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PA 681 – Capstone

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THE IMPLEMENTATION AND EVALUATION OF PARTICIPANT SURVEYS FOR 4-H TEEN SUMMIT

Abstract: *4-H Teen Summit is a unique and popular youth development program that does not currently utilize formally structured participant feedback as a part of its internal program evaluation. I designed and proposed the administration of a survey to begin the program evaluation process for 4-H Summit. The survey was administered to participants and the results were shared with me for analysis.*

Kentucky 4-H is an organization that is a part of the University of Kentucky's Cooperative Extension program. The Kentucky 4-H website offers the following statement to explain what cooperative extension is:

"Extension's mission is to make a positive difference in the lives of Kentucky citizens through non-formal education for the entire family. Extension agents and volunteers take the results of university research and explain it in such a way that different age groups can learn and apply the information to their own lives." (UKAg, n.d.)

4-H, in general, focuses its cooperative extension efforts on youth development.

4-H has an extension agent in all 120 Kentucky counties to deliver 4-H programming to youth. Kentucky 4-H also has state specialists, operating from the University of Kentucky campus, who focus on developing content for statewide programs and events. For its programs, Kentucky 4-H has seven core content areas; they are: (1) Animal Science, (2) Communications, (3) Family and Consumer Sciences, (4) Leadership, (5) Health, (6) Natural Resources, (7) Science Engineering and Technology (SET).

Mark Mains is a State 4-H Specialist who has focused his efforts on creating and administrating programming for developing the leadership of teenagers in Kentucky. In 2005,

Mains designed and initiated a program called the Kentucky 4-H Teen Summit. The Kentucky 4-H Foundation uses the following description to explain Teen Summit:

> "[…] Kentucky 4-H Summit is held annually […] for youth in 6th, 7th, and 8th grades. This program is designed to develop leadership, citizenship, and communications skills, all while encouraging middle school-aged 4-H youth to remain active in the 4-H program and acquaint themselves with the programs and activities available to them as senior 4-H members. [The program objectives of Teen Summit] are accomplished through hands-on, active workshops, guest speakers, seminars, group living, recreation, and recognition (Kentucky 4-H Foundation, 2012)."

Kentucky 4-H Teen Summit has recently reached its 10th year of operation with a 2015 attendance of 568 youth.

Thus far, quantitative evaluation of 4-H Teen Summit has generally been limited to enrollment numbers, which have grown regularly over the past decade.

Past qualitative program evaluation of Teen Summit by participants has mostly consisted of casual, word of mouth, communication to the 4-H administration by participants who feel comfortable enough to speak up about their thoughts in passing conversations they may have with 4-H staff.

A problem currently affecting 4-H Teen Summit is that there are currently no official channels for youth participants to give feedback that contributes to program self-evaluation and may guide the future direction of Teen Summit.

There is a great opportunity for Teen Summit to initiate new methods of program evaluation that are both quantitative and qualitative.

Literature Review

In my literature review, I am choosing to focus on scholarly articles that will serve as a guide for my creation of participant surveys, which will allow the impact of Kentucky 4-H Teen Summit to be observed. Some articles studying the effects of youth development programming will also be included. These youth development articles will provide evidence for the program components necessary for 4-H Teen Summit to meet its goals.

Researchers Roth and Brooks-Gunn concluded that, "…the most effective youth development programs generally have three defining characteristics: program goals, atmosphere, and activities." (Roth & Brooks-Gunn, abstract). The program goals for 4-H summit are as follows:

1) Increase retention of 4-H members through middle school into high school.
2) Provide a common leadership education experience while at 4-H summit.
3) Create a connection between STC members and Summit delegates that helps the middle school aged youth feel welcomed, included and part of a valued group.

Regarding the first goal, the professionals at Kentucky 4-H have noticed that youth are less likely to participate in 4-H programs as they age, especially if they were not already participating in 4-H when they were younger. Scholar Jane Quinn (1999) indicates that this program is not unique to 4-H, but affects most other youth development programs.

In alignment with Roth and Brooks-Gunn's assertion, the activities for 4-H Summit reflect the goals in that they involve leadership trainings, team building activities, mentorship opportunities, and general fun through recreation activities such as games and dances.

Further support for the operation of 4-H Teen Summit are abundant in academic literature. Scholars have reported that research has shown that youth who participate in

leadership programs report show improvements in crucial interpersonal skills (Dworkin, Larson, & Hanson, 2003; Scales & Leffert, 1999). The importance of leadership as a part of 4-H programming is supported by another pair of researchers who list "[h]elp[ing] youth learn specific knowledge and skills related to leadership" as the first principle of their "12 principles of effective youth development programming (Woyach & Cox, 1996)."Another group of researchers share that, "[Our] results show that EI [Emotional Intelligence] and self-concept abilities can be enhanced through short-term leadership training (Hindes, Thorne, Schwean, & McKeough, p. 216)." 4-H Teen Summit, a three day conference, is an example of the type of training discussed by these researchers.

Now that the importance of youth leadership development training has been stated, it is time to explore how to specifically evaluate and quantify the effects of the Kentucky 4-H Teen Summit on its participants. Here is a list of the main questions that are to be researched in my work:

1) Does 4-H summit participation create a desire for the youth to remain involved in 4-H or increase their desire to participate in other 4-H events?
2) How do summit participants perceive the mentorship provided by the 4-H State Teen Council (STC)[1] members?
3) How do STC members perceive their role as mentors and what impact this has on them?
4) Does 4-H Summit change participants' view of their own leadership capabilities?
5) How do the above responses correlate with gender?
6) How do the above responses correlate with grade level?

[1] * 4-H State Teen Council members are specially selected high school aged 4-Hers who serve a limited term as representatives of their district on a council that allows them to act as planners and leaders for 4-H members across the commonwealth.

The Kentucky 4-H State Extension Specialist for teen leadership development with whom I am working, Mark Mains, and I collectively agreed that a survey of 4-H Summit participants would be an adequate way of ascertaining their level of contentment with 4-H Summit as well as the impact that attending 4-H Summit has had on them, in regard to the previously mentioned research questions.

The Department of Justice's Guide to Conducting Youth Surveys indicates that a panel survey would be appropriate for my research in their explanation stating that, "[Panel surveys] involve collecting data from the same individuals at two or more points in time. Thus, panel surveys allow researchers to examine individual and population changes over time." (Grube, Keefe, & Stewart, 2002, p. 10)

Again, the Department of Justice's Guide to Conducting Youth Surveys influenced my decision on selecting the survey method and the sampling size. The survey method will be self-administered questionnaires. Self-administered questionnaires were chosen as the research method due to being relatively cheaper, easier, and more likely to elicit honest answers than other methods such as a mailed survey or an oral interview. Another consideration for potentially shy respondents is that, "…self-administered questionnaires offer a greater sense of anonymity and confidentiality (Grube, Keefe, & Stewart, 2002, p. 11)."

The sampling size will be as close to 100% of the participant population as possible. This is based on the claim that, "The information gathered is most reliable if a census is conducted so that every young person in a community is surveyed (Grube, Keefe, & Stewart, 2002, p. 45)."

The next step is to gather an idea of how to design this survey, in accordance with modern academic standards.

Based on the literature review of a group of researchers which concludes that, “Research on the ability of adolescents to successfully participate in ‘think alouds’—thinking aloud while answering survey questions—is mixed (Lippman et al, 2014,, p. 27),” it seems to be best practice to give the survey in written (rather than oral) format.

