National 4-H Science Leadership Academy

Year Two
Leadership Conference Follow-Up Evaluation Report

June 30, 2011

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Table of Contents

Evaluator's Statement

This document serves as the Year Two 4-H Science Leadership Conference Follow-Up report for the *National 4-H Science Academy* program sponsored by National 4-H Council with funding from the Noyce Foundation. The follow-up evaluation was implemented between May 1 and June 1, 2011.

The evaluation was designed to follow-up on progress by LGU teams that participated in the face to face leadership conference, which was held December 6-9, 2010 at the National 4-H Conference Center in Chevy Chase, Maryland.

All conference participants were invited to participate in the program evaluation.

All narrative responses in this report have been presented verbatim, with the exception that personally identifying information has been removed.

All data for the evaluation were entered by participants directly into an on-line data collection system. Access to the system was provided by the evaluator to the participants for data entry, but only the evaluator had access to the actual dataset. The integrity and accuracy of the raw data rests with the individual participants. The integrity and accuracy of the analysis and interpretation rests solely with me as the project evaluator. To this end, I certify that the analysis and results presented in this document are complete and accurate insofar as the data entered by the participants were as well. Any questions or concerns about this report should be addressed to me.

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June 30, 2011
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Acknowledgements

This program evaluation could not have taken place without the dedicated help and support of many individuals.

First and foremost, I would like to thank National 4-H Council and the Noyce Foundation for the opportunity to conduct the Year Two follow-up evaluation of this important program. It was exciting to see the changes and developments underway just five months after the conference.

I would like to express my thanks and gratitude to Janet Golden at National 4-H Council for her excellent teamwork and help. I appreciated your support and help with various aspects of the evaluation.

Thank you, also, to the focus track coordinators who helped with the development of the follow-up evaluation instrument

A very special thank you to my co-author and graduate assistant Ms. Courtney Archibeque. Your focused assistance with the data analysis and report preparation could not be replaced. Thank you especially for your cheerful willingness to concentrate your work time on the report so we could meet the expected deadline.

I would like to thank each and every academy participant who contributed data. The sincerity with which you approached the evaluation was evident in the data and information you provided. Without your help, there would be nothing to report. So thank you for your willingness to help make this possible.

Finally, thank you to the Noyce Foundation for the generous support of the *National 4-H Science Leadership Academy*. The funding provided by the foundation made this important program possible. As a result, 4-H programs across the country are more prepared to develop and sustain programs for youth in science, technology, engineering, and math.

Executive Summary

A five-month follow-up evaluation with participants of the National 4-H Science Leadership Conference, which was held in December 2010 at the National 4-H Conference Center in Chevy Chase, MD, was conducted in May 2011. The purpose of the follow-up evaluation was to assess the progress of the conference participants in furthering 4-H Science programming at their Land Grant Universities (LGUs) in the areas of: 1) Curriculum; 2) Evaluation; 3) Fund Development; and 4) Professional Development.

Overall Summary

- The follow-up evaluation reveals a **persistent concern related to the amount of time** 4-H science leadership team members have to dedicate to their role. Very few report having a lot of time to dedicate to the effort, and the majority of respondents say the time they do have not enough. While the lack of time remains a concern, it is important to consider this information in the context of the general nature of 4-H youth development work. As a rule, most 4-H professionals are routinely faced with more work then there is time to do. Given this, it could very well be the case that the time pressures for fulfilling one's role on the science leadership team are similar to time pressures experienced for other areas of 4-H responsibilities as well. Given that we know that leadership team members do not feel they have adequate time, the pertinent question is to ask what is moving forward related to 4-H science development *despite* the time pressures.
- An encouraging sign from the follow-up evaluation is the **increased clarity of roles** and role expectations that many of the respondents report.
- In addition, five months following the conference, most participants report that the **conference prepared them well** to lead 4-H Science efforts at their LGU.
- A further encouraging sign is the reported **improvements to the webinar processes** that were reported.
- **Concerns about the extent of webinar attendance**, however, are still present, with only 69 of 173 respondents (39.8%) indicating they had attended a post-conference webinar. Comments found later in this report, however, indicate that the post-conference webinars have been valuable in furthering 4-H science efforts for some participants.
  Recommendation: Given the low participation rate in the post-conference webinars, and the amount of time that goes into developing and hosting the webinars, it would be prudent to have a better assessment of the value and impact of the webinars.

Curriculum Track

- Overall participants in the curriculum track report positive development in the curriculum area since the December conference, providing descriptions of developments to date. A

persistent concern appears to be the lack of staff and other resources to support curriculum development at some LGUs. In addition, there were many comments regarding **state's lack of capacity for curriculum development**, which is something that is not going to change in the current time. *Recommendation: There may be a need to help states that do not develop their own curriculum to learn how to find existing curriculum, with a particular emphasis on how to provide training for the successful adoption of curriculum that is developed by other states.*

- Over 80% of participants have utilized the tools presented at the December conference, with most respondents reporting the tools are useful to their work. However, the evaluation shows that the most used tools are in the area of *Experiential and Inquiry-Based Learning*, with the use of the tools dropping off in the areas of building and writing to the curriculum frame. In addition, participant comments indicate a desire for more in-depth experience and learning in the area of inquiry. The evaluation results appear to show that the **curriculum work currently underway is focused on infusing the inquiry into the system**, while less focused on the actual development of curriculum. *Recommendation: Focus the regional academy curriculum track to provide in-depth opportunities for exploring inquiry in-depth. This should include the opportunity to: 1) explore and experience existing 4-H science curriculum; 2) hands-on practice in infusing inquiry into existing 4-H curriculum that is not science focused; and 3) opportunities for sharing existing curriculum and training practices that result in an easier adoption by states that do not develop their own curriculum. The academies should also provide opportunities to explore the development of regional curriculum.*

Evaluation Track

- One of the most pronounced findings in the follow up evaluation is the **shift of perceived evaluation expertise** that was reported. After the December conference, 57.1% reported moderate or high levels of evaluation expertise. The follow-up results show that 79.2% of participants in the evaluation track report moderate or high levels of expertise.
- In addition, the post-conference evaluation revealed two distinct levels of evaluation expertise. The follow-up evaluation indicated that **this dichotomy of expertise may be leveling off**.
- Respondents highlighted the value of **knowing about evaluation resources** that are currently available. Several mentions **adopting instruments and/or developing on-line evaluation systems**.
- Of the tools that are available for evaluation support, respondents reported using the *4-H Science Checklist*, the *4-H Science Evaluation Design*, the *YEAK Survey*, and the *4-H Science Logic Model* the most. **Reported use of the remaining tools dropped off significantly**.

- Respondents reported a desire for more **standardization of 4-H Science outcomes and evaluation instruments for use across the 4-H system**.
- Overall the results of the evaluation focus track follow-up indicate good momentum and enthusiasm for 4-H Science evaluation efforts. *Recommendations: Regional academies should focus on: 1) increasing awareness and access to existing evaluation tools; 2) explore regional and state need and potential opportunities for standardized 4-H Science outcomes and matching evaluation instruments.*

Fund Development Track Summary

- One of the most striking findings of the follow-up evaluation for Fund Development is the **appreciation for, use of, and high quality rankings of the tools for fund development**. At least 75% of fund development track participants reported using all of the fund development tools provided; this use is far greater than the reported use of tools provided by the other focus tracks.
- The evaluation revealed some concerns, however, with revenue plan development. The majority of respondents reported not having plans that contained important elements outlined at the December training. A stark finding was that **only 29% report having specific fund development goals** in their revenue plan. **Thirty-five percent of respondents report "low" levels of development** in the fund development area, this is more than any other focus track.
- Three persistent themes emerged from the follow-up evaluation. First, was **strong support for the appropriateness of the information and tools** that are available. Second, was the reality of **not having enough time to pursue fund development** at the level that is needed. And third, was the recognition that t**here needs to be a well-developed science plan and programs in place** before successful fundraising can be conducted.
- Overall, the results of the fund development track follow-up paint a picture of need for further planning for fund development, coupled with finding more time to do fund raising. *Recommendation: Continue to monitor development of revenue plans and document cases of successful fund development. Regional academies may want to structure their fund development tracks to provide further support for revenue plan development and sharing of successful strategies and support materials. There should also be consideration given to what fund development work might be useful at the regional level.*

Summary Professional Development Track

- The evaluation revealed significant momentum in the area of professional development. Over **76% of respondents reported teaching others about science inquiry and using science inquiry learning** to support 4-H science.

- Twenty-two LGUS report having conducted training already, **reaching a reported total of 639 professional staff and 284 volunteers**.
- Numerous narrative accounts report **plans to provide professional development** training before the end of 2011.
- Most respondents report **using tools related to experiential learning and inquiry**; less have used tools for science content-rich volunteers and traditional volunteers. Even less have used the tools related to developing a community of practice.
- Several narrative statements refer to the need to **continue to promote and share tools for professional development**, particularly in the area of science inquiry. Recommendation: Regional academies may want to provide additional training on teaching science inquiry as well as provide opportunities for sharing of successful training tools and materials.
- The community of practice (CoP) idea does not appear to have gained much traction, with **almost 50% of the respondents not using** the materials provided. *Recommendation: If the CoP is intended to be used as a professional development method throughout the 4-H system than additional training, emphasis, and support will need to be provided at the regional academies and beyond.*

Year Two Conference Follow-Up Evaluation Overview

A five-month follow-up evaluation with participants of the National 4-H Science Leadership Conference, which was held in December 2010 at the National 4-H Conference Center in Chevy Chase, MD, was conducted in May 2011. The purpose of the follow-up evaluation was to assess the progress of the conference participants in furthering 4-H Science programming at their Land Grant Universities (LGUs) in the areas of: 1) Curriculum; 2) Evaluation; 3) Fund Development; and 4) Professional Development.

Conference participants were contacted via e-mail and invited to participate in the follow-up evaluation. A total of 177 e-mail invitations were sent, of which two were returned indicating that person was no longer employed with the 4-H program. Of the remaining 175, two indicated that although they were members of their LGU's 4-H Science team, they did not participate in the December Leadership Conference, and therefore did not complete the questionnaire. Upon further investigation it was discovered that these two individuals were indeed two who had to cancel conference attendance at the last minute due to extenuating circumstances.

Of the remaining 173 viable participants, 118 responded to the questionnaire for an overall response rate of 68.2%. Of these, 89% completed every question, for a completed overall response rate of 66.5%. This response rate represents a majority of the possible respondents and is fairly typical of response rates for web-based surveys.

In addition, respondents were fairly well balanced among the four conference focus tracks. Table 1.1 shows the frequency and percentage of respondents by focus track.

Table 1.1 Respondents by Focus Track

	Frequency	Percent
Curriculum	33	28.0
Evaluation	24	20.3
Fund Development	31	26.3
Professional Development	30	25.4

Just under 82% of respondents indicated they were still in their role on their LGU's science leadership team. Four respondents (3.3%) indicated they were no longer on their LGU's team, and 16 (13.6%) did not answer this question. Table 1.2 reveals the frequencies and percentages for current team memberships.

Table 1.2 Respondent Still in Role on State's 4-H Science Leadership Team

	Frequency	Percent
Yes	98	81.7
No	4	3.3
Missing	16	13.6

Table 1.3 shows that only 11.3% of respondents report having "a lot" or a "good deal" of time to fulfill their role. Just under 34% feel they have some time, and 31.4 indicated they only have a little time. Eleven percent indicate they have no time to dedicate to their science leadership team.

Table 1.3 Amount of Time Dedicated to4-H Science Team Role

	Frequency	Percent
No Time	13	11.0
A little Time	37	31.4
Some Time	40	33.9
A Good Deal of Time	8	6.8
A Lot of Time	3	2.5
Missing	17	14.4

No matter how much time respondents report having to dedicate to their 4-H science team, most do not feel the time that they have is enough to fulfill their role on the leadership team. As shown in Table 1.4, 48.3% report not having nearly enough time, and an additional 22.9% indicate they have less time than they feel they really need. Only 13.6% report they have adequate time.

Table 1.4 Adequacy of Available Time

	Frequency	Percent
Not Nearly Enough	57	48.3
Slightly Less than What is Needed	27	22.9
Just About Right	16	13.6
More Than What is Needed	1	0.8
Missing	17	14.4

When asked how well the 4-H Science Leadership Conference prepared respondents to provide leadership on their LGU's team, 71.% reported being highly or moderately prepared, while 9.3% felt

slightly prepared, and only 1 person reported not being prepared at all. Table 1.5 shows the frequencies and percentages for this question.

Table 1.5 Conference Preparation for Role

	Frequency	Percent
Not Prepared at All	1	0.8
Slightly Prepared	11	9.3
Moderately Prepared	51	43.2
Highly Prepared	33	28.0
Very Highly Prepared	5	4.2
Missing	17	14.4

When asked whether their role on their leadership team is clearer now than at the end of the conference, 47.5% report that it is clearer now, while 31.5% report that it is about the same. 6.7% report that they are less clear now than they were following the conference. The frequencies and percentages for this question are presented in Table 1.6.

Table 1.6 Clarity of Role on State Team

	Frequency	Percent
Considerably Less Clarity About my New Role	5	4.2
Somewhat Less Clarity About my New Role	3	2.5
About the Same Clarity now as in December	36	30.5
Somewhat More Clarity About my New Role	33	28.0
Considerable Clarity About my New Role Now	23	19.5
Missing	18	15.3

As presented in Table 1.7, respondents were asked about participation in post-conference webinars. Most (58.5%) indicated that they have participated in a webinar, while 28% said they have not, and 13.6% did not answer this question.

Table 1.7 Post-Conference Webinar Attendance

	Frequency	Percent
Yes	69	58.5
No	33	28.0
Missing	16	13.6

When asked why they had not participated in webinars, the overwhelming reason (37 respondents) was because of scheduling conflicts. Far fewer respondents said the topics were not interesting (3) or relevant (6). Two people indicated they were not aware of the webinar schedules, and 3 people indicated "other" but did not describe what the other reasons were. Sixty-one percent of respondents indicated that they have encouraged others at their LGU who are not part of the science leadership team to attend the post-conference webinars.

Because the post-conference evaluation revealed considerable concerns about the pre-conference webinar calendar, communication, registration process and access, respondents were asked to rate improvements to the webinar process since the December conference. In general, improvements were seen: only 5.1% reported no improvement to the webinar calendar; 4.2% reported no improvement in communications related to the webinars; 9.3% reported no improvement to the registration process; 9.3% said there was no improvement in the ease of attending webinars; and 7.6% reported no improvement in access to the webinar evaluation forms. Tables 1.8 shows the detailed frequencies and percentages for each of the webinar improvements.

Table 1.8 Summary of Improvement Ratings for Webinars (1)

	Frequency	Percent
Webinar Calendar		
No Improvement	6	5.1
Some Improvement	24	20.3
Good Improvement	39	33.1
Very Good Improvement	5	4.2
Missing	44	37.3
Communications Related to Webinars		
No Improvement	5	4.2
Some Improvement	22	18.6
Good Improvement	38	32.2
Very Good Improvement	10	8.5
Missing	43	36.4
Registration Process		
No Improvement	11	9.3
Some Improvement	20	16.9
Good Improvement	31	26.3
Very Good Improvement	12	10.2
Missing	44	37.3

Table 1.8 (continued)	Frequency	Percent
Ease of Attending		
No Improvement	11	9.3
Some Improvement	14	11.9
Good Improvement	33	28.0
Very Good Improvement	17	14.4
Missing	43	36.4
Access to the Webinar Evaluation		
No Improvement	9	7.6
Some Improvement	19	16.1
Good Improvement	36	30.5
Very Good Improvement	6	5.1
Missing	48	40.7

Overall Summary

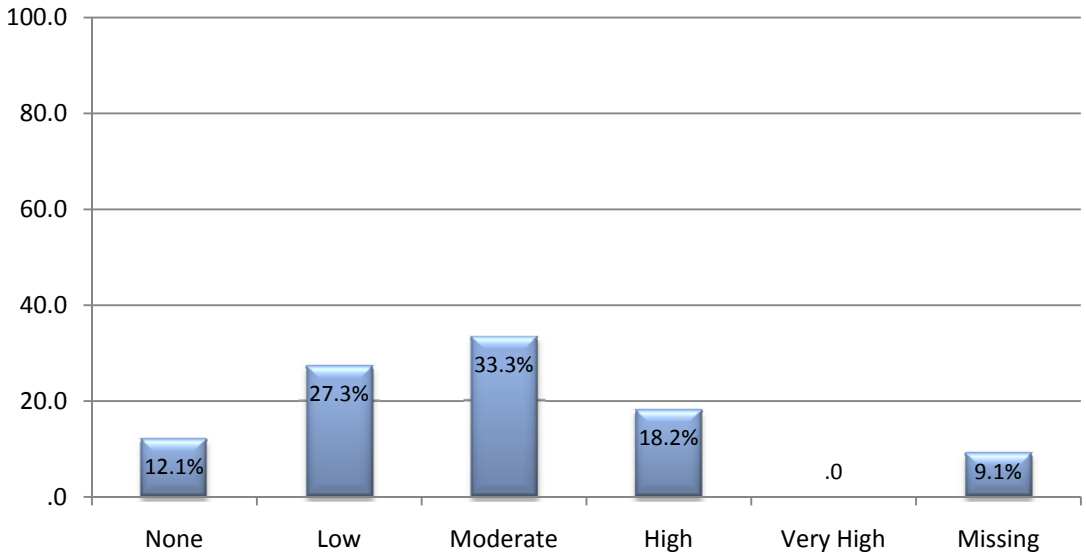
- The follow-up evaluation reveals a **persistent concern related to the amount of time** 4-H science leadership team members have to dedicate to their role. Very few report having a lot of time to dedicate to the effort, and the majority of respondents say the time they do have is not enough. While the lack of time remains a concern, it is important to consider this information in the context of the general nature of 4-H youth development work. As a rule, most 4-H professionals are routinely faced with more work then there is time to do. Given this, it could very well be the case that the time pressures for fulfilling one's role on the science leadership team are similar to time pressures experienced for other areas of 4-H responsibilities as well. Given that we know that leadership team members do not feel they have adequate time, the pertinent question is to ask what is moving forward related to 4-H science development *despite* the time pressures.
- An encouraging sign from the follow-up evaluation is the **increased clarity of roles** and role expectations that many of the respondents report.
- In addition, five months following the conference, most participants report that the **conference prepared them well** to lead 4-H Science efforts at their LGU.
- A further encouraging sign is the reported **improvements to the webinar processes** that were reported.
- **Concerns about the extent of webinar attendance**, however, are still present, with only 69 of 173 respondents (39.8%) indicating they had attended a post-conference webinar. Comments found later in this report, however, indicate that the post-conference webinars have been valuable in furthering 4-H science efforts for some participants.
  Recommendation: Given the low participation rate in the post-conference webinars, and the

amount of time that goes into developing and hosting the webinars, it would be prudent to have a better assessment of the value and impact of the webinars.

