

Research Report

Public School Students' Out of School Time Study

Measuring the Impact of Colorado's 4-H Youth Development Program

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Fall 2005

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Abstract

The purpose of this study was to measure the impact that the 4-H Youth Development experience has had on Colorado's young people. As state and county budgets become tighter and tighter, the 4-H Youth Development program must demonstrate its effectiveness with sound data to enhance the rich anecdotal information more easily available. Research-based information is critical to future 4-H Youth Development programs. Also examined were students who were active in out-of-school-time activities other than 4-H and their involvement in at-risk behaviors.

Data were collected from 5th, 7th, and 9th grade students in Colorado. Students were selected from up to four randomly selected schools in each of the 15 counties selected in a statewide stratified random sample. There were 1906 useable surveys returned. The data were entered, coded and analyzed by the spring 2005 BK 410 Marketing Research class in the College of Business at Colorado State University. The data were reviewed by the university's Department of Statistics for data entry accuracy and additional data analysis.

Results of the study confirm that youth who participate in any organized out-of-school activities are less likely to engage in a variety of at-risk behaviors. 4-H Youth Development members were less likely than their non-4-H Youth Development classmates to use drugs, or smoke. 4-H Youth Development members also had a significantly more positive outlook on life and the world around them than did non-4-H Youth Development members.

Acknowledgements

This project was possible through the assistance and cooperation of many people.

Extension agents and staff in Colorado made the collection of these data possible. Without their local contacts with schools and their actual collection of survey instruments, this study would not have been possible. School officials whose cooperation allowed data to be collected during school time are sincerely appreciated.

Kirk Astroth, 4-H Youth Development Program Leader at Montana State University and his colleagues at Montana State provided the groundwork for this study, conducting a similar study in Montana in 2000.

The State 4-H Youth Development Office in Idaho at the University of Idaho is recognized for sharing their design of the replication of the original 4-H Youth Development Impact Study conducted in Montana in 2000, their survey instrument, and their data reporting format.

John Weiss and his spring 2005 BK 410 Marketing Research class in the College of Business at Colorado State University set the timeline, consulted with State 4-H Office staff on survey questions and format, entered and analyzed data, and reported results. These young professionals in training taught us and learned with us, and we are appreciative of their energy and efforts.

Introduction

4-H Youth Development has been in existence since 1902 in the state of Colorado and marked its 100th year anniversary in 2002. Members' participation allows them to acquire knowledge and life skills that enable them to become productive citizens and catalysts for positive change to meet the needs of a diverse and changing society. During the centennial celebration, many people speculated whether the Colorado 4-H Youth Development program would be viable for another hundred years. Data are required to demonstrate to citizens and elected officials the continued relevance and worth of this 100-year old institution.

In the past, the worth of the program has been conveyed by anecdotal success stories and the “gut-feeling” of 4-H members, families, agents, volunteers and others familiar with the program. This method alone is no longer adequate in documenting the importance and value of the program (Goodwin et al. 2005).

The purpose of this study was to provide sound, research-based information to the public about the effect of 4-H Youth Development membership on the lives of young people. The study also explored the relationship between how Colorado youth spend their time out of school and how their use of this time shapes their educational, emotional, and social skills.

Methods and Procedures

This study was undertaken to determine the impact 4-H Youth Development may have had on 5th, 7th and 9th grade students in Colorado public schools. The questionnaire addressed several areas including:

- positive identity
- social competency
- self-confidence
- empowerment
- skills learned
- at-risk behavior
- impact of 4-H Youth Development.

Colorado State University's Human Research Committee (HRC) gave approval to survey Colorado 5th, 7th and 9th grade students. Letters of cooperation were obtained from all participating schools, and informed consent documents sent home with all participating students.

Population

The populations for this study consisted of a stratified random sample of 15 counties in Colorado. A stratified random sample was used to insure an equal distribution of counties among the three Extension regions in the state (North, South, and West). In each county, four schools were randomly selected. The list of schools was retrieved from the Colorado Educational Directory 2004 - 2005 (Colorado Department of Education 2005). Using the complete list of schools that had 5th, 7th and/or 9th grades, a computer random generator was used to determine the selected schools. These grades were selected because they represent the audience served by 4-H Youth Development (Goodwin et al. 2005).

Before the administration of the survey, some selected counties and some schools within selected counties determined they would not be able participate. Alternate counties had been drawn and were selected, and four schools within each participating county randomly selected. The counties that collected data for the study are shown on Table 1.

Table 1 - Number of Respondents by County

County ^A = <i>alternate county</i>	Region	Frequency	Percent of Respondents
Alamosa	South	19	1.0
Archuleta ^A	West	198	10.4
Baca	South	65	3.4
Chaffee ^A	South	219	11.5
Conejos ^A	South	54	2.8
Eagle	West	166	8.7
El Paso	South	42	2.2
Garfield	West	299	15.7
Kit Carson	North	145	7.6
Las Animas	South	183	9.6
Montezuma	West	67	3.5
Phillips ^A	North	50	2.6
Rio Grande	South	46	2.4
Washington	North	77	4.0
Yuma	North	247	13.0
Unknown	N/A	19	1.0
Total	N/A	1906	100.0

Development of Instruments

The survey instrument used to assess the ways young people spent their time out of school and how that use of time may affect their academic, emotional, social and cognitive development was patterned after the Montana Extension Service (in collaboration with researchers at Montana State University) study conducted in 2000 and replicated in Idaho in 2002 – 2003. The Search Institute approved the use of some of their survey questions for the Montana survey. Idaho and Colorado requested and were granted permission to carry those questions forward for their replication studies.

The original instrument consisted of principally high quality (valid and reliable) questions taken from other national or state surveys (Astroth & Haynes, 2002). It included questions of basic demographic and family-oriented content as well as questions categorized into seven subscales:

- Positive self-identity
- Social competency
- Relationships with adults
- Self confidence
- Empowerment
- Kindheartedness
- Skills

To save time during administration of the survey, Colorado's edition included only 65 questions. Redundant items were eliminated in consultation with the BK410 Marketing Research students whose early group assignment included shortening the survey.

