

# **Surveys of Connected Learning TECHNICAL REPORT (v1.0)**

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## Section 1. Introduction to the Surveys and their Uses

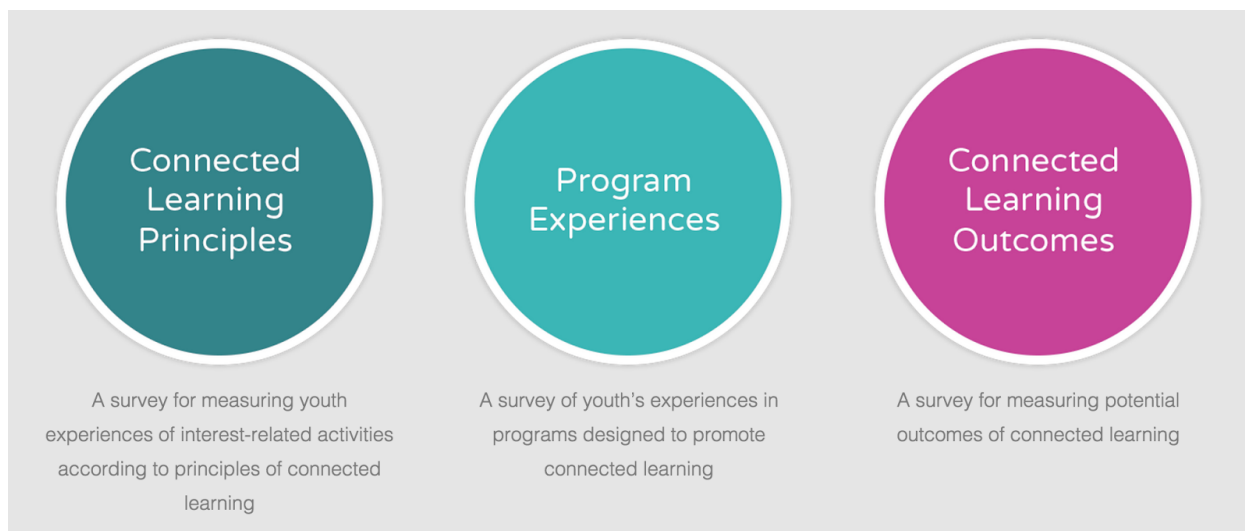
### Background on the Surveys

Connected learning is a new model for understanding and promoting interest-driven learning across different settings—home, clubs, online communities, school—supported by digital media.

A team of researchers at the University of Colorado Boulder, SRI International, Stanford University, with support from the HIVE Research Network, developed three surveys (Figure 1) as part of their work on for the [Connected Learning Research Network](#). The surveys measure youth's experiences of connected learning, their experiences in programs, and outcomes of connected learning. The team developed validity and reliability information presented both here and in greater detail in a [separate publication](#).

These measures can be tailored to suit a variety of purposes, including supporting a program's internal needs for development and providing evidence of outcomes to stakeholders.

Figure 1. Surveys and Their Content



### *Connected Learning Principles Survey*

The first survey targets youths' experiences using technology to connect with others in pursuit of activities using the [six core principles of connected learning](#). These principles are

	Pursuit of the Activity Is Experienced As...
<i>Interest Powered:</i>	Centering on youths' own interests, enabling the development of knowledge and skill related to those interests.
<i>Peer Supported:</i>	Encouraged by peers who also provide help and feedback as part of their co-participation in the pursuit.
<i>Academically Oriented:</i>	Recognized by teachers and supportive of success in school.
<i>Production Centered:</i>	Involving making, production, or performance for an external audience.
<i>Shared Purpose:</i>	Adults participate alongside youth in a common endeavor in which youth have a say in the goals and structure of activity.
<i>Openly Networked:</i>	Well-resourced, in terms of access to tools and guidance in using tools needed for the pursuit.

### *Program Experience Survey*

The second surveys also includes measures of youth experiences, however these measures are **targeted at youths' experiences in relation to programs** designed to promote connected learning, using questions that target their sense of belonging (e.g., endorsing the statement "It feels like family when I come here") and how they give back to the program.

### *Connected Learning Outcomes Survey*

The third survey contains questions that measure **possible outcomes of young people's connected learning** experiences, such as civic engagement, connections to others, soliciting support for building connections (brokering), career orientation, and personal fulfillment and satisfaction.

## **Using the Survey in Ways that Suit your Program**

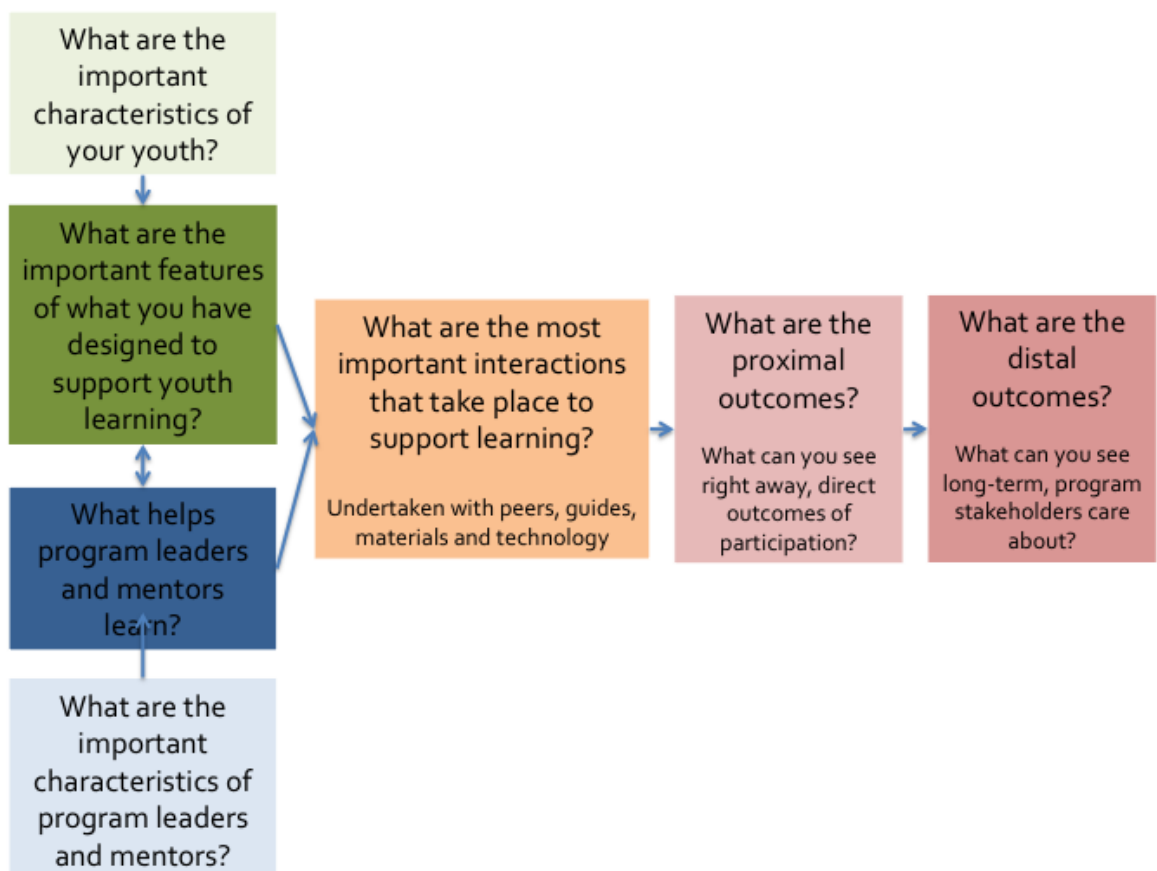
### *Matching Items to Your Program Goals and Characteristics*

The survey is designed to be used modularly; the items you use from this survey should depend on your program goals. Each survey is made up of multiple scales, any of which can be used in isolation or in conjunction with other scales. For example, in the principles survey the items making up the "peer supported" scale could be used alone, or combined with other scales to create a custom survey.

