.
- **Science:** In the longitudinal sample, 4-H participants are 2.0 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 12. In the point-in-time sample, 4-H participants are 1.7 times as likely as youth in other OST programs to plan to pursue a career in science.

## 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 4-H 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 in 2010 was an enormous loss to all of the colleagues and students within the Institute and at Tufts University. We again 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. 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:

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

Finally, and most important, 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.

## 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 eight waves (Grades 5 to 12) 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*

## 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, are in danger of being broken, or display deficits. A relatively 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 has been 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. The researchers 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

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# 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

As discussed by Hamilton (1999), the concept of PYD has been used in at least three interrelated but nevertheless different ways:

1. as a developmental process
2. as a philosophy or approach to youth programming
3. as instances of youth programs and organizations focused on fostering the healthy or positive development of youth.

In the decade following Hamilton’s (1999) discussion of PYD, several different models of the developmental process believed to be involved in PYD were used to frame descriptive or explanatory research across the adolescent period (e.g., Benson, Scales, & Syversten, 2011; Damon, 2004; Larson, 2000; Lerner et al., 2005; Lerner, et al., 2011). All of these models of the developmental process reflect ideas associated with what are termed “relational, developmental systems” conceptions of human development (e.g., Overton, 2010); these theoretical models emphasize that

development involves mutually influential relations between individuals and their contexts. Within these theoretical models, one key approach to understanding PYD has focused on 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.

### Resulting in the 6th”C – Contribution

Contribution	Contributions to self, family, community, and to the institutions of a civil society.
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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; Benson et al., 2011; 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, 2011).

Consistent with Hamilton (1999), the study 4-H Study has defined PYD as a developmental process, as well as shaping thinking about PYD as a philosophy or approach to youth programming. 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 address this question, 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: WHAT WE DID AND WHY WE DID IT

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 participants in the study 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.

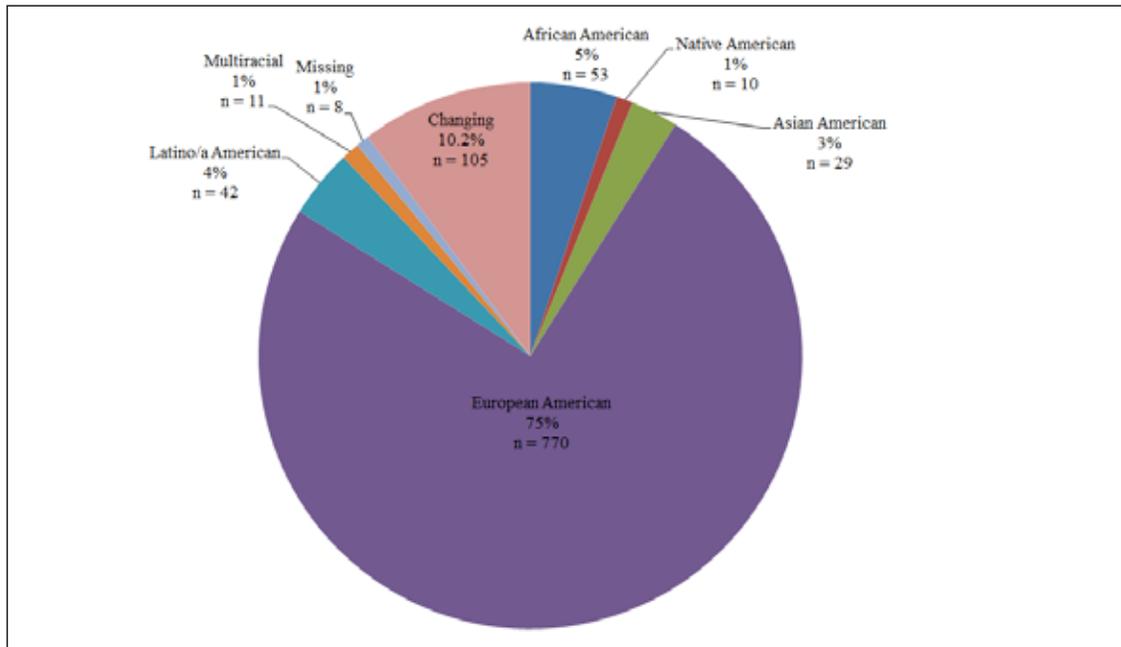
The first, second, and third Annual Reports from the 4-H Study were issued in spring, 2008 and 2009 and winter 2010 and summarized findings published or in press through eleventh grade (Wave 7 of the study). The complete reports can be accessed at: [www.4-H.org](http://www.4-H.org).

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 8, our research team and land-grant university partners had collected data from more than 7,000 participants from 44 states.

In order to compare the outcome variables between youth who participated in 4-H and youth who participate in other OST activities, we created propensity scores to use in our analyses for this report. Propensity scores allow for the control of theoretically-predicated baseline covariates, allowing these covariates to be as similar as possible between the “treated” (4-H youth) and “untreated” (youth in other OST activities) participants (Austin, 2011). We used logistic regression to create a propensity score for each individual in our sample, based on his or her sex, race/ethnicity (White/Caucasian, Asian, Native American, African American, Latino/a, multiethnic, or other), geographic locale (urban, suburban, or rural), geographic region (west, north central, south, or northeast), average per capita income, and maternal education level. Given that youth who participate in 4-H may be a selective group of youth with respect to sex, race, residential locale, and socioeconomic status, controlling for variation in these variables was critical. Including propensity scores in our analyses allowed us to more confidently attribute differences in the outcome variables to youth participation in 4-H, and not to the influence of confounding demographic variables.

The following figures provide more details about the youth comprising the 4-H Study sample.

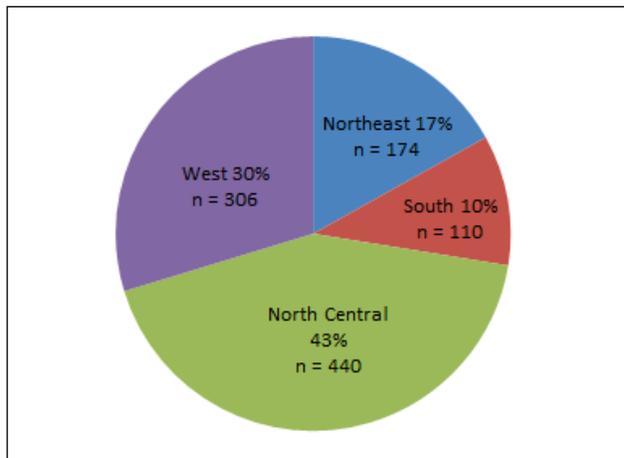
## RACE/ETHNICITY IN THE 4-H SAMPLE, WAVE 8 (N = 1030)