Writing the survey is another challenge, as every viewed piece of academic literature on using surveys for research makes it abundantly clear that a great amount of thought must be given to the selection of words and phrases, so as to accurately observe the desired phenomena. An example of a problem that may arise due to the use of carelessly worded surveys is found in “… Krosnick’s satisficing theory[2], which states that some survey respondents avoid substantial cognitive effort required by certain questions by taking mental shortcuts to avoid going through all the steps to come up with an adequate answer… (Lippman et al., 2014, p. 27).”

Another potential problem is a lack of variability in the responses. Lippman et al. (2014) offer a potential explanation by saying, “[m]ore generally, data from the cognitive interviews suggested that there was a lack of variability in responses when: (a) item thresholds were too low or failed to distinguish between high and low scores or (b) items were inherently desirable and elicited social desirability bias (the tendency to provide responses that are viewed favorably) (Lippman et al., 2014, pp. 39-40).” To summarize, response variability seems to be achievable by using two methods: (1) Issuing simpler dichotomies to elicit a response that is more clearly towards one end of the spectrum and (2) removing personal pride from the question.

With great respect given to the need to produce a clear and concise survey, I turned to the publication *Flourishing Children; Defining and Testing Indicators of Positive Development,* authored by Lippman et al. (2014), for an aggregated a list of best practices for designing surveys

[2] (Krosnick, 1991)

for adolescents. The best practices are drawn from various prominent works of modern academic literature on the subject. Here is their list:

1. Use simple, common words (Krosnick & Presser, 2010).
2. Use easy-to-understand syntax (Krosnick & Presser, 2010).
3. Use concrete, specific, unambiguous wording to reduce misunderstanding and various item interpretations (DeVellis, 2003; Tourangeau & Bradburn, 2010; Krosnick & Presser, 2010).
4. Use exhaustive, mutually exclusive response categories (Krosnick & Presser, 2010).
5. Avoid leading questions (Krosnick & Presser, 2010).
6. Avoid double-barreled questions (Krosnick & Presser, 2010).
7. Avoid negative wordings (Krosnick & Presser, 2010).
8. Use context, including reference groups and reference periods, to increase response accuracy and aid recall (Tourangeau & Bradburn, 2010; Groves et al., 2009).
9. Minimize social desirability bias by eliminating the interviewer, offering anonymity to respondents, legitimizing the less socially desirable responses by using an example in the question, using response scales in lieu of dichotomous yes/no responses, and discouraging the use of the ‘‘don’t know’’ category (Krosnick & Presser, 2010).

Research Design

Administration of the Survey

The survey was administered by 4-H professional Mark Mains, during the first weekend session of the 2015 4-H Summit. All participants were given the paper survey within the first hour of their arrival at the conference, on Thursday, March 12th. All participants were given the same paper survey just before they left on Saturday, March 14th. Participants were simply instructed to complete the survey to the best of their ability and were given as much time as they needed to finish.

Understanding the Coding System and the Means

The mean, or average, of the responses to each question, pre and post test, is included. These must be viewed carefully, due to the nature of how the participants' responses were coded into an analyzable data set.

Questions 4, 5, 7, 8, 9, and 10 ask 4-H Summit participants a question about their feelings or desires. There are 4 possible answers to each question, arranged in an order that corresponds roughly to moving from negative to positive emotions. The most negative answer was coded as 1, the less negative answer as 2, the less positive answer as 3, and the most positive answer as 4.

The coding system allows for research to be done on the differences in opinion before and after the conference, as well as the relationship between opinions and variables such as gender, age, or experience with 4-H Summit.

To use the right tools for this research, I must assume that the responses are occurring on a continuous scale, rather than an ordinal scale. The drawback to this is that it would be invalid for me to make comments about the magnitude of things such as the change between pre-test and

post-test means. For example, in question 7, the pre-test mean was 2.92 and the post-test mean was 3.12. I cannot make statistically sound comments on the level of change between these means by making a claim such as “the average response increased by 0.2 or (3.12-2.92)”, this is inaccurate for a few reasons, but the most glaring is that it is not possible to quantify a difference of 0.2 between the responses of “Unlikely” and “Likely”.

Instead, the value of analyzing the means comes from being able to state whether the change is statistically significant and in which direction the change occurred. In the case of question 7, there is a very high degree (above 99%) of statistical significance. From this I am able to reliably make a statement such as “4-H Summit made a positive difference in its participants’ opinion regarding question 7, based on their post-test responses compared to their pre-test responses.”

Using the T-Test for Paired Sample Means

For the paired t-test, my null hypothesis is that the difference in the means (pre and post) equals zero.

For each question, I ran a paired t-test of the pre-test and post-test sample means in Microsoft Excel and then double checked them in STATA. The purpose of the paired t-test is to determine if there was a statistically significant change in the participants’ survey responses after they attended 4-H Summit.

I chose to use the traditional 95% confidence level. To meet this confidence level, the t-score output from the paired t-test analysis must be 1.98 or above. This critical value of 1.98 is determined by using the t-table in the appendix. The degrees of freedom are found from the

formula n-1 where n equals the data points. The number of degrees of freedom for my research using this data set is 140.

If the Value [P>|t|] resulting from the paired t-test is too low, below 1.98 as determined by my desired confidence level, then my results failed to reject the null hypothesis.

The p-value of each score is also indicative of statistical significance. For example, a value of [P>|t|]=0.01 would have a statistical significance of 99%, which deserves attention. Alternatively, a value of [P>|t|]=0.40would have a statistical significance of 60%, which is not high enough for consideration.

Multiple Regression Model

I designed and will present the results of an ordinary least squares (OLS) multiple regression model. The model is designed to bring attention to any relationships between pre-test and post-test responses with regard to 3 other partial effects, which are gender, grade, and returning status.

While measuring the effect of these variables, I am directing the regression model to look at the raw score. I am looking at the raw score of the post test, while controlling for the raw score of the pre-test in the regression, which has a direct relationship. The inclusion of the pre-test scores in the regression to see post-test scores is necessary to make the model more complete when looking at the partial effects of the targeted variables. Leaving out the most direct indicator of post-test results would have led to some less accurate conclusions, due to omitted variable bias.

The statements that I make regarding the multiple linear regression on participant responses versus gender, grade, or returning status will address whether the change is statistically

significant and in what direction. I will not attempt to comment on the magnitude for the same reasons given in the coding system and means section; the response options are being treated as continuous.

When interpreting the results of this model, given by the STATA output, it is important to know what information is relevant. “P>t” is the p-value, which may be understood as the odds of observing a value that is more extreme than the rest. This p-value is what ultimately matters for determining statistical significance. Ideally, researchers want at least 95% level of statistical significance, which would be indicated by a P value of 0.05 or below. However, there are some results that very near this arbitrary cutoff and I will report them as being worthy of consideration.