The most important consideration for your choices of the survey scales is: What is your program trying to achieve overall?

In addition to thinking of goals, you will want to consider what starting points and resources you have to achieve your goals, what activities will get you there, and what you are looking for as short- and long-term outcomes. When thinking of outcomes it's helpful to ask yourself: Literally, what do you see when you see success? A model like the following might help you think through the logic that drives your program.

Figure 2. A Model to Guide the Selection of Survey Measures



Is your program, for example, focused on helping youth design and create products that they share publicly with interested audiences? The “production-centered” scale will help you measure the degree to which youth in your program are supported to do just that. Is your program about building community and connections between youth and others that can help them grow in their interest-powered pursuits? Then you will have particular use for the “shared purpose” and “interest-powered” scales. Are the outcomes you hope to promote more about “careers” or “satisfaction and fulfillment”? Are you looking to determine the degree of your youth’s “civic engagement”?

### *Matching Survey Use to Your Needs*

Ultimately, the reason to use this survey and the ways you use it depend on your program's needs for evidence. Are you looking to improve your program characteristics and therefore are trying to better understand youths' experiences? Are you showing funders' and other stakeholders how and how well your program works? What youth in your program have learned and how they've grown? The value of a survey like the ones presented here depends on matching it to your needs. It also depends on how you fit the evidence it provides into the story you tell about your program—a story that should be rich with details from individual lives and the opportunities you provide.

The survey [has been shown](#) to be an effective way of developing valid and reliable quantitative evidence about youth's experience of connected learning. But the survey evidence should fit your program and a narrative about its value that you know best.

The remainder of this report is divided into two sections. The next section presents construct maps for the six principle scales that make up the Connected Learning Principles Survey. Construct maps are tools that attempt to provide richer understandings of youth's experiences by describing different levels of experiences. The final section presents descriptive and classical test theory statistics for all three surveys (such as Cronbach's alpha for each scale). The final section also provides instructions for scoring items within each scale to produce total scores that align to the construct maps.

## Section 2. Interpreting Survey Results using Construct Maps

### About the Construct Maps for the Survey

Construct maps are tools that allow users to characterize a single item response or the total score on scale in terms of a level. Each level has a qualitative descriptor that describes youth's experiences at that level. These qualitative descriptors are meant to provide a richer interpretation than scale scores alone, by describing the key elements of youths' experiences that qualitatively differentiate between levels.

For each of the six core principles of Connected Learning, we present construct maps and explain how they can be used to characterize both item responses as well as total scores. The mapping from either item response or total score to a level of the construct map is based on our [scaling using the Rasch model](#)<sup>1</sup>. The power of this approach is that a response to a single item can be understood in relation to a level. For example, looking at the IP1 item under the interest powered construct, youth who pursue their activity at 4 or more sites most likely have experiences that are characterized by the fourth level of the construct map. However, youth's responses to some items may fall onto one level of the construct map, while other responses may fall onto a different level of the construct map. To provide a more reliable overall picture of youth's experiences the total scores are also mapped onto the levels of the construct map. Continuing the example using the interest powered construct, if a youth's total score was 13 their experiences would be most likely characterized by the third level of the construct map.

The construct maps were developed in collaboration with other members of the Connected Learning Research Network as part of a three-year development process. The network members' extensive experience with Connected Learning helped increase the validity of inferences made about connected learning based on the construct maps and survey items. Even with all of this work, the construct maps and corresponding mapping of items and total scores onto the construct maps are partially hypothetical. Specifically, while we have compared our assignment of the levels to the items to empirical results, these item level mappings should be considered as hypotheses to be examined rather than concrete statements about youth. Also, for some scales (e.g., the production centered principle) we do not have enough data to create empirical levels using the Rasch model. Instead the levels are based on our best guess given results prior to the current revision.

Unless otherwise noted, the point values for each response option are given in the column headers for each item. For example, a youth responding with "Strongly agree" to IP3.a would receive a point value of 4. Other items require summing across responses, like IP1, in which the number of "yes" responses are summed to create a score. A youth who said that he or she pursues his or her activity at home and at school would receive a 2. Summing across all item responses produces the total score.

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<sup>1</sup> Specifically, we first scaled the item responses for each principle using the Rasch model and then mapped the construct map levels onto the resulting Wright Map (otherwise known as an item-person map). After establishing the levels, we then converted the score ranges from the Rasch ability metric to the raw score metric.

The pages that follow describe the construct maps, the items associated with each construct, and the means characterizing both item responses and total scores on the levels of the construct maps.

For more on construct maps in assessment and survey design, see:

Wilson, M. (2005). *Constructing measures: An item response modeling approach*. Mahwah, NJ: Erlbaum.



## Interest Powered (IP) Construct

### Construct Map & Total Score Ranges

Level	Descriptor	Total Score Range
4	Youth pursue their interests in a way that pervades their lives, and their pursuit deepens their knowledge, and expands their horizons.	20-26
3	Youth pursue their interests with others across some settings of their lives, and their pursuit leads to knowledge and skills they can apply to some other activities.	12-19
2	Youth pursue their interest with others in organized youth activities, and their pursuit carries over into some related activities.	9-11
1	Youth pursue their interest in one place, without developing knowledge they can apply to other settings.	0-8

### Guide to Interpreting Responses

IP1. Where are all the places you pursue the activity? [To create item scores the “yes” responses are summed]

	Yes = 1	No = 0
At home	<input type="checkbox"/>	<input type="checkbox"/>
At my school	<input type="checkbox"/>	<input type="checkbox"/>
At a different school from my own school	<input type="checkbox"/>	<input type="checkbox"/>
At a museum or cultural center	<input type="checkbox"/>	<input type="checkbox"/>
At a youth organization in the community	<input type="checkbox"/>	<input type="checkbox"/>
At a church, synagogue, temple, or other faith-based center	<input type="checkbox"/>	<input type="checkbox"/>
On the internet	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>

The summed scores for this item align to the construct map in the following manner:

4 or more sites = Level 4

3 sites = Level 3

2 sites = Level 2

1 site, Level 1

IP2. Please tell us if you have done the following things since you started participating the activity:

	Yes = 1
a. Looked for information related to this activity on your own (e.g., looked on the web, checked out a book?	Level 1-2
b. Looked for other people, in real life or online, who are interested this activity?	Level 3-4
c. Looked for things to do where you could get better at the activity?	Level 2-3

IP3. Say how much you agree or disagree with each statement below.