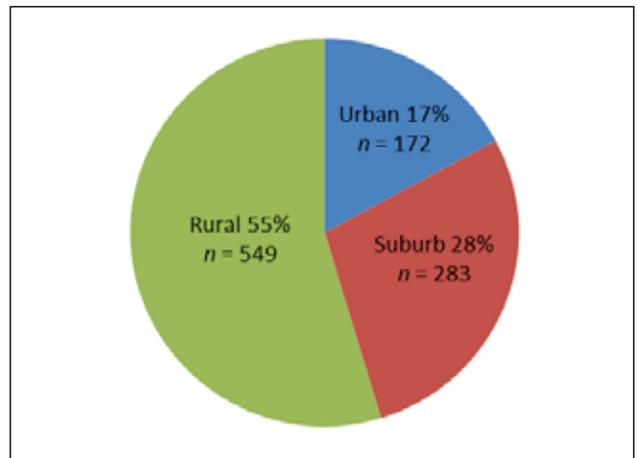
\*Some youth change, from one wave to another, the racial/ethnic label they use to describe themselves. The variation may reflect the developmental nature of racial/ethnic identity.

Note: Two of the participants (0.2% of the sample) reported "Other" race/ethnicity.

## GEOGRAPHIC DISTRIBUTION IN THE 4-H SAMPLE, WAVE 8 (N = 1030)



## LIVING ENVIRONMENTS IN THE 4-H SAMPLE, WAVE 8\*\* (N = 1030)



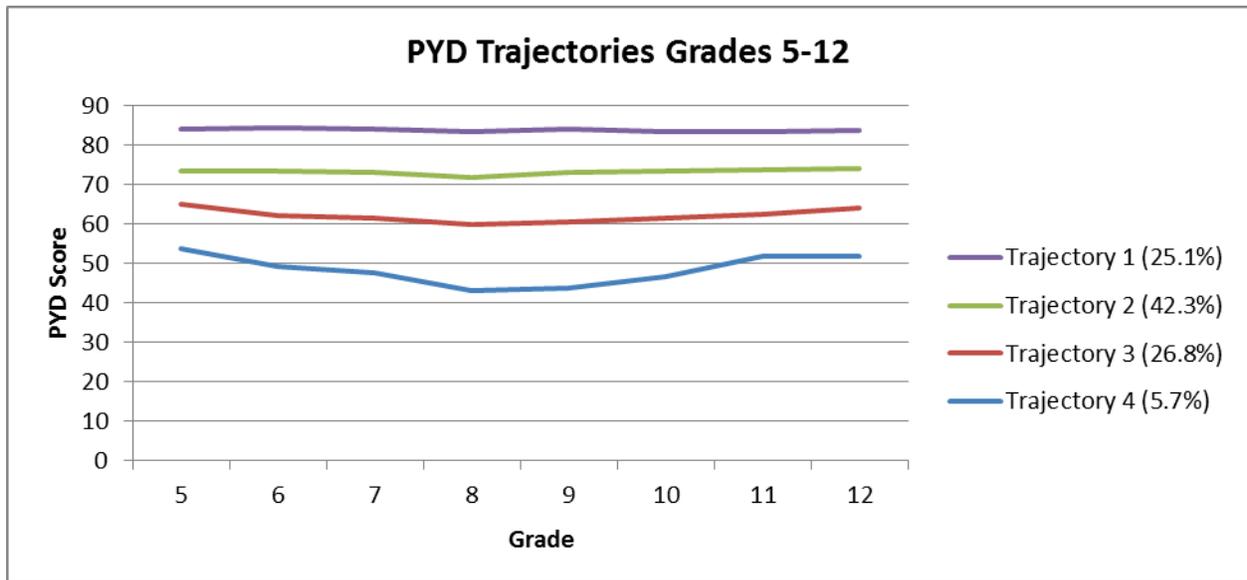
\*\*\*Data about living environments were missing for 26 of the youth.

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 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 the presence of characteristics related to depression.

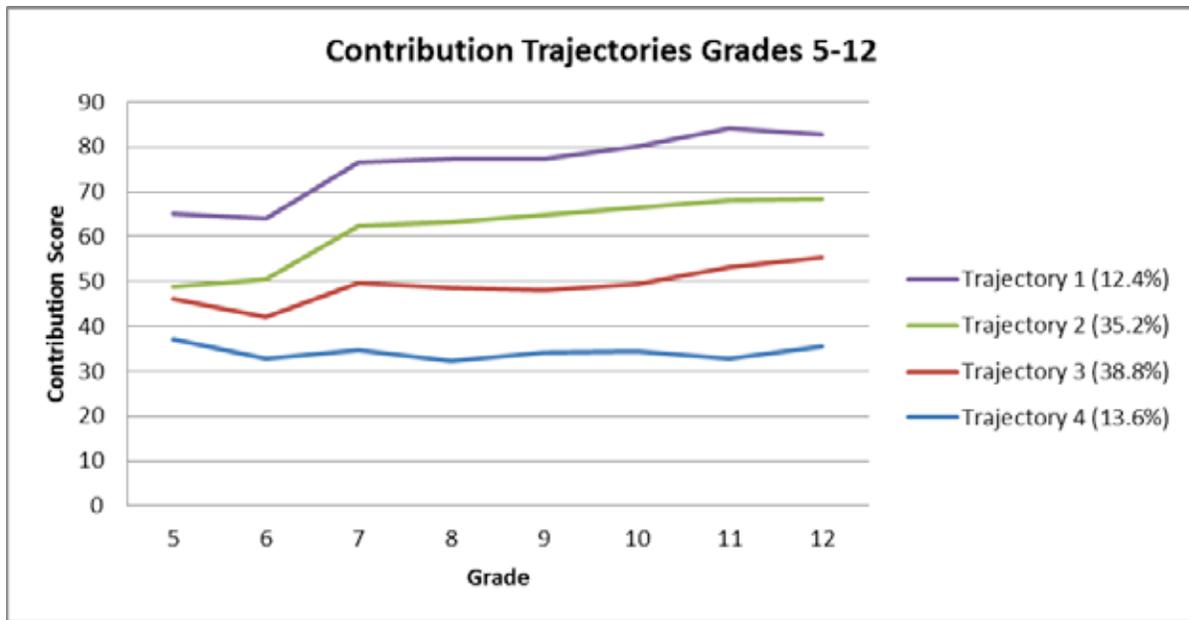
# TRAJECTORIES

## PATHWAYS OF DEVELOPMENT THROUGH GRADE 12 (WAVE 8)

To prepare the data for analyses of the pathways, or trajectories, of development through Grade 12, 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 = 2,974). We developed models for several long-term trajectories (optimal, problematic, and gradations in between) involving PYD, Contribution, depressive characteristics, and risk/delinquent behaviors.