Curriculum Track

Thirty-three respondents attended the curriculum focus track at the December conference. Respondents were asked to rate the overall development of their 4-H Science curriculum, 17 participants (51.5%) reported moderate or high levels of development. Just over 12% indicated that there has been no progress in the curriculum area since the December conference (see Figure 2.1).

Figure 2.1 Development of 4-H Science Curriculum since Conference



Respondents were asked to describe the factors that contributed to the development (or lack thereof) of curriculum at their LGU. Descriptive analysis revealed several common themes: 1) Limited staffing and inability to dedicate time to curriculum development; 2) length of time it takes to produce curriculum; 3) lack of funding; and 4) efforts that are underway, but not yet realized. Respondents also reported some important accomplishments in the curriculum area. The verbatim comments are listed below, organized by theme.

Staffing

- Limited/reduced 4-H staff has become an obstacle that hinders rapid advancement of 4-H science programs
- Transition of program leaders is putting us on a slower path until that person is in place.

- My state mostly utilizes curriculum developed by other states or nationally and only occasionally creates something new. We have not had a specialist focused on curriculum development or even coordination in many years.
- Our challenge is a lack of specialists on staff, specifically for curriculum. The task of curriculum development falls on county staff who still maintain other duties. We do have a STEM committee (Dec conference attendees) who are very committed to 4-H STEM curriculum. We do work on some programming but are challenged to give it the attention it really needs.
- Staff members are over committed due to recent retirements and picking up additional assignments.
- Lack of personnel
- We are currently undergoing a restructure, so our plans have been halted until that takes place and we know who will be available to move forward with our plans. However, our volunteer base is stepping up in a remarkable fashion and they are taking over what Educators would normally be doing in the Science area.
- We have 7 core areas which county staff are required to participate in through their 4-H programming. Curriculum options and funds may limit what county staff will and can use to fulfill their requirements.
- Our state is relatively small and has no immediate plans for developing our own curriculum.

Lack of Time and Resources

- Curriculum development in my state takes a long time, with a usual project timeline of at least a year. Nonetheless, the process is ongoing in my state. I see bigger challenges on the Professional Development and funding sides.
- Logistical distances for planning
- We have participated in the There's No New Water! and Junk Drawer Robotics curriculum projects. Mostly, the lack of funding has contributed to a low development rate.

In Process

- Still trying to get a state plan in place.
- We are starting from scratch. :) We are trying to build the machine (organize people) to do this.
- We don't develop curriculum here per se. Our work as a state Science Team has really been in getting our state wide plan going and developing our logic model as a team. We are moving forward a pilot with Aquatic Robotics so that has had some curriculum development.
- The leadership conference was key to engaging us in this project. At the state level strong support from leadership and excellent collaboration between science leadership team members have helped us make great strides forward.
- Our team has begun to meet. We are currently synthesizing what is available and prioritizing our buy in to national opportunities (Robotics). We have sought collaborative efforts that we

feel will support curriculum through staff increasing competencies (Citizen Power- alternative energy) and possible curriculum areas (SAE). We are further exploring opportunities with technology and are seeking to build our repertoire of offerings in the basic science venue. We are inservicing staff to review the current offerings by our state to ramp up the "project offerings" to fulfill the expectations for 4-H Science curriculum.

- We already have a lot and are still working on old projects involved with 4-H Science.

Accomplishments

- Our state has worked to create a *Science Curriculum Booklet* that features updated science activities and experiments that we plan to distribute to local schools, home-schools, and into the community for science learning.
- Our state was very active the in the development of curriculum before the 4-H Science Leadership Conference. We have been extremely fortunate in the wealth and support of university subject matter specialist. However, I really appreciate the learning module templates. This is a very good piece that helps those developing curriculum focus on the necessary pieces for good sound curriculum development.
- The 4-H Science team has worked together to provide trainings to the agents throughout the state. There is also a scheduled volunteer training in August.
- We have conducted focus groups within the professional science community discussing funding, marketing, curriculum design and evaluation.

Evaluation of Curriculum Tools: Use and Access

Participants in the curriculum track received many tools at the conference; these tools were also made available on-line for post-conference access. The follow-up evaluation was interested in understanding the usefulness of the tools presented at the conference AND whether the tools had been accessed on-line. Twenty-five people (75.8%) indicated they knew how to access the toolkit on-line, while 5 (15.1%) indicated they did not. Three respondents did not answer the question.

For the purposes of this report, the tools are broken into the following groups:

1. Experiential and Inquiry-Based Learning
2. Building the Curriculum Frame
3. Writing to the Curriculum Frame

Experiential and Inquiry-Based Learning

Most curriculum track participants (72-80%) have used the tools related to experiential and inquiry-based learning. And of those who used the tools, everyone rated the tools as either "good" or "very good." The two exceptions were the *Lecture* and *Demonstration* activities, which received one "poor" rating each. Table 2.1 shows the frequency and percentages of responses for ratings of each tool, and Figures 2.2 and 2.3 show the percentage of respondents who have accessed the tools on-line, presented in order from most to least accessed.

Table 2.1 Usefulness of Curriculum Tools for Experiential and Inquiry-Based Learning**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	0	0	12 (36.3%)	13 (39.3%)	4 (12.1%)	4 (12.1%)
Lecture Activities	0	1 (3.0%)	18 (54.5%)	8 (24.2%)	3 (9.0%)	3 (9.0%)
Demonstration Activity	0	1 (3.0%)	9 (27.3%)	17 (51.5%)	3 (9.0%)	3 (9.0%)
Guided Inquiry Activity	0	0	8 (24.2%)	19 (57.5%)	3 (9.0%)	3 (9.0%)
Helicopter Model	0	0	10 (30.3%)	16 (48.5%)	4 (12.1%)	3 (9.0%)
5-Step Learning Cycle	0	0	12 (36.3%)	14 (42.4%)	4 (12.1%)	3 (9.0%)
5-Step Learning Cycle Definitions	0	0	12 (36.3%)	14 (42.4%)	4 (12.1%)	3 (9.0%)
What is Inquiry?	0	0	12 (36.3%)	15 (45.5%)	3 (9.0%)	3 (9.0%)
What's in a Question?	0	0	11 (33.3%)	15 (45.5%)	4 (12.1%)	3 (9.0%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 12.1% , to a low of 9%.

Figure 2.2 Accessed Curriculum Tools Related to Experiential and Inquiry-Based Learning (1)

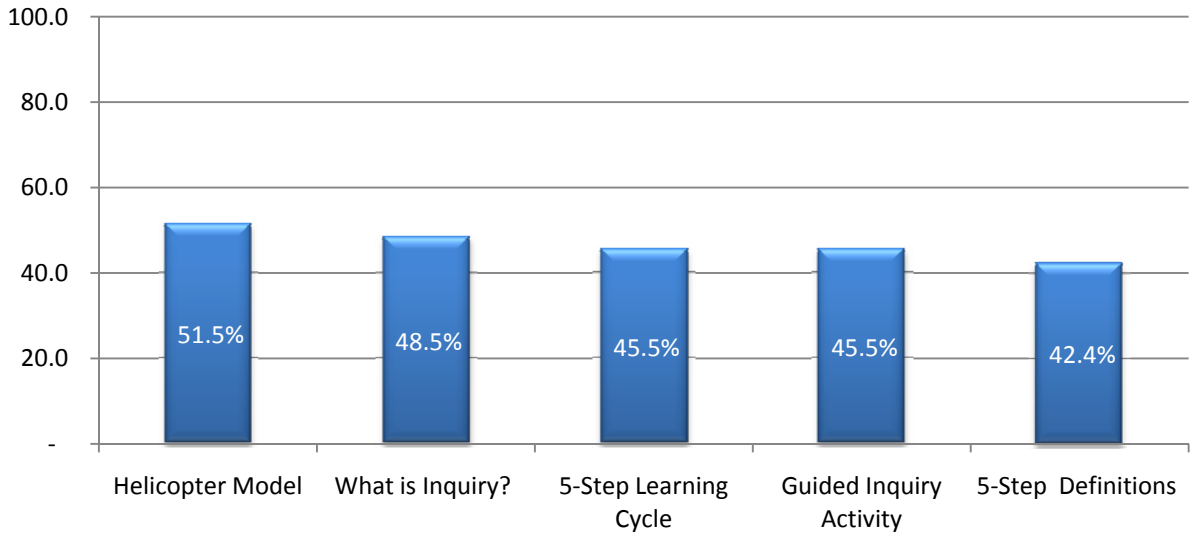
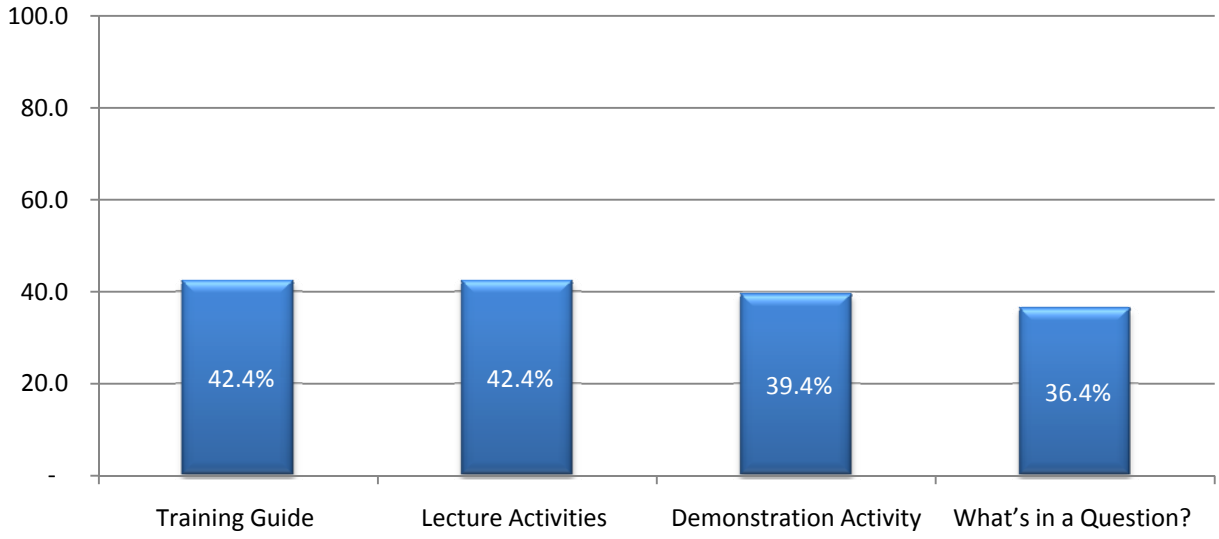


Figure 2.3 Accessed Curriculum Tools Related to Experiential and Inquiry-Based Learning (2)



Building the Curriculum Frame

As Table 2.2 shows, the use of the tools for building the curriculum frame varied from a high of 23 (69.6%) to a low of 15 (45.5%). Of those who used the tools, everyone rated the tools as either "good" or "very good." The two exceptions were the *Blueprint Report* and the *Materials*

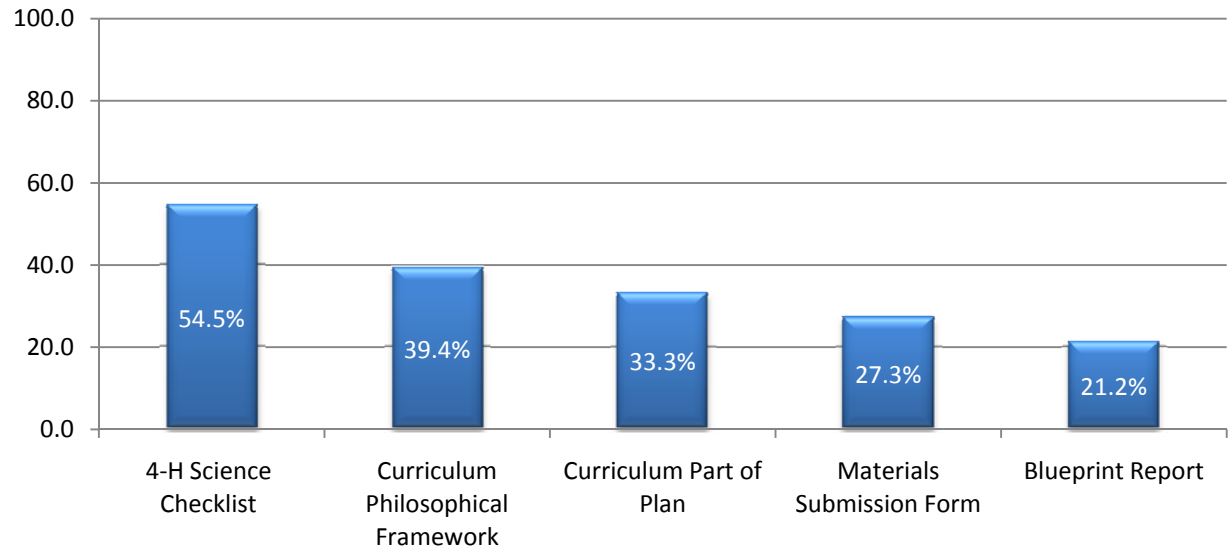
Submission form, which received one "poor" rating each. Figure 2.4 shows the number of respondents who have accessed the tools on-line.

Table 2.2 Usefulness of Curriculum Tools Related to Building the Curriculum Frame**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
4-H Science Checklist	0	0	9 (27.3%)	14 (42.4%)	7 (21.2%)	3 (9.0%)
Blueprint Report	0	1 (3.0%)	8 (24.2%)	7 (42.4%)	13 (39.4%)	4 (12.1%)
Curriculum Philosophical Framework	0	0	6 (18.2%)	9 (27.3%)	14 (42.4%)	4 (12.1%)
Curriculum Part of Plan	0	0	12 (36.4%)	9 (27.3%)	9 (27.3%)	3 (9.0%)
Materials Submission Form	0	1 (3.0%)	10 (30.3%)	7 (42.4%)	11 (33.3%)	4 (12.1%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 42.4% for *Curriculum Philosophical Framework*, to a low of 21.2% for the *4-H Science Checklist*.

Figure 2.4 Accessed 4-H Science Curriculum Tools Related to Building the Curriculum Frame



Writing to the Curriculum Frame

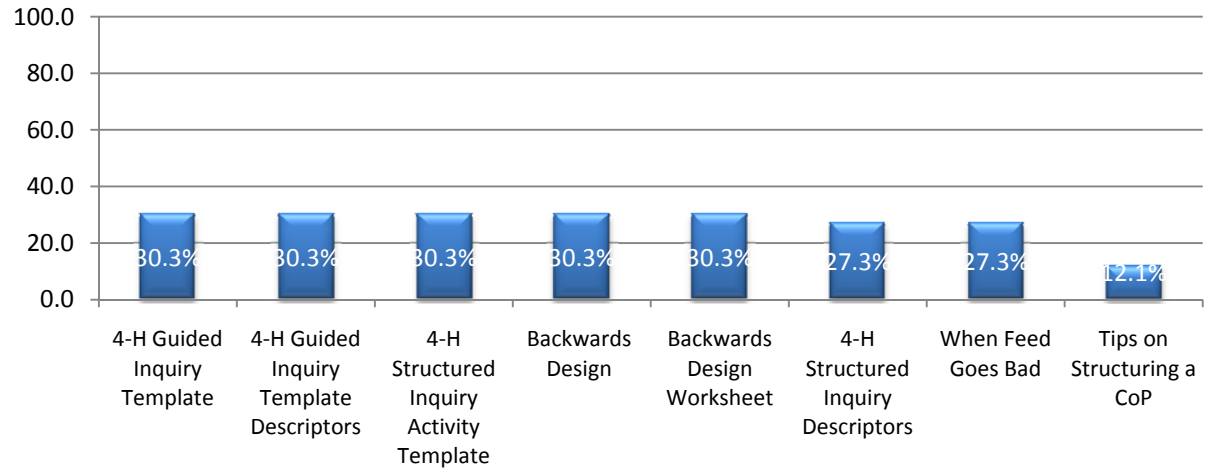
Use of the tools for writing to the curriculum frame varied from a high of 22 (66.7%) to a low of 16 (48.5%). Of those who used the tools, everyone rated the tools as either "good" or "very good." Table 2.3 shows the frequency of responses for ratings of each tool, and Figure 2.5 shows the number of respondents who have accessed each of the tools on-line.

Table 2.3 Usefulness of Curriculum Tools Related to Writing the Curriculum Frame**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
4-H Guided Inquiry Activity Template	0	0	12 (36.4%)	10 (30.3%)	8 (24.2%)	3 (9.0%)
4-H Guided Inquiry Activity Template Descriptors	0	0	12 (36.4%)	10 (30.3%)	8 (24.2%)	3 (24.2%)
4-H Structured Inquiry Activity Template	0	0	13 (39.4%)	9 (27.3%)	8 (24.2%)	3 (24.2%)
4-H Structured Inquiry Activity Template Descriptors	0	0	12 (36.4%)	10 (30.3%)	8 (24.2%)	3 (24.2%)
When Feed Goes Bad	0	0	5 (15.2%)	11 (24.2%)	14 (24.2%)	3 (24.2%)
Backwards Design	0	0	10 (24.2%)	10 (24.2%)	10 (24.2%)	3 (24.2%)
Backwards Design Worksheet	0	0	8 (24.2%)	11 (33.3%)	11 (24.2%)	3 (24.2%)
Tips on Structuring a Community of Practice	0	0	12 (24.2%)	4 (12.1%)	14 (42.4%)	3 (24.2%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 42.4% for *Tips on Structuring a Community of Practice*, to a low of 24.2% for all the other tools.

