

THE IMPACT AND SUSTAINABILITY OF 4-H YOUTH DEVELOPMENT PROGRAMS



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The Center for Applied Research (CAR) is a joint venture between the department of Human Development and Family Studies and the Cooperative Extension System at the University of Connecticut. The purpose of the CAR is to provide assistance to state and community-based agencies in the development, delivery, and evaluation of human service programs. This collaboration with state and community-based agencies is intended to facilitate the development of high quality program evaluations.

Impact and Sustainability of 4-H Programs: A Synthesis Report

A Synthesis Report of a Decade of Research

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Executive Summary

4-H formally began in 1902. Today there are nearly 6.5 million children aged 8 to 18 participating in 4-H clubs, camps, and competitions at the local, state and national level. These youth benefit from a variety of activities intended to foster the development of life skills and competencies through participation in research-based activities focused on citizenship, healthy living, science, engineering, and technology.

This synthesis evaluation of published and posted studies and reports examined the role that 4-H plays in helping youth to develop and sustain a broad array of personal strengths and capacities. All the studies and reports used in this report have been published since 1996, focused on youth who were or had been enrolled in a 4-H sponsored youth development program, and presented empirically based findings that addressed one or more of the following questions:

- What impact or influence does sustained involvement in 4-H programs have on youths' ability to acquire, utilize, or enhance critical life skills?
- What are the various iterations of 4-H youth development programming? Do these variations have a differential impact on outcomes for youth, families, or communities?
- What unmet needs or gaps have been identified in terms of programming or program delivery modes?
- What "best" or "promising" research or programming practices have been put into place which will facilitate replication of findings in other settings?
- What areas pertaining to 4-H audiences, programs, and delivery modes require further study?

The results of this synthesis evaluation suggested that:

- ❖ Sustained involvement in 4-H programs was perceived by current members and alumni as critical to the development of life skills that were linked to effective communications, successful interpersonal relationships, self understanding and management, working with and leading others, and engaging in self-directed learning and technical skill development. Both alumni and current members indicated that activities designed to place youth in leadership roles were the activities that taught them the most life skills;
- ❖ Much of the published and posted literature focused on youth involved in 4-H clubs. Patterns emerged indicating that - 4-H members tended to be female, Caucasian, and living in rural areas; members who reported the highest levels of participation and/or leadership also reported 4-H as playing an important role in the development of essential life and leadership skills; youth who engaged in 4-H and other out-of-school activities were less likely to engage in a wide range of at-risk behaviors; youth who participated regularly in 4-H activities were more likely to take leadership roles in their schools and communities;
- ❖ A number of unmet needs or gaps require address. For example, in terms of programming, a need for more community service activities and opportunities was noted as was a need for programs specifically designed to attract and retain older, urban, and male youth. Information from needs assessments and focus

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- groups with youth from different backgrounds (e.g., age, gender, ethnicity) was recognized as providing valuable insight into programs, projects, and experiences that appeal to youth and sustain their involvement in 4-H. A need for providing staff and volunteers with specific training, support, and feedback opportunities was also noted.
- ❖ 4-H oriented researchers are interested in and are ready to introduce more sophisticated research designs and techniques into their work with youth. It appears that the use of planned replications is becoming more attractive for those investigators who are working within 4-H.
 - ❖ Many researchers are interested in understanding the contextual variables that attract and retain youth in 4-H programs and dissuade underserved youth (e.g., males, members of minority groups, urban youth) from enrolling, engaging, and remaining in 4-H. Additionally, there is interest in investigating areas such as – personal life and career applications of specific life skills learned in 4-H; the teaching and learning processes embedded in 4-H curriculum, projects, programs, and events; the differential effects of competitive and non-competitive 4-H activities on youths' sense of self and self-efficacy.

Because of the methodological and design limitations found in many of the studies reviewed, it was not possible to clearly identify the type or level of impact that sustained involvement in 4-H had on members development. There was, however, some evidence that suggested that youth who participate in 4-H over time and had assumed leadership roles and responsibilities perceived their 4-H experiences as contributing to the development of important life and leadership skills.

Eleven recommendations were made for improving the utility of future 4-H studies and reports. These recommendations had implications for national and state leaders and stakeholders.

Introduction

In June 2006, the National 4-H Council contracted with the University of Connecticut's Center for Applied Research to conduct a comprehensive and systematic synthesis of evaluation studies conducted on sustained 4-H youth development program experiences in the past 10 years. The goals for the synthesis included:

- (1) Building the case for the effectiveness of sustained 4-H youth development program experiences in order to support funding and policy decisions;
- (2) Obtaining a more in-depth understanding of the variations in 4-H programming and their relationship to youth, family, and community outcomes;
- (3) Identifying unmet needs for programming and program delivery modes;
- (4) Identifying "best" and "promising" practices within different program settings for the purpose of replication in other settings; and,
- (5) Identifying specific areas for further study.

Procedure

As part of its scope of work, the UConn team used a seven-step framework to guide the evaluation synthesis process. This framework was based on recommendations from the U.S. General Accounting Office and consisted of the following steps: "(1) Selecting the questions to be addressed; (2) Collecting the universe of documents; (3) Screening down to relevant evaluation studies; (4) Developing and implementing critical review of studies; (5) Redetermining the appropriateness of doing a synthesis; (6) performing the synthesis; and (7) Reporting the findings" (GAO, 1992, p.10).