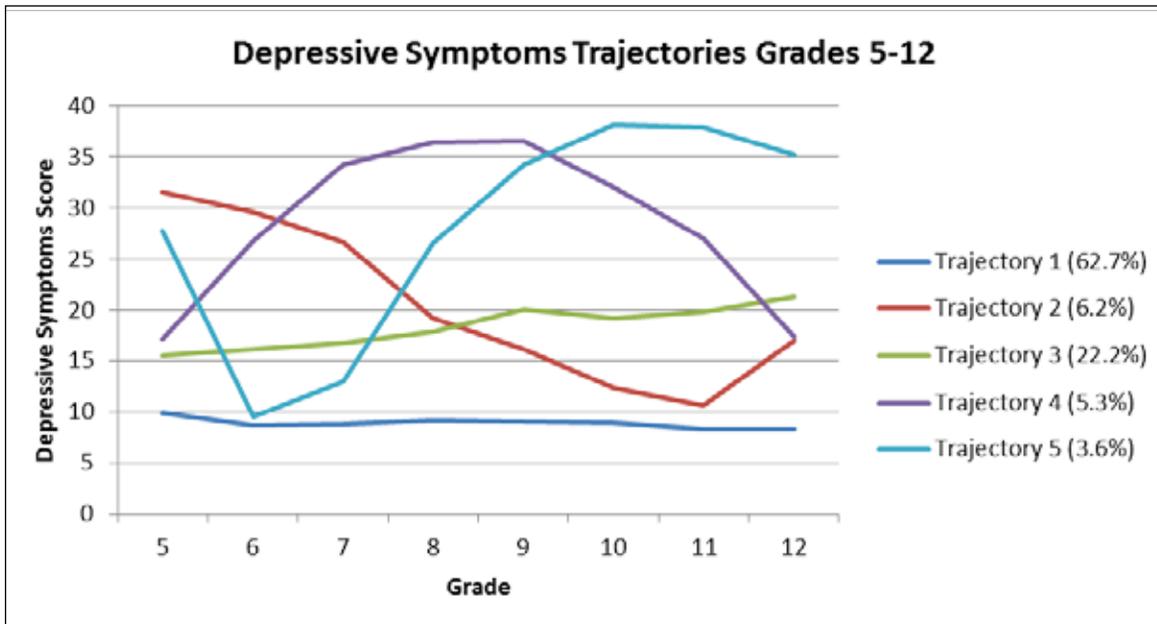
**PYD Trajectories:** In regard to PYD, there are four pathways found across the Grade 5 to Grade 12 span (total N for this analysis = 2,933). These trajectories range from consistently relatively low through consistently intermediate in PYD level to consistently high in PYD level. The key finding here, then, is one of consistency. Youth seem to be on a specific PYD pathway in Grade 5 (approximately Age 10 years, the beginning of adolescence) and they tend to remain on this pathway across the ensuing years of adolescence (at least through Grade 12).



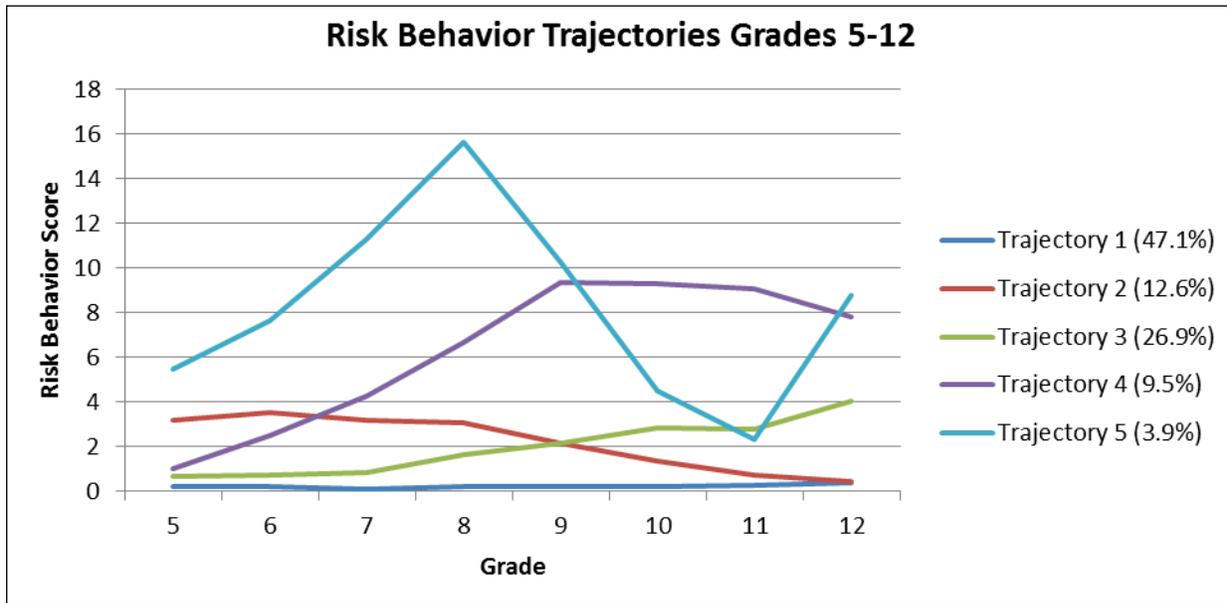
**Contribution Trajectories:** Across Grades 5 through 12, youth show four different levels of contribution. Many youth increase in their level of contribution across grades but only about 12% of youth show the highest (most desired) levels of contribution ( $N = 2,922$ ).

The estimated odds that youth who were ever in 4-H are in the optimal trajectories of Contribution is 3.4 times higher than the estimated odds for youth who were never in 4-H; in other words, in comparison to youth who were either in programs or activities other than for 4-H, or (the small proportion of) youth who were in no programs/activities at all, 4-H youth were substantially more likely to show the highest levels of Contribution.

The finding of such marked consistency suggests that the individual and ecological factors that place youth on a particular pathway tend to remain continuous in their influence across a substantial portion of adolescence. Accordingly, intervention efforts that seek to “relocate” youth, for instance, to move them from a lower level to a higher-level trajectory, will have to take into account the power and persistence of such individual and ecological factors. Future research and practice must identify and find ways to modify these factors if there is an interest in enhancing the levels of PYD of adolescents.



**Depressive Symptoms Trajectories:** The course of characteristics related to depression across Grades 5 through 12 takes several forms. Most youth (approximately 62.7 %) show low levels across time; unfortunately, the remaining 37.3% of youth show variations from this optimal trajectory. These complex trajectories will require more nuanced research to identify the bases of such diverse pathways ( $N = 2,955$ ).