Figure 2.5 Accessed 4-H Science Curriculum Tools Related to Writing the Curriculum Frame



Narrative Feedback on Curriculum Tools

Respondents were asked to provide feedback related to the curriculum tools. The verbatim responses are listed below, organized around several themes.

Appreciation for tools

- The demonstration and guided inquiry materials worked well. We held a three-site in-person/webinar training for 4-H employees that went very smoothly.
- Have appreciated having the tool kit available as we've held statewide trainings.
- The lecture, demonstrative and inquiry activities are excellent tools for volunteer development.
- They were excellent - only wish there was more time to use them and create new curriculum.
- They have been helpful.
- We are currently using the 4-H guided inquiry template with subject matter specialists who are developing curriculum now. So far the specialists seems to think that it is a very good tool.
- I have used the materials that I received at the conference but have not used the ones on the web.
- They are good
- Appreciate the 3 different activities (lecture, guided & inquiry) to be used when offering Professional development and volunteer training. Would like more tools that could be used this way.
- Useful

- I like the Materials Submission form, although it asks a few things that I think are unwieldy for some authors. Definitely working on a version to use with authors who are not steeped in all things 4-H.
- We have begun to bring our staff up to speed. Most of this has been met with great support.

Have Not Used

- Haven't used any, except with other state committee members.
- Sorry have not used. As only one person for the state, curriculum is not my only job. 4-H Science, grants, and several other programs have taken too much time for me to concentrate on this right now.

Not Useful

- Some parts seem redundant
- The Science Ready checklist and National Directory submission information have been the 2 I have used. We are in statewide program design mode right now; these other pieces may help us once we have moved further along in the plan. The curriculum framework and materials submission form will certainly be pieces I will use in the future. I felt some of the exercises and tools at the Academy were very elementary so therefore not very useful.

<u>Narrative Feedback on Important Things Learned at the Conference</u>

Respondents were also asked to reflect on the most important thing related to 4-H Science Curriculum that they gained at the conference. The verbatim responses are presented below, organized around several themes.

Inquiry Based Learning

- How to construct an inquiry based lesson
- Guided Inquiry
- Inquiry learning
- The tools to sell this to colleagues. I love this model. I think this brings the 4-H program together for what it is and has to offer. The guided inquiry pieces are the pieces I enjoy most.
- Information on inquiry and incorporating it into all that we do.
- It was important that the group was brought together indicating movement forward on the curriculum process. The incorporation of inquiry-based learning was very helpful as well.

Resources

- Knowing where the resources are located

- The toolkit, and also examples of what other states are doing regarding curriculum. Loved the Cornell Science Toolkit, and also the Iowa Hot Sheets. They were excellent.
- Resources
- The templates. I would have liked to know more about the curriculum directory piece where we can upload modules and states can review.
- Learning where to find different pre-made curricula and how to best implement these lessons into the needs of our state.

Networking/Meeting Others

- Ideas from other states. Contacts from other states. Learning how to find resources and what resources were out there.
- Meeting others
- Networking/discussing and addressing similar curriculum concerns, issues
- The opportunity to tap into the energy and expertise of curriculum developers at National 4-H. The opportunity to network with curriculum people from other states.
- Networking

Re-energizing the team

- A big picture of what we have available nationally. I saw what works and I realized that we have very little compared to some. I also appreciated the willingness of others to help. Great networking opportunities.
- Re-energized state team that is offering professional development around 4-H science
- Having the team come together in DC was key because it motivated and inspired us to bring the tools back to state. The networking and collaboration developed there was the greatest benefit. While the tools are extremely helpful, success would not have happened without the rich, authentic experience we received overall at the conference.

Other

- Better understanding of national curriculum framework, national directory and support materials for making submissions/creating materials, and also knowing/seeing what other states were working on or had developed. Also a sense of the plan for Science and curriculum from National 4-H. I also appreciated seeing different state's marketing pieces for their science efforts.
- That most states do not write curriculum - many use materials that are written by other states.
- I learned that most other states, even those with large numbers of 4-H employees and science specialists, are struggling to develop and implement science programs and identify impacts. It is comforting to know that our small total staff of 4-H Educators for the state are not that far behind the large states in program development.
- The process for developing and submitting curriculum materials to the National system.

Topics that would have been Helpful at the Conference

Respondents were also asked to list additional 4-H Science curriculum topics that would have been useful if addressed at the conference. The verbatim responses are presented below.

- Adaption of current curriculum.
- Time to explore a wide range of inquiry-based science lessons that have already been created, implemented, and evaluated. I know there must be good lessons out there, but we didn't have a chance to work with them.
- This was all new to me, so I'm not sure what was missed. Enjoyed all of the learning!
- It would have been helpful to spend time on building community among attendees in order to encourage and prompt communities of practice around various content areas.
- Bringing Science & Inquiry to leaders. Resources to help leaders and educators create inquiry based learning experiences in existing 4-H project areas
- More information on developing curriculum for a 4-H member to use in their project work along with record keeping for youth
- More information for us that do not write curriculum.
- A little more on content
- More opportunity to develop regional curriculum development programs
- I expected deeper learning into inquiry; more meat to this area was needed. I have been learning and designing learning around this area for a couple years. It is complex yet there are some great resources to help in understanding these concepts and teaching them to others. I felt this was given very little attention and left people very unclear as to what is meant by inquiry and the process skills needed for different levels of inquiry. I wish we had also been able to spend time working through how you take curriculum that we have and build inquiry into it at different levels.
- We split into two groups at one point during the Leadership Academy. One group focused on more of updating existing curriculum. The other group actually walked through using the Guided Inquiry/Structured Inquiry Activity Template. It would have been nice to have time for both.
- I am rather new to the 4-H curriculum process. I think more time placed on the options of how curriculum can developed through National 4-H would have helped.
- More in regards to those states that do not write curriculum
- How to adapt existing curriculum
- More opportunities to explore existing curriculum
- I think the conference was fairly well-rounded; I can't think of anything I was missing while there.
- More hands-on options on how to use specific curricula. Webinars on specific curricula that county staff can use to teach and learn about science areas.
- More on how to weave the talk/act like a scientist- bringing in the correct nomenclature.
- How best to develop revenue streams that support the development of curriculum. A bird's eye view of all the different delivery systems used from state to state. (Why are project books such a match for the Ohio program but not so much elsewhere?) How is curriculum

built into the whole 4-H experience? (In our state, project books are required at fairs as evidence of the learning that took place. Not so elsewhere, right?)
- I wish I would have had a better idea what was expected of me. That is probably not National's problem, but something my SET liaison did not provide.

Additional Tools Needed

Respondents were asked to list tools that would be helpful to their curriculum efforts. The verbatim suggestions, organized around themes areas are listed below.

Coordination between states

- It would be helpful to somehow facilitate community among faculty and staff across the country around various content or subject matter areas in order to bring movement to the curriculum development process more effectively. Reach beyond our traditional ways of doing things.
- Yes, also see what people are developing out in the states and let's have a better system for sharing these if they are well-reviewed.
- Maybe a web site with more examples of what other states are doing to update/create new curriculum and an opportunity to share templates on-line, etc.

More Curriculum

- More examples of lessons using the templates
- Need the National Curriculum framework, evaluation process to be completed, so our state can develop our state standards to match new national standards.
- The one piece that I've thought we've needed from the beginning is a visual model . . . The Experiential learning model is so helpful in designing curriculum and training volunteers in the use of the materials. We need something visual that lays out the inquiry model in a similar manner.
- I would love to see video-pod casts developed to teach the "How to teach" guided inquiry and perhaps the blueprints/backwards design parts. It sometimes feels like we take two steps forward and one step backwards to keep bringing educators forward in this venue. Especially as "tenured" educators "discover" what we have been trying to teach them with the difference with experiential learning and guided inquiry.
- Perhaps specifically a check list as to how the states will be looking at those learning modules that are uploaded through the curriculum directory process so that constant revisions can be reduced.

Staff/Money

- More people to help? ha! Our county staff are the ones who have to buy into the Science curriculum. They are overwhelmed in general programming. Even mini-grants are not enticing to them due to paper work to participate. More kits like the NYSD might be helpful so that county staff can have everything they need to teach at the local level.

- Money and help
- Also, the duties of managing county club programs and volunteers interfere with many 4-H educators' ability to find time for science program development. Because we have only one science specialist for the entire state, we need help figuring out how to find time for program development. Finally, we need help finding grant money that will support staff salaries (program assistants, etc.) to help us implement new science programs.

Other

- Tips on how to collaborate within university systems/departments for science related community outreach (getting by-in)

Recommended e-Learning Topics

Respondents were asked to list up to three topics for e-learning topics that should be developed related to 4-H Science curriculum. The top e-learning topics that were recommended are listed below.

Science Inquiry

- Specific inquiry-based and pre-tested lessons
- More in implementing inquiry
- Science as inquiry
- Adapting 4-H curriculum to integrate science inquiry.
- Video of inquiry learning modeled
- Guided inquiry
- How to build increasing level of inquiry into current curriculum or activities
- Inquiry based learning
- Comparison- lecture vs. demonstration vs. guided inquiry

Curriculum

- Writing curriculum for youth to on their own without the instruction of a leader
- Organizing your 4-H Science curriculum overhaul for dummies
- Existing curriculum
- Step-By-Step, one piece at a time, how to prioritize curriculum needs using/including the youth voice
- Youth as leaders in preparing and offering 4-H science curriculum on social media sites.
- Explanation of the use of the Curriculum Directory
- How to use curriculum (for new staff and volunteers)
- Mechanisms for selecting curriculum topics
- Continued discussion on producing affordable, good-looking curriculum for all
- Use of technology in complementing existing curriculum
- "active" and short science activities
- Backwards design

- Backwards Design
- Experimental Design
- Video of open ended questions modeled
- Video of experiential learning modeled

Science Topics

- Robotics
- Animal science
- Applied science
- Science in society or citizen science
- Animals Science
- Embryology
- Plant science – gardening

Other

- How to "see the science" in various 4-H project areas and how to help volunteers understand and teach this
- Getting county buy in
- Collaborations
- Working through new national jury process
- How to find time for development of science programs
- How to find grant money that will pay for staff such as program assistants to implement science programs
- Updated resources

<u>Curriculum Track Success Stories-The First Five Months</u>

- We held statewide 4-H science training for a total of 30 4-H employees, and we were able to provide each county with a simple kit that contains 4-H science reference materials and teaching supplies.
- We have conducted trainings statewide, reaching the majority of 4-H staff and a number of other Extension professionals. We were able to train them in using the inquiry model as they implement new 4-H materials. Several staff have reported making adjustments in their approach to teaching.
- We ran a successful Science Ambassadors program for members and leaders interested in science to encourage more science in 4-H. The challenge has been to maintain contact and enthusiasm.
- I have been inspired to dig more deeply into methods for teaching inquiry so that I can teach other staff and volunteers what it means to "do inquiry" and to build the science process skills or science abilities when working with young people. In a recent training, I "pulled apart" some of those process skills and had participants do a short activity that had them consider what process skills were needed. We then did a similar analysis with a guided

inquiry experience. One participant commented that this had been so helpful for her to see what was meant by the skills of inquiry. Another stated that "now I understand it isn't really about teaching my staff (of afterschool providers) a bunch of science activities, but rather it is teaching the staff about these skills, how to use them, and how to infuse them into whatever we are doing." My experience at the SLA helped me see that educators need deeper understanding and then tools to help them educate others about doing inquiry based learning, and so I have tried to keep digging deeper and deeper into the literature and resources to find or develop tools and teaching strategies. This is about professional development, as well as curriculum, because most of us are not writing new curriculum but finding resources and finding ways to infuse inquiry into what we currently have.

- My state has come back and has provided some really great educational sessions to other educators using what we have learned (as well as materials from the toolkit) at the 4-H Science Leadership Academy. I like how we made our plans and the plans are coming to life. I am proud of our whole state-wide team for the hard work that they quickly did regarding providing training, and creating a 4-H Science Curriculum Packet. I think it will really help us gain entry into many schools, and other organizations. I believe educators will find the packets user-friendly for busy people (teachers and educators) to access; appreciate that they have been tried/tested/peer reviewed; and will also love that educational standards are identified. We will see!
- We are starting a 4-H Natural Resource & Environment Science Academy in eastern part of my state. Piloting 8 counties with 2 youth from each county will be chosen to participate in a 3 year program. Hopefully this will lead to more children attending college or post-secondary education. First class will begin in Sept, 2011.
- My state used funds from Noyce to introduce three new or revised Science-related (STEM-related) topics to 4-H professionals from around the state. About thirty-five people extended their already long day in order to learn about Robotics 1: NeXT Technology, ATV Safety, and Electric Radio-Controlled Vehicles. Participants each received copies of the curriculum and heard directly from the authors, who were guest speakers.

Summary: Curriculum Track

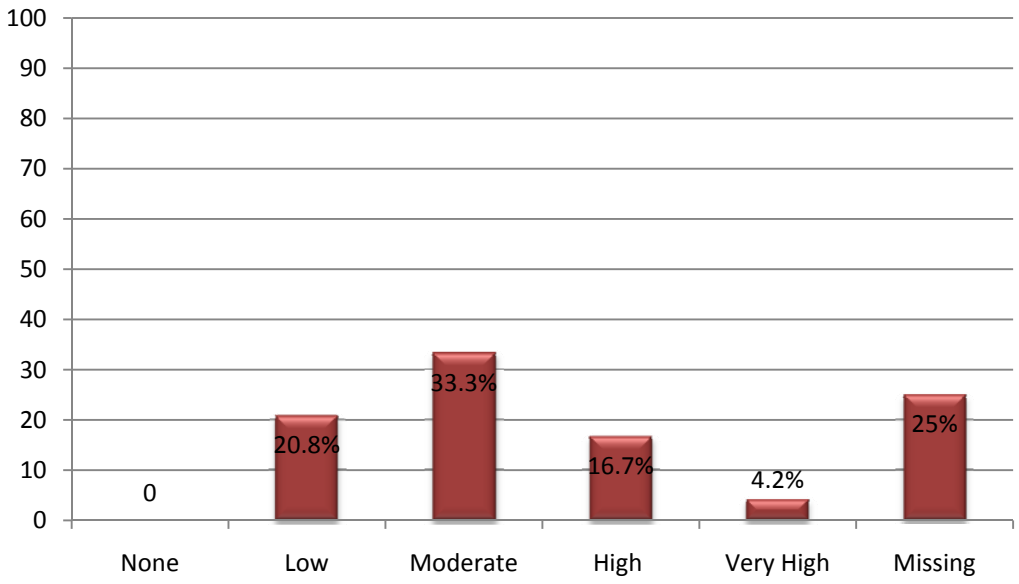
- Overall participants in the curriculum track report positive development in the curriculum area since the December conference, providing descriptions of developments to date. A persistent concern appears to be the lack of staff and other resources to support curriculum development at some LGUs. In addition, there were many comments regarding **state's lack of capacity for curriculum development**, which is something that is not going to change in the current time. *Recommendation: There may be a need to help states that do not develop their own curriculum to learn how to find existing curriculum, with a particular emphasis on how to provide training for the successful adoption of curriculum that is developed by other states.*
- Over 80% of participants have utilized the tools presented at the December conference, with most respondents reporting the tools are useful to their work. However, the

evaluation shows that the most used tools are in the area of *Experiential and Inquiry-Based Learning*, with the use of the tools dropping off in the areas of building and writing to the curriculum frame. In addition, participant comments indicate a desire for more in-depth experience and learning in the area of inquiry. The evaluation results appear to show that the **curriculum work currently underway is focused on infusing the inquiry into the system**, while less focused on the actual development of curriculum. *Recommendation: Focus the regional academy curriculum track to provide in-depth opportunities for exploring inquiry in-depth. This should include the opportunity to: 1) explore and experience existing 4-H science curriculum; 2) hands-on practice in infusing inquiry into existing 4-H curriculum that is not science focused; and 3) opportunities for sharing existing curriculum and training practices that result in an easier adoption by states that do not develop their own curriculum. The academies should also provide opportunities to explore the development of regional curriculum.*

Evaluation Track

Twenty-four respondents to the follow-up survey attended the evaluation focus track at the December conference. Participants were asked to rate the overall development of their 4-H Science Curriculum in their state, 12 (50%) reported moderate or high levels of development. One person reported the development was "very high" (see Figure 3.1).

Figure 3.1 Respondent's rating of 4-H Science Evaluation Development (Percentage):



Respondents were asked to rate the CURRENT level of evaluation expertise related to 4-H Science at their LGU, and to indicate whether this level represents a change in evaluation expertise since the December conference. Figure 3.2 shows that 78.9% report moderate to high levels of evaluation expertise at this time. In addition, as Figure 3.3 shows, the majority of the respondents (57.9%) report that the evaluation expertise is somewhat or considerably greater than in December.