The steps of the framework were operationally defined as follows:

- Selecting the questions to be asked. The goals established by the National 4-H Headquarters for the synthesis provided the foundation for the development of the following questions:
 - Goal 1: What impact/influence does sustained involvement in 4-H programs have on youths' ability to acquire, utilize, or enhance critical life skills?
 - Goal 2: What are the various iterations of 4-H youth development programming? Do these variations have a differential impact on outcomes for youth, families, or communities?
 - Goal 3: What unmet needs or gaps have been identified in terms of programming or program delivery modes?
 - Goal 4: What "best" or "promising" research or programming practices have been put into place which will facilitate replication of findings in other settings?
 - Goal 5: What areas pertaining to 4-H audiences, programs, and delivery modes require further study?

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- Collecting the universe of documents. Studies relevant to this review were identified through a comprehensive review of the published and unpublished literature (e.g. PsycINFO, Dissertation Abstracts International, E.R.I.C.), internet postings and websites, and by contacting 4-H oriented researchers and evaluators utilizing 4-H listservs or through personal phone calls. Table 1 contains information about the number and type of documents that were identified from each source.

Table 1. Sources for 4-H Publications

Source of Article or Study:	Number of documents:
PsycINFO	3
ERIC Publication	3
Dissertation Abstracts International	13
Master's Theses	6
Extension Websites	14
Technical Reports/Research Summaries	5
4-H Listserv Referrals	5
Total Number	49

- Screening Down to Relevant Evaluation Studies. Inclusion or exclusion criteria for the studies to be used in this review were developed in consultation with the National 4-H Headquarters national program leader. Table 2 contains the selection/rejection criteria that were utilized.

Table 2. Screening Criteria for Studies

Inclusion Criteria <i>The research study -</i>	Exclusion Criteria <i>The research study -</i>
<ul style="list-style-type: none"> ▪ Was published in or after 1996. 	<ul style="list-style-type: none"> ▪ Was Published before 1996.
<ul style="list-style-type: none"> ▪ Contained empirical data <ul style="list-style-type: none"> - Experimental or quasi-experimental design; - Quantitative or qualitative data reported. 	<ul style="list-style-type: none"> ▪ Contained non-empirical data, e.g., anecdotal data; narratives; “success stories”; client satisfaction surveys.
<ul style="list-style-type: none"> ▪ Focused on youth – <ul style="list-style-type: none"> - Ages 7 -19 yrs; - Enrolled in a 4-H youth development program, e.g. 4-H Club or engaged in a 4-H sponsored experience, e.g. Space Camp. 	<ul style="list-style-type: none"> ▪ Focused on adults, e.g. 4-H Leaders, 4-H Agent/Educators, 4-H Volunteers, or 4-H adult collaborators; ▪ Focused on youth engagement in a “one shot” 4-H sponsored event, e.g. Quilt Judging at the County Fair.

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- Developing and Implementing Critical Review of Studies. The inclusion and exclusion criteria outlined above were used to develop a critical checklist and research review forms. These forms were used by members of the review team at weekly meetings to present, critique, and argue the merits of the articles, dissertations, theses, and reports that had been received. It should be noted that the implementation of these criteria were also influenced by the application of the following GAO recommended standards: (1) Was the study sufficient?; (2) Was the evidence used in the study relevant?; and, (3) Was the evidence used in the study competent, i.e., valid and reliable? (U.S. General Accounting Office, 1992, p.27).

Table 3 contains information about the publication source for each of the studies and reports that were reviewed. It also contains information about the status of their inclusion in this review. As will be noted, of the 48 studies reviewed for the synthesis, only 27 were selected for inclusion.

Table 3. Publication Sources for Included and Excluded Studies

Publication Source:	Included:	Excluded:
Journal of Extension articles (n = 14)	8	6
Technical Reports or Research Summaries (n = 11)	8	3
Dissertations (n = 13)	9	4
Other Peer Reviewed Journal Articles (n = 5)	1	4
<ul style="list-style-type: none"> • Child Study Journal • Journal of Research in Childhood Education • Adolescence • Journal of Environmental Education • Health Education and Behavior 		
Masters Theses (n = 6)	2	4
Total Number	28	21

The studies or reports that were excluded from the synthesis were disqualified for one or more of the following reasons:

- Inadequate description or use of standard research methodology, e.g., did not describe subjects or the methods used for sampling, data collection, or data analysis;
- Inadequate description or use of valid and reliable measurements or instruments;
- Little or no correlation between the studies' results and participants' involvement in 4-H programs;
- Results reported were not linked to youth outcomes.

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- Determining the Appropriateness of Doing a Synthesis. A teleconference meeting with the National 4-H Headquarters representative to the project was scheduled toward the end of the critical review phase of the study. During the meeting, it was determined that a comprehensive review of the literature had been conducted and there were a sufficient number of studies and reports for a synthesis evaluation to be conducted. It was, however, noted that the methodological flaws found in many of the studies reviewed would affect the write up of the results of the evaluation.

- Performing the Synthesis. The following steps were used to implement this phase of the study:
 1. Each of the studies and reports that met the inclusion criteria were assigned a document number (See Appendix A);
 2. These numbers were then printed on the relevant research review forms used during the inclusion/exclusion phase of this study;
 3. The studies, reports and the relevant review forms were assigned to members of the UConn review team who had not conducted the original review;
 4. The reviewers were asked to read each of the assigned papers and cite data pertaining to the questions developed for this report;
 5. At a team meeting, all members presented, critiqued, and argued the merits of the citations noted for each of the study’s questions.

Table 4 contains the document citations that were agreed to provide data pertinent to answering each of this study’s questions.