**Risk Behavior Trajectories:** Across grades, most youth (more than 86.6%; Trajectories 1, 2, and 3) reported no or very low levels of risk behaviors. Risk behaviors include substance use (such as alcohol, cigarettes, marijuana, ecstasy, etc.) as well as engaging in delinquent behaviors, including vandalism and theft. This finding counters the youth stereotype of storm and stress, at least among the adolescents in the 4-H Study sample. Indeed, 9.5% of youth (Trajectory 4) seem to show moderate risk and stay on that general path and show a slight decrease in high school. Only about 3.9% of youth (Trajectory 5) show a steady increase in levels of risk behavior as they move into high school with a decrease a year or two later and then another increase in 12th grade (N = 2,953).

Overall, the trajectory analyses show that there is marked consistency across adolescence in our sample for both PYD and Contribution. In terms of risk behaviors, only one small group is showing increasing risk across adolescence—most youth in our sample are not engaging in risk behaviors across middle school and well into the high school years. As we mentioned above, the trajectories for depression across the seven years of the study are more complex, and we will need to delve deeper into the data to tease out the reasons for this diversity.

<sup>1</sup>The Wave 7 Annual Report reported risk and delinquent behavior trajectories that assumed that the underlying variables followed a normal distribution. However, Poisson distribution is more appropriate. Fortunately, the differences between the corrected trajectory plot and the plot we initially reported are relatively minor. Specifically, the values (e.g., ranges), shapes, and percentage of youth assigned to each group only differ slightly between the initial and corrected trajectories. A corrected version of these results can be found at the following website: <http://www.4-h.org/about/youth-development-research/positive-youth-development-study/>. Inspection of these revised plots indicates that across grades, most youth (more than 93%) reported no or very low levels of risk behaviors. This finding counters the youth stereotype of storm and stress, at least among the adolescents in the 4-H Study sample. Indeed, 10% of youth seem to show moderate risk and stay on that general path and show a slight decrease in high school. Only about 7% of youth show a steady increase in levels of risk behavior as they move into high school with a slight decrease a year or two later (N = 2,953).

## 4-H PARTICIPATION AND POSITIVE YOUTH DEVELOPMENT

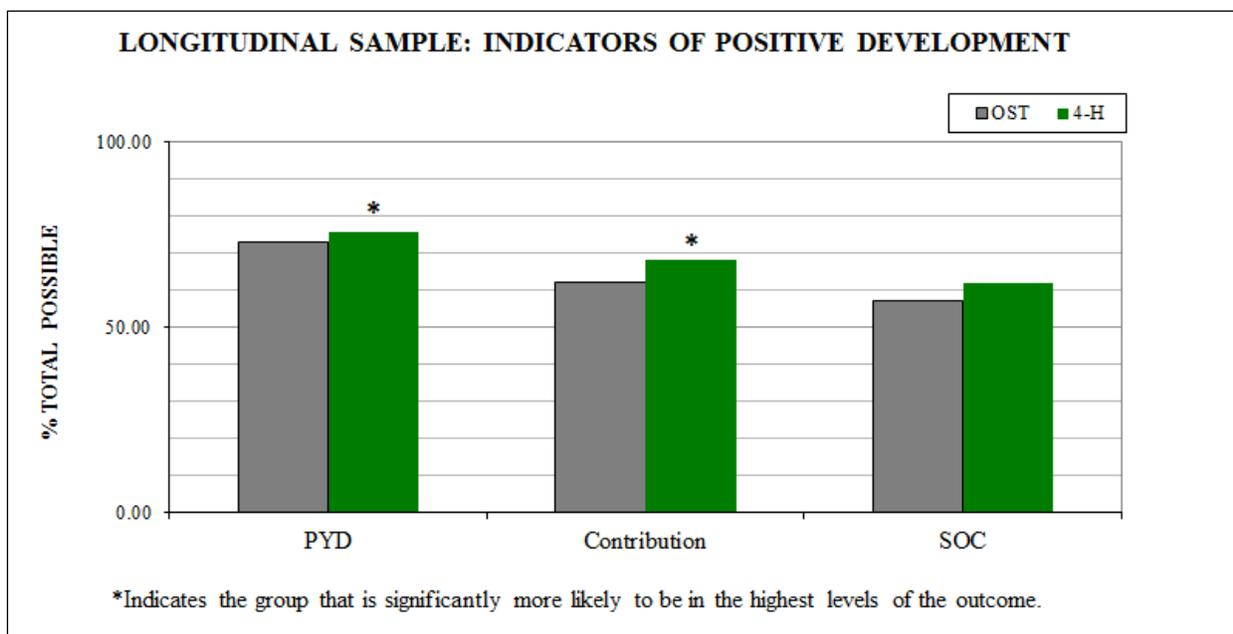
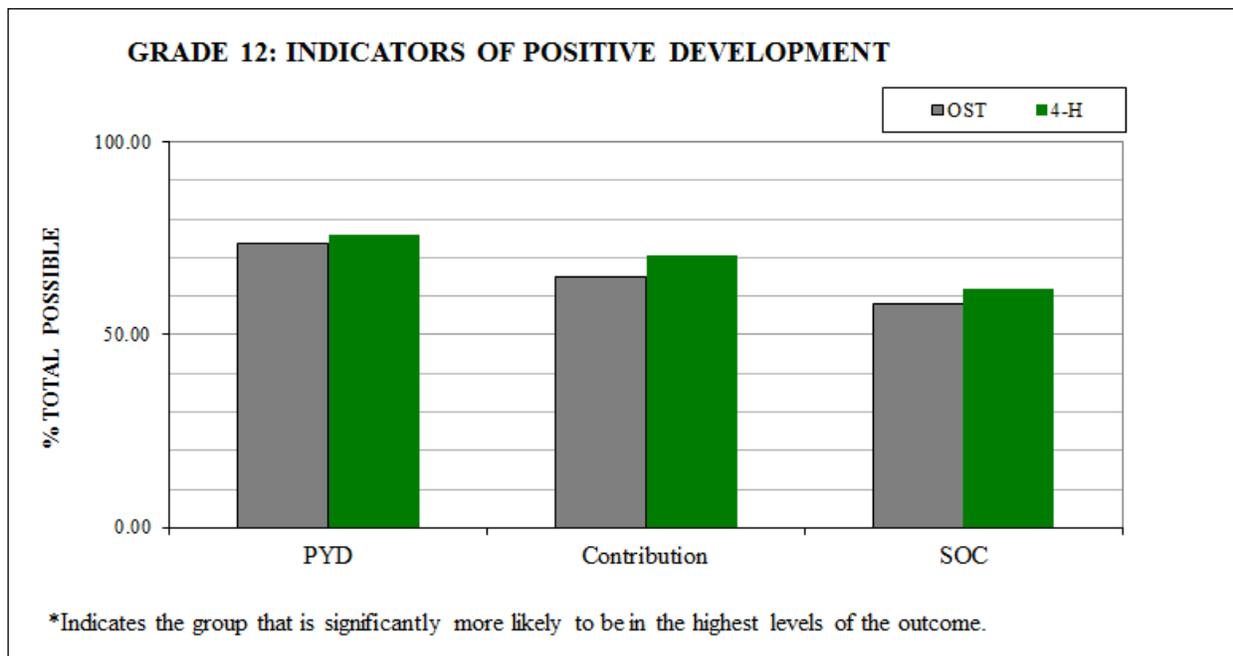
In the first, second, third, and fourth Annual Reports we presented findings from Waves 1-7. In these reports we presented the results of analyses aimed at ascertaining the relations between PYD and participation in 4-H clubs and 4-H after-school programs, compared to participation in other OST activities. 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 12 outcomes of youth who participated in our study at this grade regardless of their participation in other waves (Wave 8;  $N = 1,137$ ). The Grade 12 results are referred to as our point-in-time or cross-sectional findings, with the time in question being 12th grade. Second, we report results of Grade 12 outcomes of youth who participated in our study at least twice from Grades 5 to 12 (Waves 1 to 8;  $N = 553$ ). We refer to these results as our longitudinal group findings. In the longitudinal sample where comparisons are made between the 4-H vs. non 4-H youth, the subjects are only those youth who participated in Grade 12, had participated in the study in at least one other Wave, and who had complete data on the variables of interest.