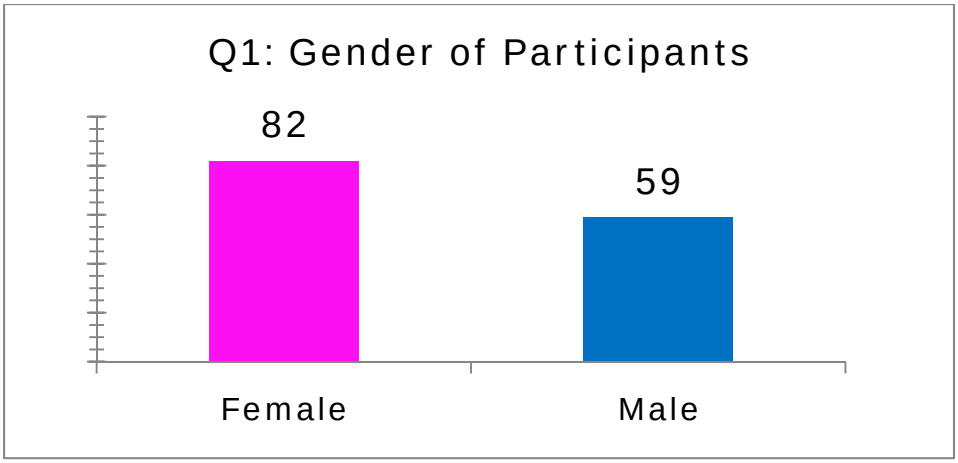
Another key consideration for reading the STATA table is that the results for the variables for gender and returning are in reference to being male or being a returner, respectively. This is due to the coding of the data. Participants who identify as a male are coded as a “1”, versus a “0” for female. Participants who identify as having been to 4-H Summit before are coded as a “1”, versus “0” for those who have not.

Research Results

Participants were asked each of these questions before and after the 4-H Summit conference.

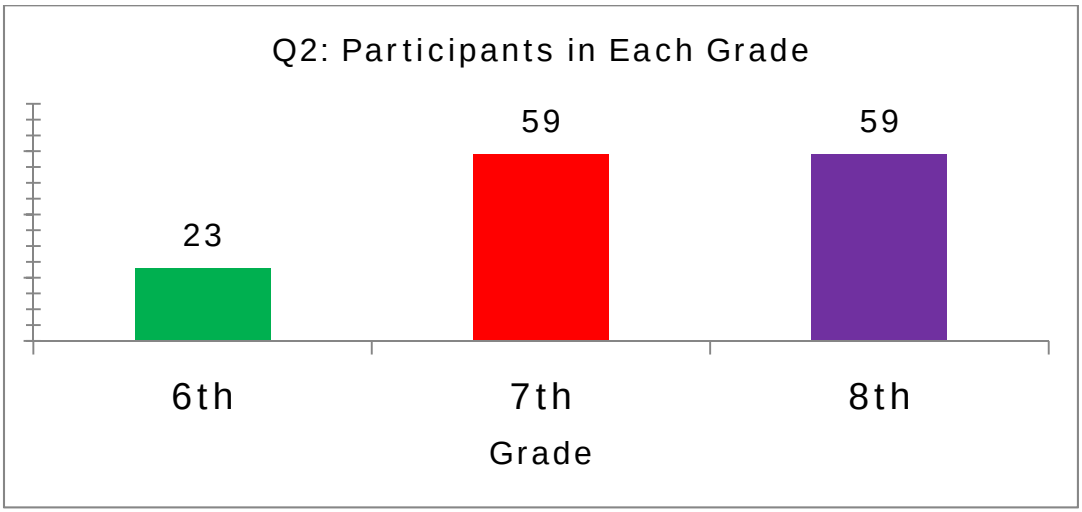
Question 1 Responses

Question 1 asked participants to identify their gender. The possible answers were Male or Female. 82 participants indicated that they were Female and 59 participants indicated that they were Male.



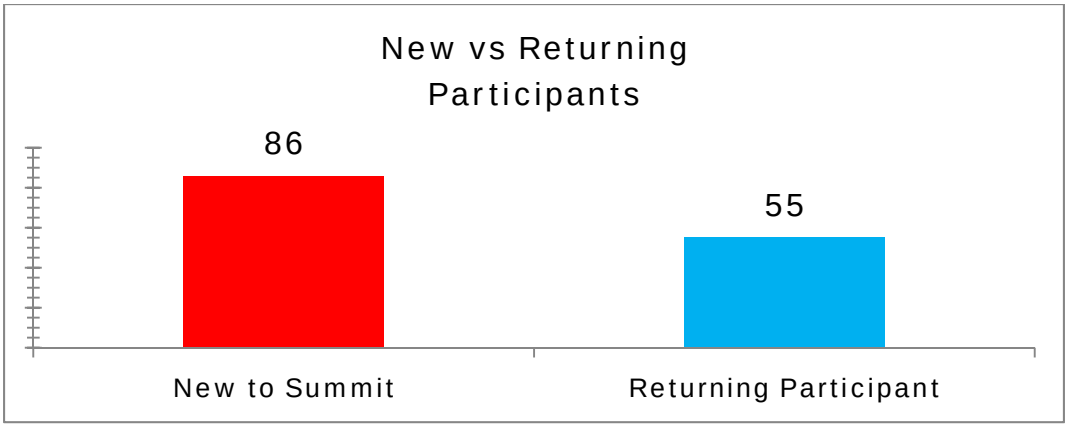
Question 2 Responses

Question 2 asked, “In what grade are you?”. The possible answers were 6th, 7th, or 8th. Of the 141 participants surveyed, 23 were in 6th grade, 59 were in 7th grade, and 59 were in 8th grade.