Table 4. Research Questions and Document Citations

Goal:	Research Question:	Doc. #:
1	<ul style="list-style-type: none"> ▪ What impact/influence does sustained involvement in 4-H programs have on youths’ ability to acquire, utilize, or enhance critical life skills? 	1, 2, 3, 5, 6, 7, 11, 14, 20, 28
2	<ul style="list-style-type: none"> ▪ What are the various iterations of 4-H youth development programming and do these variations have a differential impact on participating youth? 	2, 3, 4, 6, 9, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 26, 27
3	<ul style="list-style-type: none"> ▪ What unmet needs or gaps have been identified in terms of programming or program delivery modes? 	8, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 24, 25, 26, 27
4	<ul style="list-style-type: none"> ▪ What “best” or “promising” research or programming practices have been put into place which will facilitate replication of findings in other settings? 	12, 13, 14, 21, 22, 23, 24, 27
5	<ul style="list-style-type: none"> ▪ What areas pertaining to 4-H audiences, programs, and delivery require further study? 	5, 6, 8, 9, 11, 12, 13, 16, 18, 20, 21, 23, 25, 27

N.B. See Appendix A for a list of included articles and corresponding document numbers

Findings

The goals established by the National 4-H Headquarters for this synthesis evaluation provided the foundation for the development of the following synthesis evaluation questions:

- Goal 1: What impact or influence does sustained involvement in 4-H programs have on youths' ability to acquire, utilize, or enhance critical life skills?
- Goal 2: What are the various iterations of 4-H youth development programming? Do these variations have a differential impact on outcomes for youth, families, or communities?
- Goal 3: What unmet needs or gaps have been identified in terms of programming or program delivery modes?
- Goal 4: What “best” or “promising” research or programming practices have been put into place which will facilitate replication of findings in other settings?
- Goal 5: What areas pertaining to 4-H audiences, programs, delivery modes require further study?

These questions served as the “filtering system” for reviewing the findings from the 27 studies that were determined to have met the inclusion criteria established for this project. These questions will be used to organize this section of the report.

Goal 1: Evaluation Question:

What impact or influence does sustained involvement in 4-H programs have on youths' ability to acquire, utilize, or enhance critical life skills?

Data about the impact or influence of 4-H on the development of critical life skills were obtained primarily through the use of instruments or techniques that rely on the perceptions and self-reports of current members or on the memories and retrospective reports of 4-H alumni (See Table 5).

If questionnaires were used for collecting data, they were either developed by the authors or based, in whole or part, on surveys previously used by others to collect national and/or state 4-H impact data. Little or no information was provided about the survey instruments that were utilized in many of the studies. If the authors addressed issues pertaining to reliability and validity, they did so by mentioning some form of face or content validity assessment by colleagues or they simply assumed that the questionnaires were reliable and valid because of their use in national surveys or by other states. [Note:

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No reliability or validity information could be found for the questionnaires that had been used to collect national and/or multi- state impact data]. Similarly, studies that used qualitative data collection techniques (i.e. focus groups, interviews, observations) rarely used other methods to substantiate their subjects' self-reports or reminisces (e.g., use of 4-H records, artifacts such as awards, other person report or rating, co-measurement using a validated instrument or scale).

Table 5. Methods and Measures Used to Collect 4-H Impact Data

Method for Collecting Data:	Source of Instrument/Measures Used:
Current 4-H Members	
Questionnaire	<ul style="list-style-type: none"> • National 4-H Impact Assessment Project • Youth Leadership Life Skills Development Survey • Targeted Life-Skills (TLS) (Hendricks, 1998) • Search Institute National Survey Data • Self-Developed
Focus Groups	<ul style="list-style-type: none"> • Self-Developed
Interview	<ul style="list-style-type: none"> • Self-Developed
Mixed Methods	<ul style="list-style-type: none"> • Self-Developed
2 nd Data Analyses	<ul style="list-style-type: none"> • ES 237 database
2 nd Data Analyses	<ul style="list-style-type: none"> • Project 4-H Health
4-H Alumni	
Questionnaire	<ul style="list-style-type: none"> • Canadian 4-H Council • Targeted Life Skills (TLS) (Hendricks, 1998) • Self-Developed
Interview	<ul style="list-style-type: none"> • Phone interview
Mixed Methods	<ul style="list-style-type: none"> • Self-Developed

Because of the study limitations just noted as well as those that will be discussed in later sections of this report, the following results must be viewed as suggestive evidence of support for the impact or influence of sustained involvement in 4-H life skill development programs.

Evidence of Impact – Alumni Reports

Studies of alumni suggest that long tenure in 4-H programs, events, and experiences were perceived to be critical in the development of the following life skills:

- Communication - public speaking skills (3, 6, 14, 16), presentation skills (6), questioning skills (6).

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- Getting along with others/interpersonal communication - skills included showing concern for others (14), accepting differences (5, 14), relating to others (16, 20), meeting new people (6), and handling competition.
- Technical Skills - these skills included product production skills (6) and project skills (6). Alumni also indicated that 4-H helped them make career choices (16) and to develop job skills (5, 20).
- Management - personal management such as setting goals (14), keeping records (5, 14, 16), organizing (3), problem solving (2, 3, 16), and decision making (2, 3, 16).
- Understanding self - three different categories were listed. Respondents indicated that 4-H involvement had a strong influence on the development of: basic life skills, including the ability to accept responsibility (5, 6, 14, 16) and to make healthy lifestyle choices (5); subjective personal beliefs, such as self-confidence (2, 6, 14), self-discipline (3), self-motivation (3), self-esteem (2, 5, 16, 20), and personal pride (2); and alumni indicated that 4-H contributed to their willingness to try new things (5).
- Working with or leading groups - skills related to: teamwork (3, 5, 6, 14), including group interaction skills (2) the development of leadership skills (i.e., networking) (2, 6, 14) and citizenship/civic engagement. Specifically, 4-H alumni frequently reported voting on a regular basis, belonging to and volunteering with community organizations, and holding formal leadership positions (5, 7).