The survey was divided into seven sections:

- Section one of the survey (Questions 1 and 2) was designed to gather extracurricular activity and negative behavior information about the subjects of the study.
- Section two (Questions 3 – 9) of the questionnaire was designed to determine the way the students perceived themselves regarding their personal identity.
- Sections three (Questions 10 – 15) and four (Questions 16 – 27) were formatted to have the participants assess their levels of social competency.
- Section five (Questions 28 - 38) was designed to specifically measure how the individuals felt concerning their self confidence, character and personal empowerment.
- Section six (Questions 39 – 53) focused mainly on whether the students cared about others, life skills they have learned and demographics, including age, grade, gender, location of family living unit, grades in school, and family composition.
- Section seven (Questions 54 – 65) asked respondents determine if they had been, or currently were, a 4-H Youth Development member. Those who had no experience completed the survey at this point. Students who had experience with 4-H Youth Development were asked to complete the rest of section seven, which was designed to measure the impact of 4-H Youth Development on those students who had participated.

The question format included fill-in-the-blank, yes/no, essay, circle those that apply (Likert-type scale), and multiple-choice. A Spanish version of the survey was available for those pupils who had difficulty reading or comprehending English.

Collection of Data

The survey instruments were delivered to or picked up by the local Cooperative Extension agent in each participating county. Packets of instructions on how to administer the survey were sent to all county Cooperative Extension agents in the selected counties. They made initial contacts with the school superintendents and/or principals. Letters of cooperation were secured from each participating school in every selected county.

Surveys were implemented within the randomly selected schools in those counties after Human Subjects approval was granted. Parental “opt out” letters of informed consent were sent previous to the actual administration of the survey. Administration of the questionnaires was conducted in the spring of 2005. A follow-up was not necessary as all students completed the surveys during the class period.

Surveys were not coded in advance. However, when each class finished within the participating grade, the surveys were wrapped with an accompanying tracking sheet filled in with pertinent information by the county Cooperative Extension agent or other facilitator. Surveys were sent to the State 4-H Office where they were checked in and distributed to BK410 class members whose assignment was data entry. SPSS was the program used for data entry and analysis.

Response rates are reported in Table 2.

Table 2 - Response to the survey instrument

Respondent Groups	Frequency
Counties	15
Students	2003

Coding and Analysis of Data

The College of Business BK410 Marketing Research class at Colorado State University coded and entered the data into SPSS and each of five small groups from the two sections prepared a report and presentation for the State 4-H Office. Four of the groups reported frequencies only. For the SPSS program to analyze the dependent variables, the rankings of the Likert-type scales were converted to numerical classes and treated as interval level variables:

- 1 = Strongly Agree
- 2 = Agree
- 3 = Neutral
- 4 = Disagree
- 5 = Strongly Disagree

Missing data were coded as 9 = “missing” for electronic entry after they were received. These were deleted from statistical analysis. Ninety-seven questionnaires were unusable due to incorrect completion, wrong grade surveyed for information, and/or empty spaces. Analyses were conducted with 1,906 usable returned surveys.

One small group from BK410 conducted and reported statistical analysis of the data. Logistic regression using the chi-square (χ^2) test was performed for analysis. This test of statistical significance does not make assumptions about the distribution and form of scores on the measured variable (also called nonparametric). It is used when the research data are in the form of frequency counts for two or more categories. The statistics laboratory in the Colorado State University Department of Statistics reviewed the data entry for accuracy, and provided additional data analysis.

Frequencies and percentages

Frequencies and percentages were compiled on the questions regarding extracurricular participation, negative behaviors, positive identity, social competency, contact with adults, self confidence, empowerment, caring about others, skills learned, age, grade, gender, household size, location of family living unit, family types, and impact of 4-H Youth Development on members.

Findings and Discussion

Participants

Respondents were asked to indicate a number of background characteristics to contribute to the statistical analysis. Of the 1906 respondents who participated in the survey, 49.9 percent were

male, and 49.2 percent were female (Table 3). Of the 1906 respondents to the questionnaire, 393 reported they had been involved in the 4-H Youth Development program for at least one year. (Table 4) Of those 406 respondents who had ever been in 4-H Youth Development, 294 of them had been a member for two years or more. (Table 5)

Table 3 - Frequencies and Percentages According to Gender

Gender	#	Percent
Female	937	49.2
Male	951	49.9
Missing	18	0.9
Total	1906	100.0

Table 4 - Frequencies and Percentages According to 4-H Youth Development Participation (1 year or more)

4-H Youth Development Participation	#	Percent
4-H Youth Development Member one year or more	393	20.6
Non-4-H Youth Development Member or Member less than one year	1513	79.4
Total	1906	100.0

Table 5 - Frequencies and Percentages According to 4-H Youth Development Participation (2 or more years)

4-H Youth Development Participation	#	Percent
4-H Youth Development Member 2 or more years	294	16.1
Non-4-H Youth Development Member or Member less than two years	1612	83.9
Total	1906	100.0

Students were asked to specify which grade they were in at the time of the survey: 5th, 7th, or 9th. Of the participants, 41.7 percent identified themselves as being in the 5th grade, 37.6 percent reported to be in the 7th grade, and 20.7 percent said they were in the 9th grade. (Table 6)

Table 6 - Frequencies and Percentages According to Grade

Grade	#	Percent
5 th	795	41.7
7 th	717	37.6
9 th	394	20.7
Total	1906	100.0

Respondents were asked to indicate their age. The range was between 10 and 15 with outliers at ages 9, 16, and 17. (Table 7)

Table 7 – Frequencies and Percentages According to Age

Age	#	Percent
9	1	.1
10	198	10.4
11	529	27.8
12	224	11.8
13	499	26.2
14	156	8.2
15	262	13.7
16	37	1.9
17	0	0.0
Total	1906	100.0

Respondents were asked to designate where they lived at the time of the study. Of the 1906 total respondents, 12.9 percent lived on a farm, 24.8 percent lived in the country, but not on a farm, and 62.2 percent lived in town. Sixty-one respondents did not indicate where they were living.

Of the 402 4-H Youth Development respondents to this question, 31.1 percent lived on a farm, 27.4 percent lived in the country but not on a farm, and 41.5 percent lived in town (Table 8).