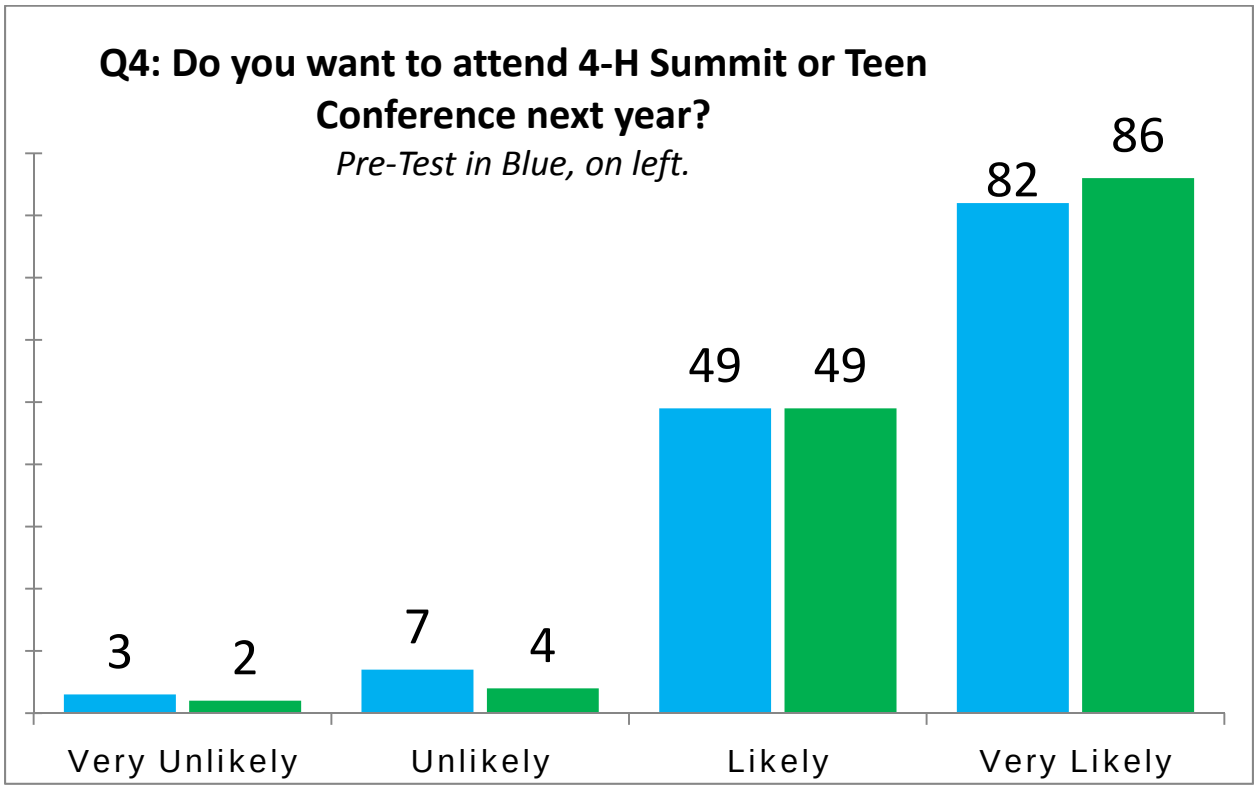
Question 3 Responses

Question 3 asked participants if they had previously attended 4-H Summit. 86 indicated that this was their first time at 4-H Summit. 55 indicated that they had previously been to 4-H Summit.



Question 4 Responses

Question 4 asked participants if they would attend 4-H Summit or 4-H Teen Conference next year. The possible answers were Very Unlikely, Unlikely, Likely, or Very Likely.



Before the conference, 3 participants selected very unlikely, 7 selected unlikely, 49 selected likely, and 82 selected very likely. After the conference, when asked if they want to attend 4-H Summit or Teen Conference next year, 2 participants selected very unlikely, 4 chose unlikely, 49 chose likely, and 86 chose very likely.

Question 4 Analysis

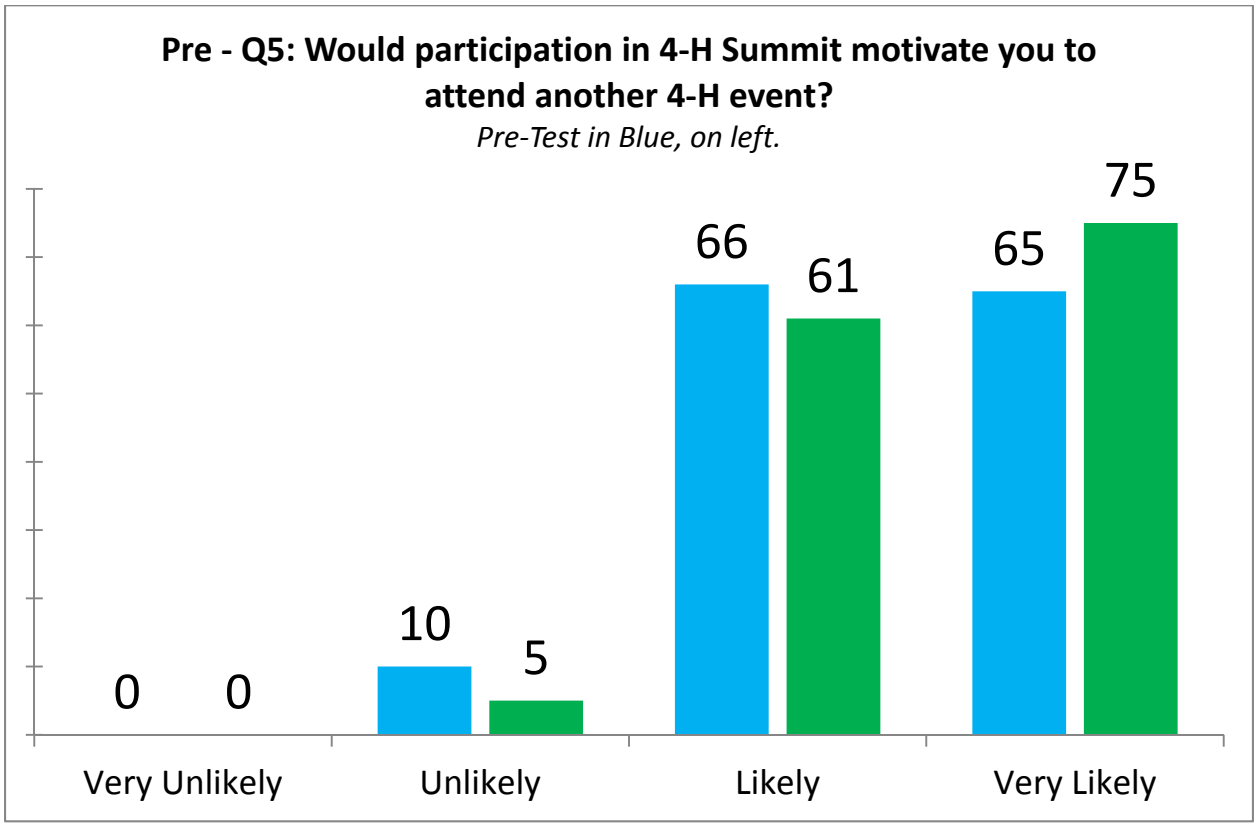
The mean response to question 4 was 3.49 in the pre-test and 3.55 in the post test. The paired t-test reported a t-score (-0.98) that was too low and therefore not statistically significant enough to reject the null hypothesis of there being no difference between the means.

According to my regression analysis, being male had a negative effect on the respondents' likelihood to want to attend 4-H Summit or Teen Conference next year. This finding had a 98.9 confidence level. The result here shows that males report being less likely to return after the conference than they did before the conference. (The gender coefficient is -.265, which is the direction that they moved from the 2.95 base).

Grade and being a returner had no statistically significant effect on the participants' responses.

Question 5 Responses

Question 5 asked participants if participation in 4-H Summit would motivate them to want to attend another 4-H event in the future. The possible answers were Very Unlikely, Unlikely, Likely, or Very Likely.



Before the conference, 0 participants selected very unlikely, 10 selected unlikely, 66 selected likely, and 65 selected very likely. After the conference, 0 participants selected very unlikely, 5 selected unlikely, 61 selected likely, and 75 selected very likely.