Evidence of Impact – Current Member Reports

Comparable results are found in those studies which focus on the perceived leadership life skills reported by current and senior members of 4-H. The youth reported that engagement in a variety of 4-H programs, projects, events, and activities influenced the development of the following life skills:

- Communication - skills such as public speaking skills (4, 28), presentation and demonstration skills (4, 11, 22, 27).
- Getting along with others/interpersonal communication - skills related to positive interpersonal relationships including accepting differences (4, 28), relating to and get along with others (11, 12, 13, 26), meeting new people (8, 26), interacting with others who are different (4, 28), and handling competition (25). Youth also reported that 4-H was important in helping them communicate effectively with adults and younger members (4, 17, 26, 28), promoting positive and trusting relationships with adults (10, 17, 26, 28), getting along with others (28), providing a sense of belonging (12, 26, 28).
- Learning - by providing a safe environment that contributed to their ability and willingness to learn and do new things (8, 12, 26, 28). Youth also reported that 4-

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H promoted self-directed learning (21) and high motivation to achieve (10) and subsequently they felt they were more likely to succeed in school (1, 23, 28).

- Management - personal management skills such as setting goals (4, 12, 13, 27), planning and organizing (10, 12, 23, 24, 26), keeping records (16). Youth reported that sustained involvement in 4-H promoted independent thinking and decision making (4, 10, 11, 12, 24, 26, 28), problem solving (28), the ability to verbalize their reasons for decisions (4) which helped them to hold leadership positions in 4-H and in other youth organizations (1, 28).
- Understanding self - skills related to accepting responsibility (4, 13, 28), making healthy lifestyle choices, and avoid risky behaviors (1, 10, 15, 22, 23). Members attributed 4-H involvement with the development of a number of personal beliefs including a positive sense of self-confidence, self-esteem, and self-worth (10, 12, 22, 23, 26, 28) and a willingness to try new things (12, 26, 28).
- Working with or leading groups - including life skills related to teamwork (10, 11, 21, 27, 28), leadership skills (4, 11, 21, 25, 26, 28), and citizenship/civic engagement skills (12, 21, 26). Volunteering, involvement in community service, and a desire to help others (10, 12, 21, 24, 26, 28) was also correlated with sustained engagement in 4-H.

Activities That Promote the Development of Life Skills

Findings from both the alumni and current member studies indicated that activities designed to place youth in leadership roles were the activities that respondents identified as teaching the most life skills. Activities such as holding an office, teaching younger members, serving as a committee member and conducting community service projects were frequently mentioned or highly ranked. Demonstrations, judging contests, quiz bowls, exhibiting at county fairs, and public speaking were also perceived to be related to the development of important leadership and/or life skills.

Interestingly, when current members and alumni were asked to compare life skills gained from 4-H to life skills gained at school, church, or other community groups, many reported learning more life skills at school than at 4-H but did note that 4-H presented them with more opportunities to learn or use life skills than did church or other community based organizations.

Goal 2: Evaluation Question:

What are the various iterations of 4-H youth development programming and do these variations have a differential impact on participating youth?

Although 4-H teaches applied skills and life skill development through a myriad of programs and project areas, the 28 studies that were included in this evaluation focused on youth enrolled in 4-H clubs or engaged in 4-H sponsored after school activities. Table 6 provides an overview of the program orientation in these studies.

Table 6. 4-H Program Orientation of Included Studies

Program Type:	Program or Project Orientation:	Study #:
4-H Clubs	<ul style="list-style-type: none"> • Animal Science • Health • Clothing • 4-H Key Club • General (youth participated in a broad array of activities and roles) 	<ul style="list-style-type: none"> • 3, 4, 16, 27 • 15 • 19 • 7 • 1, 2, 5, 6, 8, 9, 10, 11, 12, 13, 14, 18, 20, 21, 23, 24, 25, 26, 28
After School Programs	<ul style="list-style-type: none"> • Educational/Academic • Youth Development Programs 	<ul style="list-style-type: none"> • 17 • 22 • 28

Close examination of the studies findings uncovered a number of interesting patterns. For example –

- The demographic data that were provided suggests that 4-H participants tend to be female, Caucasian, and living in rural areas. This pattern becomes more pronounced as 4-H tenure, i.e., sustained involvement data is reported.
- Regardless of the orientation of the 4-H program, members who reported the highest levels of participation in 4-H also reported 4-H as having an important role in their development of essential life skills. For the purposes of this synthesis, participation was determined by length of time youth were involved with 4-H and the types of activities youth engaged in while in 4-H. More tenured youth were more likely to be involved in a greater number of activities.
- Similarly, individuals who reported holding leadership positions within their local 4-H program rated themselves as possessing higher levels of interpersonal skills than those members who did not hold leadership positions. When leadership positions went beyond the local level, respondents were more likely to

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characterize their 4-H experiences as having had a significant impact on their development of leadership life skills.