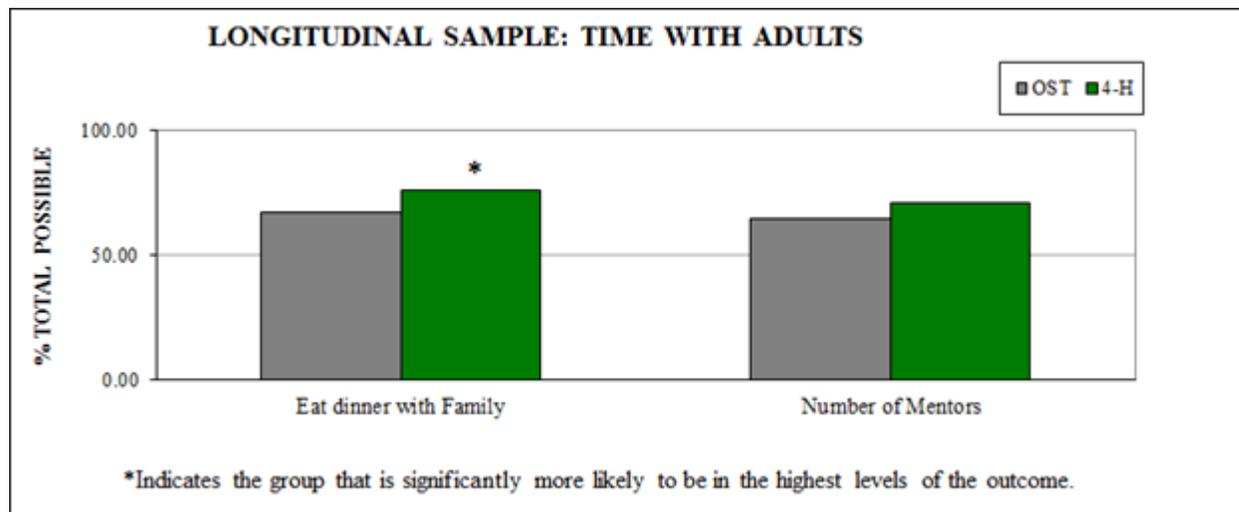
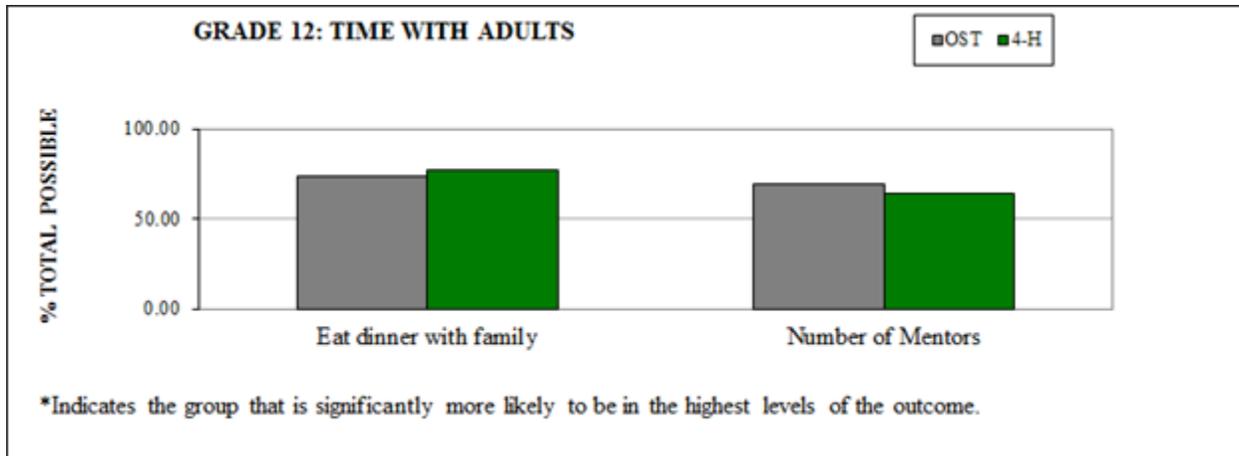
## PYD AND CONTRIBUTION

In the analyses of youth who participated in our study at least twice from Grades 5 to 12 (that is, in the longitudinal group analyses pertinent to behavior and development at Grade 12), 4-H participants reported significantly higher levels of contribution and PYD than among the comparison group. These youth were 1.8 times more likely to report high level of Contribution than youth in other OSTs and 1.9 times more likely to have higher PYD than comparison youth. As in the results from Grades 5 to 11, we find that, at Grade 12, 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.