Question 5 Analysis

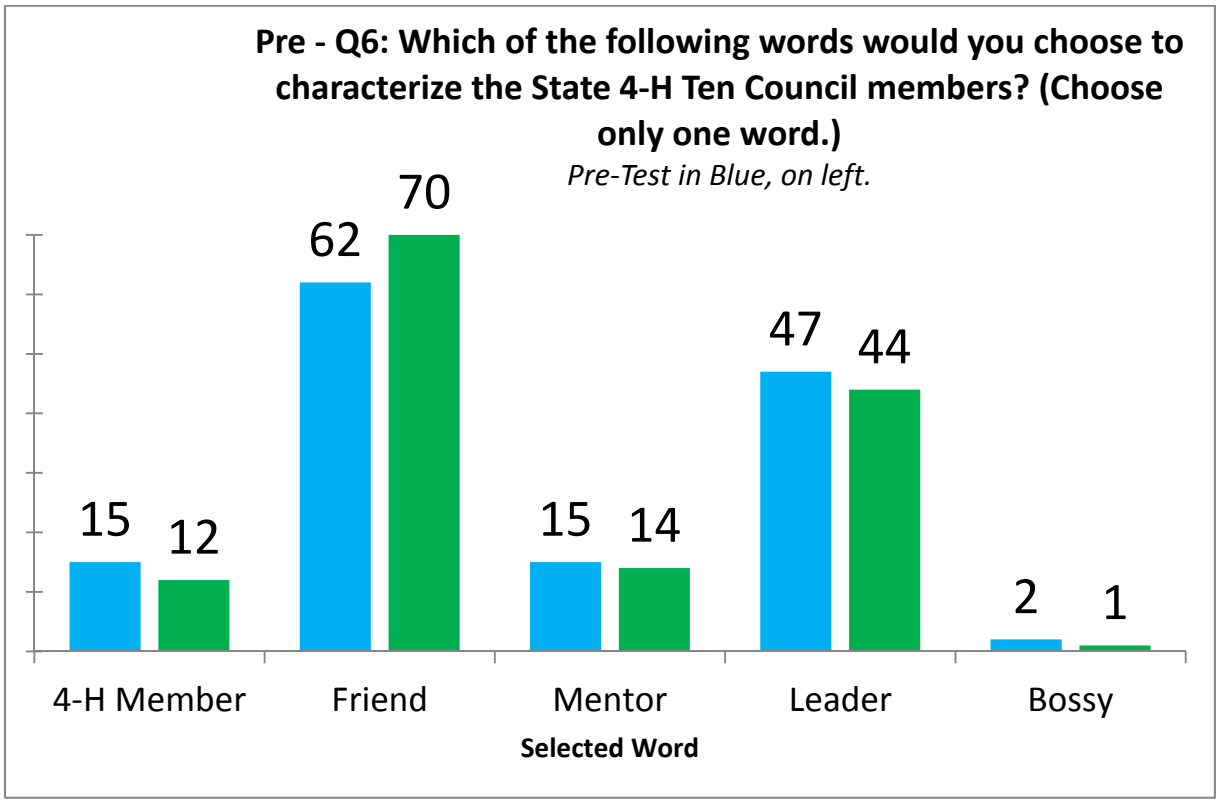
The mean response to question 5 was 3.39 in the pre-test and 3.49 in the post test. The paired t-test reported a t-score (-2.27) that is high enough to give statistically significant support to the statement that the time spent at 4-H Summit had a positive impact on its participants' self-reported motivation to attend another 4-H event.

Being male has a negative effect on the pre and post evaluation of this question. This means that males are more likely than females to give a more negative response. The confidence level of this finding is 93.3%.

The grade and returning status of the participant had no trending effect on their response to question 5.

Question 6 Responses

Question 6 asked participants to choose one word to characterize 4-H State Teen Council members. The possible answers were 4-H Member, Friend, Mentor, Leader, or Bossy.



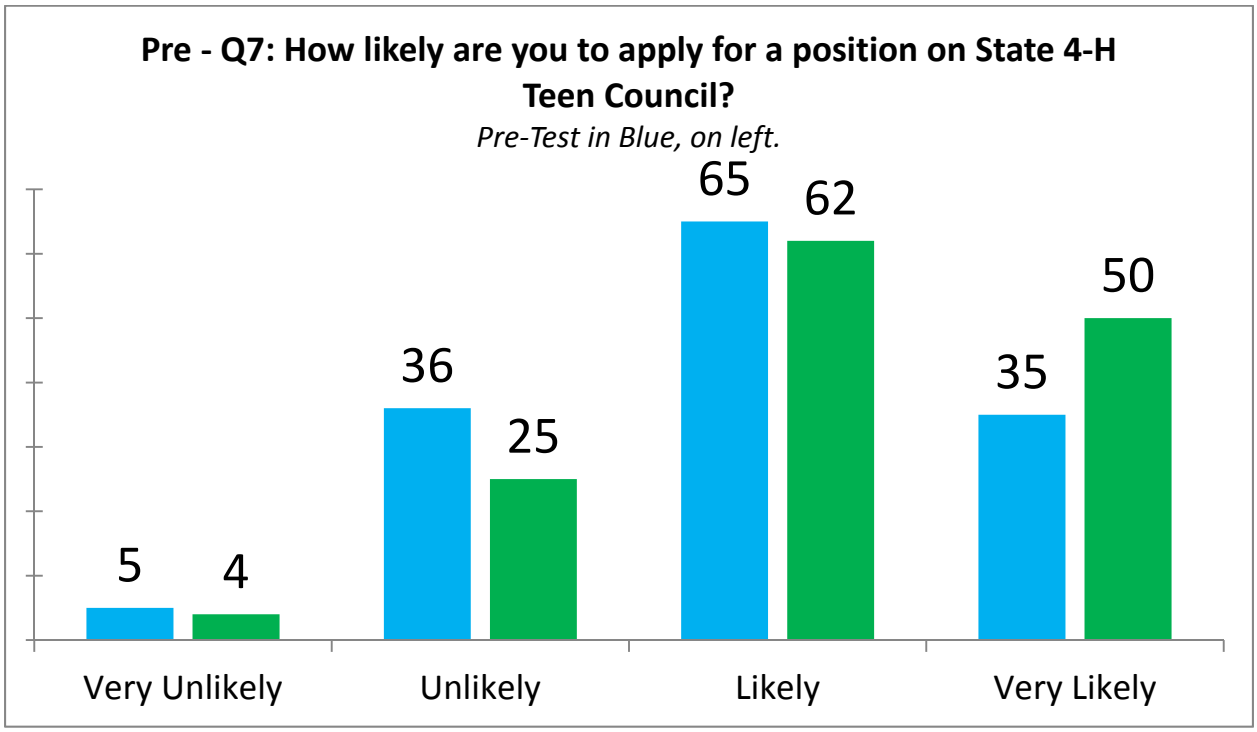
Before the conference, participants selected 4-H Member 15 times, Friend 62 times, Mentor 15 times, Leader 47 times, and Bossy 2 times. After the conference, participants selected 4-H Member 12 times, Friend 70 times, Mentor 14 times, Leader 44 times, and Bossy 1 time.

Question 6 Analysis

Due to the nature of the responses allowed for this question, it is not appropriate to analyze it with the methods that are being used for the other questions. In future research, it may be useful to design the response options into positive and negative groupings, which could then be analyzed with a logistic regression model.

Question 7 Responses

Question 7 asked participants how likely they were to apply for a position on State 4-H Teen Council. The possible answers were Very Unlikely, Unlikely, Likely, or Very Likely.



Before the conference, participants selected very unlikely 5 times, unlikely 36 times, likely 65 times, and very likely 35 times. After the conference, participants selected very unlikely 4 times, unlikely 25 times, likely 62 times, and very likely 50 times.