Figure 3.2 Current Level of Evaluation Expertise

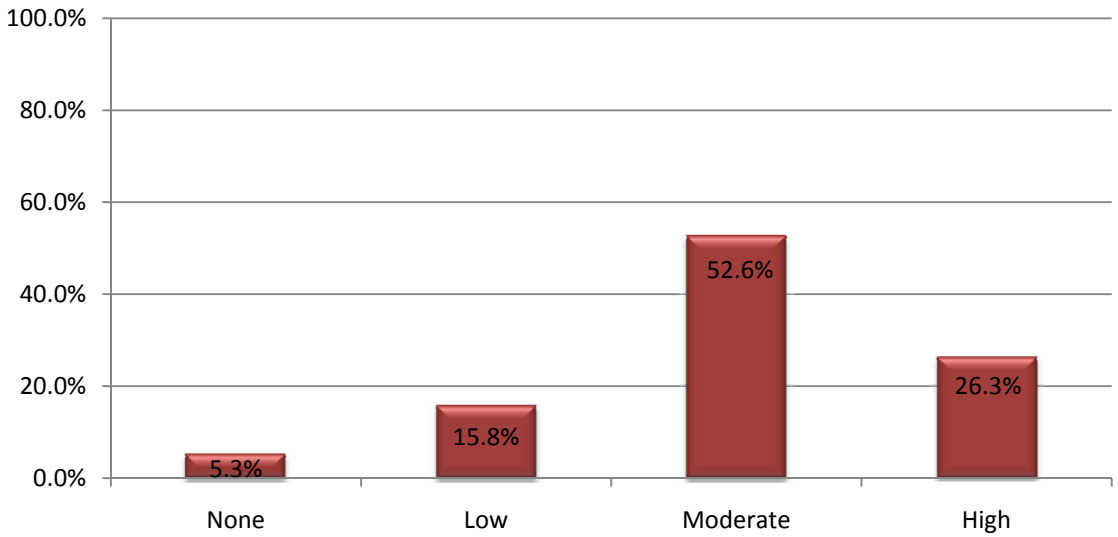
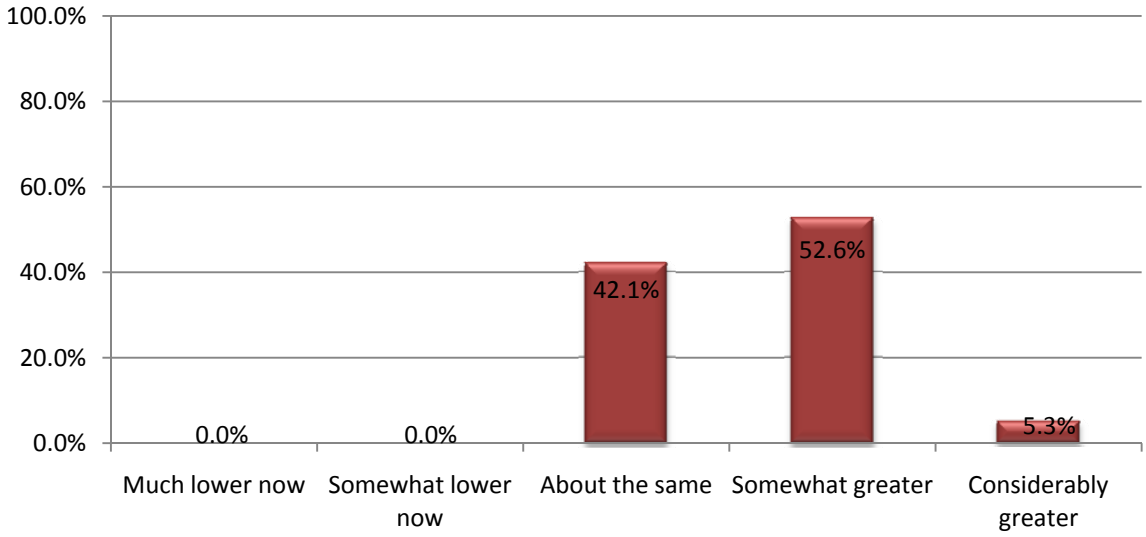


Figure 3.3 Change in Level of Evaluation Expertise



Factors Leading to Improvement in Evaluation Expertise

Respondents were asked about the factors that led to an improvement in evaluation expertise. The verbatim responses are listed below.

- I've been revisiting my past evaluation knowledge that had not been used for some time, and also have reviewed materials and web links from the 4-H Science Leadership Academy that I found very helpful.
- Getting exposed to different types of evaluation models and getting links to sites that have evaluation questions was very helpful.
- After attending the Academy in December, I realized that I knew very little about evaluation. The sessions that we had taught me a lot, and by staying involved in the webinars since the Academy, I feel like I am continuing to learn more.
- I've learned about tools to use for evaluation, and website to find proven tools to use.
- Participation in trainings, reading literature
- More knowledgeable about the tools available
- More awareness of validated tools already developed for 4-H use and/or are applicable to 4-H science objectives
- The Academy exposed me to a wide variety of resources which I am currently using for training purposes.
- Improved ability to understand how to appropriately evaluate science ready programs
- The Academy and opportunities to improve skills since the academy.
- Learning about other tools that are available to measure science outcomes.

Factors Leading to Development of Evaluation at LGU

Respondents were asked to describe the factors that contributed to the development (or lack thereof) of evaluation at their LGU. Responses are presented verbatim below.

Positive Factors

- Still gearing up for evaluation - currently laying more infrastructure around training, resources, etc.
- Positive-we held a 4-H science event with feedback/evaluation at the university. Negative-I used a tool from ATIS site for longer term evaluation and it appears may not now be usable (Science Attitude Inventory is still there as a 30 not the proper 40 item tool via the FSU link), I reported this a few months ago.
- Materials have been shared with staff and the plan is to meet again as a group to discuss which common measures we will use as an overall program.
- The webinars seem to keep up us focused. Our state also holds Adobe Connect meetings to keep up on track on where we need to be.
- New evaluation projects occurring.
- We will be getting the Program Evaluation Network (PEN) in our state

- While we are experiencing many changes in 4-H YD staff at the state level and our STEM specialist has only been on staff for one year, we have started to focus more attention on evaluation.
- Identifying the appropriate evaluation tool identifying and utilizing common measures of constructs/variable across the state,
- Collaborations with state 4-H office, continued commitment from science team members
- Purchase of University of Tennessee's PEN system and aligning our evaluations to outcomes articulated within our logic models developed shortly after the Academy.
- Having standard, statewide instruments! Working as a team! It was great for our team to travel together! It should not be underestimated for work success.

Negative Factors

- Changes at the state leadership level, few opportunities to meet statewide to discuss it.
- Time and commitment
- New STEM specialist who has not had the time yet to concentrate on evaluation. Programming is still in its infancy.
- Loss of staff and reorganization across the state
- Not enough time.....and we only met once as a state team since December
- Lack of evaluation specialist support/expertise
- Trying to find our direction

Respondents were ask to rate their current ability related to several aspects of program evaluation for 4-H science. As Table 3.1 shows, most rated their skills as moderate to high for each item. Less than 16% rated their skills as low on any item.

Table 3.1 Current Level of Ability for Evaluation

	None	Low	Moderate	High	Missing
Provide leadership for 4-H Science Evaluation in your state	0	2 (8.3%)	12 (50.0%)	5 (20.8%)	5 (20.8%)
Develop evaluation capacity for 4-H Science Leadership in your state	0	3 (12.5%)	11 (45.8%)	5 (20.8%)	5 (20.8%)
Know when to evaluate 4-H Science programs in your state	0	1 (4.1%)	12 (50.0%)	6 (25.0%)	5 (20.8%)
Know how to evaluate 4-H Science programs in your state	0	3 (12.5%)	11 (45.8%)	5 (20.8%)	5 (20.8%)

Evaluation Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools that they received at the 4-H Science Leadership Conference. Most tools received a rating of "good" or "very good." The exceptions were the *4-H Science Checklist, ACCESS 4-H Powerpoint, Becoming Evidenced Based PowerPoint, PSA Out of School Time Observations*

Instrument, and the *Pathways Model*. Table 3.2 displays the frequencies and percentages of usefulness ratings.

Table 3.2 Usefulness of 4-H Science Evaluation Tools**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
4-H Science Checklist	0	1 (4.1%)	7 (29.2%)	6 (25.0%)	5 (20.8%)	5 (20.8%)
4-H Science Evaluation Design	0	0	9 (37.5%)	4 (16.7%)	6 (25.0%)	5 (20.8%)
YEAK Survey	0	0	3 (12.5%)	10 (41.7%)	6 (25.0%)	5 (20.8%)
4-H Science Logic Model	0	0	4 (16.7%)	8 (33.3%)	6 (25.0%)	6 (25.0%)
YEAK Reference Page	0	0	4 (16.7%)	7 (4.1%)	8 (33.3%)	5 (20.8%)
4-H Reporting Strategies PowerPoint	0	0	7 (4.1%)	4 (16.7%)	8 (33.3%)	5 (25.0%)
Assessment Tools for Informal Science (ATIS flier)	0	0	5 (20.8%)	4 (16.7%)	9 (37.5%)	6 (25.0%)
ATIS PowerPoint Presentation	0	0	5 (20.8%)	4 (16.7%)	9 (37.5%)	6 (25.0%)
Dimensions of Success (DOS) Introduction PowerPoint	0	0	6 (25.0%)	4 (16.7%)	9 (37.5%)	5 (20.8%)
ACCESS 4-H Enrollment PowerPoint	1 (4.1%)	2 (8.3%)	5 (20.8%)	1 (4.1%)	10 (41.7%)	5 (20.8%)
Becoming Evidenced-Based (PowerPoint)	0	1 (4.1%)	6 (25.0%)	2 (8.3%)	10 (41.7%)	5 (20.8%)
PSA Out of School Time Observations Instrument	0	1 (4.1%)	1 (4.1%)	6 (25.0%)	10 (41.7%)	5 (20.8%)
Pathways Model	0	1 (4.1%)	2 (8.3%)	5 (20.8%)	11 (45.8%)	5 (20.8%)
Dimensions of Success (DOS) Advanced PowerPoint	0	0	5 (20.8%)	3 (12.5%)	11 (45.8%)	5 (20.8%)
Planning Careers in Science	0	0	3 (12.5%)	2 (8.3%)	12 (50.0%)	5 (20.8%)
PEAK Evaluation Experiences Activity	0	0	5 (20.8%)	1 (4.1%)	13 (54.2%)	5 (20.8%)
The Role of Evaluation in Research-Practice Integration	0	0	2 (8.3%)	2 (8.3%)	13 (54.2%)	5 (20.8%)
Conceptualizing and Tracing Learning Pathways	0	0	3 (12.5%)	1 (4.1%)	14 (58.3%)	5 (20.8%)
Self-Sustained Learning	0	0	1 (4.1%)	1 (4.1%)	15 (62.5%)	5 (20.8%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 62.5% for *Self-Sustained Learning*, to a low of 20.8% for *4-H Science Checklist*

Access to Evaluation Tools On-line

Sixteen (66.7%) of respondents reported they knew where to access the 4-H Science Evaluation Toolkit online; 3 (12.5%) said they did not know; and 5 (20.80%) did not respond to the question.

Figures 3.4 - 3.6 display the percentages of respondents who reported accessing each of the evaluation tools on-line. The most frequently accessed item was the 4-H Science Checklist, followed by the YEAK survey and the 4-H Science Logic Model. Four of the items have never been accessed by respondents: 1) Becoming evidenced-based PowerPoint; 2) Conceptualizing and tracing learning pathways; 3) Self-sustained learning; and 4) The role of evaluation in research-practice integration.

Figure 3.4 Accessed the 4-H Science Evaluation Tools (1)

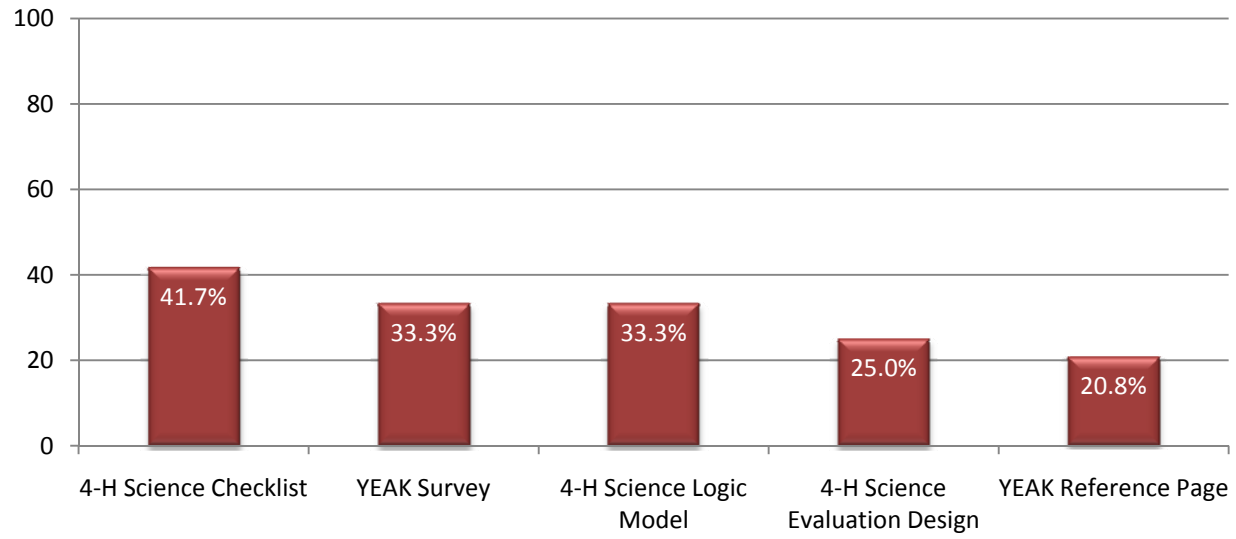


Figure 3.5 Accessed the 4-H Science Evaluation Tools (2)

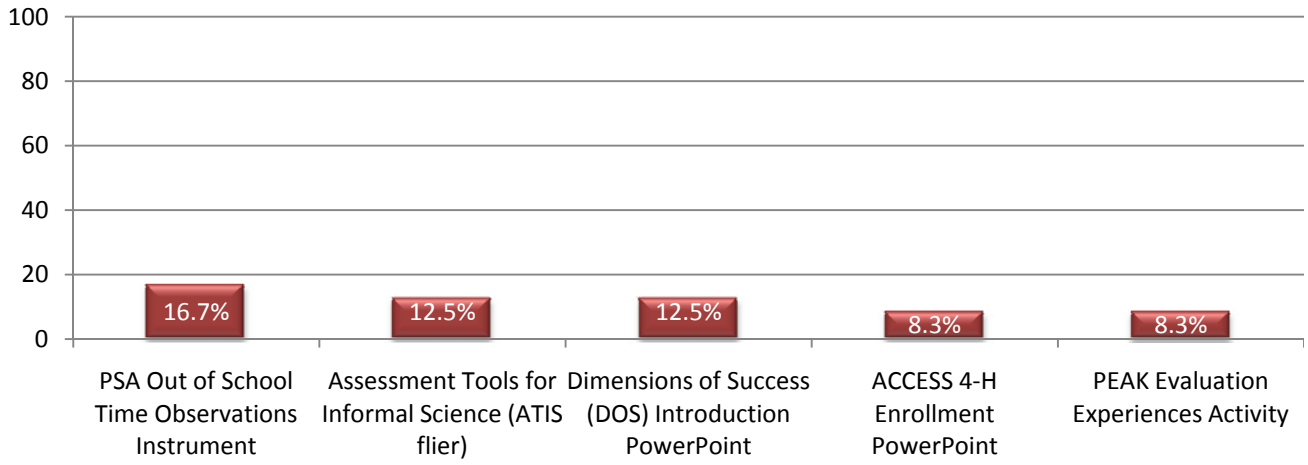
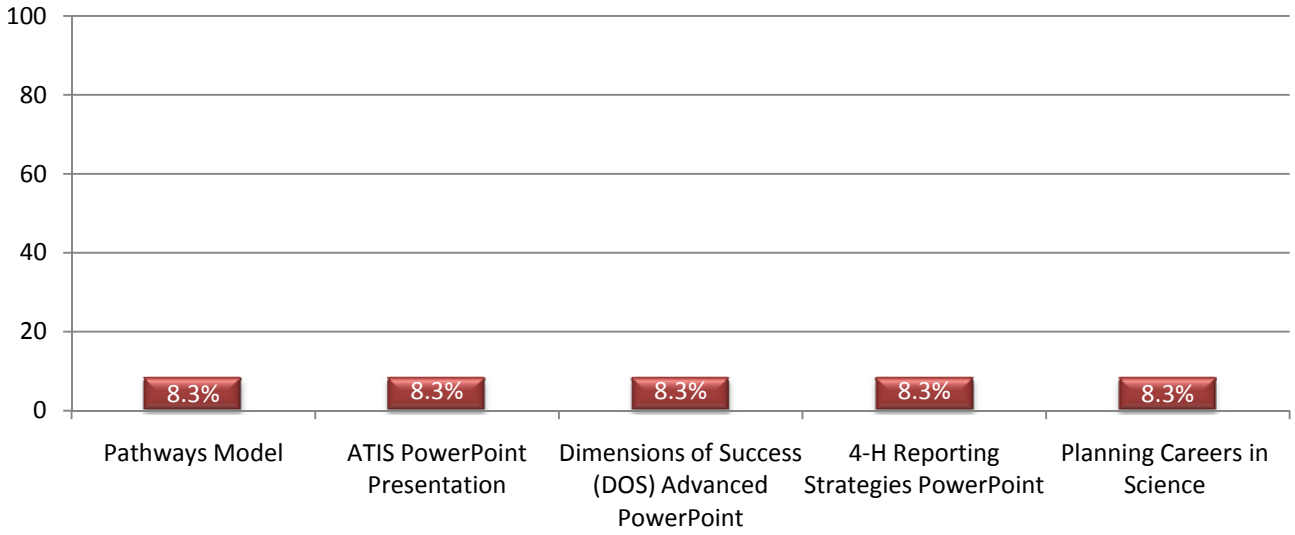


Figure 3.6 Accessed the 4-H Science Evaluation Tools (3)



Narrative Feedback on Evaluation Tools

Respondents were asked to provide feedback on the evaluation tools they have used so far. The verbatim responses are listed below.

- Many good resources…I plan to review all on the online site in the coming weeks.
- Gil Noam and his information are very useful.
- I received training for one of the tools. Now I feel like I could use it, but someone else needs to be trained as well, since it is a group evaluation tool.

- Staff members in our state are interested in the ATIS tools. It is useful to have all of these resources readily accessible.

Narrative Feedback on Important Things Learned at the Conference

Respondents were asked to reflect on the most important thing related to 4-H Science Evaluation that they gained at the conference. The verbatim responses are listed below.

- The DOS observation tool
- I gained some perspective on what has been done by others and many tools to help guide me.
- I learned a lot from the Harvard/McLean Hospital presentation on observation techniques.
- Access to tools.
- I have learned that when using an evaluation piece, I need to be very specific in what outcomes I am looking for BEFORE I even start to plan my program.
- Many ways to go about it, depending on what you are striving to evaluate. That many tools and resources are available to assist us.
- I enjoyed the presentation by the Child Trends presenter very much, it was useful.
- Networking
- Learning about PEN
- A new appreciation and awareness of the many tools available was a valuable learning for me.
- DOS Tool and practice as group in applying to shared observation. Need to continue these conversations locally.
- The vast resources that were available which can be used to facilitate youth programming
- The need for statewide evaluation, the need to document efforts and results
- The best practices for evaluation from Tennessee, Nebraska and Louisiana were awesome!
- Knowing where to go for resources...and the on-going communication from the Science Leadership academy training resources.
- That we in the field are data collectors, someone else at the LGU will do the number crunching for us. That we informally evaluate all the time.