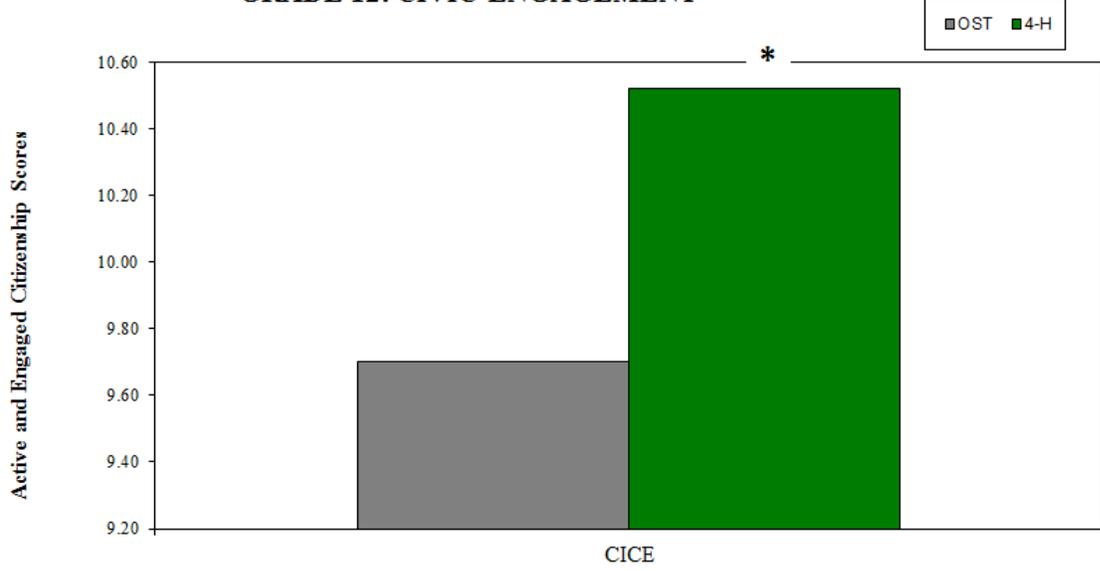
4-H youth show some evidence of the presence of the developmental assets that the 4-H study has found most important in promoting PYD. In the longitudinal sample, 4-H youth reported that they had more dinners with family than did comparison youth.



## SPECIAL FOCUS: CIVIC IDENTITY/CIVIC ENGAGEMENT

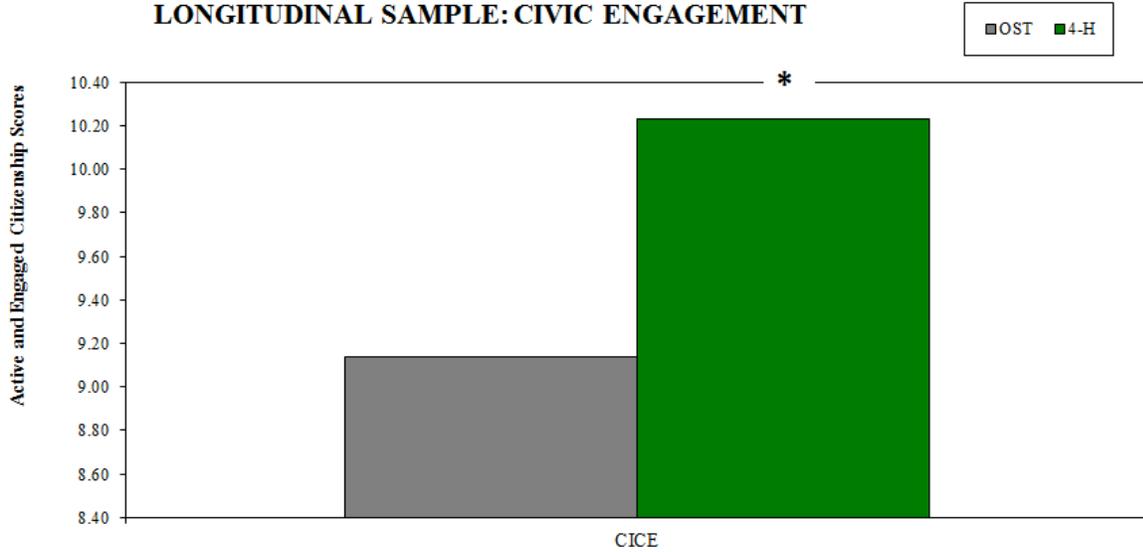
For the analyses of youth who participated at Grade 12 per se (that is, regardless of their participation in other waves), we found that the 4-H participants had significantly higher scores for Contribution and Civic Identity/Civic Engagement (CICE) than youth in other programs. CICE is a construct that 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. Specifically, Grade 12 4-H youth are 2.0 times as likely to have higher scores for CICE and 1.8 times as likely as youth in other OST programs to have higher scores for contribution.

### GRADE 12: CIVIC ENGAGEMENT



\*Indicates the group that is significantly more likely to be in the highest levels of the outcome.