	Strongly disagree = 0	Somewhat disagree = 1	Neither agree nor disagree = 2	Somewhat agree = 3	Strongly agree = 4
a. By participating in the activity, I discovered a talent or an interest I didn't know I had.	Level 1	Level 1	Level 2	Level 3	Level 4
b. The activity changed my mind about what I wanted to do in the future.	Level 1	Level 1	Level 2	Level 3	Level 4
c. The activity helped me become more curious about things I wasn't interested in before.	Level 1	Level 1	Level 2	Level 3	Level 4
d. My participation is related to what I want to do for work in the future.	Level 1	Level 1	Level 2	Level 3	Level 4

## Production Centered Construct

### *Construct Map & Total Score Ranges*

<i>Level</i>	<i>Descriptor</i>	<i>Total Score Range*</i>
4	Youth ask for and iterate based on feedback on their designs, consistently applying a critical stance toward their own and others' designs. They circulate designs to a broad audience whose thinking and action they seek to influence.	--
3	Youth ask for feedback on their designs, occasionally applying a critical stance toward their own and others' designs. They circulate their designs to a broad audience.	--
2	Youth do not seek feedback on their designs or adopt a critical stance toward those designs. They circulate their designs to a limited audience.	--
1	Limited design or production.	--

\*Note: due to missing data, we could not create total scores to map onto the construct map.

### *Guide to Interpreting Responses*

PC1. Do you make or design things when you take part in this activity? [This item is not included as part of the total score]

- ☐ Yes – Level 2, 3, or 4
- ☐ No – Level 1

PC2. When making or designing things while you are engaged in this activity, how often do you:

	Never or Hardly Ever = 0	1-3 times a month = 1	Once a week = 2	More than once a week =3
a. Design or create something that can be seen by 10 people or more?	Level 2	Level 2	Level 3 or 4	Level 3 or 4
b. Design or create something that has a message about how to make a difference in the world?	Level 2 or 3	Level 2 or 3	Level 4	Level 4
c. Analyze or critique something you have made?	Level 2	Level 3	Level 4	Level 4
d. Analyze or critique things other people have made?	Level 2	Level 3	Level 4	Level 4
e. Ask for suggestions on how to improve things you are making before you finish them?	Level 2	Level 2	Level 3	Level 3
f. Revise something you make based on others' suggestions?	Level 2 or 3	Level 2 or 3	Level 4	Level 4
g. Try to influence what people think about an issue you care about?	Level 2 or 3	Level 2 or 3	Level 4	Level 4
h. Make things that you share online?	Level 2	Level 2	Level 3 or 4	Level 3 or 4

## Opportunity (Academically Oriented) Construct

### Construct Map & Total Score Ranges

Level	Descriptor	Total Score Range
2	Youth report multiple ways that their experience of the activity supports their school-related activities.	3-5
1	Youth report that their experience of the activity supports their school-related activities in limited ways.	0-2

### Guide to Interpreting Responses

OP1. Choose “yes” or “no” for how you feel about each statement below.

	Yes =
	1
a. I signed up for a new class or club at school related to this activity.	Level 1
b. Through this activity, I have developed new skills that have helped me do better in school.	Level 1
c. I have a better attitude about school since beginning to participate in this activity.	Level 1
d. My teachers give me chances in school to use the knowledge and skills I am developing in this activity.	Level 1
e. This activity has given me confidence to try to solve difficult problems that I face in school.	Level 2

## Shared Purpose Construct

### Construct Map & Total Score Ranges

Level	Descriptor	Total Score Range
4	Youth participate in activities with a common purpose, equitable participation, and opportunities to lead and contribute.	19-28
3	Youth participate in activities with common purpose and some opportunities for youth to contribute.	13-18
2	Youth participate in activities that provide some opportunities for youth to contribute.	7-12
1	Youth participate in activities with no common purpose and that provide minimal opportunities for them to contribute.	0-6

### Guide to Interpreting Responses

SP1. In the past six months, when participating in the activity, have you:

	Yes = 1	No = 0
a. Completed a group project?	Level 2, 3 or 4	Level 1
b. Had the chance to lead others or take a leadership role?	Level 4	Level 1, 2, or 3
c. Taken part in a performance, presentation, or competition?	Level 2, 3 or 4	Level 1
d. Had an opportunity to use your judgment about a decision?	Level 2, 3 or 4	Level 1

SP2. Say how much you agree or disagree with each statement below.

	Strongly agree = 4	Somewhat agree = 3	Neither agree nor disagree = 2	Somewhat disagree = 1	Strongly disagree = 0
a. In the activity, there are clear goals.	Level 3 or 4	Level 3 or 4	Level 1 or 2	Level 1 or 2	Level 1 or 2
b. In the activity, everyone is trying to achieve the same goals.	Level 3 or 4	Level 3 or 4	Level 1 or 2	Level 1 or 2	Level 1 or 2
c. People in the activity make sure that everyone has the opportunity to participate and contribute.	Level 2, 3, or 4	Level 2, 3, or 4	Level 1	Level 1	Level 1
d. In the activity, everyone gets a say.	Level 4	Level 4	Level 1, 2, or 3	Level 1, 2, or 3	Level 1, 2, or 3
e. I feel like my ideas count in the activity.	Level 2, 3, or 4	Level 2, 3, or 4	Level 1	Level 1	Level 1
f. I contribute to the activity.	Level 2, 3, or 4	Level 2, 3, or 4	Level 1	Level 1	Level 1

## Openly Networked Construct

### Construct Map & Total Score Ranges

Level	Descriptor	Total Score Range
4	Youth have access all the time to needed digital tools and support for their use; pathways of participation across places to deepen interest are transparent and accessible.	12-19
3	Youth have access most of the time to needed digital tools and support for their use; pathways of participation within one place to deepen interest are transparent and accessible.	10-11
2	Youth have access some of the time to needed digital tools and support for their use; pathways of participation are accessible within one place, but the person feels they are not transparent.	6-9
1	Youth do not have access to needed digital tools and support for their use; pathways of participation are neither accessible nor transparent.	0-5

### Guide to Interpreting Responses

ON1. When you are making or doing things in or at the activity:

	Strongly agree = 4	Somewhat agree = 3	Neither agree nor disagree = 2	Hardly ever or never = 1	Does not apply = 0
a. I have access to hardware that I need.	Level 4	Level 3	Level 2	Level 1	No score
b. I have access to software tools that I need.	Level 4	Level 3	Level 2	Level 1	No score
c. I can get help with technology when I need it.	Level 4	Level 3	Level 2	Level 1	No score



ON2. For each of the statements below, say whether it is true or false for you in the place where you do the activity most often.

	TRUE FOR ME = 1	FALSE FOR ME = 0
a. Someone I know has helped me find other people who share my interests in the activity.	Level 4	Level 3, 2, or 1
b. It's easy to learn about other places where I can engage in the activity.	Level 4	Level 3, 2, or 1
c. It's easy to find out the requirements for participating in all the activities in this place.	Level 3 or 4	Level 1 or 2
d. I hear about cool things people do when engaged in the activity, but I don't know how I can start to do those things.	Level 2, 3 or 4	Level 1
e. I don't really know where else I could go to get better at the activity.	Level 3, 2, or 1	Level 4
f. People help me figure out where else I can do this activity.	Level 4	Level 3, 2, or 1
g. If I want to get better at this activity, there is a way for me to do so at this place.	Level 3 or 4	Level 1 or 2

## Peer Supported Construct

### Construct Map & Total Score Ranges

Level	Descriptor	Total Score Range
4	Other people broker access to new opportunities and resources to deepen and pursue interests.	25-59
3	Other people provide strong support through teaching and helping within the activity.	20-24
2	Other people provide modest support through teaching and helping within the activity.	15-19
1	Other people provide limited or no peer support for participation in the activity.	0-14

### Guide to Interpreting Responses

PS1. Say how much you agree or disagree with each statement below.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Hardly ever or never	Does not apply
a. When I get stuck I can get helpful suggestions from someone about how to solve the problem.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>
b. When others see something in my work that could get better they give me good ideas.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>
c. People who also participate invite me to try doing new things that push me to grow.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>
d. When someone who engages in this activity does really well everyone is happy.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>
e. People who manage this activity want everyone to be able to pursue what they are interested in.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>
f. If you are not doing well in this activity someone is there to listen to you.	Level 3 or 4	Level 2	Level 2	Level 1	<input type="checkbox"/>

PS2. Is there anyone who encourages you to participate in this activity? [To create item scores the “yes” responses are summed]

- ☐ A parent
- ☐ A mentor
- ☐ A brother or sister
- ☐ A cousin
- ☐ An uncle or aunt
- ☐ A grandparent
- ☐ One or more friends

The summed scores for this item align to the construct map in the following manner:

3 or more = Level 4

2 = Level 3

1 = Level 2

0 = Level 1

PS3. How does each of the people listed below help you in the following ways when you are taking part in the activity? MARK ALL THAT APPLY.