Question 7 Analysis

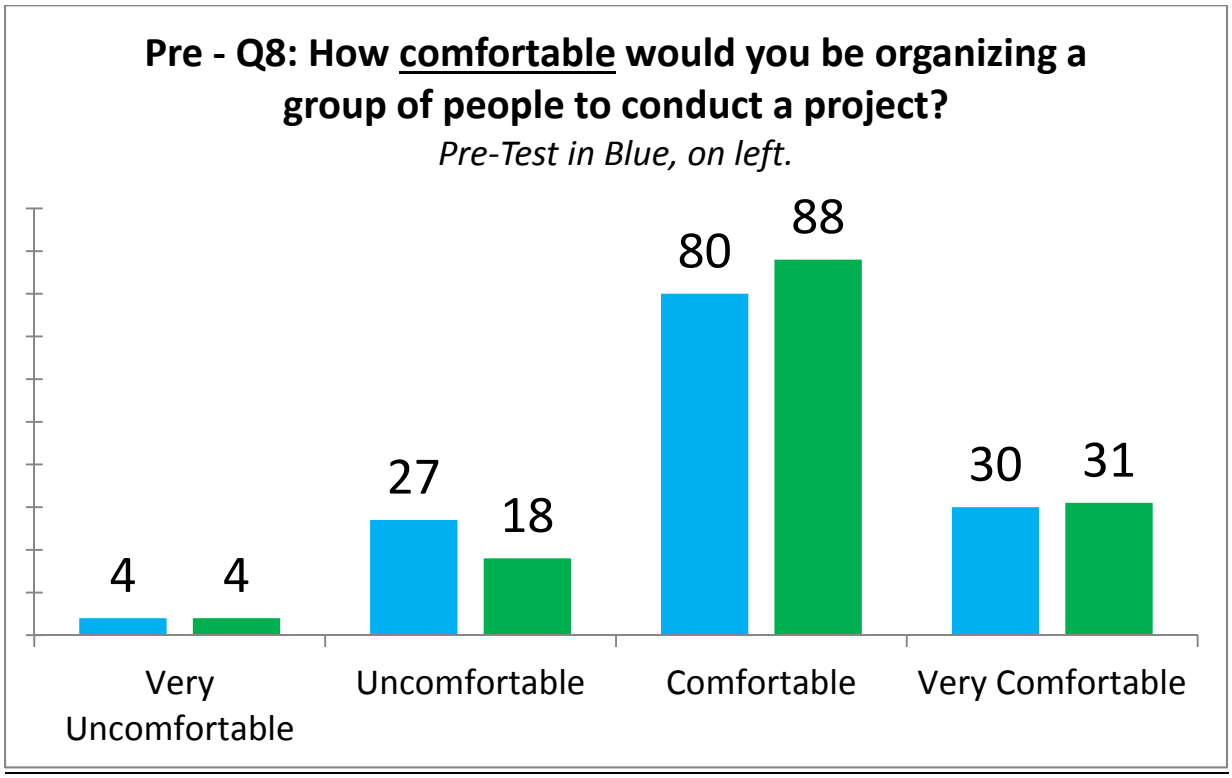
The average value of responses to question 7 was 2.92 for the pre-test and 3.12 for the post test. The paired t-test model reported a t-score of -3.85, which is enough to be statistically significant with a confidence rate that is above 99%. This means that participation in 4-H Summit had a positive effect on the likelihood of its participants to apply for State 4-H Teen council.

The regression model showed that the participants' desire to apply to be on 4-H State Teen Council (STC) increased with age. Those in higher grades identified as being more likely to apply for an STC position.

The gender and returning status of the participants had no statistically significant effects on their likelihood to apply to be on STC.

Question 8 Responses

Question 8 asked 4-H Summit youth how comfortable they would be organizing a group of people to conduct a project. The possible answers were Very Uncomfortable, Uncomfortable, Comfortable, or Very Comfortable.



Before 4-H Summit, participants answered question 8 in the following distribution: 4 would be very uncomfortable, 27 would be uncomfortable, 80 would be comfortable, and 30 would be very comfortable. After 4-H Summit, the responses by participants to question 8 by indicated that: 4 would be very uncomfortable, 18 would be uncomfortable, 88 would be comfortable, and 31 would be comfortable.

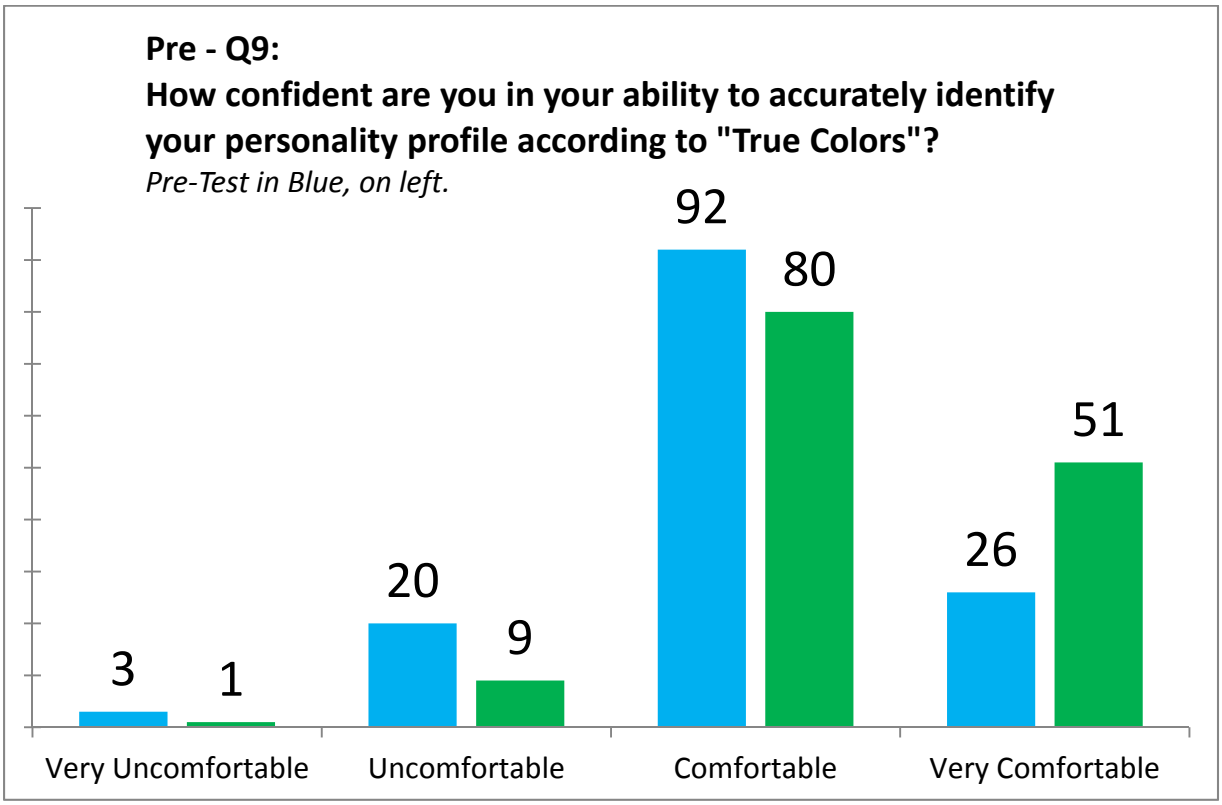
Question 8 Analysis

The mean for question 5 pre-test was 2.96 and the mean for the post-test was 3.03. The paired t-test score (-1.29) was not high enough to reject the null hypothesis that the difference in means between pre-test and post-test was equal to 0.

The results of the regression model indicated that there were no statistically significant correlations between participants' gender, age, or returning status and their answers to question number 8.

Question 9 Responses

Question 9 asked Summit 4-Hers how confident they were in their ability to accurately identify their personality according to the "True Colors" system.



Before 4-H Summit, 3 participants indicated that they would be very uncomfortable with identifying their true colors accurately, 20 indicated that they would be uncomfortable, 92 indicated that they would be comfortable, and 26 indicated that they would be very comfortable. In the post-test, participant responses to question 9 indicated that 1 person would be very uncomfortable, 9 people would be uncomfortable, 80 would be comfortable, and 51 would be very comfortable.