Topics that Would have been Helpful at the Conference

Respondents were asked to list any additional topics that could have been addressed at the conference related to 4-H Science Evaluation that would have been useful in the past five months. The verbatim responses are listed below.

- One, nationwide, enforced, evaluation tool to use
- May have been good to have a bit more consensus on what 4-H needs to do in a similar fashion across the country, such as minimum evaluation standards and/or specific tools to use.
- Coordination within the state of STEM activities and evaluation.
- I think a very basic class, perhaps an "Evaluation 101" type webinar before the conference would have been very useful. There were some people that are very knowledgeable in evaluation, and there were also people like myself that had very little knowledge.

- Next time there should be two "tracks", one for people absolutely new to evaluation, and another for those of us with knowledge of logic models and the basics, and are ready for the next step.
- It might be useful to have a discussion of benchmarks in evaluating success
- Operationalizing the science ready checklist and matching to available tools. Ex. Which audience/context is most likely to be able to report and/or share information on each of the checklist items? Which tools would work best for each measure, audience and context
- Direct application of 4-H science evaluations
- Evaluation as it pertains to the one million new scientists campaign - more info and discussion.
- More time for best practices for evaluation from the states.
- How to balance this with the usual day to day work of being a county 4H educator
- How do design tools for specific programs/outcomes? How to measure those intermediate and long term outcomes
- More of Gil Noam's ideas

Additional Tools Needed

Respondents were asked to list additional tools that would be helpful to their evaluation efforts. The verbatim responses are listed below.

- Not necessarily...but knowing which tools, or revised tools are being used most effectively in different settings with different populations for different durations of activity, i.e. elementary, middle school, afterschool, clubs, short courses, 6 hours to year round.
- I would love to see more tools for the younger end of the spectrum. It is hard to find materials for evaluating younger kids.
- Support evaluation of 5-8 year olds
- An on-line YEAK

Recommended e-Learning Topics

Respondents were asked to list potential topics for e-leaning, should such opportunities be developed. The verbatim responses are listed below.

- Tools being used by others today in different 4-H settings
- Agreement on impact indicators related to populations & programs
- Moving toward evidenced-based research/evaluation
- Different evaluation tools already in existence to see
- Training on how to evaluate a program fairly
- How to take the data and show impact
- What is a logic model and how do you make one?
- Basic reasons for evaluation and simple tools
- Accessing and using web resources for tools and surveys on evaluation
- Survey design
- More information on ATIS and the PEAR website
- Group processes for identifying evaluation questions/goals

- The science ready check-list
- How to develop state wide science evaluation instruments
- How to document statewide science evaluation efforts
- Designing questions
- More education of on focus group interviews
- How to use ACCESS 4-H to do 4-H Science evaluation
- How to use 4-H Science evaluation to build partners
- How to use on-line YEAK to gather state data

<u>Evaluation Focus Track Success Stories- The First Five Months</u>

- After training home school parents and afterschool educators, overwhelmingly a large percentage of participant respondents indicated now recognizing the need to evaluate activities and learning, and will use the DOS instrument for that purpose
- The evaluation/feedback on the single all day event 'reported' high levels of learning and planned future action in the 4-H science arena...but really too early to say much more.
- Evaluation tools were used for the CYFAR project, have not tabulated the results yet.
- We are so much farther ahead than what we were a year ago - also the purchase and utilization of PEN
- With the help of our evaluation specialist we now have an on-line statewide evaluation system in place for 4-H Science programs and we are already gathering data! We will have our first statewide 4-H Science reports by the end of the year!!!!

Evaluation Track Summary

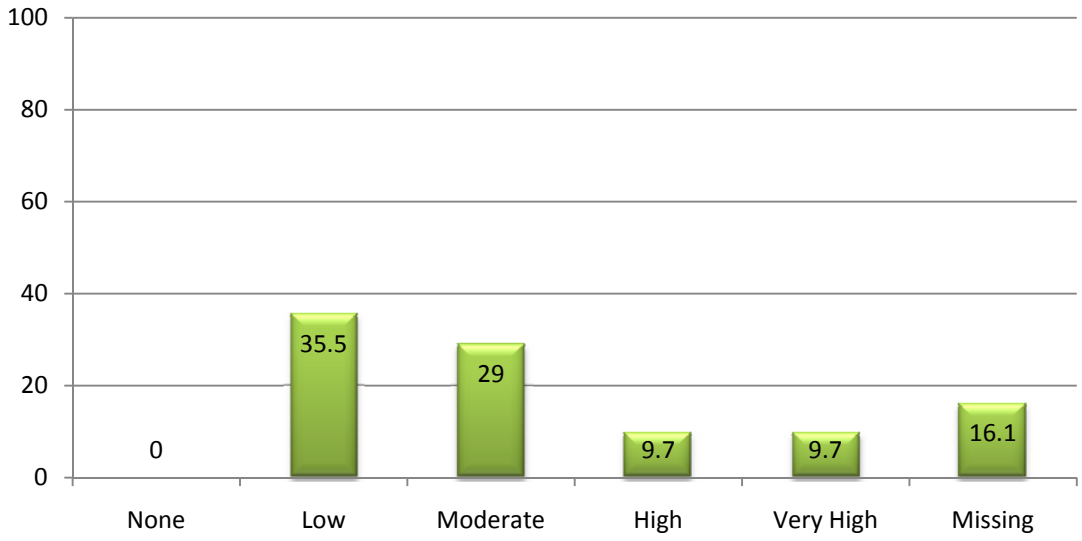
- One of the most pronounced findings in the follow up evaluation is the **shift of perceived evaluation expertise** that was reported. After the December conference, 57.1% reported moderate or high levels of evaluation expertise. The follow-up results show that 79.2% of participants in the evaluation track report moderate or high levels of expertise.
- In addition, the post-conference evaluation revealed two distinct levels of evaluation expertise. The follow-up evaluation indicated that **this dichotomy of expertise may be leveling off**.
- Respondents highlighted the value of **knowing about evaluation resources** that are currently available. Several mentions **adopting instruments and/or developing on-line evaluation systems**.
- Of the tools that are available for evaluation support, respondents reported using the *4-H Science Checklist*, the *4-H Science Evaluation Design*, the *YEAK Survey*, and the *4-H Science Logic Model* the most. **Reported use of the remaining tools dropped off significantly**.

- Respondents reported a desire for more **standardization of 4-H Science outcomes and evaluation instruments for use across the 4-H system**.
- Overall the results of the evaluation focus track follow-up indicate good momentum and enthusiasm for 4-H Science evaluation efforts. *Recommendations: Regional academies should focus on: 1) increasing awareness and access to existing evaluation tools; 2) explore regional and state need and potential opportunities for standardized 4-H Science outcomes and matching evaluation instruments.*

Fund Development

Thirty-one respondents attended the fund development focus track at the December conference. Participants were asked to rate the overall development of their 4-H Science Fund Development in their state since the December conference. Six (19.4%) reported high or very high levels of development; 9 (29.0%) rated the development as moderate, and 11 (35.5%) rated the development as low. Five people (16.1%) chose not to answer this question (see Figure 4.1).

Figure 4.1 Development of 4-H Science Fund Development since Conference



Factors Affecting 4-H Science Fund Development

Respondents were asked to identify factors that contributed to the development of fund development efforts (or lack thereof) since the conference. The verbatim responses are presented below.

Facilitating Factors

- Our team is still working through major goal setting and outputs. I think the coming year will provide increased opportunities for major gift work around science.
- We took the presentation presented at the conference and presented it to the foundation board. We have since presented it to many different Extension groups/programs in the state. We have a wonderful program leader and specialists who are strong advocates of the science curriculum
- Interest from staff is high and buy-in from leaders
- A simplified approach and a leadership team.

- Changing board of the 4-H Foundation will enhance our capabilities.
- National support has been exceptional as we develop our strategic plans and goal adoption.

Inhibiting Factors

- Lack of time
- Inability to reconvene and focus on goals and objectives
- Other commitments.
- Time needed to focus human resources on 4-H Science Fund Development vs. the other state 4-H programs that need funding and are well established in our state.
- Time constraints on staff and communication with the state's endowment office.
- Gaining a focus on the issue, so many other things to do. But progress is being made.
- Complete Restructuring of the Extension Service in my state.
- Just a time issue. There is plenty of interest. I am working with the state foundation and they are quite busy. We do have a draft case statement, but we need to target potential grants/donors
- I was misidentified as the fund development team leader, and it should have been our foundation's executive director. He would have gained a great deal of useful information that could have been immediately implemented. I was hired as a regional STEM specialist, and I am a scientist interested in public comprehension of science, hired by my state to increase 4-H capacity for K-12 educators as well as implement strategies for agents to providing richer STEM programming in their counties. I can do that. I am now faced with the challenge of needing money, and our foundation's executive director is not up to the challenge. I have been working with a wonderful team to try to learn how to do this. I am starting WAY behind because I came from academia and generated the funding I needed for my science primarily through NSF grants. This is totally different, and I have just started to work on how to develop relationships for fund development because I need money for my projects, and I cannot, at this point, rely on anyone to help me raise the money I need. I have no idea how the other regional STEM specialists or the state specialist will operate, but I will share my knowledge. I would not have accepted this position if the expectations were to raise money for the state STEM program. I think we pulled something together in DC, and I gave all the information to the exec. director of the foundation. I don't know if he has done anything with it. Once again, I realized that if I needed money, I would need to raise it myself, and I have begun working with my team. I am not in the position to raise money for the entire state (as stated, I would not have accepted that position, nor is it my job), but I will start raising money for certain areas, and I will share information of my successes with my colleagues. I think what was presented was a very powerful way of raising money. I

should not have been the person to attend with the expectation that I would be raising money for the state.

- Staffing changes in the State 4-H office have slowed down finishing the details on our plan which are needed in order to know specific funding needs and create a compelling case.
- Lack of prospects
- Lack of time
- We have more pressing issues (budget stuff) currently. Will begin long term projects once crisis work is done.
- No resources for personnel or time.
- The science leadership team has yet to create their final plan of what they want to do and how much funds are needed to do it. They are getting there but it is taking a long time.
- Lack of a defined plan with fund raising goals and someone dedicated at the state level to fundraise for science.
- It is such a new area for 4-H that it takes longer to make the case to corporate donors. They don't see 4-H as science education. It is also hard to coordinate what donors want to do with what we have staffing capacity to do.

<u>Current Status of Fund Development Activities</u>

Respondents were asked to rate the current status of activities related to fund development. The frequencies of respondents reporting "strong" or "very strong" development were:

- Written vision for 4-H Science – 12 (46.1%)
- Written case for investing in 4-H Science – 10 (38.5%)
- Pool of prospective leadership level donors – 4 (15.3%)
- Network of volunteer fund development champions - 4 (15.3%)
- Plan for soliciting and engaging donors – 3 (11.5%)
- Multi-year fund development plan - – 3 (11.5%)
- Multi-year budget for fund development goals – 2 (7.6%)

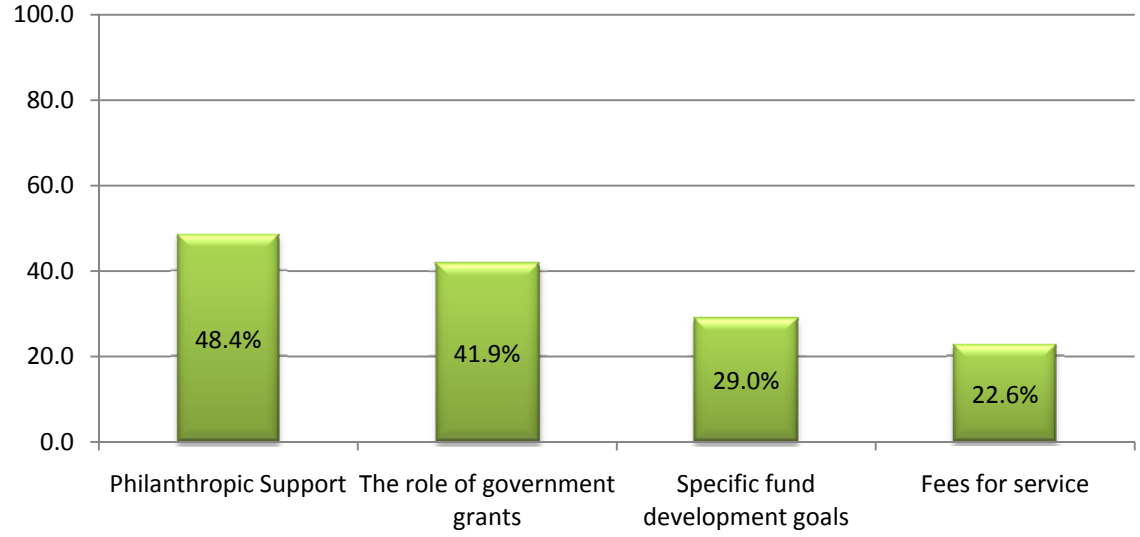
The frequencies of respondents reporting "very weak" or "non-existent" development were:

- Multi-year budget for fund development goals – 9 (34.6%)
- Network of volunteer fund development champions - 8 (30.1%)
- Written case for investing in 4-H Science – 7 (26.9%)
- Plan for soliciting and engaging donors – 7 (26.9%)
- Pool of prospective leadership level donors – 5 (19.2%)
- Written vision for 4-H Science – 4 (3.8%)

LGU's 4-H Science Plan of Action: Revenue Plan

Respondents were asked to indicate whether their LGU's 4-H Science Plan of Action has a revenue plan that articulates each of the following elements of fund development. Percentages of respondents who indicated "yes" for each element are presented in Figure 4.2.

Figure 4.2 Inclusion of Element in Science Plan of Action



Fund Development Track respondents were asked to rate the usefulness of the 4-H Science fund development tools that they received at the 4-H Science Leadership Conference. All tools received a "good" or "very good" rating except for the *Relationship-Based Foundation and Corporate Relations (PowerPoint),* which received one "poor" rating. Table 4.1 displays the frequencies and percentages of the participant ratings.

Table 4.1 Usefulness of 4-H Science Tools for Fund Development**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Filling the Science Donor Pipeline 101	0	0	7 (22.6%)	10 (32.3%)	3 (9.0%)	11 (35.5%)
Filling the Science Donor Pipeline 301	0	0	5 (16.1%)	13 (41.9%)	5 (16.1%)	7 (22.6%)
Introduction to Relationship-Based Fundraising for 4-H Science (PowerPoint)	0	0	5 (16.1%)	17 (54.8%)	4 (12.9%)	5 (16.1%)
Major Gift/Strategy Worksheet	0	0	6 (19.4%)	12 (38.7%)	6 (19.4%)	7 (22.6%)
Introduction to Relationship-Based Fundraising for 4-H Science (Case Study)	0	0	7 (22.6%)	12 (38.7%)	7 (22.6%)	5 (16.1%)
Major Gift Strategy 301 (PowerPoint)	0	0	7 (22.6%)	12 (38.7%)	5 (16.1%)	7 (22.6%)
Building a comprehensive fund development plan for 4-H Science 101 (PowerPoint)	0	0	7 (22.6%)	8 (25.8%)	8 (25.8%)	8 (25.8%)
Building a comprehensive fund development plan for 4-H Science 101 (Fund Development Plan Template)	0	0	6 (19.4%)	9 (29.0%)	8 (25.8%)	8 (25.8%)
Building champions for 4-H Science Fund Development: Influencing the Influencers (PowerPoint)	0	0	6 (19.4%)	11 (35.5%)	7 (22.6%)	7 (22.6%)
Relationship-Based Foundation and Corporate Relations (PowerPoint)	0	1 (3.2%)	6 (19.4%)	12 (38.7%)	6 (19.4%)	6 (19.4%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 25.8% for *Fund Development Plan Template*, to a low of 9% for *Filling the 4-H Science Donor Pipeline*.

Twenty one (67.7%) of respondents reported they knew where to access the 4-H Science Fund Development Toolkit online; 4 (12.9%) said they did not know; and 6 (19.4%) did not respond to the question.

Figures 4.3 – 4.4 display the percentage of respondents who reported accessing each of the Fund Development tools on-line. The most frequently accessed items were the *Introduction to Relationship-Based Fundraising for 4-H Science (PowerPoint)* followed by the *Major Gift/Strategy Worksheet* and the *Relationship-Based Foundation and Corporate Relations (PowerPoint)*.