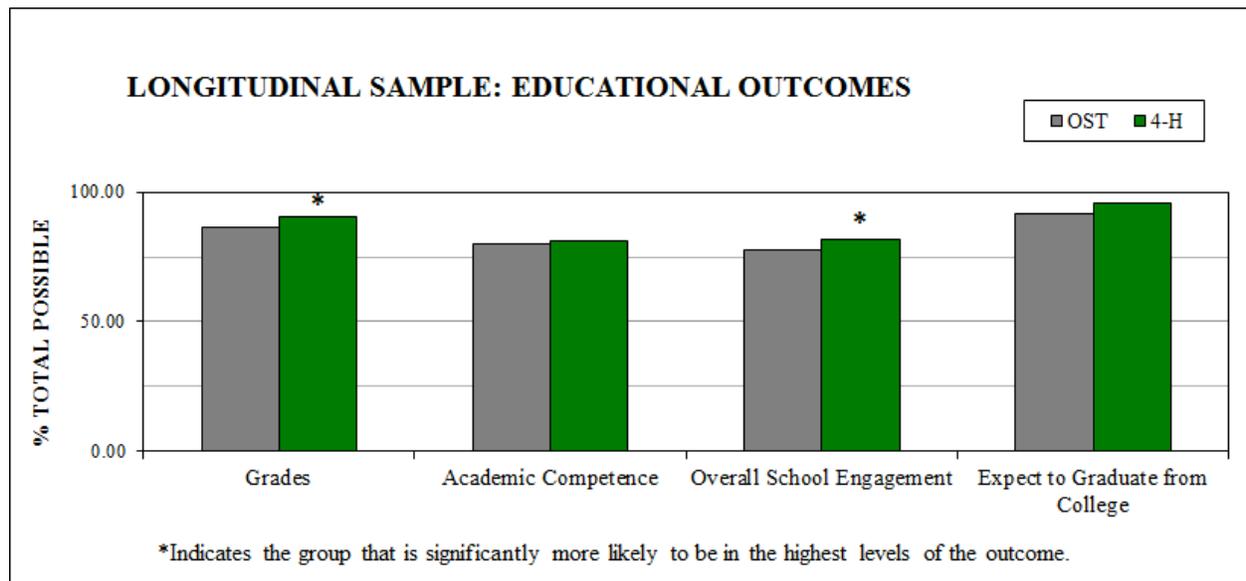
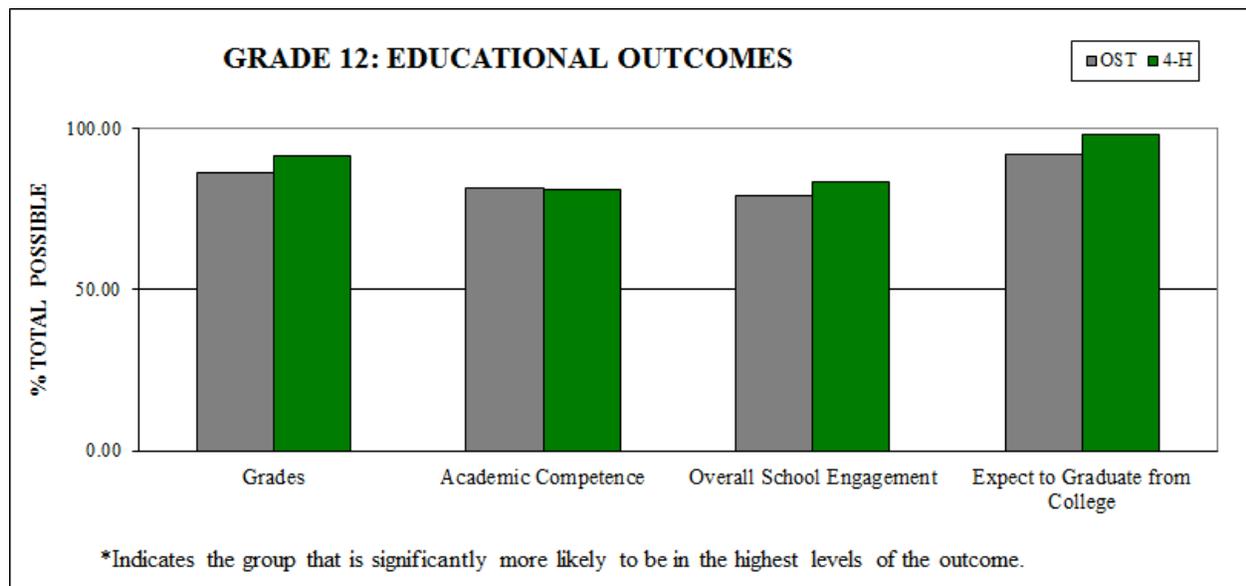
### LONGITUDINAL SAMPLE: CIVIC ENGAGEMENT



\*Indicates the group that is significantly more likely to be in the highest levels of the outcome.

## SPECIAL FOCUS: EDUCATIONAL OUTCOMES

On the educational measures for the point-in-time analyses, the 4-H participants are 4.9 times as likely to expect to graduate from college, 2.2 times as likely to report high grades, and 2.1 times as likely as youth in other OST programs to report higher engagement in school. The youth in the longitudinal sample also report significantly higher grades and levels of school engagement than youth in other OSTs. These 4-H youth are 2.1 times more likely to report high school engagement and 1.9 times as likely to report higher grades than youth in other OSTs. In Grade 12, measures of positive educational characteristics were significantly higher among 4-H participants.



# SPECIAL FOCUS: HEALTHY BEHAVIORS AND DECISION MAKING

As displayed in the table below, for the longitudinal sample Grade 12 4-H participants were less likely than youth in other OST programs to have sexual intercourse by Grade 12, and in the point-in-time sample 4-H youth were more likely as youth in other OST programs have healthier habits in Grade 12.