- Studies that included 4-H and non-4-H youth in their samples (1, 4, 21, 22, 23) provided data with potentially profound implications for the allocation of funding to 4-H and other youth development programs. Data based on respondents’ self-reports indicate that engagement in out-of-school activities clearly reduce the chances that youth would engage in a wide range of at-risk behaviors, e.g., drinking, shoplifting, using drugs, carrying a gun.

These studies also suggested that youth who participate regularly in 4-H activities are more likely to take leadership roles in their school and community and are less likely to report engaging in at-risk behaviors than youth who report no involvement in 4-H. However because of the limitations inherent in these studies’ designs or data analyses, these results can only be viewed as suggestive.

Goal 3: Evaluation Question:

What unmet needs or gaps have been identified in terms of programming or program delivery modes?

One feature that all the authors of the included studies had in common was their first-hand knowledge of, intimate involvement with, and personal dedication to 4-H – its clubs, programs, projects, and participants. Subsequently, the studies’ findings and recommendations were frequently presented with one eye focused on improving the 4-H experience for current members and the other eye focused on ways to appeal to youth who were not engaged with 4-H. Table 7 presents a good overview of identified needs and gaps in 4-H program offerings.

Table 7. Areas Identified as Requiring Address

Identified unmet needs or gaps	Document #
<ul style="list-style-type: none"> - Programming <ul style="list-style-type: none"> ○ Provide more programs that appeal to urban youth ○ Provide more programs that appeal to older youth ○ Offer 4-H activities and programming via the internet to allow urban youth more access ○ Provide more school based 4-H activities ○ Provide more community service activities – particularly for males ○ Provide more community-based experiences, particularly those geared towards males ○ Collaborate with other youth programs ○ Flexibility in programs (times; locations) 	10, 12, 13, 14, 17, 18, 21, 24, 25, 26,

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<ul style="list-style-type: none"> ○ Provide more support from college campuses - Youth <ul style="list-style-type: none"> ○ Provide youth, particularly senior members, with more leadership opportunities ○ Conduct more programming needs assessments/focus groups with youth: <ul style="list-style-type: none"> ▪ Different age and project cohorts ▪ Urban youth ▪ Gender and ethnicity ○ Senior youth (enrollment and re-enrollment; retention) ○ Development of curriculum ○ Reward system ○ Provide youth with promotional materials to help recruit new members. - Staff <ul style="list-style-type: none"> ○ Training <ul style="list-style-type: none"> ▪ Child and adolescent development ▪ Forming relationships with youth ○ Screening and recruitment ○ Provide staff with support and feedback ○ Understand the goals of 4-H 	<p>8, 13, 14, 16, 18, 20, 22, 24, 25, 27, 28</p> <p>10, 13, 15, 17, 24, 26</p>
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Goal 4: Evaluation Question:

What “best” or “promising” practices have been put into place which will facilitate replication of findings in other settings?

It has been argued that carefully planned replications can enhance the interpretability of applied research results and when a research design is replicated (repeated) more than once, it then becomes possible to compare the studies with each other and thus make stronger inferences about important constructs, intervening variables, and the dynamics of interaction between variables (Schafer, 2001).

Because of its established structure of local, county, state, and national youth development programs, activities, and opportunities, 4-H is a field setting ripe for replication research. But to be successful, replication of research findings requires that a basic research design be adopted and used by several researchers which would mean that the researchers would have to agree to:

- recruit and select subjects from comparable populations;

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- use measures that had a high profile in the research literature (i.e., clearly established reliability and validity scores);
- utilize comparable data collection procedures;
- dedicate some component of the data analyses to answering mutually established research questions; and,
- report findings using variables and terms that had fixed operational definitions.

A number of studies that were reviewed for this report clearly indicate that attempts are being made to replicate findings of positive youth development across states. For example, a number of studies (1, 12, 14, 22, 23, 24, 26, 27, 28) chose to use state or national questionnaires (in whole or in part) to measure the impact of 4-H programming on their state 4-H members and alumni. However, the replications do not appear to be part of an agreed upon plan. Each researcher includes subjects differing in age or tenure with 4-H, uses slightly different methodology to collect data, “tweaks” the measures, and reports findings in terms that are undefined or different from those used by the previous researcher.

There is also evidence that many 4-H researchers are introducing a variety of research designs and techniques to their work in order to maximize the interpretability of their results. They are doing this by using pre- and post-training evaluations, incorporating comparison groups, triangulating self-report data with other-report data, incorporating quantitative and qualitative data collection measures, and using statistical procedures that go beyond frequency counts.

These findings suggest that a number of 4-H oriented researchers are interested and ready to introduce more sophisticated research designs and techniques into their work with youth. It also suggests that the use of planned replications is becoming more attractive for those investigators whose research paradigm choices are limited because they are working in field environments.

Goal 5: Evaluation Question:

What areas pertaining to 4-H audiences, programs, and delivery require further study?

Thirteen of the 27 studies reviewed provided suggestions for further research. Table 8 provides an overview of the recommended areas for further research.