Figure 4.3 Accessed the 4-H Science Fund Development Tools (1)

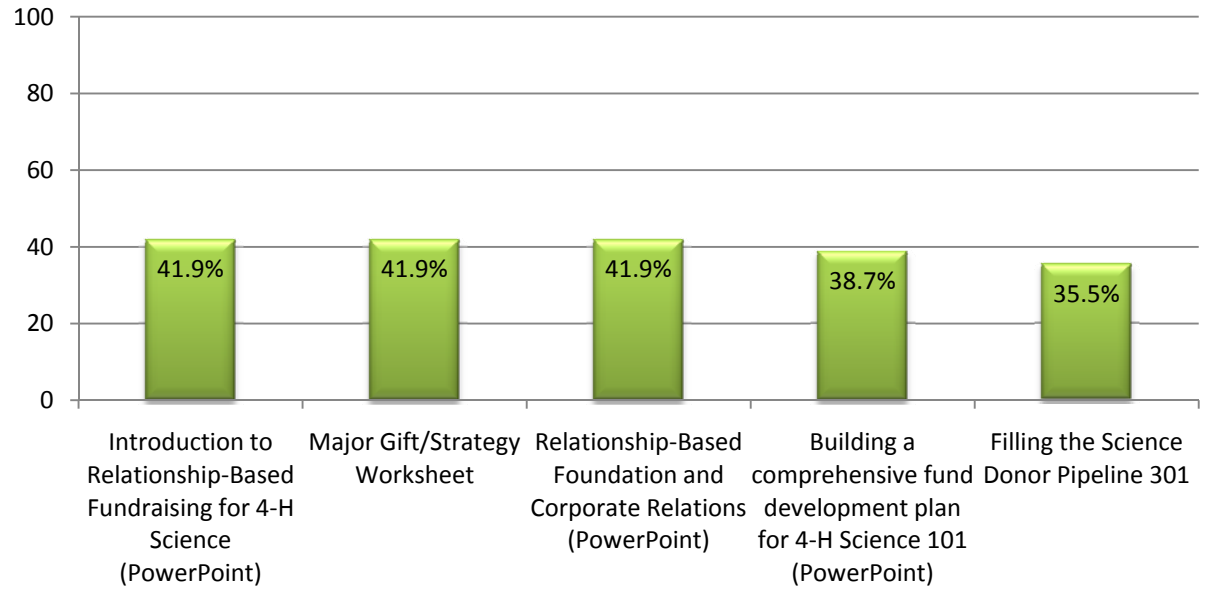
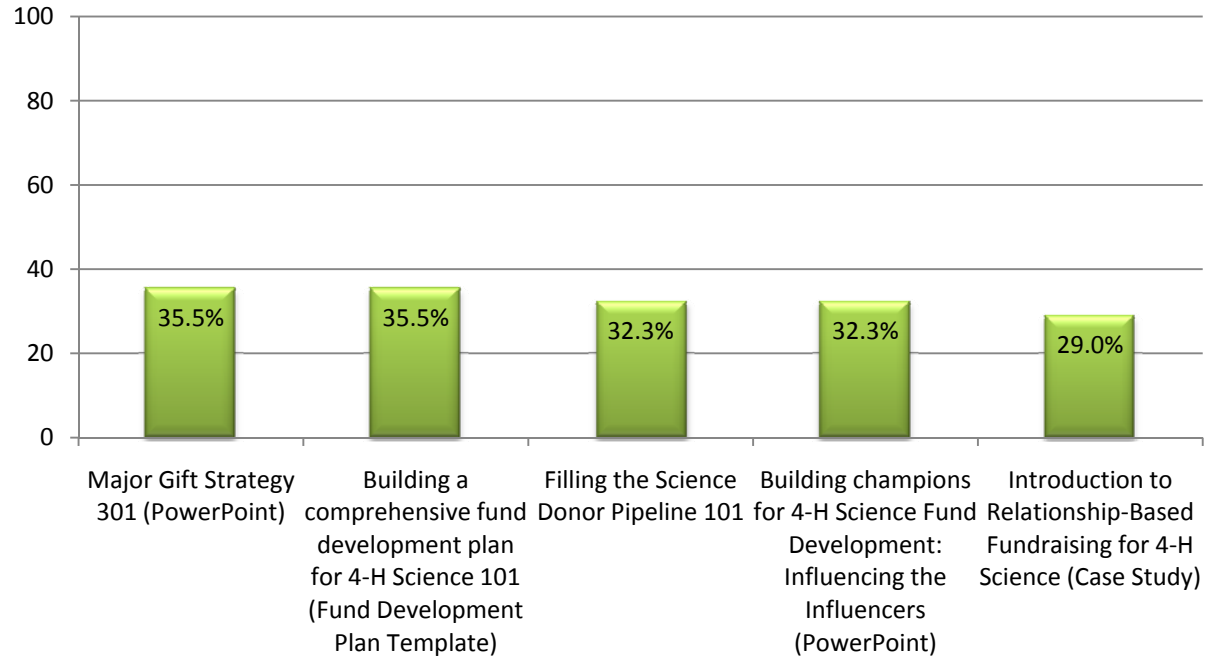


Figure 4.4 Accessed the 4-H Science Fund Development Tools (2)



Narrative Feedback on Fund Development Tools

Respondents were asked to provide feedback on the fund development tools they have used so far. The verbatim responses are listed below.

- Phenomenal tools. Thank you.
- Have not used.
- The training and tools where absolutely excellent and exactly what we need. Unfortunately we are in the midst of a major reorganization that has totally consumed my time. I promise, I'll return to using these tools this fall. We are on the last phase of reorganization.
- I think we have been provided with an excellent set of tools and fund development staff. I need to find a way to engage program staff around partnerships that will better help us use those tools.
- The lack of time to implement the tools has been the major barrier.
- They are great, very well done and will be very helpful going forward.
- Anything I have accessed, reviewed again or used are wonderful things. I am disappointed that I have not been able to devote the time to develop all the things necessary for Science, but there are other things in our restructuring that will put Science at the forefront of 4-H in an organized manner.
- They were all very well put together. They truly are setting us up for success as much as possible.
- I didn't know they were online, I don't remember getting any emails about that. I will have to check that out.
- When I was at the conference, I realized that what was being presented was a key to unlock the pauper science that we are so often forced to do because of the lack of funding. With the proper vision, the tools presented at the conference were a wonderful method for changing that. I felt, even at the time when I was so overwhelmed by how wrong I was to have been designated as the Fund Developer for the state. 4-H is extremely fortunate to have the talent and expertise working so closely with the fund developers, and I hope that our team uses them. In the meantime, I have been working with other staff members to try to develop relationships here in my state so that I can begin to do the projects I want to develop.
- Great
- It was a terrific conference. I have used your information over and over. I appreciate your leadership and the teaching tools you provided.
- Comprehensive
- We haven't specifically used any, but am familiar with them and anxious to use, as I am not specifically the science liaison on fund development person I have to find the time to share the information and pull together who are the folks to develop and execute specifically the fund development plan
- They were very helpful.
- It would be good for someone who has time to utilize them.
- Very useful

- They are excellent. We are in the process of sharing them with 4-H Foundation board members.
- I have used the templates for the fund development plan. I also have used many versions of the power point presentations. Depending on the audience I have tweaked them to fit.
- I am not in a fulltime fundraising position. If I were, the tools and such would be more than useful. I did present across the state to our Extension agents to help them improve their fund raising skills locally, and many of the tools were used to help put together a working session for these co-workers.
- Very good.

Narrative Feedback on Important Things Learned at the Conference

Respondents were asked to reflect on the most important thing related to 4-H Science Fund Development that they gained at the conference. The verbatim responses are listed below.

- Confidence to do this, as a result of training and support
- That our state is not ready to engage in fund development because we need to build our programs first
- As I can remember all the information was important.
- The 'Rights'
- The concept around BHAG - Big Hairy Audacious Goals - because it has been a very helpful discussion tool for working with my state 4-H leader and it is the theme we both now constantly express and stress in our work with 4-H Science program staff. But, I also need to say that the fund development conference segment was one of the best professional development experiences I have ever had as a development officer.
- The fund development tools.
- The 301 sessions were perfect for my level of experience. I have used the tools across fund development for 4-H, more so than just with Science.
- Resources, opinions and useful worksheets to use as a reference to forward the Science planning in our state. Those things have been very important as we are developing a new structure for Extension...and thus, 4-H.
- Listening to other case examples, networking, passion of the presenters about the topic.
- Time to absorb what they were saying. It took over 5 months for me to actually come to terms with it. With my personality, I am so NOT suited to raise money through building relationships, but I am passionate about science, and keep K-12 students math skills exceeding expectations so that all sciences are reachable when they arrive at college - to develop a pipeline of students who will be first generation in college - to reach students from ethnic groups and races that are grossly underrepresented in science through mentorship programs and provide the funding for projects that are engaging to get them thinking about a future in science. That passion is my one advantage, but I have to overcome being an introvert to do it. That is hard.
- 1. Realizing - and getting access to data that shows - how attractive 4-H science is to funders 2. Time to practice skills (i.e. discovery interview) with feedback

- Realizing what an important contribution our own state was making. It has changed our outlook on marketing 4-H in my state.
- Knowledge of need for more interaction between development and faculty
- the tools, and the concept that using science is a way to grow both memberships and funding for 4H
- That fundraising is a long term process
- LGUs need to make it a priority.
- Networking with other development people
- I learned how much I don't know about fund development.
- The opportunity to listen to funders and why they would invest in 4-H Science.
- The most important thing gained by my attending the conference was that our 4-H science team realized the need to include me (the fund development professional) in on the planning process. I have now been invited to all their team meetings and have the opportunity to influence the decision making in a way that can enhance development.
- The idea of getting out of the 4-H on the cheap mode and get into bigger fund raising plans for the state to give us something to hang our hat on. We do a lot of great things especially in the area of 4-H science in my state, but nothing sticks out as us being the go to state for such and such. We should be able to raise money and do that.
- It has been so long ago that I honestly don't know.
- Gift Table

<u>Topics that would have been Helpful at the Conference</u>

Respondents were asked to list any additional topics that could have been addressed at the conference related to 4-H Science Fund Development that would have been useful in the past five months. Their verbatim responses are listed below.

- Handling objections
- Launching from a point of having nothing in place. That said, I didn't expect that the presentations would have been presented from such a point of view. I believe most if not all states have ongoing fund development programs so such an expectation would not benefit the majority. We just need to get our act together and move out with a statewide, coordinated plan.
- I still wish there were more opportunities to have joint dialogues on the key components for success in 4-H science fund development with 4-H program staff. This is a message we, as development staff, could use some help in articulating to those who frankly determine program direction and outcomes.
- Support in finding leads in our states.
- I'm sure there is something, but I cannot think of anything at this time.
- A bit more integration with the other tracks to have a more clear understanding what they also see as a need for fund development. I assumed much of the was to evolve from the POA, but having a bit more time to cross boundaries may be valuable.
- As far as I know, the Fund Development section was incredibly powerful.

- Multi-state collaboration
- Who should do it, who are the most pertinent players if indeed you don’t' have someone who this is their job
- How to convince LGUs to shift resources to 4-H Science Fund Development. Until that happens, very little will move in this arena.
- More cross training. The program folks need to understand more about what it takes to get something funded and the stewardship it takes from the programmatic side.
- Creating or recognizing 4-H Science Fund Champions

Additional Tools Needed

Respondents were asked to list additional tools that would be helpful to their Fund Development efforts. The verbatim responses are listed below.

- I have also recently attended training by Advancement Resources. They do research on philanthropy. It was excellent and nice addition to the relationship-based marketing strategies.
- Opportunities to provide similar, strong and supporting messages to our programming partners specifically related to 4-H program development's role in driving the fund development process.
- Information on how to support funding for educator's to seek fund or to implement the science programming would be of great assistance. It is wonderful to have tools to get funds for programs but if we do not have the manpower to go after the funds or to implement the programs, we are no further ahead of the game than when we started
- A new extroverted personality, however that is something that you can't provide.
- I think this has been discussed, but an online repository where we can share such things as successful case statements, etc. Although material needs to be customized to each state, we are all doing so much, being able to grab some language from a successful robotics case statement, for example, could help us move things along faster.
- Further coaxing of Extension Directors of the importance of 4-H Science.
- The tools we have thus far are excellent but we need to get around to using them all before we see what else is needed.
- I would like proposal templates or examples.
- A little more time with the tools we have.

Recommended e-Learning Topics

Respondents were asked to list potential topics for e-learning, should such opportunities be developed. The verbatim responses organized by themes, are listed below.

Funding

- Fund development planning
- 4-H science fund development prospect identification and development.
- Key funding proposal components related to science that can help drive proposal success.
- NSF grant development

- Multi-state funding science partnership potential
- How to overcome the fear of asking for money
- How on earth do I get started meeting future funders?
- Working with University Fund Development Professionals

Corporate relations

- Developing the prospects
- Building the relationship with potential donors
- Prospect mining
- Identifying and cultivating donors
- Corporate Sponsorship Best Practices
- Sponsorship Programs
- Pipeline

Building the program

- Building from scratch
- Teamwork
- Building the Plan
- Convincing your Extension Director to make 4-H Science a priority
- Making a strong case for 4-H Science.
- Creating Fundraising Volunteers
- Board Development
- Sharing of state plans, projects, and ideas for what to fund develop for.
- Marketing
- Promotional materials

Other

- Maybe a hands-on work through of the major gift strategy sheet.
- Step by Step tutorials of many of the 4-H Science Academy areas
- Breaking down your Science Plan for maximum efficiency
- Asking the 'Ask'
- Hand-holding 101 - Yes you can!
- Roles of staff, volunteers etc.
- Examples of success stories (can this really happen)
- Categorical Proposals
- Case statements

<u>Fund Development Track Success Stories- The First Five Months</u>

- I am excited for the completion of the Extension restructuring as I feel there will be better donor possibilities.
- An increasingly improving relationship with our foundation staff and board.
- I went from almost totally shutting down because this information is so overwhelming to thinking that if I am going to get the money I need for the programs I want to implement in

my state, I need money, and what I was presented made the most sense for finding the kind of money that I need.

- It has changed the entire attitude of the Foundation board. They have embraced the mission of4-H and are passionate advocates for the program. They are more interested and eager to connect the Foundation with corporate donors. It has given us a very positive outlook.

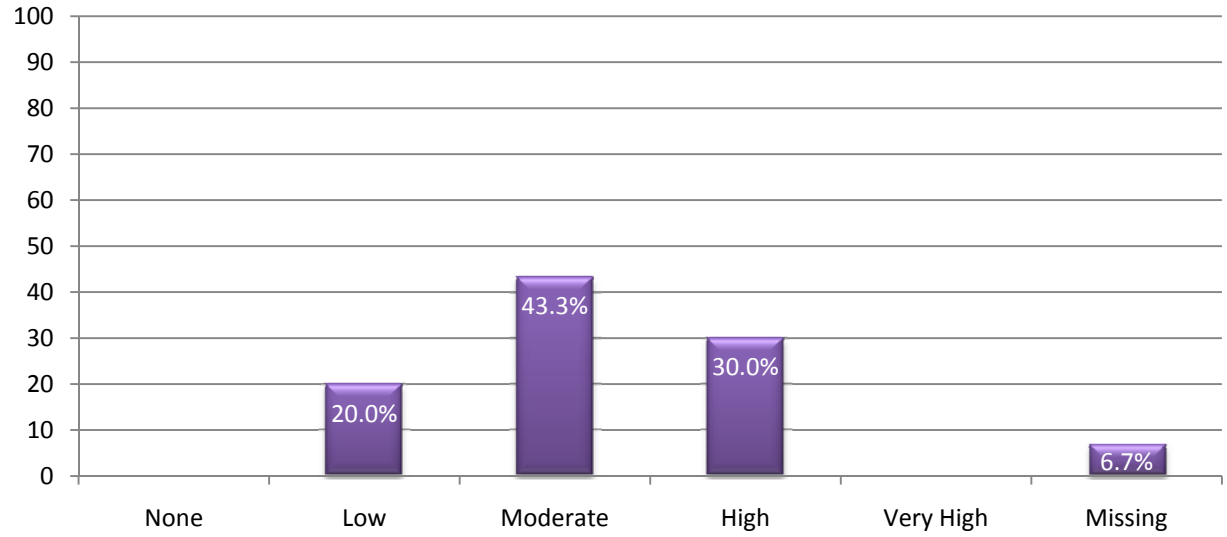
Fund Development Track Summary

- One of the most striking findings of the follow-up evaluation for Fund Development is the **appreciate for, use of, and high quality rankings of the tools for fund development**. At least 75% of fund development track participants reported using all of the fund development tools provided; this use is far greater than the reported use of tools provided by the other focus tracks.
- The evaluation revealed some concerns, however, with revenue plan development. The majority of respondents reported not having plans that contained important elements outlined at the December training. A stark finding was that **only 29% report have specific fund development goals** in their revenue plan. **Thirty-five percent of respondents report "low" levels of development** in the fund development area, this is more than any other focus track.
- Three persistent themes emerged from the follow-up evaluation. First, was **strong support for the appropriateness of the information and tools** that are available. Second, was the reality of **not having enough time to pursue fund development** at the level that is needed. And third, was the recognition that t**here needs to be a well-developed science plan and programs in place** before successful fundraising can be conducted.
- Overall, the results of the fund development track follow-up paint a picture of need for further planning for fund development, coupled with finding more time to do fund raising. *Recommendation: Continue to monitor development of revenue plans and document cases of successful fund development. Regional academies may want to structure their fund development tracks to provide further support for revenue plan development and sharing of successful strategies and support materials. There should also be consideration given to what fund development work might be useful at the regional level.*

Professional Development

Thirty respondents attended the Professional Development focus track at the December conference. Participants were asked to rate the overall development of their 4-H Science Professional Development in their state, 22 (73.3%) reported moderate or high levels of development (See Figure 5.1).

Figure 5.1 Respondent's Rating of 4-H Science Professional Development (Percentage)



Factors Affecting 4-H Science Professional Development

Respondents were asked to identify factors that contributed to the development of fund development efforts (or lack thereof) since the conference. The verbatim responses are presented below.

Facilitating Factors

- Creation of a logic model and an otherwise intentional slowing down of the process so the professional development delivered actually aligns with the direction we are moving.
- Attending the SLA.
- There is a strong interest in Professional Development in our state. We have several ongoing initiatives into which Science will now be a focus. Our state level administration is in transition, but when new staff are in place, PD in Science will continue to be promoted and enhanced.
- This is an ongoing discussion with our STEM team in my state. We continue to offer district trainings and are developing on line resources to support the integration of STEM related

competencies into traditional 4-H projects. We have been most successful offering trainings when we have secured funding.
- The Academy helped us focus on priorities, provided a set of tools and plans to assist in implementing the work of our State work team. The Professional Development resources are useful and useable and have made it possible to go directly into training launch mode.
- Workshops presented by the 4 delegates of the National Science Leadership Academy - the workshops were presented in Jan-March.
- This training has really allowed us to move the 4-H Science program forward in my state
- Opportunity to bring faculty and staff together. Implementation grant to fund some training resources.
- We used the grant from attending the Leadership Academy to host 2 workshops to train teachers, home school parents, 4-H educators, etc. on 4-H Science. We use existing 4-H Educator meetings to present information, brief trainings, etc. Our larger goal for growing volunteers in 4-H Science has been slow to get off the ground due to time constraints (limited staff = too much to do).
- We have held two in-service trainings on teaching methods using guided inquiry since the academy
- We have done a statewide Science training that incorporated most of what we did at the SLA (in all tracks). We are really going gung ho in Robotics PD too.
- We had the opportunity to present at our annual state gathering of 4-H youth professionals and were able to present at the annual gathering of 4-H leaders.
- We have a great team working together. We were all headed in the right direction prior to this academy, but this helped us bring a statewide focus.