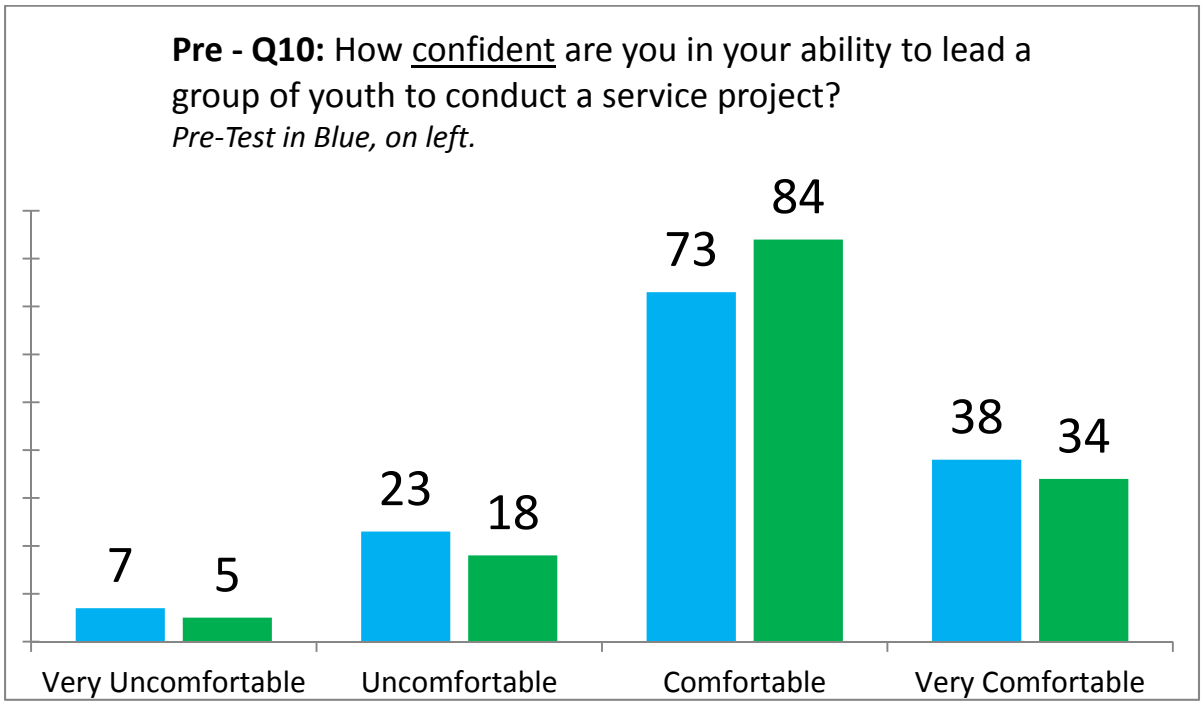
Question 9 Analysis

The value of the mean response to question 9 was 3.00 in pre-tests and 3.28 in post-tests. The t-statistic (-5.29) and p-value mean that the change in means is statistically significant, to a confidence level that is above 99%.

The grade of the participant has a positive effect on their comfort level with using the true colors model, with a 92.2% confidence rate. Gender and returning status were not significantly correlated with participant answers to question 9.

Question 10 Responses

Question 10 asked 4-H Summit participants how confident they are in their ability to lead a group of youth while conducting a service project.



Before the 4-H Summit conference, 7 replied that they are very uncomfortable in their ability, 23 felt uncomfortable, 73 were comfortable, and 38 were very comfortable. After the conference, in regard to their confidence in their leadership abilities, 5 felt very uncomfortable, 18 felt uncomfortable, 84 felt comfortable, and 34 felt very comfortable.

Question 10 Analysis

The means for the results to the pre-test and post-test, respectively, were 3.01 and 3.04. The result of the paired t-test indicated that there was not a significant difference between the means of the pre-test and the post-test.

Within a 90.7% confidence level, grade had a positive effect on the participants' confidence in their leadership of a hypothetical community service project.

Being a returner had a negative effect on the participants' confidence in their leadership of a hypothetical community service project. There was a 93.8% confidence rate for this result. This may be because having more leadership training has given them a less optimistic view of their abilities, due to a greater understanding of the challenges of leadership.

Limitations of this Study

When reviewing this research, it is critical to understand that this was a pilot study designed with the hope of revealing useful information for 4-H professionals to use in the impact statements that they must report to describe their programming. I, as the researcher, am essentially reporting information to my client, the 4-H professionals, about what their clients, the youth participants, thought about attending 4-H events, the state teen council (STC), and their self-assessment of leadership, before and after this very specific instance of 4-H Summit. It is also the nature of a training conference that the results will vary between each instance of 4-H Summit, due to the fact that a programming, such as orators, will be slightly differently each time, and the individual participants will vary greatly in each instance of 4-H Summit. This paper does not lend itself to helping other academic researchers with their work on topics such as leadership or youth program retention, because the population and data are not able to be generalized to the common public.

Another limitation that must be recognized is that the data being analyzed in this research is self-reported data regarding the subjective feelings of the participants. Self-reported qualitative data about personal feelings has a long list of potential drawbacks in regard to reliability or repeatability that make such data potentially unsuitable for academic reports, but these drawbacks are known and acceptable to the 4-H professionals who are using this data to supplement other quantitative or demographic information reported in their impact statements.

There was a continuity error in question 9. Participants were asked “How confident…” and then had the options of responding based on variations of the word “comfortable”. This is a slight error and most likely did not have a noticeable impact on the study, but it should be cleaned up for future iterations of this program evaluation.

In the regression model the constant, also called beta naught or beta zero, starts at almost 3 for most questions. This means that most participants picked 3 or higher in their responses. This is a slight weakness of the study, from a research perspective.

There is some potential multi-collinearity of grade level and being a returner, because being a returner automatically implies that you are not a sixth grader.

In doing multiple regression analysis, I am assuming a continuous variable. Ordinary Least Squares (OLS) can be problematic for surveys because it assumes that the numbers 1 through 4 are continuous. Having result that is in-between the values (e.g.2.3 or 3.6) is an issue. If I had more responses, could have considered them as an ordinal variable. Surveying all three weekend sessions of 4-H Summit would yield a sample size that is greater than 500. Surveying multiple sessions of 4-H Summit would also give analysts a look at the survey's ability to give reliable results.

I experimented with making the variables categories, instead of them being continuous. The problem is that most of the responses are in the category of either "likely" or "very likely". This curtailed the usefulness of doing analysis with categories.

Recommendations

The True Colors exercise served as one way of meeting 4-H Summit's second goal providing a common leadership education experience, however it appears that it is time to move on to a different program. The participants seem to have a good amount of experience with the Tue Colors exercise before attending 4-H Summit, meaning that they have probably done it before.

A few questions showed that being male correlated with an average response that was more negative than the average female response. It may be useful to include a section for participants to write their recommendations for changes to the programming; this may reveal overall trends or trends between demographics.

In future surveys, more demographic information could be collected to see if there are other correlations between factors such as urban vs. rural or income levels.

At the time I was writing the survey, I did not know or expect that there would be so few negative responses (1s and 2s). In the future you will need better questions on the survey so that participants can express a wider range of responses. You may consider using an a-typical survey that has more negative responses than positive responses.