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Table 8. Areas Identified for Further Study

Focus of the Study:		Study #:
4-H Audiences		8, 9, 18, 20, 23, 25, 27, 28
Members	<ul style="list-style-type: none"> ▪ Contextual variables that motivate youth to enroll, engage, and remain in 4-H programs, projects, events, and activities ▪ Contextual variables that dissuade underserved youth (e.g., males, members of minority groups, urban youth) from enrolling, engaging, and remaining in 4-H ▪ Factors and features that influence engagement and retention over time ▪ Relationship between available leadership roles for teens and their satisfaction with and tenure in 4-H ▪ Comparative analyses of paired learning partnerships, e.g., between senior and junior members, adult leaders and senior members, adult leaders and junior member 	
Alumni	<ul style="list-style-type: none"> ▪ Personal life and career applications of specific life skills learned in 4-H ▪ A planned cross sectional or longitudinal study focused on alumni civic engagement, leadership, or volunteerism activities ▪ Development of a national tracking system and data base 	
Adults, Staff, Parents, Volunteers	<ul style="list-style-type: none"> ▪ Characteristics of effective youth mentors and effective 4-H programs ▪ Traditional and non-traditional expressions of parent and family support of 4-H ▪ Strategies for engaging adult volunteer leaders 	
Programs		5, 6, 9, 11, 12, 13, 16, 21, 28
	<ul style="list-style-type: none"> ▪ Analyses of the teaching and learning processes embedded in 4-H curriculum, projects, programs, and events ▪ Differential effects of competitive and non-competitive 4-H activities on youths' sense of self and self-efficacy ▪ Program and project variables that contribute to the development of life skills and leadership skills ▪ State and national comparative analyses of 4-H programs, projects, events, and activities open to and feasible for rural, suburban, and urban youth ▪ Assess the impact and outcomes of key 4-H programs, projects, events, and activities using measures with established and published reliability and validity data. 	

CONCLUSIONS

Although the studies reviewed for this synthesis suggest that involvement in 4-H can have a significant impact on positive youth development, numerous flaws in their basic design prevent this inference from being made. Because many of the researchers operated under an assumed understanding of what 4-H is and a presumed conviction of the benefits to be derived from participation in 4-H programs, critical elements of the studies went undefined and under- or unaddressed. Subsequently, the studies reviewed for the synthesis did not include the process data necessary to properly assess the impact of sustained involvement in 4-H on youth outcomes. The results of this synthesis evaluation were further impeded by the quality of the writing. The investigator/writer often did not provide enough detail to allow the readers to reach their own conclusions about the quality of the research and the veracity of the conclusions. The tone and style of a number of studies appeared to be designed to assure or to advocate and not to present an objective view of the findings. In light of these issues, this report cannot conclude with any strong level of confidence that sustained involvement in 4-H programs has a positive impact on youth.

In terms of:

- ***What impact or influence does sustained involvement in 4-H programs have on youths' physical, social, emotional, psychological, and/or cognitive development?***

We were unable to determine the impact or influence of sustained involvement on youths' development due to sampling issues. First, few studies differentiated youth in terms of the length of time they were enrolled in 4-H. Second, researchers did not address other intervening demographic variables, such as involvement in other youth development programs, motivation for joining 4-H, and a family history of 4-H involvement. Finally, studies did not capture a representative sample of 4-H youth. Youth who participated in the 4-H studies were predominantly Caucasian, female, and from rural communities.

Because researchers did not operationally define "involvement", it was unclear how active the youth were in the programs. Subsequently it was not possible to clearly determine the impact of sustained involvement.

- ***What impact/influence does sustained involvement in 4-H programs have on youths' ability to acquire, utilize, or enhance critical life skills?***

The review of the studies yielded tremendous variability in the definition and measurement of life skills. Few researchers operationally defined "life skills." Life skills were classified under two categories: generalized life skills (3, 5, 6, 14, 20) and leadership life skills (2, 7, 11). In many cases, terms used to define general and leadership life skills overlapped. This variability in the terminology used impeded this evaluation in assessing the impact of sustained involvement on the development of life skills.

Although alumni studies lacked a cohesive definition of life skills, these studies provided some conclusive data on the impact/influence of sustained 4-H involvement on the development of life skills. Specifically, these studies found that alumni were more likely to credit 4-H involvement with the development of life skills than other youth development organizations (2, 3, 11, 14). Alumni studies connected specific 4-H related activities with the development of life skills. Activities identified by alumni and associated with life skills development included: 4-H trips, 4-H club meetings, relationships with adult 4-H leaders, community service, holding office, teaching younger members, fairs, livestock shows, judging contests, demonstrations and public speaking (6, 7, 14, 20). The alumni studies also differentiated former members in terms of the length of membership and level of involvement (2, 3, 7, 14). However, as these studies relied on recall data, we can not definitively conclude that participation in 4-H resulted in the development and enhancement of life skills.

➤ ***What are the various iterations of 4-H youth development programming? Do these variations have a differential impact on outcomes for youth?***

The only studies that could be found to address the issue of sustained involvement in 4-H were studies that collected data on members' participation in 4-H clubs or 4-H after-school programs.

The 4-H club reported upon a wide array of focused programs, e.g. animal science, clothing, community service and addressed the perceived value of numerous events or activities associated with 4-H, e.g. running meetings, demonstrations, presentations, public speaking, running fairs. Only 2 studies focused on after-school programs and their findings pertained to the long term impact of specialized curriculum, i.e. smoking and tobacco use prevention. Due to the small number of studies, this evaluation was unable to assess the differential impact of the different programming types on youth outcomes. It is still unclear if youth outcomes are the result of 4-H activities or the curricula used to supplement 4-H activities.

➤ ***What unmet needs or gaps have been identified in terms of programming or program delivery modes?***

Identified unmet needs and gaps were organized under the following categories: programming, youth, staff, and adults. The most common themes from each category are described below.

- **Programming.** Programs need to be more appealing to urban youth, older youth, and males. Researchers also suggested that states offer more school-based programs.
- **Youth.** To reduce attrition, programs should offer senior 4-H members more leadership opportunities. Youth should be involved in recruiting new members and the development of programs and curriculum. There is great concern that 4-H programs are not adequately addressing the needs of or appealing to urban

youth or youth of different ages, genders and ethnicities, particularly older youth, males, and minority populations. Several studies indicated the importance of conducting programming needs assessments and focus groups with youth to help develop programming that appeals to a diverse group of young people.