	A parent or guardian	A teacher or teachers	A program leader or leaders	A friend or friends
These people teach me new things about the activity.	Level 3 or 4	Level 3 or 4	Level 3 or 4	Level 3 or 4
These people work with me on a project related to this activity.	Level 2, 3, or 4	Level 2, 3, or 4	Level 2, 3, or 4	Level 2, 3, or 4
These people help me find information related to my interests in this activity.	Level 3 or 4	Level 3 or 4	Level 3 or 4	Level 3 or 4
These people sign me up for things that are related to this activity.	Level 4	Level 4	Level 4	Level 4
They buy or give me things I need to help me pursue this activity.	Level 4	Level 4	Level 4	Level 4
They give me advice related to this activity.	Level 4	Level 4	Level 4	Level 4
They let me teach them about what I know about this activity.	Level 3 or 4	Level 3 or 4	Level 3 or 4	Level 3 or 4

## Section 3. Descriptive and Classical Test Statistics

### Overview

The following section presents descriptive and classical test theory (CTT) statistics at the item and scale levels. The scales represent the Connected Learning Principles, Program Experiences and Outcomes of Connected Learning. In addition to these statistics, this report presents some additional analyses (e.g., descriptive statistics using qualitative coding of youth's activities) as well as the scoring procedures for items that are scored in a less than obvious manner (e.g., IP1).

This survey is the result of an extensive iterative revision process, which started in the spring of 2012 and continued up to the publication of this document in the summer of 2015. The iterative nature of this revision process led to the administration of different versions of the survey to different groups of youth.

This technical report uses data from two different samples. The first sample relied on data from a longitudinal study to 486 youth in the spring of 2013 (wave 1) and 266 of these youth approximately a year later (wave 2; with the entire sample referred to as the longitudinal sample). Most item statistics are based on this sample. However, the Academically Oriented (AO) items were completely revised after the administration of the longitudinal survey due to poor performance and then given to a different set of 575 youth. Thus the statistics for the AO items and scale are from this second sample 575 youth (referred to as the alternate sample) whereas all other statistics are based on the prior set of 486 youth.

In addition, some items were created after these two administrations. There are no statistics reported for these items, as they have not yet been administered to youth. We include them, however, because they represent our current best hypotheses about the principles of Connected Learning. Finally, not all youth answered every item, so each scale's statistics are based on slightly different numbers of youth, which are noted at the beginning of each scale section.

## Survey of the Principles of Connected Learning

I1. Think of an activity that:

- You enjoy doing
- You do with other people
- You get better at doing, the more you engage in the activity

Can you think of an activity like this? (activity; w1)

☐ Yes 86.4% (n=420)

☐ No 13.4% (n=65)

I2. *If yes*: What is that activity? (actyes\_x; w1)

I3. *If no*: What is the activity you spend the most time doing while here?

The table below presents the combined results from the two activity questions above (i.e., the responses to the *If yes* and *If no* questions). The results are presented as counts and percents of youth by category of activity, where the categories were created qualitatively by the research team using an open coding approach.

Activity Category	n	%
Creating &/or Performing Art	104	21.4
Gaming	36	7.4
Hanging Out	10	2.1
Making & Tinkering	32	6.6
New Media Arts	133	27.4
None	8	1.6
Other	47	9.7
Research For Projects	20	4.1
Sports	40	8.2
Traditional School Work & Academic Enrichment	22	4.5
Unspecified Computer Activity	9	1.9
Youth Leadership & Civic Engagement	25	5.1

I4. How long have you been doing this activity?

\_\_\_\_\_ years      \_\_\_\_\_ months

15. How often do you do the activity?

- ☐ At least three times a week
- ☐ 1-2 times a week
- ☐ 1-2 times a month
- ☐ A couple of times a year
- ☐ Once a year

*The rest of the questions are about the activity you listed above.*

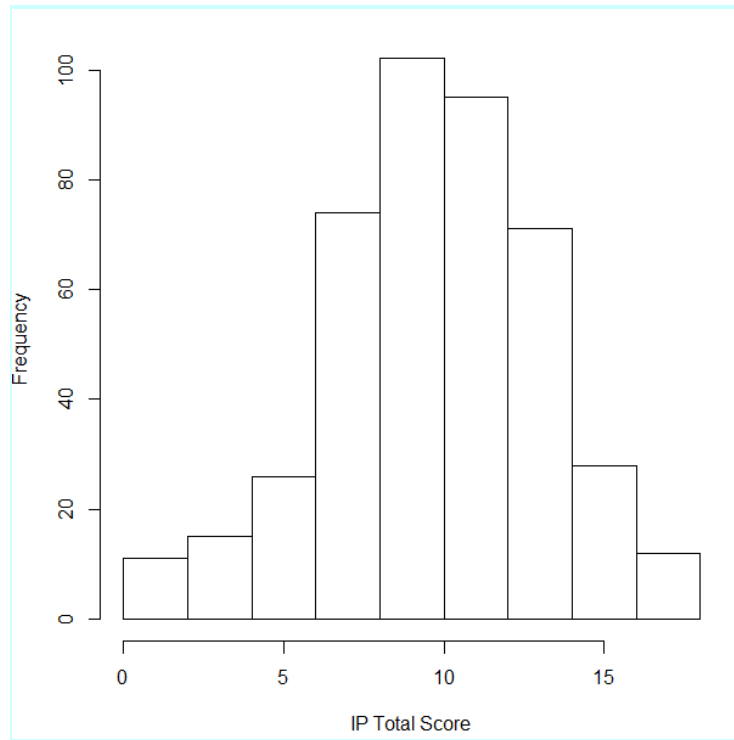
### *Interest Powered (IP) Principle*

Number of Items: 8 (7 of which data is available for)

Number of Youth who responded to All Items: 434 (Wave 1 of the Longitudinal Sample)

Cronbach's alpha: 0.67

Histogram of Total Scores



IP1. Where are all the places you pursue the activity? (Response Options: ☐ No = 0; ☐ Yes = 1)  
 [For scoring the “yes” responses are summed. The second table presents statistics for the sum across the items.]