When creating future surveys for summit or other 4-H events, the lack of variance in responses should be remembered. Maybe use (very unlikely, unlikely, somewhat likely, and likely). You could then cut the data into unlikely and likely (the first 3 versus the last option) to make a binary variable, which could then be used in a logistical regression.

It may be that summit self-selects participants who are already bold and confident in their abilities. The fact that they are signing up to go to a distant overnight conference to meet new people and try new things may mean that more shy participants tend to opt out of attending.

It is also worth noting that participants seem to have a perception of 4-H Summit that is generally positive. Again, this makes sense as any youth who held a negative perception of 4-H Summit would most likely not chose to devote their time and resources towards attending.

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Research Appendix

t Table

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	Confidence Level										

t-Table for determining critical values based on degrees of freedom and desired confidence level
Image Location: http://i.stack.imgur.com/PiSUh.png

[This is the survey that was issued before and after the 4-H Summit Conference]

COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT, LEXINGTON, KY 40546

UNIVERSITY OF KENTUCKY
College of Agriculture, Food and Environment

POST

Please circle the answer that best describes you:

1. What is your gender? Male Female

2. In what grade are you ? 6th 7th 8th

3. Have you attended 4-H Summit previously? Yes No

Please circle the answer that best matches your opinion:

4. Do you want to attend 4-H Summit or Teen Conference next year?

   Very Unlikely Unlikely Likely Very Likely

5. Would participation in 4-H Summit motivate you to want to attend another 4-H event in the future? (Summit, Teen Conference, Issues Conference, Citizenship Washington Focus, Kentucky Volunteer Forum, etc.)

   Very Unlikely Unlikely Likely Very Likely

6. Which of the following words would you choose to characterize the State 4-H Teen Council members? (Choose only one word.)

   4-H Member Friend Mentor Leader Bossy

7. How likely are you to apply for a position on State 4-H Teen Council?

   Very Unlikely Unlikely Likely Very Likely

8. How comfortable would you be organizing a group of people to conduct a project?

   Very Uncomfortable Uncomfortable Comfortable Very Comfortable

9. How confident are you in your ability to accurately identify your personality profile according to "True Colors"?

   Very Uncomfortable Uncomfortable Comfortable Very Comfortable

10. How confident are you in your ability to lead a group of youth to conduct a service project?

    Very Uncomfortable Uncomfortable Comfortable Very Comfortable

STATA and Excel Output

Paired T-Test of Sample Means

Paired T-Test of Sample Means: Question 4: Do you want to attend 4-H Summit or Teen Conference next year?		
	Pre-Test	*Post-Test*
Mean	3.489	3.553
Observations	141	141
Hypothesized Mean Difference	0	
Degrees of Freedom	140	
t Stat	-0.976	
P(T<=t) two-tail	0.330	
t Critical two-tail	1.977	

Paired T-Test of Sample Means: Question 5: Would participation in 4-H Summit motivate you to attend another 4-H event?		
	Pre-Test	*Post-Test*
Mean	3.390	3.496
Variance	0.382	0.323
Observations	141	141
Hypothesized Mean Difference	0	
Degrees of Freedom	140	
t Stat	-2.268	
P(T<=t) two-tail	0.024	
t Critical two-tail	1.977	

Paired T-Test of Sample Means: Question 7: How likely are you to apply for a position on State 4-H Teen Council?		
	Pre-Test	*Post-Test*
Mean	2.921	3.120
Observations	141	141
Hypothesized Mean Difference	0	
Degrees of Freedom	140	
t Stat	-3.852	
P(T<=t) two-tail	0.0001	
t Critical two-tail	1.977	

Paired T-Test of Sample Means: Question 8: How comfortable would you be organizing a group of people to conduct a project?		
	Pre-Test	*Post-Test*
Mean	2.964	3.035
Observations	141	141
Hypothesized Mean Difference	0	
Df	140	
t Stat	-1.294	
P(T<=t) two-tail	0.197	
t Critical two-tail	1.977	

Paired T-Test of Sample Means: Question 9: How confident are you in your ability to accurately identify your personality profile according to "True Colors"?		
	Pre-Test	*Post-Test*
Mean	3.000	3.283
Observations	141	141
Hypothesized Mean Difference	0	
Df	140	
t Stat	-5.295	
P(T<=t) two-tail	0.0000004	
t Critical two-tail	1.977	

Paired T-Test of Sample Means: Question 10: How confident are you in your ability to lead a group of youth to conduct a service project?		
	Pre-Test	*Post-Test*
Mean	3.007	3.042
Observations	141	141
Hypothesized Mean Difference	0	
Df	140	
t Stat	-0.698	
P(T<=t) two-tail	0.485	
t Critical two-tail	1.977	

Regression Tables

Regression: Post-Test Question 4: Do you want to attend 4-H Summit or Teen Conference next year?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.265	.102	.011	-.468 , -.062	0.1267
Grade	-.019	.076	.798	-.169, .130	
Returner	.134	.112	.232	-.087, .357	
Pre-Test	.228	.074	.003	.081, .375	
Constant	2.95	.630	.000	1.70, 4.20	

Regression: Post-Test Question 5: Would participation in 4-H Summit motivate you to attend another 4-H event?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.153	.082	.067	-.317, .010	0.3149
Grade	-.005	.060	.926	-.125, .113	
Returner	.018	.089	.840	-.158, .194	
Pre-Test	.492	.065	.000	.362, .623	
Constant	1.92	.472	.000	.989, 2.85	

Regression: Post-Test Question 6: Do you want to attend 4-H Summit or Teen Conference next year?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.386	.155	.014	-.693, -.080	.251
Grade	-.007	.114	.946	-.234, .219	
Returner	.109	.170	.521	-.226, .446	
Pre-Test	.448	.070	.000	.309, .586	
Constant	1.62	.832	.054	-.025, 3.26	

Regression: Post-Test Question 7: How likely are you to apply for a position on State 4-H Teen Council?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.124	.097	.203	-.317, .068	.503
Grade	.145	.073	.048	.001, .290	
Returner	-.106	.107	.3223	-.318, .105	
Pre-Test	.717	.060	.000	.598, .837	
Constant	.060	.569	.916	-1.06, 1.18	

Regression: Post-Test Question 8: How comfortable would you be organizing a group of people to conduct a project?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.073	.097	.452	-.267, .119	.315
Grade	.085	.073	.244	-.059, .230	
Returner	-.110	.106	.301	.393, .659	
Pre-Test	.526	.067	.000	.393, .659	
Constant	.925	.518	.077	-.100, 1.95	

Regression: Post-Test Question 9: How confident are you in your ability to accurately identify your personality profile according to "True Colors"?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.014	.092	.880	-.197, .169	.236
Grade	.122	.069	.078	-.013, .259	
Returner	-.012	.101	.901	-.212, .187	
Pre-Test	.450	.070	.000	.310, .590	
Constant	1.05	.508	.040	.047, 2.05	

Regression: Post-Test Question 10: How confident are you in your ability to lead a group of youth to conduct a service project?					
Variable	Coefficient	Standard Error	P-Value	95% Confidence Interval	Adjusted R-Squared
Male (Gender)	-.098	.089	.273	-.276, .078	.477
Grade	.114	.067	.093	-.019, .249	
Returner	-.184	.097	.062	-.377, .009	
Pre-Test	.602	.056	.000	.490, .713	
Constant	.511	.470	.280	-.419, 1.44	