- **Staff.** Staff should receive more training on child and adolescent development and acquire an understanding of how to form relationships with youth. Researchers highlighted the need for careful recruitment and screening of potential volunteers. Staff should be well informed about the goals and mission of 4-H. Staff should be supported and allowed opportunities to receive and provide feedback.

➤ *What “best” or “promising” research or programming practices have been put into place which will facilitate replication of findings in other settings?*

Identified best practices were organized under the following categories: Data collection, standardized measures, sampling, and data analyses.

- **Data collection.** Few studies used rigorous data collection methods. Rigorous data collection methods used by researchers included pre-test/post-test designs, combined quantitative and qualitative procedures, and the collection of longitudinal data.

Standardized Measures. Three researchers chose to use, in whole or part, questionnaires that had been developed for use in national and state 4-H impact studies. While these measures appeared to have been reviewed for face and content validity, it does not appear that they had been examined or tested for their underlying construct validity. No studies utilized measures with well known, established, and published reliability or validity data.

- **Sampling.** A limited number of researchers used random sampling and control groups. Differentiation of youth based on length of time involved in 4-H was limited to alumni studies.
- **Data analyses.** While the majority of studies reported frequency and percentage type data, some researchers did design their studies so data could be analyzed using more sophisticated techniques. Examples of best practices for data analyses included the use of t-tests, ANOVAs, correlations, regressions, and Chi square.

RECOMMENDATIONS

Based on this review of relevant 4-H literature, the following recommendations are presented:

1. 4-H research needs to be driven by explicated theoretical orientation(s) or based on fully described models of positive youth development or informal learning experiences. These frameworks, once agreed upon, could then be used by researchers interested in determining the critical variables involved in attracting, maintaining, or dissuading youth engagement in 4-H programs, projects, events, and activities.
2. The National 4-H leadership needs to encourage/direct/work with Extension staff and researchers to utilize the key terms and variables that have been operationally defined in Appendix B (Critical Elements Work Group) of the National 4-H Impact Assessment (2001). These definitions should be used consistently and nationally throughout 4-H.
3. The National 4-H leadership needs to work with Extension staff and researchers to establish clear and measurable goals and outcomes for key 4-H programs, projects, events and activities. Consensus on these matters will facilitate the replication of research findings and allow stronger inferences to be made about the dynamics involved in 4-H programming, learning processes, and long term outcomes for participants.
4. The National 4-H leadership needs to support the development of a database containing standardized measures with established reliability/validity for use in 4-H projects. These measures would specifically relate to key terms, variables, goals and outcomes. Use of these measures will facilitate the collection of both process and outcome data. A system of support, including technical assistance, would need to be developed to ensure that researchers utilize the archived measures consistently and accurately.
5. The National 4-H leadership should support the development and maintenance of a National 4-H database of current members and alumni to facilitate the design of cross-sectional and longitudinal research studies.
6. The National 4-H leadership should facilitate and support the design of large scale multi-state, regional, and/or national studies which would allow enough data to be captured so findings could be generalized, and best practices identified and replicated.
7. Future studies on the impact of 4-H must adhere to critical elements of basic research design such as –
 - a complete and accurate description of the entire research population and the procedures used to select a representative sample of participants;

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- use of over- or under-sampling techniques to insure the inclusion of a diverse sample of participants (e.g. age, gender, race/ethnicity, and geographic location);
 - use of comparison and control groups;
 - use of pre- and post-training evaluation designs;
 - data analyses that go beyond descriptive statistics and frequencies;
 - data should be entered and analyzed using statistical packages such as SAS and SPSS and data sets should be made available to other researchers.
8. State 4-H programs may wish to consider funding and dedicating graduate assistantships for the purpose of designing and implementing research studies, collecting and analyzing data, and assisting in the write up of reports.
 9. 4-H studies should be planned to be published in scholarly, peer-reviewed journals beyond the Journal of Extension (JOE). Scholars outside of Extension may not be acquainted with Extension's online journals [note: a PsycINFO search provided no citations for any of the JOE articles that were reviewed for this study].
 10. Reviewers for the Journal of Extension should be encouraged to critically evaluate and recommend changes to submitted articles based on their adherence to basic research design principles; and,
 11. Authors need to clearly indicate whether their research findings have been previously published in another form (e.g., as a technical or white paper report).