	Proportion (Yes)
At home (ip1_2a_pursue1)	0.55
At my school (ip1_2b_pursue2)	0.60
At a different school from my own school (ip1_2c_pursue3)	0.07
At a museum or cultural center (ip1_2d_pursue4)	0.05
At a youth organization in the community (ip1_2e_pursue5)	0.18
At a church, synagogue, temple, or other faith-based center (ip1_2f_pursue6)	0.06
On the internet (ip1_2g_pursue7)	0.34
Other: (ip1_2h_pursue8)	0.10

The item level statistics for the summed version of IP1, which is used in the total score, are:

- Proportion: 0.31
- Biserial Correlation: 0.21

Number of Places The Activity is Pursued	N	Proportion
1	166	0.38
2	109	0.25
3	109	0.25
4	32	0.07
5	11	0.03
6	4	0.01
7	3	0.01



IP2. Please tell us if you have done the following things since you started participating the activity: (Response Options: ☐ No = 0; ☐ Yes = 1)

	Proportion (Yes)	Biserial Corr.
a. Looked for information related to this activity on your own (e.g., looked on the web, checked out a book? (ip1_3a_self1)	0.61	0.22
b. Looked for other people, in real life or online, who are interested this activity? (ip1_3b_self2)	0.39	0.25
c. Looked for things to do where you could get better at the activity?	--	--

IP3. Say how much you agree or disagree with each statement below.

	Strongly disagree = 0	Somew hat disagree = 1	Neither agree nor disagree = 2	Somew hat agree =3	Strongly agree = 4	Overall Proporti on	Biserial Corr.
a. By participating in the activity, I discovered a talent or an interest I didn't know I had. (ip2_4ba_ipdiscta)	0.05	0.08	0.17	0.32	0.38	0.73	0.55
b. The activity changed my mind about what I wanted to do in the future. (ip2_4bb_ipdiscca)	0.15	0.11	0.25	0.3	0.19	0.57	0.52
c. The activity helped me become more curious about things I wasn't interested in before. (ip2_4bc_ipdiscur)	0.04	0.08	0.15	0.42	0.31	0.72	0.53
d. My participation is related to what I want to do for work in the future. (ip2_4ac_iptrnsff)	0.06	0.07	0.2	0.31	0.36	0.71	0.58

### Production Centered (PC) Principle

Number of Items: 8 (2 of which data is available for)

Number of Youth who responded to All Items: 461 (Wave 1 of the Longitudinal Sample)

Cronbach's alpha: Not reported due to missing data

Histogram of Total Scores: Not reported due to missing data

PC1. Do you make or design things when you take part in this activity? (pc1\_2a\_design)

☐ Yes 27.11% (n=125)

☐ No 72.89% (n=336)

[For scoring, only PC2 was used. If youth responded no to PC1, their responses were recoded so that they received the lowest responses value, which was "Never or Hardly Ever" to PC2.a to PC2.h]

PC2. If yes to PC1: When making or designing things while you are engaged in this activity, how often do you:

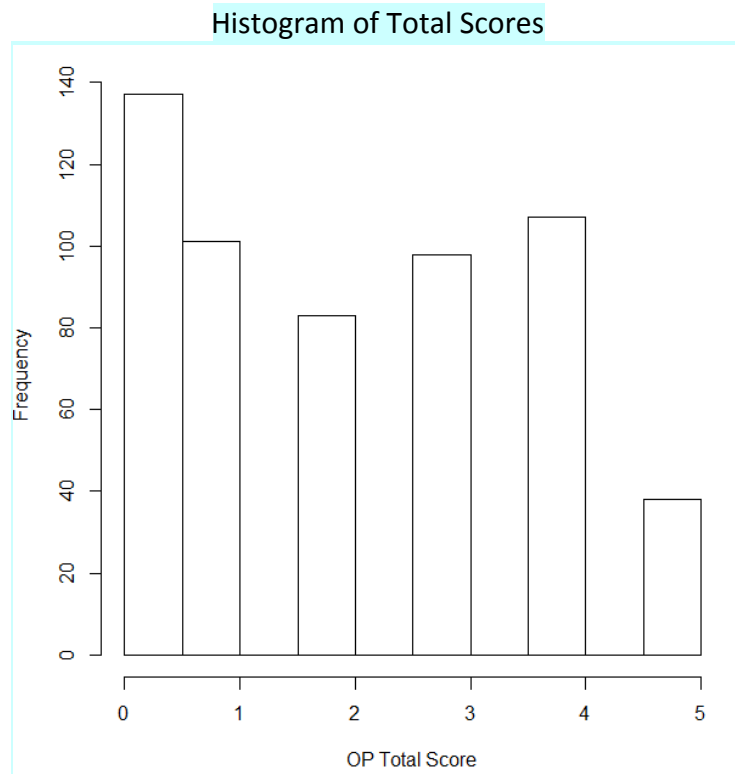
	Never or Hardly Ever = 0 (Proportion)	1-3 times a month = 1 (Proportion)	Once a week = 2 (Proportion)	More than once a week = 3 (Proportion)
a. Design or create something that can be seen by 10 people or more? (pc1_3c_desseen)	0.35	0.24	0.23	0.18
b. Design or create something that has a message about how to make a difference in the world? (pc1_3e_desmsg)	0.43	0.28	0.16	0.13
c. Analyze or critique something you have made?	--	--	--	--
d. Analyze or critique things other people have made?	--	--	--	--
e. Ask for suggestions on how to improve things you are making before you finish them?	--	--	--	--
f. Revise something you make based on others' suggestions?	--	--	--	--
g. Try to influence what people think about an issue you care about?	--	--	--	--
h. Make things that you share online?	--	--	--	--

*Opportunity (previously Academically Oriented) Principle*

Number of Items: 5

Number of Youth who responded to All Items: 564 (alternate sample)

Cronbach's alpha: 0.74



OP1. Choose “yes” or “no” for how you feel about each statement below. (Response Options:

☐ No = 0; ☐ Yes = 1)

	Proportion (Yes)	Biserial Correlation
a. I signed up for a new class or club at school related to this activity. (NWCLASS)	0.50	0.72
b. Through this activity, I have developed new skills that have helped me do better in school. (SCHSKIL)	0.48	0.55
c. I have a better attitude about school since beginning to participate in this activity. (BTRATT)	0.49	0.64
d. My teachers give me chances in school to use the knowledge and skills I am developing in this activity. (TCHSKIL)	0.49	0.61
e. This activity has given me confidence to try to solve difficult problems that I face in school. (CFDPRBLMS)	0.12	0.51

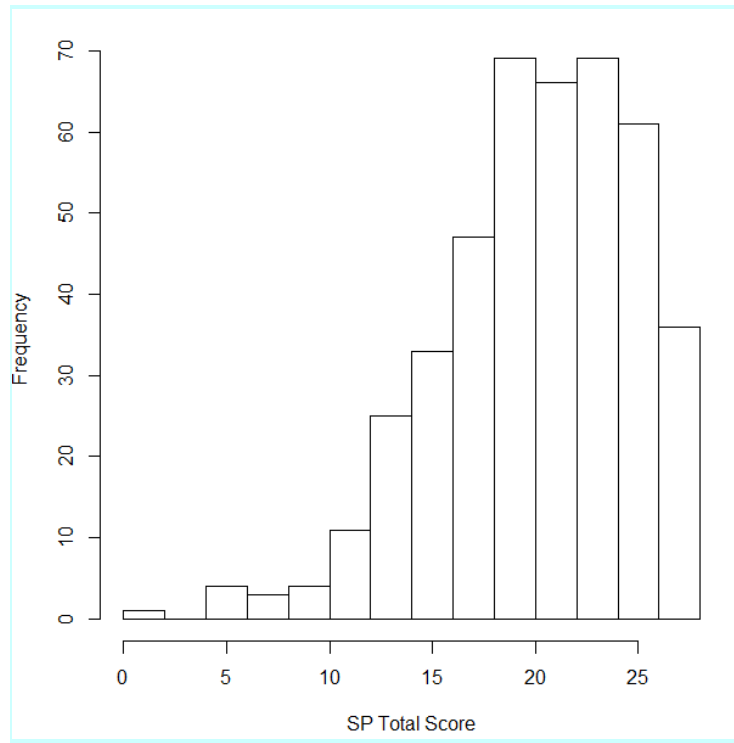
### Shared Purpose (SP) Principle

Number of Items: 10

Number of Youth who responded to All Items: 429 (Wave 1 of the Longitudinal Sample)