Inhibiting Factors

- Lack of funding
- Busy Schedules
- Staff reductions/work load. Limited statewide meetings and opportunities to work with volunteers. Are working to incorporate SET Core competencies into "New" club boxes and at Fall Volunteer Forum which will have a SET focus.
- Staff, Training, Grants
- We are still in the planning phase of staff and volunteer development to ensure that our efforts are comprehensive and fit with other priorities as well.
- Funding
- The team that attended the leadership training was comprised primarily of county educators and no state wide changes have been made.
- Funding, Interest, Availability of leadership
- We are experiencing restructuring so progress is limited.
- waited on the selection of the stem person to be hired
- Our biggest issue is funding and personnel.
- Simply time availability. We will be doing much more in the future. We had more than 80 local staff participate in 4-H Science Ready implementation workshops prior to February 15.

- My state is moving through a series of larger changes that have slowed down our professional development related specifically to science.
- Small staff, all very busy. We offered a statewide training for 4-H staff, only about 1/2 attended. We are now doing regional trainings around the state for 4-H volunteers. Money is also an issue for travel and resources (such as science kits and curriculum)

Respondents were asked if any of the following items had been done since the December conference to further their state's 4-H Science program. Table 5.1 shows the response frequencies and percentages.

Table 5.1 Professional Development Activities Since Conference

	Yes	No	Missing
Taught others about science inquiry	23 (76.7%)	5 (16.7%)	2 (6.7%)
Taught others about science inquiry and the 5-Step experiential learning cycle	19 (63.6%)	7 (23.3%)	4 (13.3%)
Used inquiry-based learning to support 4-H Science	23 (76.7%)	4 (13.3%)	3 (10.0%)
Recruited 4-H Science volunteers	15 (50.0%)	10 (33.3%)	5 (16.7%)
Communities of practice	13 (43.3%)	13 (43.3%)	4 (13.3%)
Using the 4-H Science checklist	17 (56.7%)	9 (30.0%)	4 (13.3%)
4-H Science Competency Assessment tools	14 (46.7%)	13 (43.3%)	3 (10.0%)
Understanding tools and resources available for 4-H Science	20 (66.7%)	6 (20.0%)	4 (13.3%)

Respondents were asked if they had provided any professional development training had since the conference. Table 5.2 presents the frequency and percentage of responses. This is followed by the number of professional staff and volunteers that have been trained

Table 5.2 Has Provided Professional Development Training since the Conference

	Frequency	Percent
Yes	22	73.3
No	6	20.0
Missing	2	6.7

Professional Staff that have been trained:
A total of 639 professional staff have received training. The average number per state was 29.

Volunteers that have been trained:
A total of 284 volunteers have received training. The average number per state was 14.2.

Professional Development Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools related to *Experiential Learning and Inquiry-Based Learning Methods* that they received at the 4-H Science Leadership Conference. As Table 5.3 reveals, most of the participants (70-80%) have used the tools. And of those, everyone rated the tools as either "good" or "very good." The one exception was the What's in a Question tool, which received one "poor" rating.

Table 5.3 Usefulness of Tools Related to Experiential Learning and Inquiry**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	0	0	10 (33.3%)	11 (36.7%)	6 (20.0%)	3 (10%)
Lecture Activity	0	0	10 (33.3%)	8 (26.7%)	9 (30.0%)	3 (10%)
Demonstration Activity	0	0	5 (16.7%)	13 (43.3%)	9 (30.0%)	3 (10%)
Guided Inquiry Activity	0	0	7 (23.3%)	11 (36.7%)	8 (26.7%)	4 (13.3%)
Helicopter Model	0	0	8 (26.7%)	11 (36.7%)	8 (26.7%)	3 (10%)
5-Step Learning Cycle	0	0	12 (40%)	6 (20.0%)	9 (30.0%)	3 (10%)
5-Step Learning Cycle Definitions	0	0	11 (36.7%)	6 (20.0%)	9 (30.0%)	4 (13.3%)
What is Inquiry?	0	0	9 (30.0%)	8 (26.7%)	9 (30.0%)	4 (13.3%)
What's in a Question?	0	1 (3.3%)	8 (26.7%)	9 (30.0%)	9 (30.0%)	3 (10%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 30% for *several tools* to a low of 20% for *the Training Guide*

Twenty-two (73.3%) of respondents reported they knew where to access the 4-H Science Professional Development Toolkit online; 6 (20.0%) said they did not know; and 2 (6.7%) did not respond to the question.

Figures 5.2 and 5.3 display the percentages of respondents who reported accessing each of the Professional Development tools online. The top four most accessed tools were 1) *5-Step Learning Cycle*, 2) *Guided Inquiry Activity*, 3) *Helicopter Model*, 4) *5-Step Learning Cycle* Definitions. The least accessed were the *Lecture* and *Demonstration Activities*.

Figure 5.2 Accessed the 4-H Science Professional Development Tools (1)

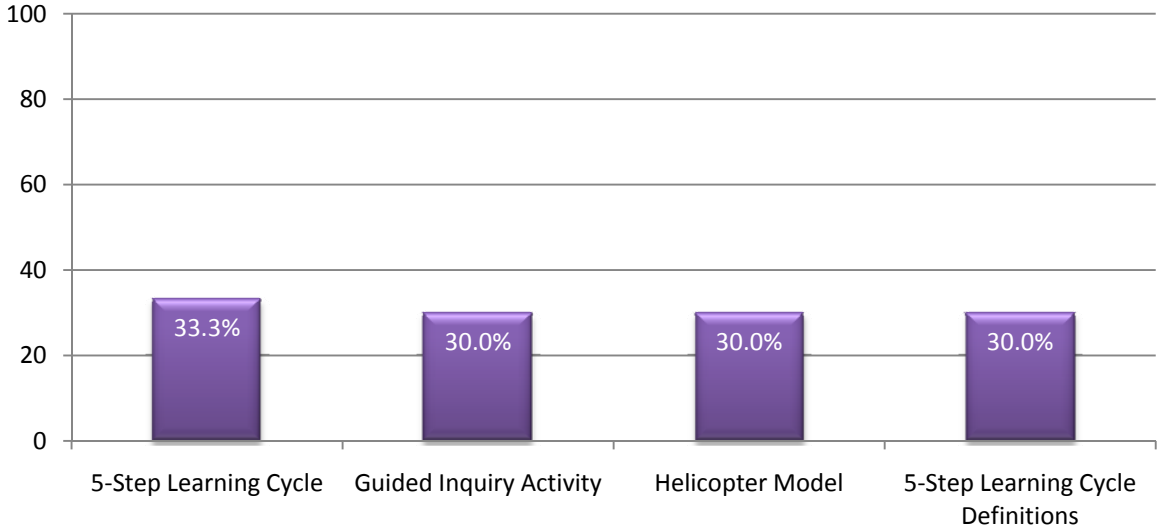
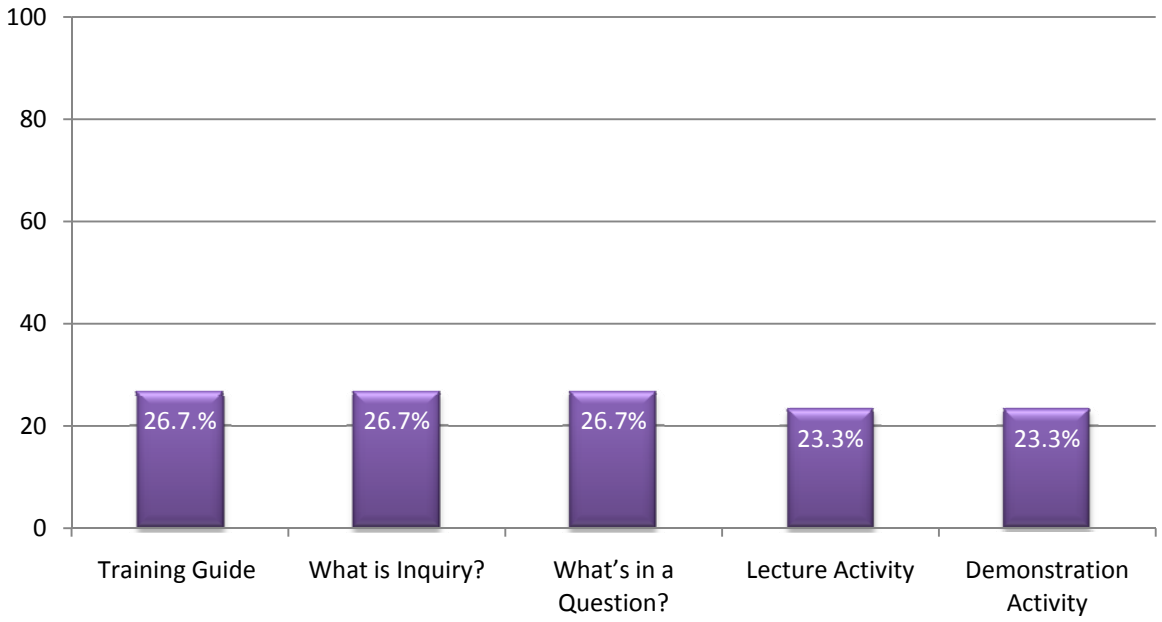


Figure 5.3 Accessed the 4-H Science Professional Development Tools (2)



Professional Development Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools related to *Inquiry into Practice* received at the 4-H Science Leadership Conference. As Table 5.4 shows, most of the participants (70-80%) have used the tools. And of

those, everyone rated the tools as either "good" or "very good." The two exceptions were the *Training Guide* and the *Inquiry into Practice*, which each received 1 rating of "very poor."

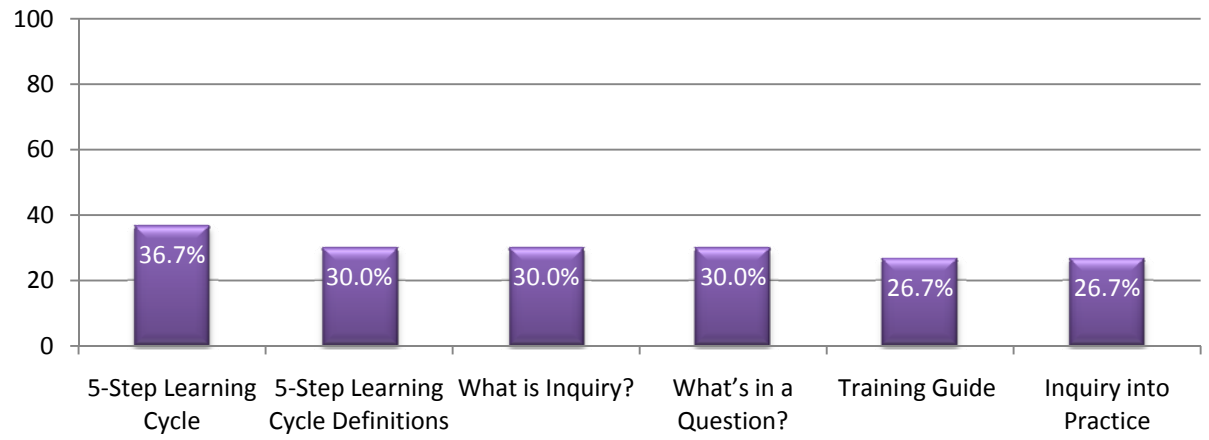
Table 5.4 Usefulness of Tools related ton Inquiry into Practice**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	1 (3.3%)	0	8 (26.7%)	11 (36.7%)	6 (20%)	4 (13.3%)
Inquiry into Practice	1 (3.3%)	0	11 (36.7%)	7 (23.3%)	6 (20%)	5 (16.7%)
5-Step Learning Cycle	0	0	12 (40%)	8 (26.7%)	6 (20%)	4 (13.3%)
5-Step Learning Cycle Definitions	0	0	10 (33.3%)	8 (26.7%)	8 (26.7%)	4 (13.3%)
What is Inquiry?	0	0	14 (46.7%)	5 (16.7%)	7 (23.3%)	4 (13.3%)
What's in a Question?	0	0	12 (40%)	6 (20%)	8 (26.7%)	4 (13.3%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 26.7% to a low of 20%.

Figure 5.4 displays the percentages of respondents who reported accessing each of the Fund Development tools related to Inquiry-Theory into Practice online. The most accessed tool was the *5-Step Learning Cycle*. The least accessed tools were the *Training Guide* and *Inquiry into Practice.*

Figure 5.4 Accessed the 4-H Science Professional Development Tools



Professional Development Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools related to *Recruiting and Developing Science Content-Rich Volunteers* that they received at the 4-H Science Leadership Conference. As Table 5.5 reveals, fewer

participants (53 - 83%) have used the tools. The most frequently used tool was the *4-H Science Core Competencies* (83.3% have used), followed by the *Competency Cards* and *12 Tips to Success* (80% each). Least used were the *Draft Program Coordinator Position Description* (53.2% have used) followed by *Resources to Enhance Curriculum* (56.7%) and the *Summary of Participant Suggestions* (40%). Of those who reported using the tools, everyone rated the tools as either "good" or "very good." The two exceptions were the *Summary of Participant Suggestions* and the *4-H Core Competency Self- Assessment*, which each received 1 rating of "poor."

Table 5.5 Usefulness of Tools for Science Content-Rich Volunteers**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	0	0	11 (36.7%)	8 (26.7%)	7 (23.3%)	4 (13.3%)
Competency Cards	0	0	6 (20%)	14 (46.7%)	6 (20%)	4 (13.3%)
Summary of participant suggestions	0	1 (3.3%)	8 (26.7%)	5 (16.7%)	12 (40%)	4 (13.3%)
Components of a volunteer position description	0	0	10 (33.3%)	6 (20%)	9 (30%)	4 (13.3%)
Kentucky Volunteer position description template	0	0	9 (30%)	4 (13.3%)	11 (36.7%)	6 (20%)
Draft 4-H science program coordinator position description	0	0	7 (23.3%)	4 (13.3%)	14 (46.7%)	5 (16.7%)
Resources to enhance curriculum	0	0	8 (26.7%)	5 (16.7%)	13 (43.3%)	4 (13.3%)
4-H Science Core Competencies	0	0	9 (30%)	11 (36.7%)	5 (16.7%)	5 (16.7%)
4-H Science Core Competency Self-Assessment	0	1 (3.3%)	8 (26.7%)	9 (30%)	8 (26.7%)	4 (13.3%)
12 Tips to Successful 4-H Science Content Rich Volunteers	0	0	9 (30%)	11 (36.7%)	6 (20%)	4 (13.3%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 46.7% for *the Draft 4-H Science Program Coordinator Position Description*, to a low of 20% for the *Competency Cards* and *12 Tips for Science Content Volunteers*

Figures 5.5 and 5.6 displays the percentage of respondents who reported accessing each of the professional development tools related to *Recruiting and Developing Science Content Rich Volunteers* online. The most accessed tool was the *Competency Cards*. The least accessed tools were 1) *Summary of Participant Suggestions*, 2) *Kentucky Volunteer Position Description Template*, 3) *Draft 4-H Science program coordinator position description*, and 4) *Resources to enhance curriculum.*

Figure 5.5 Accessed the Tools for Science Content-Rich Volunteers (1)

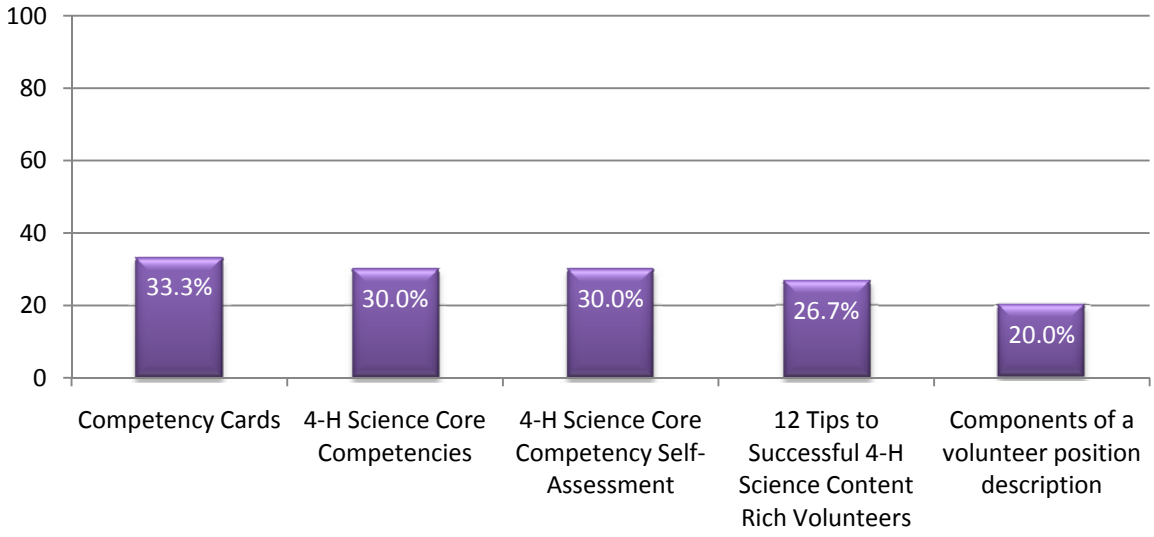
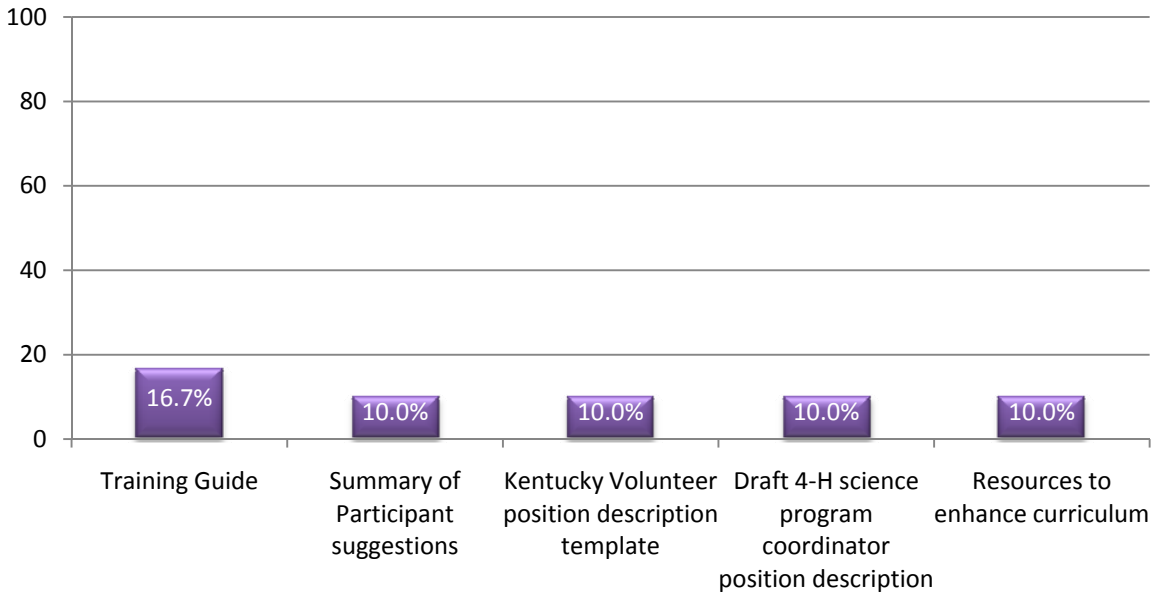


Figure 5.6 Accessed the Tools for Science Content-Rich Volunteers (2)



Professional Development Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools related to *Recruiting and Developing Traditional Volunteers* that they

received at the 4-H Science Leadership Conference. As Table 5.8 reveals, only 50 to 66% have used these tools. However, everyone who used the tools rated them as either "good" or "very good."