Appendix A

Included Studies and Document Numbers

Doc #	Citation
1	Astroth, K.A. & Haynes, G.W. (2002, August). More than cows and cooking: Newest research shows impact of 4-H. <i>Journal of Extension</i> , 40(4). Retrieved July 20, 2006. http://www.joe.org/joe/1996december/rb2.html
2	Radhakrishna, R. & Sinasky, M. (n.d.). 4-H experiences contributing to leadership and personal development of 4-H alumni. Pennsylvania State University: University Park, PA.
3	Nash, S. & Sant, L. (2005, April). Life skill development found in 4-H animal judging. <i>Journal of Extension</i> , 43(2). Retrieved August 2, 2006. http://www.joe.org/joe/2005april/rb5.shtml
4	Grenawalt, A., Halbach, T., Miller, M., Mitchell, A., O'Rourke, B., Schmitz, T., & Taylor-Powell, E. (2004, Spring). 4-H animal science program evaluation: What is the value of the Wisconsin 4-H animal science projects? 4-H Youth Development Program, Madison, WI: University of Wisconsin Cooperative Extension. www.uwex.edu/ces/pdande/evaluation/evalstudies.html
5	Fitzpatrick, C., Gagne, K.H., Jones, R., Lobley, J., & Phelps, L. (2005, June). Life skills development in youth: Impact research in Action. <i>Journal of Extension</i> , 43(3). Retrieved August 2, 2006. http://www.joe.org/joe/2005june/rb1.shtml
6	Fox, J., Schroeder, D., & Lodle, K. (2003, December). Life skill development through 4-H clubs: The perspective of 4-H. <i>Journal of Extension</i> , (41),6. Retrieved July 17, 2006 http://www.joe.org/joe/2003december/rb2.shtml
7	Pennington, P. & Edwards, M.C. (2004). Former 4-H Key club members' perceptions of the impact of "giving" life skills preparation on their civic engagement. Article # 1FEA7. Retrieved July 20, 2006. http://www.joe.org/joe/2006february/a7.shtml
8	Leeds, C.F. (1997). Perceptions of Union County 4-H members about the 4-H program. (Master's Thesis, Ohio State University, 1997). UMI No. 9813303
9	Shelby, B. (2000). Factors that influence re-enrollment of youth ages 9 through 12 in Muskegon County 4-H programs. (Doctoral Dissertation, Michigan State University, 2000). UMI No. 9985462.
10	Rodriguez, E., Hirschl, T., Mead, J., & Goggin, S. (1999). Understanding the difference 4-H clubs make in the lives of New York youth: How 4-H contributes to positive youth development. Cornell University: Ithaca, NY.
11	Richey, P. (2000). An analysis of leadership life skills development through 4-H in the North Texas District. (Doctoral Dissertation, Texas A&M University – Commerce, 2000). UMI No. 9980439
12	Howard, J.W. (2001). Impact assessment of the Texas 4-H and youth development program. (Doctoral Dissertation. Texas A&M University, 2001). UMI No. 3011729.

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13	Morris, J. (1996). Self-perceived youth leadership life skills development among Iowa 4-H members. (Doctoral Dissertation, Iowa State University, 1996). UMI No. 9620981.
14	Maass, S.E. (2004). A study of the life skills development of Oklahoma 4-H alumni during the years of 4-H participation 1969-1988. (unpublished Master's Thesis, University of Florida, 2004).
15	D'onofrio, C., Moskowitz, J., & Braverman, M. (2002). Curtailing tobacco use among youth: Evaluation of Project 4-H Health. <i>Health Education and Behavior</i> , 29, 656-682. Retrieved from ERIC.
16	Ward, C. (1996, April). Life skills development related to participation in 4-H animal science projects. <i>Journal of Extension</i> , 34(2). Retrieved July 20, 2006. http://www.joe.org/joe/1996april/rb2.html
17	Paisley, J.E. & Ferrari, T.M. (2005, April). Extent of positive youth-adult relationships in a 4-H after-school program. <i>Journal of Extension</i> , 43(2). Retrieved July 17, 2006. http://www.joe.org/joe/2005april/rb4.shtml
18	Harder, A., Lamm, A., Lamm, D., Rose, H., & Rask, G. (2005, October). An in-depth look at 4-H enrollment and retention. <i>Journal of Extension</i> , 43(5). Retrieved July 1, 2006. http://www.joe.org/joe/2005october/rb4.shtml
19	Smith, J.A., Cox, K.J., Pitts, N.A., & Tam, H.P. (1997, October). Factors associated with clothing care practices of adolescents enrolled in 4-H programs. Retrieved August 2, 2006. http://www.joe.org/joe/1997october/rb2.html
20	McKinley, S. (1999). 4-H alumni perspectives regarding the impact of the Indiana 4-H Program. (Doctoral Dissertation, Purdue University, 1999). UMI No. 800-521-0600
21	Locke, B.D., Boyd, B.L., & Frazee, S. (2004). Service-learning and leadership life skills: An experimental study. Texas 4-H and Youth Development Program Research Review 2004. Office for Texas 4-H & Youth Research. College Station, TX: Texas A&M University.
22	Goodwin, J., Carroll, J., & Oliver, M. (2005). Public school students out of school time study: Measuring the impact of Colorado's 4-H youth development program. Colorado State University: Denver, CO.
23	Goodwin, J., Barnett, C., Pike, M., Peutz, J., Lanting, R., & Ward, A. (2005). Idaho 4-H impact study. University of Idaho, ID
24	Lauxman, L. (2002). To belong or not to belong: The differences between youth who stayed enrolled and who dropped out of a youth development program. (Doctoral Dissertation, University of Arizona, 2002). UMI No. 3050362.
25	Hodnett, F. (2003). Competition, leadership and other factors as predictors of satisfaction with and participation in 4-H. http://www.joe.org/joe/1999august/rb1.html
26	Lee, C. (2002). Description of Utah 4-H club members' perceived level of critical elements in the 4-H experience. (Master's Thesis, Utah State University, 2002). UMI No. 1413330.
27	Slocum, S. (2004). A comparison of leadership life skills development of youth participating in riding and non-riding competitive horse events in Mississippi. (Doctoral Dissertation, Mississippi State University, 2004). UMI No. 3120825.

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28	National 4-H Impact Study. (2001). <i>Prepared and engaged youth</i> . Washington, DC: CSREES/USDA. Retrieved February 6, 2007. http://www.national4-hheadquarters.gov/about/4h_impact.htm
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