Cronbach's alpha: 0.79

Histogram of Total Scores



SP1. In the past six months, when participating in the activity, have you: (Response Options: ☐ No = 0; ☐ Yes = 1)

	Proportion (Yes)	Biserial Correlation
a. Completed a group project? (sp1_1aa_sp1)	0.69	0.12
b. Had the chance to lead others or take a leadership role? (sp1_1ba_sp2)	0.44	0.32
c. Taken part in a performance, presentation, or competition? (sp1_1aa_sp3)	0.55	0.30
d. Had an opportunity to use your judgment about a decision? (sp1_1ba_sp4)	0.60	0.15

SP2. Say how much you agree or disagree with each statement below.

	Strongly disagree = 0	Somewh at disagree = 1	Neither agree nor disagree = 2	Somewh at agree = 3	Strongly agree = 4	Overall Proportion	Biserial Correlatio n
a. In the activity, there are clear goals. (sp2_2aa_spcrgls)	0.02	0.03	0.17	0.40	0.39	0.78	0.59
b. In the activity, everyone is trying to achieve the same goals. (sp2_2ab_spshrdgl)	0.09	0.12	0.30	0.32	0.17	0.59	0.46
c. People in the activity make sure that everyone has the opportunity to participate and contribute. (sp2_2ba_spevpart)	0.02	0.05	0.15	0.38	0.40	0.77	0.74
d. In the activity, everyone gets a say. (sp2_2bb_spevsay)	0.02	0.04	0.15	0.34	0.46	0.79	0.73
e. I feel like my ideas count in the activity. (sp2_2bc_spcount)	0.02	0.03	0.13	0.37	0.46	0.80	0.73
f. I contribute to the activity. (sp2_2bd_spcontr)	0.02	0.01	0.11	0.36	0.49	0.83	0.67

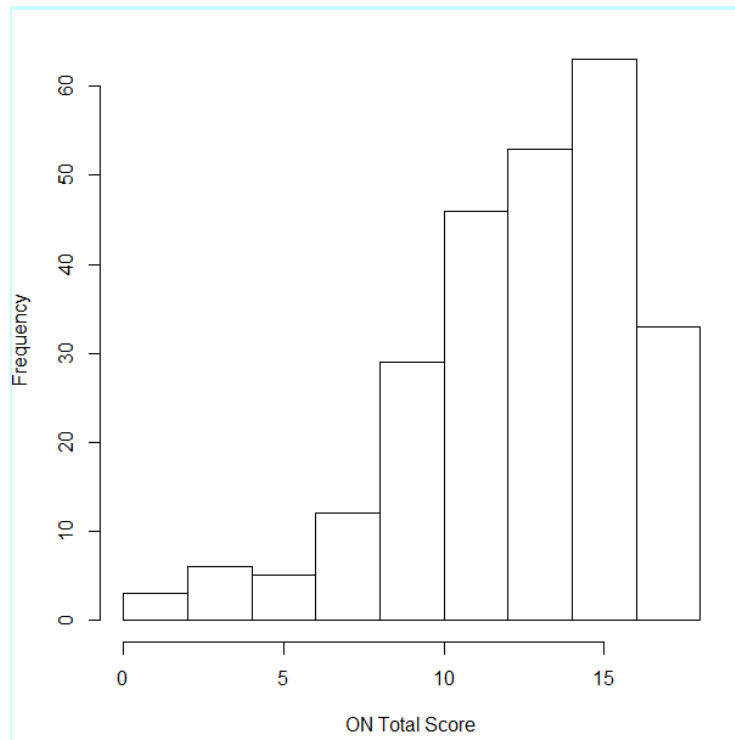
### *Openly Networked (ON) Principle*

Number of Items: 10 (9 of which data is available for)

Number of Youth who responded to All Items: 250 (Wave 2 of the Longitudinal Sample)

Cronbach's alpha: 0.72 (based on 8 items, excluding the first item of ON1)

Histogram of Total Scores



ON1. Do you make or design things using technology when you are engaged in the activity?  
(on1\_2a\_ondestch)

☐ Yes 57% (N=143)

☐ No 29% (N=122)

[For scoring, only the questions below were used. If youth responded no to the question above, they received the lowest value on the scale, which was “Does not Apply”.]

When you are making or doing things in or at the activity:

	Does not apply = 0	Hardly ever or never = 1	Neither agree nor disagree = 2	Somewh at agree = 3	Strongly agree = 4	Overall Proportion	Biserial Correlatio n
a. I have access to hardware that I need. (on2_5a_acchard)	0.06	0.05	0.21	0.32	0.37	0.72	0.73
b. I have access to software tools that I need. (on2_5b_accsoft)	0.05	0.05	0.18	0.34	0.38	0.74	0.82
c. I can get help with technology when I need it. (on2_5c_acchelp)	0.04	0.03	0.16	0.34	0.43	0.77	0.77

ON2. For each of the statements below, say whether it is true or false for you in the place where you do the activity most often. (Response Options: ☐ FALSE FOR ME = 0; ☐ TRUE FOR ME = 1)

	Proportion (TRUE FOR ME)	Biserial Correlation
a. Someone I know has helped me find other people who share my interests in the activity. (onconout)	0.78	0.31
b. It's easy to learn about other places where I can engage in the activity. (onfinddo)	0.86	0.35
c. It's easy to find out the requirements for participating in all the activities in this place. (onrequir)	0.81	0.33
d. I hear about cool things people do when engaged in the activity, but I don't know how I can start to do those things. (ondknhw) [reverse coded for inclusion in total score]	0.52	0.01
e. I don't really know where else I could go to get better at the activity. (onsame) [reverse coded for inclusion in total score]	0.68	0.13
f. People help me figure out where else I can do this activity. (onbroker)	0.76	0.35
g. If I want to get better at this activity, there is a way for me to do so at this place.	--	--

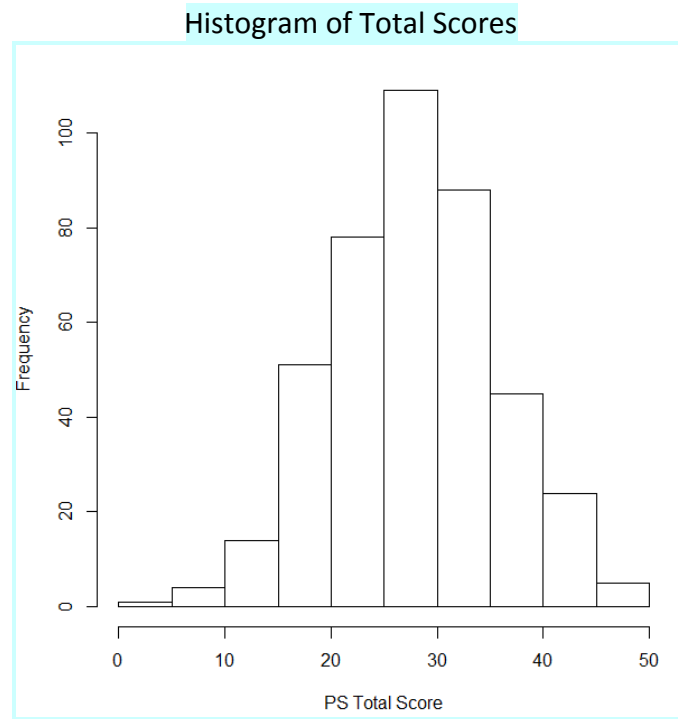


## Peer Supported (PS) Principle

Number of Items: 14

Number of Youth who responded to All Items: 419

Cronbach's alpha: 0.82



PS1. Say how much you agree or disagree with each statement below.