Table 8 - Frequencies and Percentages According to Living Environment

<u>Living Environment</u>	<u>All Respondents</u>		<u>4-H Members</u>	
	#	Percent	#	Percent
Farm	238	12.9	125	31.1
In the country, not on a farm	458	24.8	110	27.4
In town	1148	62.2	167	41.5
Total	1845	100.0	402	100.0

Active and Non-Active Students

Scrutiny of the data revealed that Colorado youth in the sample who were involved in out-of-school activities were less likely to be involved in a variety of at-risk behaviors when compared to youth who were not involved in any out-of-school activities (Table 9). This was congruent with data from the Montana study, where “youth who are involved in out-of-school activities were found to be less likely to be involved in a whole range of at-risk behaviors when compared to youth who are not involved in any out-of-school activities” (Astroth & Haynes, 2002, pp. 3-4).

To determine the involvement in the identified at-risk behaviors, respondents answered yes or no to this wording on the survey instrument, “During the past year did you.....

- Cheat on a test?
- Drink any alcohol without parental permission?
- Shoplift?
- Use any drugs like marijuana, methamphetamines, or cocaine; or sniffed glue or other fumes to get high?
- Smoke cigarettes?”

Table 9 shows that there was a highly significant difference between active and non-active respondents in all identified at-risk behaviors except “cheated on a test.” The incidence of cheating on tests increased with grade level. When all grades (5th, 7th, and 9th) were examined (Table 9) the incidence of cheating on a test was reported at 23.7 percent for active students and 25.7 percent for non-active students. When the 9th grade respondents were examined separately (Table 13), incidences were reported at the higher levels of 43.9 percent for active students and 37.5 percent for non-active students.

Table 9 - Percent of Students (all grades) Involved in At-Risk Behaviors

<u>Variable</u>	<u>Active Students</u>		<u>Non-Active Students</u>	
	Percent	#	Percent	#
Cheated on a test	23.7	(385 of 1624)	25.7	(64 of 249)
Drank alcohol	15.1**	(244 of 1619)	23.1	(58 of 251)
Shoplifted	5.5**	(89 of 1613)	12.5	(31 of 248)
Used drugs	6.6**	(107 of 1614)	13.2	(33 of 251)
Damaged property	11.9**	(193 of 1618)	19.9	(50 of 251)
Smoked	7.8**	(126 of 1613)	14.4	(36 of 250)

* = significant difference $P < 0.05$ ** = highly significant difference (#) = number of observations

Data can be observed concerning at-risk behaviors when sorted by gender and participation. Tables 10 and 11 compare the at-risk behavior of 4-H Youth Development males and females to non-4-H Youth Development males and non-4-H Youth Development females. In both cases, “non-4-H” includes those students who had indicated they were never members, or had been members for less than two years (Tables 10 and 11). Among females, none of the at-risk behaviors is significantly different based on 4-H Youth Development membership. Among males, the non-4-H Youth Development students were almost more than four times more likely to report having smoked, and just over six times more likely to have used drugs than their 4-H Youth Development classmates.

Table 10(a) - Students by gender and participation for selected risk behaviors (Females)

<u>Variable</u>	<u>4-H Youth Development Females</u>		<u>Non-4-H Youth Development Member or Member less than two years Females</u>	
	Percent	#	Percent	#
Cheated on a test	25.5	(40 of 157)	23.7	(178 of 752)
Drank alcohol	17.8	(28 of 157)	15.6	(117 of 750)
Shoplifted	5.1	(8 of 156)	5.7	(43 of 750)
Used drugs	7.1	(11 of 156)	7.5	(56 of 749)
Damaged property	5.7	(9 of 157)	8.7	(65 of 750)
Smoked	9.0	(14 of 156)	10.6	(79 of 748)

Table 10(b) - Students by gender and participation for selected risk behaviors (Males)

<u>Variable</u>	<u>4-H Youth Development Males</u>		<u>Non-4-H Youth Development Member or Member less than two years Males</u>	
	Percent	#	Percent	#
Cheated on a test	25.3	(37 of 146)	23.9	(188 of 765)
Drank alcohol	13.7	(20 of 146)	16.3	(124 of 763)
Shoplifted	5.5	(8 of 146)	7.1	(54 of 756)
Used drugs**	1.4	(2 of 145)	8.8	(67 of 760)
Damaged property	13.8	(20 of 145)	18.5	(141 of 763)
Smoked*	2.1	(3 of 145)	8.0	(61 of 760)

* = significant difference; ** = highly significant difference; (#) = number of Observations

As gender differences are removed and 4-H Youth Development membership versus non-4-H Youth Development were compared to at-risk behaviors, the following differences were observed. With all grades (5th, 7th, and 9th) included in the analysis, 4-H Youth Development members (two years or more) did not report any significantly different behaviors than non-4-H Youth Development members or those who had been members less than two years (Table 11). These results are in contrast with the results of the Montana survey, where 4-H Youth Development participants were less likely than others to shoplift, use drugs of any kind to get high, ride in a car

with someone who had been drinking, damage property just for the fun of it, smoke cigarettes, skip or cut class without permission (Astroth & Haynes, 2002). In Idaho, 4-H members were less likely to engage in shoplifting, drug use, damaging property just for the fun of it, and smoking when all grades were considered (Goodwin et al. 2005).

Table 11 - Colorado 4-H Youth Development and Non-4-H Youth Development Students Engaged in At-risk Behaviors

<u>Variable</u>	4-H Youth Development Students		Non-4-H Youth Development Member or Member less than two years	
	Percent	#	Percent	#
Cheated on a test	25.5	(78 of 306)	23.8	(364 of 1530)
Drank alcohol	16.0	(49 of 306)	15.9	(243 of 1527)
Shoplifted	5.2	(16 of 305)	6.5	(99 of 1519)
Used drugs	4.3	(13 of 304)	8.1	(124 of 1523)
Damaged property	9.5	(29 of 305)	13.7	(209 of 1527)
Smoked	5.6	(17 of 304)	9.3	(141 of 1522)

* = significant difference; (#) = number of observations

When only 9th grade responses were examined for these at-risk behaviors (Table 12), Colorado 4-H Youth Development students were significantly less likely to use drugs. In Idaho, 4-H Youth Development respondents were significantly less likely to drink alcohol, shoplift, use drugs, damage property, or smoke cigarettes than their non-4-H Youth Development or members less than two years classmates (Goodwin et al. 2005).