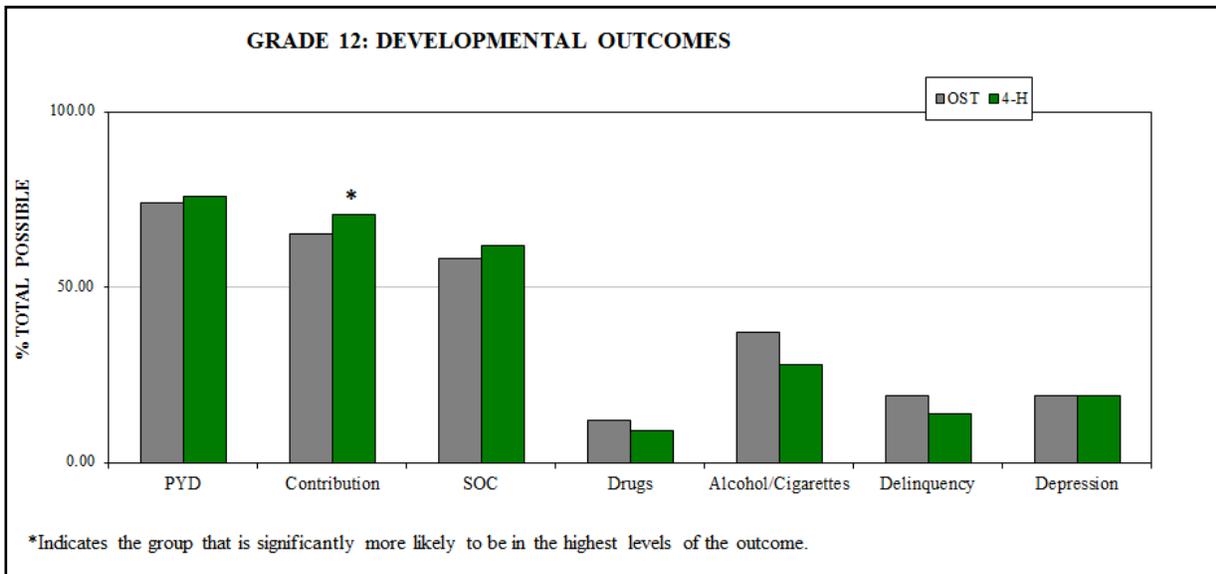
## What are the odds? Healthy Behaviors

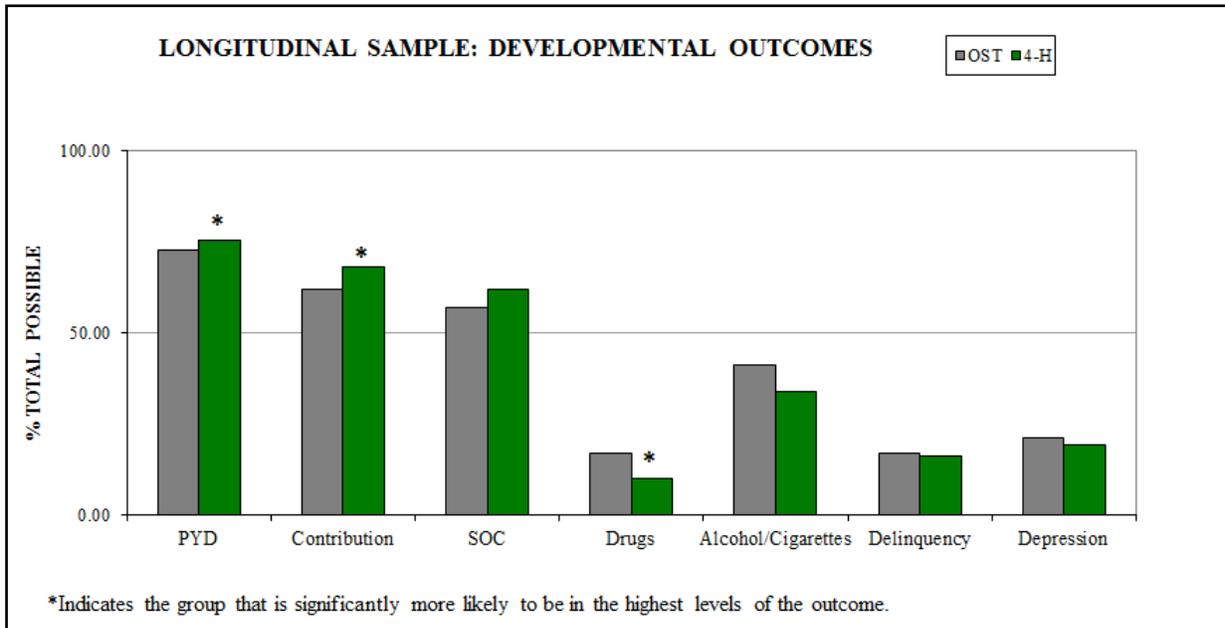
Compared to <i>non</i> 4-H Youth, 4-H Youth are...		
<i>Longitudinal Analyses</i>	...3.4 times as likely	to delay sexual intercourse by Grade 12
<i>Point-in-Time Analyses</i>	...2.8 times as likely)	to report healthier living in Grade 12

Compared to <i>non</i> 4-H Girls, 4-H Girls are...		
<i>Longitudinal Analyses</i>	...0.5 times as likely (less likely)	to use drugs in Grade 12

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.





## HEALTHY DECISION MAKING AND *Health Rocks!*<sup>®</sup> (HR!).

Over the course of the 4-H study, we were able to conduct analyses on the 681 youth who said they had participated in an Anti-smoking/Healthy Decision Making Program at some point in their life. Of this total, 450 youth were 4-Hers. Many of these 4-H youth are likely to have participated in the 4-H Healthy Decision Making Program called *Health Rocks!*<sup>®</sup> (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. We have reported these results in detail in the last annual report (WAVE 6, GRADE 10) and we summarize them below.

In summary, 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 were also less likely to engage in delinquent behaviors. These results are similar when boys and girls are analyzed separately.

## SPECIAL FOCUS: SCIENCE, ENGINEERING, and COMPUTER TECHNOLOGY

Beginning at Grade 10 (Wave 6) 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. We obtained individual scores for participation, performance and future plans for courses and careers as well as a composite score for participation, performance and future plans for all three areas (science, computer technology and engineering).

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 4-H participants are 2.0 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 12.

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

<b>Compared to <i>non</i> 4-H Youth, 4-H Youth are...</b>		
<i>Longitudinal Analyses</i>	...2.0 times as likely ...1.7 times as likely	to participate in afterschool science, engineering, or computer technology programs  to plan to take courses or pursue a career in science, engineering, or technology
<i>Point-in-Time Analyses</i>	...2.3 times as likely	to participate in afterschool science, engineering, or computer technology programs
	...1.7 times as likely	to have plans to pursue science careers

<b>Compared to <i>non</i> 4-H Girls, 4-H Girls are...</b>		
<i>Point-in-Time Analyses</i>	...2.0 times as likely	to have plans to pursue science careers

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 results over a few years. The value may come from the program's influence on life-long pathways of development. Continued study of the 4-H Study participants 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. From the findings we have represented, it seems to be the case that 4-H youth are on such a positive trajectory. For example, youth who were ever in 4-H are 3.4 times as likely to be in the optimal trajectories of Contribution than youth who were never in 4-H; in other words, in comparison to youth who were either in programs or activities other than for 4-H, or (the small proportion of) youth who were in no programs/activities at all, 4-H youth were substantially more likely to show the highest levels of Contribution.

Clearly, 4-H youth are contributing more to their world than youth in other OST activities. This difference includes the higher levels of active and engaged citizenship shown by 4-H youth, and is found in both the point-in-time (Grade 12) data and in the longitudinal analyses. The consistency across adolescence of greater contributions by 4-H youth is arguably the most powerful finding in the 4-H Study.

Indeed, the finding highlights the unique power of longitudinal investigations. Given the large number of comparisons made at any point in time between 4-H youth and other youth, a difference, or even a few differences, seen at a given point in adolescence may not lend itself to the interpretation that a developmental advantage has been identified. However, when a difference is found consistently across time, and in different configurations of samples, then the contention that a developmental advantage exists is on much stronger footing.

Therefore, the consistently greater levels of contribution by 4-H youth and, as well, the consistency we find in regard to indicators of healthy living (e.g., healthier habits), educational outcomes (e.g., school engagement), and STEM (e.g., participation and interest in science, engineering and technology) constitute compelling evidence for arguing that 4-H youth are thriving across substantial portions of their adolescence. We expect that these indicators of positive and healthy development will provide assets for 4-H youth as they enter their adult years. Although only future longitudinal research can indicate if this hope is realized, our "best bet" would be that such advantages are indeed the case.

## 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 characteristics, needs, and interests of adolescents and their families (e.g., Balsano, Phelps, Theokas, Lerner, & Lerner, 2009; Mueller, Lewin-Bizan, & Urban, 2011; 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, McPherran, Lerner, & Lerner, 2010; Phelps et al., 2007).

We are grateful that we have been given the support from National 4-H Council and the Altria Corporation to continue this study through Grade 12, so that we can gather and analyze additional information to help the youth of today and tomorrow. We hope that in the future we can build upon and extend this longitudinal study, so that we can gain powerful and practical insights into what guides a thriving young person into a productive and successful adulthood. With such additional research, we would also be able to determine which PYD assets are related to critical life events, such as completing high school, and going to college, successful entry into the workforce, or embarking on military service to our nation (Lerner, et al., 2009).

If we are able to study the 4-H Study participants 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.

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# THE POSITIVE DEVELOPMENT OF YOUTH

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

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Institute for Applied Research  
in Youth Development  
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](http://www.4-H.org)  
email: [info@4-H.org](mailto:info@4-H.org)

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