	Does not apply = 0	Hardly ever or never = 1	Neither agree nor disagree = 2	Somewh at agree = 3	Strongly agree = 4	Overall Proportion	Biserial Correlatio n
a. When I get stuck I can get helpful suggestions from someone about how to solve the problem. (ps2_2a_psstuck)	0.04	0.04	0.08	0.37	0.47	0.80	0.45
b. When others see something in my work that could get better they give me good	0.03	0.05	0.11	0.42	0.39	0.77	0.42

ideas. (ps2_2b_psfeedb)								
c. People who also participate invite me to try doing new things that push me to grow. (ps2_3a_pspush)	0.05	0.10	0.23	0.35	0.27	0.67	0.44	
d. When someone who engages in this activity does really well everyone is happy. (ps2_3b_psmudita)	0.03	0.07	0.20	0.40	0.31	0.72	0.49	
e. People who manage this activity want everyone to be able to pursue what they are interested in. (ps2_3c_psmetta)	0.02	0.05	0.22	0.38	0.34	0.74	0.52	
f. If I am not doing well in this activity someone is there to listen to me. (ps2_3d_pskaruna)	0.04	0.06	0.17	0.34	0.39	0.75	0.53	

PS2. Is there anyone who encourages you to participate in this activity? [For scoring the positive responses are summed. The “No one...” response is not scored. The second table presents statistics for the sum across the items.]

	N (Endorsed )	Proportion (Endorsed )
<input type="checkbox"/> A parent (ps1_1b_encour_b1)	182	0.43
<input type="checkbox"/> A mentor (ps1_1c_encour_b2)	116	0.28
<input type="checkbox"/> A brother or sister (ps1_1d_encour_b3)	98	0.23
<input type="checkbox"/> A cousin (ps1_1e_encour_b4)	43	0.10
<input type="checkbox"/> An uncle or aunt (ps1_1f_encour_b5)	40	0.10
<input type="checkbox"/> A grandparent (ps1_1g_encour_b6)	48	0.11
<input type="checkbox"/> One or more friends (ps1_1h_encour_b7)	113	0.32
<input type="checkbox"/> No one encourages me to participate	--	--



The item level statistics for the summed version of PS2, which is used in the total score, are:

- Proportion based on number of people encouraging: 0.23
- Biserial Correlation: 0.36

Number of People Encouraging	N (Endorsed )	Proportio n (Endorsed )
1	150	0.36
2	104	0.25
3	63	0.15
4	38	0.09
5	30	0.07
6	17	0.04
7	8	0.02

PS3. How does each of the people listed below help you in the following ways when you are taking part in the activity? MARK ALL THAT APPLY. [To score each item, sum across the first 4 columns. For each youth, this sum indicates the number of people supporting a youth in a particular way. The “Nobody” column is not scored. Data is not available for the “Other people in the community” column, thus the maximum score for each item reported here 3.]

	A parent or guardian	A teacher or teachers	A friend or friends	Other people in the community	Nobody	Based on Sum Score (Columns 1-3)	
						Overall Proportion	Biserial Correlation
a. These people teach me new things about the activity. (ps1_4a_psteach)	0.43	0.60	0.52	--	0.05	0.52	0.52
b. These people work with me on a project related to this activity. (ps1_4b_pscollab)	0.26	0.39	0.63	--	0.11	0.43	0.51
c. These people help me find information related to my interests in this activity. (ps1_4c_psfind)	0.36	0.44	0.42	--	0.15	0.41	0.55
d. These people sign me up for things that are related to this activity. (ps1_4d_pssignup)	0.46	0.29	0.19	--	0.25	0.31	0.53
e. They buy or give me things I need to help me pursue this activity. (ps1_4f_psgive)	0.66	0.17	0.16	--	0.18	0.33	0.51
f. They give me advice related to this activity. (ps1_4g_psadvice)	0.53	0.49	0.49	--	0.07	0.51	0.58
g. They let me teach them about what I know about this activity. (ps1_4h_pslearn)	0.49	0.26	0.61	--	0.13	0.45	0.62

Note: Item proportions will not sum to 1 as youth were able to select more than one response option.

## Survey of Program Experiences of Connected Learning

### PROGRAM EXPERIENCE: Giving Back and Belonging

Number of Items: 9

No statistics are reported for these items due to missing data. These are items developed collaboratively by CU researchers with researchers from the Hive Research Network and SRI International. For more details on their development, see: <https://hiveresearchlab.files.wordpress.com/2015/05/clrn-from-workshop-to-survey-items-report-may-2015.pdf>.

GB1. Say how much you agree or disagree with each statement below.

	Strongly Disagree = 0	Disagree = 1	Neither Agree nor Disagree = 2	Agree = 3	Strongly Agree = 4
a. In this program, I am a mentor to a younger learner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I volunteer my time in the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. In school I do not feel successful, but in this program I know I am capable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I belong here.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I always know what time the program's activities are happening.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I feel like the program has kept me out of trouble.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. I can take risks when I am at this program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. It feels like family when I come here.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GB2. How many new friends did you make in the program?

0-5

☐

6-10

☐

10-15

☐

More than 15

☐

*PROGRAM EXPERIENCE: Brokering*

Number of Items: 3

No statistics are reported for these items due to missing data. These are items developed collaboratively by CU researchers with researchers from the Hive Research Network and SRI International. For more details on their development, see: <https://hiveresearchlab.files.wordpress.com/2015/05/clrn-from-workshop-to-survey-items-report-may-2015.pdf>.

BR1. Say how much you agree or disagree with each statement below.