Table 12 - Percentage of 4-H Youth Development and Non-4-H Youth Development 9th Grade Students Engaged in At-risk Behaviors

<u>Variable</u>	4-H Youth Development 9 th Grade Students		Non-4-H Youth Development or Member less than one year 9 th Grade Students	
	Percent	#	Percent	#
Cheated on a test	44.4	(36 of 81)	41.7	(126 of 302)
Drank alcohol	40.7	(33 of 81)	39.1	(118 of 302)
Shoplifted	9.9	(8 of 81)	9.6	(29 of 302)
Used drugs	7.4*	(6 of 81)	17.9	(54 of 301)
Damaged property	17.3	(14 of 81)	19.2	(58 of 302)
Smoked	13.6	(11 of 81)	22.2	(67 of 302)

* = significant difference; ** = highly significant difference; (#) = number of observations

Respondents in the 9th grade who did not participate in any out-of-school activities reported that they were more likely to shoplift, use drugs, damage property, and smoke cigarettes. In fact, the non-active students were:

- Twice as likely to shoplift
- Twice as likely to use drugs (Table 13)

Montana data showed non-active 9th graders to be twice as likely to shoplift, and nearly three times as likely to use drugs (Astroth & Haynes, 2002).

Table 13 - Percentage of Active and Non-Active 9th Grade Students Engaged in At-risk Behaviors

<u>Variable</u>	<u>Active Students</u>		<u>Non-Active Students</u>	
	Percent	#	Percent	#
Cheated on a test	43.9	(143 of 326)	37.5	(24 of 64)
Drank alcohol	39.3	(128 of 326)	43.8	(28 of 64)
Shoplifted	8.3*	(27 of 326)	18.8	(12 of 64)
Used drugs	12.9**	(42 of 325)	29.7	(19 of 64)
Damaged property	17.2*	(56 of 326)	28.1	(18 of 64)
Smoked	17.8**	(58 of 326)	34.4	(22 of 64)

* = significant difference; ** = highly significant difference; (#) = number of observations

Considering this difference between the active and non-active students, researchers asked if there were any difference between the 9th grade 4-H Youth Development members and the other active students in their responses to the at-risk behavior questions. The results are shown on Table 14. Ninth grade 4-H Youth Development members were less again significantly less likely to use drugs than were the active students who had never belonged to 4-H Youth Development. (Table 14)

Table 14 - 9th Grade 4-H Youth Development Students and Non-4-H Youth Development Active 9th Grade Students Engaged in At-risk Behaviors

<u>Variable</u>	<u>4-H Youth Development 9th Grade Students</u>		<u>Non-4-H Youth Development But Active 9th Grade Students</u>	
	Percent	#	Percent	#
Cheated on a test	44.9	(35 of 78)	42.7	(103 of 241)
Drank alcohol	39.7	(31 of 78)	38.2	(92 of 241)
Shoplifted	9.0	(7 of 78)	7.5	(18 of 241)
Used drugs	6.4*	(5 of 78)	15.0	(36 of 240)
Damaged property	16.7	(13 of 78)	17.0	(41 of 241)
Smoked	12.8	(10 of 78)	19.1	(46 of 241)

* = significant difference; (#) = number of observations

Reported academic performance of active and non-active students is summarized in the following table. Students who were active in out-of-school activities were more likely to report getting better grades than those students who were not active in such programs. Almost 65 percent of the active students reported they had received either mostly A's or about half A's and half B's. In contrast,

only 40 percent of those students who were non-active reported they had received mostly A's or about half A's and half B's (Table 15).

Table 15 - Academic Performance of Active and Non-Active Students (all grades)

Grades	Active Students**		Non-Active Students	
	Percent	#	Percent	#
Mostly A's	31.1	(504 of 1623)	11.6	(29 of 250)
A's and B's	33.7	(547 of 1623)	29.6	(74 of 250)
Mostly B's	6.0	(97 of 1623)	6.4	(16 of 250)
B's and C's	16.2	(263 of 1623)	23.2	(58 of 250)
Mostly C's	2.8	(46 of 1623)	5.2	(13 of 250)
C's and D's	6.8	(111 of 1623)	14.4	(36 of 250)
Mostly D's	1.6	(26 of 1623)	4.4	(11 of 250)
Less than D's	1.8	(29 of 1623)	5.2	(13 of 250)

* = significant difference; ** = highly significant difference; (#) = number of observations

As shown in Table 16, 4-H Youth Development members were much more likely to report that they received mostly A's than those who have never belonged to 4-H Youth Development. Their pattern of grades distribution was highly significantly different from the others. These data are congruent with findings in the Idaho study (Goodwin et al. 2005).

4-H Youth Development Members

Table 16 - School Performance for 4-H Youth Development and non-4-H Youth Development Youth

Grades	4-H Youth Development**		Non-4-H Youth Development	
	Percent	#	Percent	#
Mostly A's	38.2	(154 of 403)	26.0	(372 of 1432)
A's and B's	36.2	(146 of 403)	32.3	(462 of 1432)
Mostly B's	5.5	(22 of 403)	6.1	(88 of 1432)
B's and C's	11.4	(46 of 403)	18.8	(269 of 1432)
Mostly C's	2.5	(10 of 403)	3.1	(45 of 1432)
C's and D's	4.7	(19 of 403)	8.8	(126 of 1432)
Mostly D's	.5	(2 of 403)	2.4	(34 of 1432)
Less than D's	1.0	(4 of 403)	2.5	(36 of 1432)

* = significant difference; ** = highly significant difference; (#) = number of observations

Finally, 4-H Youth Development members were compared to active students who were not members of 4-H Youth Development, or who had been members less than two years. Again, 4-H Youth Development members demonstrated a pattern of grades distribution that was highly significantly different than the pattern of the active students who were not in 4-H Youth Development. (Table 17)

Table 17 - Comparison of School Performance between 4-H Youth Development Members and active students who are not 4-H Youth Development members or members less than two years.