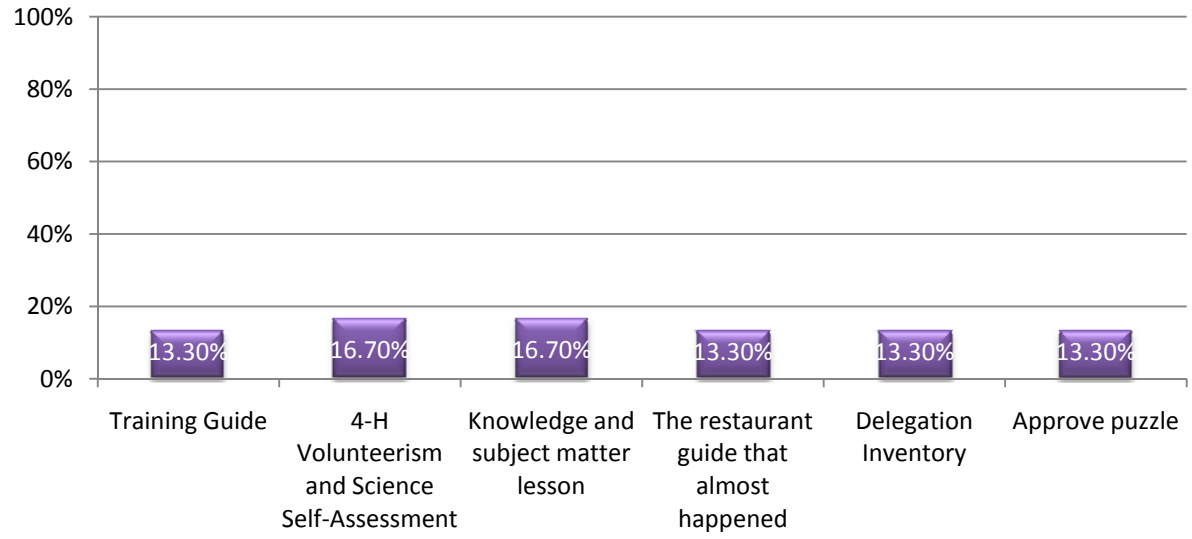
Table 5.8 Usefulness of Professional Development Tools for Traditional Volunteers**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	0	0	8 (26.7%)	5 (16.7%)	11 (36.7%)	6 (20%)
4-H Volunteerism and Science Self-Assessment	0	0	8 (26.7%)	4 (13.3%)	12 (40%)	6 (20%)
Knowledge and subject matter lesson	0	0	7 (23.3%)	4 (13.3%)	12 (40%)	7 (23.3%)
The restaurant guide that almost happened	0	0	5 (16.7%)	4 (13.3%)	15 (50%)	6 (20%)
Delegation Inventory	0	0	6 (20%)	5 (16.7%)	13 (43.3%)	6 (20%)
Approve puzzle	0	0	6 (20%)	3 (10%)	15 (50%)	6 (20%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 50% to a low of 36.7%.

Figures 5.7 displays the percentage of respondents who reported accessing each of the Professional Development tools related to *Recruiting and Developing Traditional Volunteers* online. The most accessed tool was the *Competency Cards*. The least accessed tools were 1) *Summary of Participant Suggestions*, 2) *Kentucky Volunteer Position Description Template*, 3) *Draft 4-H Science program coordinator position description*, and 4) *Resources to enhance curriculum*.

Figure 5.7 Accessed Recruiting and Developing Traditional Volunteers Tools



Professional Development Track respondents were asked to rate the usefulness of the 4-H Science Evaluation Tools related to *Communities of Practice* that they received at the 4-H Science Leadership Conference. As Table 5.9 reveals, only 43 to 53% have used these tools. However, everyone who used the tools rated them as either "good" or "very good."

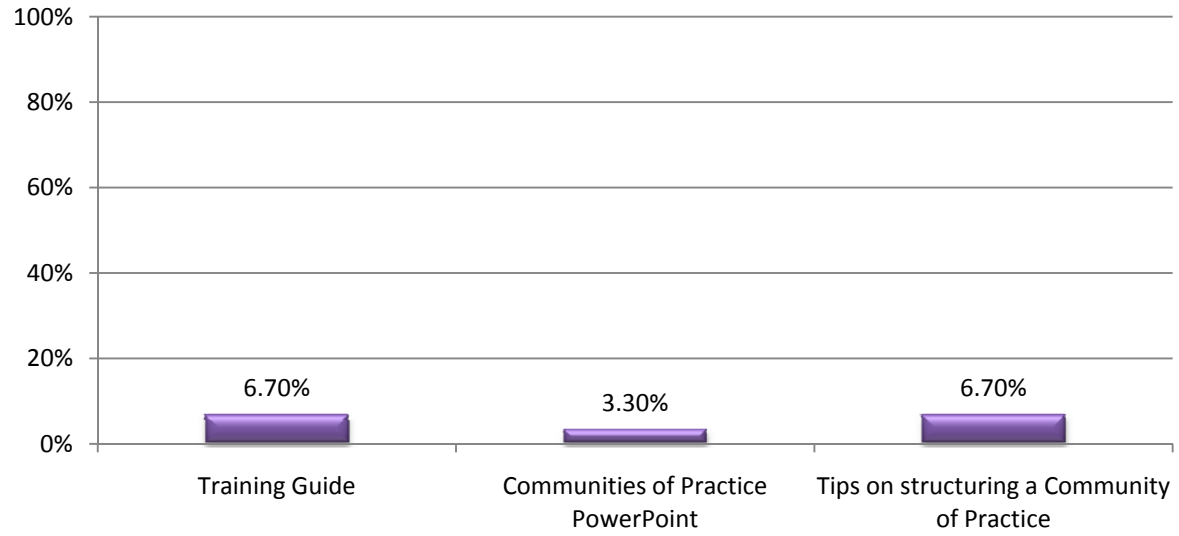
Table 5.9 Usefulness of Tools Related to Communities of Practice**

	Very Poor	Poor	Good	Very Good	Have Not Used	Missing
Training Guide	0	0	8 (26.7%)	4 (13.3%)	14 (46.7%)	4 (13.3%)
Communities of Practice PowerPoint	0	0	6 (20%)	2 (6.7%)	17 (57.0%)	5 (16.7%)
Tips on structuring a Community of Practice	0	0	8 (26.7%)	3 (10.0%)	15 (50%)	4 (13.3%)

** It is important to note in the above table the number of participants who report NOT using the tools. This ranged from a high of 57% for *Communities of Practice PowerPoint*, to a low of 46.7% for the *Training Guide.*

Figures 5.8 displays the percentage of respondents who reported accessing each of the Professional Development tools related to *Communities of Practice* online. Only 6% of participants have accessed the PowerPoint and tip sheet for communities of practice, and just over 92% have accessed the training guide on-line.

Figure 5.8 Accessed Tools Related to Communities of Practice



Just over 23% of participants report that the have begun to form a community of practice for professional development in 4-H Science. Ten percent report they plan to begin a CoP in the next six months; 6.7% plan to begin the next 12 months. Thirty percent report they plan to form a CoP, but have not yet determined a timeline. An additional 10% report they do not plan to form a community of practice for professional development. When asked why they do not plan to form a CoP, the following (verbatim) responses were provided:

- A CoP already exists in our state for over 20 years in the 4-H SET program work team. It consists of approximately 20 members from the LG campus (content and administrative reps) and county educators from each 4-H region in the state. The group is very active in PD, providing materials on Inquiry Science to all staff both paid and volunteer.
- Not sure who is responsible for forming. Is it a state wide effort or a regional effort?
- I am part of a CoP with other attendees of the Dec workshop. We liked the idea of staying connected to one another and share ideas from different states.
- Time, lack of interest
- We actually had one established prior to the academy

Narrative Feedback on Professional Development Tools

Participants were asked to provide feedback on the tools for professional development. The verbatim responses are listed below.

- Since the Academy, I have shared information and resources from the academy and the website with our Science Program work team. There needs to be an on-going effort to promote the tools and resources.

- Having on-line is great. I know I haven't visited much, but a great resource to share with educators working across the state.
- We have had positive feedback from our training from the grant received from the Science Implementation grant. I do not know how many in our state are taking advantage of the webinars. We do have so many opportunities that we need to make sure these opportunities are connected.
- Everything seems excellent, but my position focuses on training a particular curriculum that already has, in some cases, parallel materials.
- Resources are well done. I have supplemented with resources already on hand.
- While I have not yet used many of the tools we were provided, they were all very good! We will be using them in our state in the next 12-18 months as move forward with our plan of action.
- All are good. All are available.
- Everyone loves the Inquiry, Demonstration, and Lecture activities. They are easy to use, and make a very valuable point when teaching. Almost everyone who attended our PD training requested copies and has used them when working/teaching volunteers.
- I think that there is still a lot of confusion around inquiry base learning and that we could use more training help in this area.
- I have not used any of them yet.
- The information is great. We just haven't had the time or opportunity to implement all of it.

<u>Narrative Feedback on Important Things Learned at the Conference</u>

- As a relative new-comer to 4-H, I gained a significant appreciation for the role of volunteers and the need to nurture and encourage their professional development.
- Contacts - interaction with other staff - hearing ideas from throughout the country
- Seeing the interest and support for 4-H Science from across the country.
- The fact that we should be able to attract more volunteers and get more kids interested because science rich content is so sought after right now.
- Networking. The time to go through some of the activities and actually leaf through the training guides and materials in a focused and meaningful way.
- Access to resources.
- Tools for training
- An understanding and enthusiasm for using inquiry as the foundation of the science learning experience for youth
- Inquiry into practice session and tools
- How important it is to have state leaders present and behind the initiative.
- Community of Practice
- Hands on learning experiences are critical to helping educators increase their comfort level with increased focus on science.

- The distinction of science content rich volunteers and traditional volunteers working with science content, forming the Community of Practice from the 4-H Science Professional Development track
- Not sure
- It was all great stuff. I don't think I can settle on just one thing. I guess I would say that we need to look outside our current organization to be able to meet our goal.
- Incorporating Experiential Learning into Inquiry. A deeper understanding of Inquiry.
- Set time that was structured and focused on 4-H Science. So many times I am juggling multiple projects and deadlines (as all staff are!). It was very refreshing to simply focus on one broad area.
- We have helped staff and volunteers begin to see 4-H Science, not as an "add on" but as something that is already happening throughout many 4-H experiences in our state.
- Reinforces what we were doing and where we are going as a state.

<u>Topics that Would have been Helpful at the Conference</u>

- I should have spent more time exploring our own state's strategic plan for PD. A pre-conference assignment and subsequent conference discussion might help provide me with a better understanding of the framework in our state. I will continue to pursue this on my own.
- More depth into Science. The helicopter activity took too much of our time and was too simple. I think we can be challenged to take on a more difficult example to demonstrate Inquiry.
- For our small region - maybe some multi-state options for PD.
- We spent most of our time DOING professional development instead of learning about professional development planning. We can all teach aspects of curriculum, etc. but I wish we could have learned new ways or strategies of professional development.
- More on recruitment of science rich volunteers
- How to gain statewide approval and how to start the momentum to make it happen?
- I can't think of anything.
- The topics were comprehensive. Some attention to development of web resources would have been helpful.
- How to format professional development into short training segments
- More activities to get staff comfortable with 4-H Science. The lecture, demonstration, inquiry activity is great - but one activity is not going to sell someone on science if they have a long held belief that they cannot "do" science. With limited staff, we need all of our staff comfortable with the idea of science and comfortable with the idea of promoting and teaching science.
- How to motivate our cohorts to see this as a priority to be added to their plate.
- A longer time-period that focused on what inquiry based experiential education is and what it is not. I'm not sure all participants really understood what inquiry truly is and even if understood, to truly learn how to carry it out takes time.

Additional Tools Needed

- Ongoing reminders of materials and resources that exist is always helpful. In this time of staff reorganization at the state and county levels, new staff need to be advised and existing staff need user-friendly materials to encourage and support PD efforts.
- Continue sharing best practices and highlights that occur across the country and share them via e-mail or update the website.
- More connections with what is happening nationally.
- I know more webinars/video tools are being offered and I feel that is a good resource to keep moving on as staff are limited in time and travel to attend trainings so something they can access locally is great for them.
- The webinars and resources have been great. We just need to continue to get the word out to our states.
- More on inquiry based learning
- Additional resources to help incorporate inquiry into existing curriculum.
- More resources to attract new volunteers, especially those with science knowledge, comfort, etc.
- Top ten reasons to develop science inquiry based lessons in your 4-H club/program.
- YEAK collects excellent data; however, fails the "face validity" test with Extension Professionals for 3-5 graders. Can something simpler be created for the 3rd - 5th graders to measure the affective component toward STEM.
- I cannot think of any at this time.
- Videos to support the training, modeling of the activities would help the visual learners.

Recommended e-Learning Topics

Electronic Media

- On-line interactive sites that teach Science
- Developing web resources for volunteers
- Facebook educational strategies
- Twitter applications
- For volunteers, having short video segments illustrating a variety of science experiments/activities

Logistics

- Equipment/supply
- Procurement/funding/management
- Funding programs for science

Educational Materials

- Inquiry based learning
- High volume content to make more inquiry. (Horse knowledge..)
- Science Inquiry in Traditional
- Planning short term science experiences for youth (camps, etc)
- Inquiry - how do you do it? How do you do it well?

- Fun & easy science activities for K-3 - step by step
- Asking the right questions
- Science inquiry vs. experiential learning
- More information regarding Inquiry: the difference between the 3 types.
- How to ask open ended questions?
- Inquiry based experiential learning (what is it, how to - not at a college level, at a simple level)
- What is a question? How to formulate open ended..
- How to evaluate inquiry in the non-formal learning environment?
- Integrating 4-H Science into traditional 4-HProjects
- Interplay between Experiential learning and I-BL
- The entire PD course we attended in nice separate sessions

Volunteer education

- How to capitalize the strengths of volunteers for a successful club/program....
- Ways to support and develop resources for volunteers.
- Recruitment of science content rich volunteers
- Training volunteers to help "find the science in what they do"
- Techniques/process for training volunteers to incorporate inquiry
- Hooks for volunteers ... why science is so cool!
- Teaching skills for the science volunteer/professional

Consistent updates

- Keeping up with technology and delivery methods
- Updates on research in the field of PD
- Annual survey of existing resources at 4H
- Ways staff can stay current with technology when funds aren't there to purchase "latest/greatest"

Other

- Evaluation and assessment
- 4-H reaching new audiences
- Importance of everyone adopting
- How to start small but make big changes
- How to plan/organize/lead follow-up webinars following F2F training
- Training teens on 4-H science

Success Stories

- After surveying members of our Community of Practice, we learned that there was a high interest in learning about Citizen Science opportunities. We organized a symposium to present and overview of citizen science and provide an opportunity to learn about a dozen existing Citizen Science projects in which 4-H youth could participate. It was attended by over 40 educators.
- I have successfully promoted the importance of training volunteers in being able to "see the science" and this will be a part of our plans for training in the future
- After we trained volunteers, one group went back and talked to their school officials and were able to secure funding to help move this group forward in develop 4-H Science Clubs in their community. We have just had also more interest in 4-H Science in this state. We are testing and implementing new ideas and concepts all of the time. The interest has really been exciting. So I think we have a lot more volunteers and agents willing to support the 4-H Science initiative in our state.
- I was proud of our state's team determining that State/Area 4-H Faculty/Staff needed to be the first to hear what we had done and learned and what this might mean for our state's overall 4-H efforts.

Summary Professional Development

- The evaluation revealed significant momentum in the area of professional development. Over **76% of respondents reported teaching others about science inquiry and using science inquiry learning** to support 4-H science.
- Twenty-two LGUS report having conducted training already, **reaching a reported total of 639 professional staff and 284 volunteers**.
- Numerous narrative accounts report **plans to provide professional development** training before the end of 2011.
- Most respondents report **using tools related to experiential learning and inquiry**; less have used tools for science content-rich volunteers and traditional volunteers. Even less have used the tools related to developing a community of practice.
- Several narrative statements refer to the need to **continue to promote and share tools for professional development**, particularly in the area of science inquiry. Recommendation: Regional academies may want to provide additional training on teaching science inquiry as well as provide opportunities for sharing of successful training tools and materials.
- The community of practice (CoP) idea does not appear to have gained much traction, with **almost 50% of the respondents not using** the materials provided. *Recommendation: If the CoP is intended to be used as a professional development method throughout the 4-H system than additional training, emphasis, and support will need to be provided at the regional academies and beyond.*