	Strongly Disagree = 0	Disagree = 1	Neither Agree nor Disagree = 2	Agree = 3	Strongly Agree = 4
a. I've asked an adult here to introduce me to experts in a field that interests me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I have brought a friend to the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I've asked to borrow resources from the program so I can do this activity outside the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Survey of Outcomes of Connected Learning

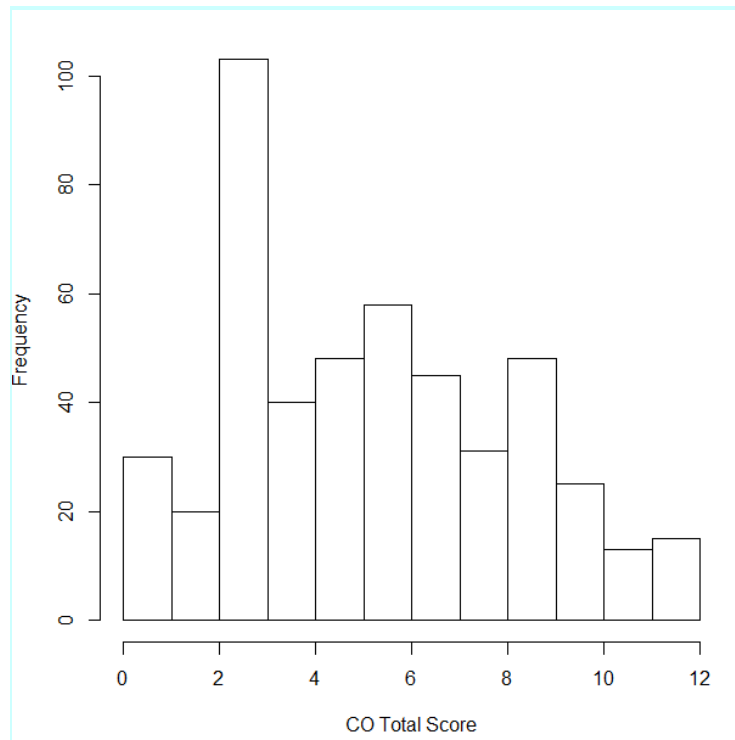
### *Connections to Others*

Number of Items: 3

Number of Youth who responded to All Items: 476 (Wave 1 of Longitudinal Sample)

Cronbach's alpha: 0.87

Histogram of Total Scores





CO1. For each of the following kinds of people, please tell us if you have had the following experiences because of your current or recent involvement with this activity. MARK ALL THAT APPLY. [To score sum of across the first 4 columns for each item. For each youth, this sum indicates the number of people with whom a youth has improved his or her relationship with. The “Nobody” column is not scored.]

	A parent or guardian	A teacher or teachers	A friend or friends	Other people in the community	Nobody	Based on Sum Score (Columns 1-4)	
						Overall Proportion	Biserial Correla tion
a. Because of my participation in this activity I developed or improved a relationship with: (on2_4a_impvel)	0.36	0.46	0.65	0.39	0.09	0.47	0.76
b. Because of my participation in this activity I had good conversations with: (on2_4b_convers)	0.44	0.51	0.63	0.36	0.08	0.48	0.77
c. Because of this activity I came to feel more supported by: (on2_4c_support)	0.46	0.49	0.54	0.33	0.12	0.46	0.73

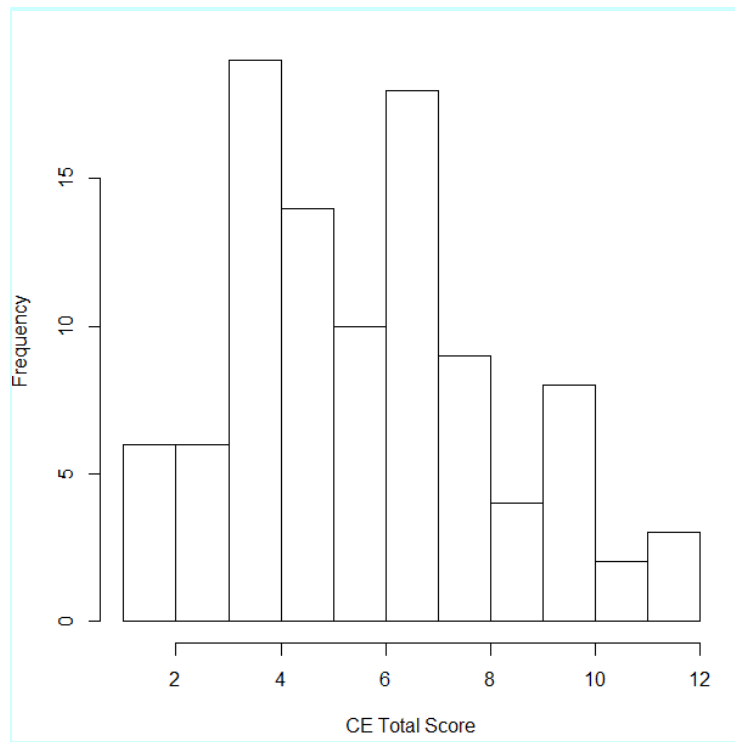
## *Civic Engagement*

Number of Items: 8

Number of Youth who responded to All Items: 99 (Wave 2 of the Longitudinal Sample)

Cronbach's alpha: 0.62

Histogram of Total Scores



CE1. For each statement below, mark how often you do each activity.

	Never = 0	Rarely = 1	Sometimes = 2	Often = 3	Overall Proportion	Biserial Correlation
a. How often do you discuss politics in your face-to-face interactions with people? (ce1_1a_polengff)	0.00	0.37	0.46	0.16	0.60	0.39
b. In your face-to-face interactions, how often do you discuss politics with people who do not share your views? (ce1_1b_polengdi)	0.08	0.44	0.31	0.16	0.52	0.57
c. How often do you discuss politics online? (ce1_1c_polengol)	0.49	0.34	0.12	0.04	0.24	0.56

CE2. In the past 12 months, have you... (Response Options: ☐ No = 0; ☐ Yes = 1)

	Proportion (Yes)	Biserial Corr.
a. Worked or cooperated with others to try to solve a problem affecting your city or neighborhood? (ce2_2c_civ3; W1: civenpro; W2)	0.66	0.30
b. Participated in a poetry slam, youth forum, musical performance or other event where young people expressed their political views? (q41)	0.47	0.23

CE3. Please tell us if you have supported a candidate, political party, or political issue in the past 12 months by: (Mark all that apply.) (Response Options: ☐ **No = 0**; ☐ **Yes = 1**)

	Proportion (Yes)	Biserial Corr.
a. Attending a meeting, rally, speech, or dinner? (q421)	0.46	0.23
b. Working on a campaign? (q422)	0.18	0.47
c. Wearing a campaign button, putting a campaign sticker on your car, or placing a sign in your window or in front of? (q423)	0.28	0.28

### *Career*

Number of Items: 5

No statistics are reported for these items due to missing data. These items were developed collaboratively by CU researchers with researchers from the Hive Research Network and SRI International. For more details on their development, see: <https://hiveresearchlab.files.wordpress.com/2015/05/clrn-from-workshop-to-survey-items-report-may-2015.pdf>.

CA1. Say how much you agree or disagree with each statement below. (Response Options: ☐ No = 0; ☐ Yes = 1)

	Yes	No
a. I have asked an adult who does this activity about his/her pathway to a career.	<input type="checkbox"/>	<input type="checkbox"/>
b. I know how my interest in this activity can become a career.	<input type="checkbox"/>	<input type="checkbox"/>
c. I know who to ask to get more information about turning my interest in this activity into a career.	<input type="checkbox"/>	<input type="checkbox"/>
d. Before starting this activity, I didn't know that I could make a career out of it. []	<input type="checkbox"/>	<input type="checkbox"/>
e. I have made money from this activity.	<input type="checkbox"/>	<input type="checkbox"/>

### *Enjoyment and Satisfaction*

Number of Items: 3

No statistics are reported for these items due to missing data. These items were developed collaboratively by CU researchers with researchers from the Hive Research Network and SRI International. For more details on their development, see: <https://hiveresearchlab.files.wordpress.com/2015/05/clrn-from-workshop-to-survey-items-report-may-2015.pdf>.

ES1. Say how much you agree or disagree with each statement below.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. I spend most of my free time doing this activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I enjoy this activity so much that I wish I'd learned about it sooner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I get a lot of satisfaction out of getting better at this activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>