<u>Grades</u>	<u>4-H Youth Development**</u>		<u>Non-4-H Youth Development but Active</u>	
	Percent	#	Percent	#
Mostly A's	38.7	(151 of 390)	28.9	(346 of 1199)
A's and B's	36.2	(141 of 390)	32.9	(395 of 1199)
Mostly B's	5.6	(22 of 390)	6.0	(72 of 1199)
B's and C's	11.0	(43 of 390)	17.9	(215 of 1199)
Mostly C's	2.3	(9 of 390)	2.8	(33 of 1199)
C's and D's	4.9	(19 of 390)	7.5	(90 of 1199)
Mostly D's	.3	(1 of 390)	2.0	(24 of 1199)
Less than D's	1.0	(4 of 390)	2.0	(24 of 1199)

* = significant difference; ** = highly significant difference; (#) = number of observations

4-H Youth Development members were more likely to be involved as leaders in their school. (Table 18) than their classmates who indicated they had never been a 4-H Youth Development member. These data reflect those collected in the Montana survey, where the 4-H students were significantly more likely to have been elected to a leadership position, appointed to a leadership position, and served as chair or member of a committee (Astroth & Haynes, 2002). In Idaho as well, the 4-H respondents were significantly more likely to report in the same categories (Goodwin et al. 2005).

Table 18 - Percentage of youth holding leadership positions

<u>Variable</u>	<u>4-H Youth Development Students</u>		<u>Non-4-H Youth Development Students</u>	
	Percent	n=	Percent	n=
Elected leadership	30.6**	(95 of 310)	20.6	(237 of 1148)
Held leadership position	27.0*	(86 of 318)	20.6	(244 of 1186)
Committee chair	13.5	(40 of 296)	9.2	(104 of 1127)
Committee member	22.2**	(69 of 311)	13.8	(159 of 1152)

* = significant difference; ** = highly significant difference; (#) = number of observations

4-H Youth Development members are more likely to help others within their communities (Table 19). Even more than in Montana (Astroth & Haynes, 2002) or Idaho (Goodwin et al. 2005), these Colorado young people are highly significantly more likely to be involved in projects helping others, to be donating time or money to charity, and to help the sick, poor, or others.

Table 19 - Youth who have helped others (4-H Youth Development and non-4-H Youth Development)

<u>Variable</u>	<u>4-H Youth Development Students</u>		<u>Non 4-H Youth Development Students</u>	
	Percent	#	Percent	#
Involved in help project	64.3**	(259 of 403)	47.0	(682 of 1452)
Given time or money to charity	67.7**	(272 of 402)	53.4	(776 of 1452)
Helped sick, poor, others	52.8**	(211 of 400)	44.9	(647 of 1440)
** = highly significant difference; (#) = number of observations				

Colorado 4-H Youth Development youth have better relationships with adults than those students who are not active in 4-H Youth Development, according to this study. When asked if they had a good conversation that had lasted longer than ten minutes with someone besides their parents, 65.3 percent of Colorado 4-H Youth Development members said they had (Table 20). This is a significant difference from the non-4-H Youth Development responses. In Idaho, 4-H Youth Development respondents were significantly different from the non-4-H Youth Development respondents on all three variables (Goodwin et al. 2005).

Table 20 - Relationships with adults

<u>Variable</u>	<u>4-H Youth Development Students</u>		<u>Non 4-H Youth Development Students</u>	
	Percent	#	Percent	#
If you had an important question about your life, is there an adult (other than your parents) to whom you felt comfortable going to for help?	72.0	(291 of 404)	71.8	(1034 of 1441)
In the last month, did you have a good conversation with one of your parents that lasted 10 minutes or more?	80.7.	(322 of 399)	76.2	(1093 of 1434)
In the last month, did you have a good conversation with an adult (other than your parents) that lasted 10 minutes or more?	65.3*	(261 of 400)	59.1	(850 of 1439)
* = significant difference; (#) = number of observations				

When asked if they could go to their parents to discuss issues related to drugs, alcohol, sex, or any other serious issue, 4-H Youth Development members were not more likely to do so than those

who had never belonged to 4-H Youth Development (see Table 21). In Montana (Astroth & Haynes, 2002) and in Idaho (Goodwin et al. 2005), significantly more 4-H Youth Development students indicated that they would talk to their parents about these subjects than those who weren't involved with 4-H.

Table 21 - Percentage of youth who would talk to parents

Variable	4-H Youth Development Students		Non 4-H Youth Development Students	
	Percent	#	Percent	#
About drugs	76.4	(305 of 99)	74.0	(1065 of 1440)
About alcohol	75.4	(301 of 399)	72.9	(1044 of 1433)
About sex	65.1	(259 of 398)	62.4	(895 of 1434)
About other issues	76.8	(305 of 397)	74.9	(1073 of 1432)

There were questions on the survey that related to the respondents attitude or perceptions about the world around them. "World view" is the term used to describe this series of questions as a whole. This series of questions were further broken down into five groups:

1. Positive Identity – personal power, self-esteem, sense of purpose, positive view of the future
2. Social Competency - planning, interpersonal competency, resistance skills
3. Social Competency - leadership
4. Self-confidence, Character and Empowerment
5. Skills Learned

Responses to these world view questions were on a Likert-type scale from strongly agree, agree, neutral, disagree, to strongly disagree. Five of the questions were worded in the direction opposite of the other questions and are reported as disagree and strongly disagree. Four of these questions are noted in Table 22 and the fifth in Table 24 with a superscript "a".

The first group of Positive Identity Statements showed that there were significant positive differences in the way 4-H Youth Development members responded (Table 22). They feel they do have control over the things that will happen in their lives, they have much to be proud of, and their lives have a purpose. On the whole, they like themselves and are glad to be who they are.

Table 22 - 4-H Youth Development and Non-4-H Youth Development students that agree or strongly agree with Positive Identity statements

<u>Statements</u>	<u>4-H Youth Development students</u>		<u>4-H Youth Development students</u>	
	Percent	#	Percent	#
When things don't go well for me, I am good at finding a way to make things better.	59.8	(242 of 405)	58.5	(839 of 1434)
I have little control over the things that will happen in my life. ^a	58.7**	(237 of 404)	48.0	(688 of 1432)
On the whole, I like myself.	81.1**	(327 of 403)	74.2	(1064 of 1433)
At times, I think I am no good at all. ^a	41.1	(166 of 404)	40.6	(582 of 1434)
All in all, I am glad I am me.	86.7*	(351 of 405)	81.8	(1175 of 1436)
I feel I do not have much to be proud of. ^a	78.4**	(316 of 403)	67.2	(966 of 1438)
Sometimes I feel like my life has no purpose. ^a	67.9**	(275 of 405)	60.2	(865 of 1438)

* = significant difference; ** = highly significant difference; ^a = Disagree and strongly disagree responses; (#) = number of observations

The next group of social competency questions also revealed that 4-H Youth Development members were more likely to respond in a positive manner to these statements than their classmates who had never belonged to 4-H Youth Development. In particular, Colorado 4-H Youth Development students say they care about other people's feelings and stay away from others who could get them into trouble (Table 23).

Table 23 - 4-H Youth Development and Non-4-H Youth Development students that agree or strongly agree with Social Competency statements

<u>Statements</u>	<u>4-H Youth Development students</u>		<u>4-H Youth Development students</u>	
	<u>Percent</u>	<u>#</u>	<u>Percent</u>	<u>#</u>
I am good at planning ahead.	69.5	(280 of 403)	66.5	(954 of 1435)
I care about other people’s feelings.	85.2**	(345 of 405)	77.8	(1119 of 1438)
I feel really sad when one of my friends is unhappy.	69.5	(280 of 403)	66.5	(954 of 1435)
I am good at making and keeping friends.	77.5	(314 of 405)	75.2	(1082 of 1439)
I know how to say “no” when someone wants me to do things I know are wrong or dangerous.	81.5	(330 of 405)	79.2	(1136 of 1435)
I stay away from people who might get me in trouble.	66.3*	(267 of 403)	60.3	(864 of 1433)

* = significant difference ; ** = highly significant difference; (#) = number of observations

4-H Youth Development members were more likely to respond in a positive manner to eight out of 11 of the Self Confidence, Character, and Empowerment statements than non-4-H Youth Development students (Table 24). Doing things on their own and setting goals represent the life skills built through 4-H Youth Development participation. Community assets recognized more significantly by 4-H Youth Development members include adults in the community who make them, the young people, feel important; a feeling of mattering in the community; and having chances to make the community a better place.

Table 24 - 4-H Youth Development and Non-4-H Youth Development Students that Agree or Strongly Agree with Self Confidence, Character, and Empowerment Statements

<u>Statements</u>	<u>4-H Youth Development students</u>		<u>4-H Youth Development students</u>	
	Percent	#	Percent	#
I can do things on my own.	85.6**	(345 of 403)	77.1	(1120 of 1452)
I set goals.	77.4**	(312 of 403)	68.7	(999 of 1454)
Ten years from now, I think I will be very happy.	82.3*	(331 of 402)	77.1	(1120 of 1453)
I am responsible for my actions.	86.1.	(347 of 403)	86.6	(1258 of 1452)
Adults in my town or city make me feel important.	54.7**	(221 of 404)	45.6	(663 of 1453)
Adults in my town or city listen to what I have to say.	44.7*	(180 of 403)	38.2	(555 of 1452)
Adults in my town or city don't care about people my age. ^a	60.0	(242 of 403)	55.1	(800 of 1451)
In my town or city, I feel like I matter to people.	53.0**	(213 of 402)	44.7	(649 of 1451)
In my family, I feel useful and important.	77.6*	(312 of 402)	71.8	(1045 of 1456)
I'm given lots of chances to help make my town or city a better place to live.	47.4**	(191 of 403)	34.7	(505 of 1456)
Students help decide what goes on at my school.	56.6	(226 of 399)	53.4	(776 of 145)

* = significant difference; ** = highly significant difference; ^a = Disagree and strongly disagree responses; (#) = number of observations

4-H Youth Development members were more likely to volunteer in class to lead activities and they reported that they feel other youth look up to them and follow their example (Table 25). They meet and greet new people easily, which is another representation of life skills learned in 4-H. All of these differences were highly significant. Youth Development respondents in the Idaho

study were significantly different from others in volunteering to lead in class and feeling other youth looked up to them and followed their example (Goodwin et al. 2005).

Table 25 - 4-H Youth Development and Non-4-H Youth Development students that agree or strongly agree with Social Competency - Leadership statements

<u>Statements</u>	<u>4-H Youth Development Students</u>		<u>Non-4-H Youth Development Students</u>	
	Percent	#	Percent	#
I volunteer in class to lead activities.	45.9**	(195 of 403)	34.1	(488 of 1433)
I can meet and greet new people easily.	64.2**	(258 of 402)	58.1	(834 of 1435)
I am comfortable in new situations.	48.4	(195 of 403)	45.8	(655 of 1431)
I feel other youth look up to me and follow my example.	53.5**	(218 of 404)	40.6	(582 of 1434)

* = significant difference; ** = highly significant difference; (#) = number of observations

4-H Youth Development members are more comfortable when speaking in public and they consider themselves to be better money managers than those students who have not been associated with 4-H Youth Development. At the same time, they are not significantly different from other students in their record-keeping skills or their organizational abilities (Table 26). Idaho respondents did not differ in record keeping skills, either, but did differ in comfort giving a speech and considering themselves to be good organizers and money managers.

Table 26 - 4-H Youth Development and Non-4-H Youth Development students that agree or strongly agree with Skills Learned statements

<u>Statements</u>	<u>4-H Youth Development Students</u>		<u>Non-4-H Youth Development Students</u>	
	Percent	#	Percent	#
I have good written record keeping skills (such as keeping a journal or diary).	31.3	(126 of 403)	27.6	(401 of 1455)
I am comfortable giving a speech or demonstration in front of people.	49.5**	(201 of 436)	35.8	(520 of 1454)
I am a good organizer.	50.7	(206 of 406)	48.2	(702 of 1457)
I am a good money manager.	60.8**	(247 of 406)	52.9	(770 of 1456)

** = highly significant difference; (#) = number of observations

The data indicate that the pattern for family status of 4-H Youth Development members in Colorado is highly significantly different than the pattern of non 4-H Youth Development students (Table27).

Table 27 - Family status for 4-H Youth Development and Non-4-H Youth Development Students

<u>Family Type</u>	<u>4-H Youth Development Students**</u>		<u>Non- 4-H Youth Development Students</u>	
	Percent	#	Percent	#
I live with my parents.	74.9	(301 of 402)	63.6	(913 of 1435)
I live with only my mother.	4.7	(19 of 402)	9.7	(139 of 1435)
I live with only my father.	1.7	(7 of 402)	2.5	(36 of 1435)
I live with one parent and one stepparent.	8.0	(32 of 402)	11.1	(160 of 1435)
Sometimes I live with my mother and sometimes I live with my father.	8.2	(33 of 402)	8.5	(122 of 1435)
I live with my grandparents.	1.2	(5 of 402)	2.4	(35 of 1435)
I live with a guardian, relative or other person(s).	1.2	(5 of 402)	2.1	(30 of 1435)

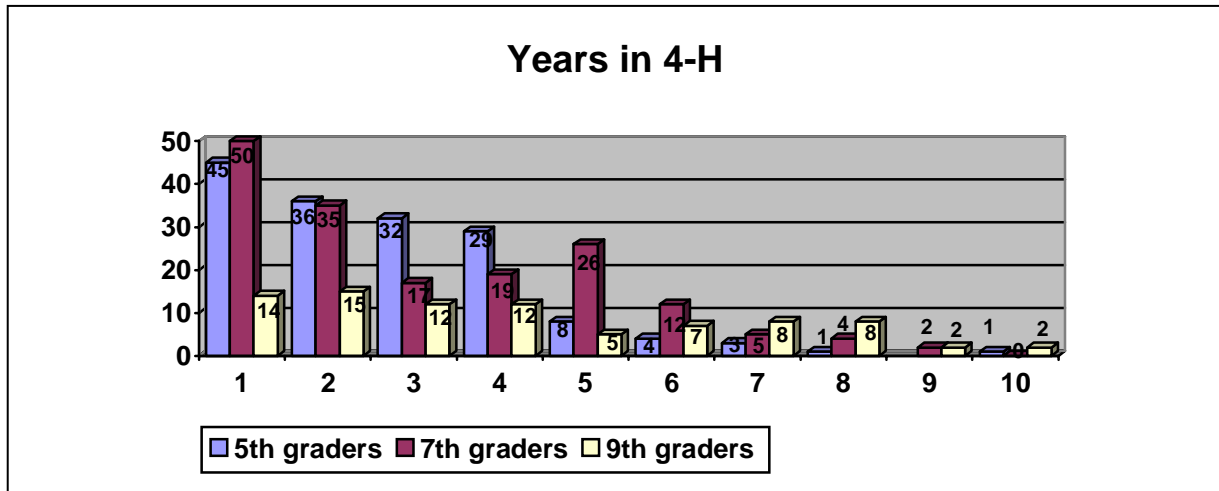
** = highly significant difference; (#) = number of observations

4-H Youth Development Member Responses as an Evaluation of the 4-H Youth Development

Program

The last 11 questions on the survey instrument were directed only to respondents who had answered yes to the question, “Have you ever belonged to a 4-H Club?” Their responses offer a critical look at the Colorado 4-H Youth Development program that may be helpful in formative evaluation of the program in order to “make the best better.” Years of membership are summarized in Figure 1.

FIGURE 1 - Years in 4-H Youth Development



On six of seven statements, over 50 percent of 4-H participants indicate they agree or strongly agree. These data can be combined with comments provided in the last two questions on the survey:

- What is the best part of 4-H?
- What is the worst part of 4-H?

The combined information can guide administrators, agents, and volunteers in designing with confidence the programming best suited to the needs and desires of youth in grades 5, 7, and 9.

Table 28 - 4-H Youth Development Students that Agree or Strongly Agree with Evaluative Statements

Statement	Percent	#
In 4-H Youth Development, I can explore my own interests.	74.3	(295 of 397)
4-H Youth Development provides a safe place for learning and growing.	71.8	(285 of 397)
4-H Youth Development clubs are supportive environments where I feel accepted for who I am.	70.5	(280 of 397)
My participation in 4-H Youth Development has been critical to my success in life.	58.1	(230 of 396)
4-H Youth Development has made a positive difference in my life.	62.0	246 of 397)
4-H Youth Development has made a positive difference in my family life.	50.1	(200 of 397)
If it weren't for 4-H Youth Development, there would be few other organized activities of interest to me outside of school time in my community.	45.3	(180 of 397)

Summary

Cathann Kress, Director, Youth Development, National 4-H Headquarters, CSREES, USDA (2004) emphasizes 4-H Youth Development programs are intentionally designed to include the eight critical elements necessary for positive youth development. They are embodied by “a philosophy that values youth, provides the foundation for the 4-H program, and ensures significant impact” (p. i). The eight essential elements of 4-H Youth Development are:

- Positive relationships with caring adults
- Opportunities for self-determination
- An accepting and inclusive environment
- Opportunities to contribute through community service
- A safe environment for learning and growing
- Opportunities to develop skills and mastery
- Opportunities to be an active participant in life—now, and in the future
- Engagement in learning.

Results of this study show that youth in Colorado, whether in 4-H Youth Development or not, have many assets and are making many healthy choices in avoiding at-risk behaviors. However, active students appear to fare better than non-active students in avoiding at-risk behaviors. 4-H Youth Development students appear to have more assets and to demonstrate more leadership behaviors

and more empathy or caring towards others. In addition, they have higher levels of some life skills. In particular:

- Between active and non-active respondents, there was a significant difference in all identified at-risk behaviors (drank alcohol, shoplifted, used drugs, damaged property, and smoked) except “cheated on a test.”
- The incidence of cheating on tests increased with grade level.
 - When all grades (5th, 7th, and 9th) were examined the incidence of cheating on a test was reported at 23.7 percent for active students and 25.7 percent for non-active students.
 - When the 9th grade respondents were examined separately, incidences were reported at the higher levels of 43.9 percent for active students and 37.5 percent for non-active students.
- Comparing the at-risk behavior of 4-H Youth Development males and females to non-4-H Youth Development males and non-4-H Youth Development females, the “non-4-H” includes those students who had indicated they were never members, or had been members for less than two years. Among females, none of the at-risk behaviors is significantly different based on 4-H Youth Development membership. The non- 4-H Youth Development male students were almost more than four times more likely to report having smoked, and just over six times more likely to have used drugs than their 4-H Youth Development classmates.
- With all grades (5th, 7th, and 9th) included in the analysis, 4-H Youth Development members (two years or more) did not report any significantly different behaviors than non-4-H Youth Development members or those who had been members less than two years
- When only 9th grade responses are examined for these at-risk behaviors, 4-H Youth Development students were less likely to drink alcohol, shoplift, use drugs, damage property, or smoke cigarettes than their non-4-H Youth Development or members less than two years classmates.
- Respondents in the 9th grade who did not participate in any out-of-school activities reported that they were more likely to shoplift, use drugs, damage property, and smoke cigarettes. In fact, the non-active students were:
 - Twice as likely to shoplift
 - Twice as likely to use drugs.
- Ninth grade 4-H Youth Development members were less likely to use drugs and smoke cigarettes than were the active students who had never belonged to 4-H Youth Development.
- Students who were active in out-of-school activities were more likely to report getting better grades than those students who were not active in such programs. Almost 65 percent of the active students reported they had received either mostly A’s or about half A’s and half B’s. In contrast, only 40 percent of those students who were non-active reported they had received mostly A’s or about half A’s and half B’s.
- 4-H Youth Development members were much more likely to report that they received mostly A’s than those who have never belonged to 4-H Youth Development. Their pattern of grades distribution was highly significantly different from the others.
- 4-H Youth Development members were more likely to be involved as leaders in their school than their classmates who indicated they had never been a 4-H Youth Development member.
- 4-H Youth Development members are more likely to help others within their communities. These Colorado young people are highly significantly more likely to be involved in projects helping others, to be donating time or money to charity, and to help the sick, poor, or others.

- Colorado 4-H Youth Development youth have better relationships with adults than those students who are not active in 4-H Youth Development, according to this study. When asked if they had a good conversation that had lasted longer than ten minutes with someone besides their parents, 65.3 percent of Colorado 4-H Youth Development members said they had. This is a significant difference from the non-4-H Youth Development responses.
- When asked if they could go to their parents to discuss issues related to drugs, alcohol, sex, or any other serious issue, 4-H Youth Development members were not more likely to do so than those who had never belonged to 4-H Youth Development.
- There were significant positive differences in the way 4-H Youth Development members responded to positive identity questions. They reported they felt that they do have control over the things that will happen in their lives, they have much to be proud of, and their lives have a purpose. On the whole, they like themselves and are glad to be who they are.
- The next group of social competency questions also revealed that 4-H Youth Development members were more likely to respond in a positive manner to these statements than their classmates who had never belonged to 4-H Youth Development: In particular, Colorado 4-H Youth Development students say they care about other people's feelings and stay away from others who could get them into trouble
- 4-H Youth Development members were more likely to volunteer in class to lead activities and they reported that they feel other youth look up to them and follow their example. They meet and greet new people easily, which is another representation of life skills learned in 4-H.
- 4-H Youth Development members are more comfortable when speaking in public and they consider themselves to be better money managers than those students who have not been associated with 4-H Youth Development. At the same time, they are not significantly different from other students in their record-keeping skills or their organizational abilities.
- The data indicate that the pattern for family status of 4-H Youth Development members in Colorado is highly significantly different than the pattern of non 4-H Youth Development students.

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Conclusions

The data collected in this replication study support the conclusions drawn by Astroth & Haynes (2002) and (Goodwin et al. 2005). Youth who are active, in general, and in 4-H Youth Development programs, in particular, are less likely to engage in at-risk behaviors and more likely to demonstrate positive characteristics, behaviors, and world view.

Authenticating the significance of successful youth development programs such as 4-H Youth Development should be a priority in the minds of facilitators, legislators, and educators. 4-H Youth Development activities do not simply teach youth skills in agriculture and home economics. They teach life skills through nonformal, experiential, age-appropriate, research-based educational programs.

Recommendations

One of the major recommendations is that other states replicate this study. As a larger group of states replicate the original Montana Out of School Time / 4-H Youth Development Impact Study.

The data can be aggregated for an even more powerful statement of 4-H Youth Development effectiveness in Western states, and across the United States.

In future replication studies, the researchers recommend a random sample that is stratified to include urban and/or metro counties. The Colorado sample was stratified to include all three Cooperative Extension regions, and the draw, while representing these districts, did not represent the rural/urban composition of the state nor of 4-H Youth Development enrollment.

Neither Montana, Idaho, nor Colorado collected information on ethnicity. This information may be collected if samples within a state are diverse, include urban schools, and are large enough to insure respondent anonymity and provide comparative data.

In addition, the researchers recommend a tracking system for incoming surveys that is easy to use and also data rich. This study is unable to identify exact number of schools that participated, not exact potential population because of faults in the tracking system.

Researchers who are able to work with University classes will appreciate the rich interaction with young and/or inexperienced students who are learning about marketing and research. The constraints on the timeline may be viewed as problematic or facilitative. Arrangements should be made for additional data analysis if necessary.

Another recommendation is to communicate these results in a systematic and effective manner to elected officials, opinion leaders, school officials, and citizens in communities and counties in Colorado. These efforts could:

- Increase awareness and support for the 4-H Youth Development program at the community, county and state levels.
- Enhance 4-H Youth Development volunteer leader recruitment and retention.
- Increase parent interest in having their youth involved in the 4-H Youth Development program and increase youth enrollment in club, school enrichment, after-school, military 4-H, and urban 4-H Youth Development programs.
- Enhance 4-H Youth Development support from Colorado State University faculty who are currently not directly involved in 4-H Youth Development

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