2005 YEAR-END REPORT

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Introduction

The leadership of the Computer Clubhouse Network contracted with SRI International's Center for Technology in Learning for assistance with evaluating the impact of the Computer Clubhouses on their Members. As part of this evaluation project, SRI designed and administered a Youth Impact Survey, made available on the World Wide Web to all Clubhouses. This survey solicited Member background information and information about their Clubhouse visiting patterns, and included several attitude scales. The attitude measures were clustered into three major dimensions: technological (how competent Members feel with the use of technology), academic (Members' beliefs regarding their academic progress), and social/emotional (how well Members relate to Clubhouse peers and adults).

In addition to taking a snapshot of the Clubhouse Membership community, another purpose of this survey was to investigate relationships between Clubhouse utilization and Members' beliefs and attitudes. Members were asked to take this survey at three times: February, May, and November of 2005. Thus, we were able to track changes in individual Members' attitudes over time and relate these changes to Members' Clubhouse use.

After the February and May surveys, brief interim reports were issued detailing the snapshot summaries of the Clubhouse Network as a whole. In addition, we issued individually tailored summaries for each Clubhouse with five or more Members participating in the survey. In lieu of writing an interim report for the Network as a whole based on the November data, we are including the results of this third survey in this year-end report. Individual Clubhouses, however, will still be given individualized reports of their November survey results.

This report is organized into three major sections and two appendices.

Clubhouse Use. Similar to sections found in the interim reports, we describe how Members are spending time at their respective Clubhouses.

Attitude Measures. The survey is includes 13 separate scales, which can be clustered into three overarching topical areas: technological, academic, and social/emotional. This section is organized by topical area and describes both snapshots of Members' attitudes and any relationships found between attitudes and Clubhouse use.

Survey Participation Patterns. This section describes the administration of the three survey waves and the number of Clubhouses and Members included within each wave. More importantly, we describe the degree to which Members completed surveys at more than one point in time, a key requirement for analyzing changes in Member attitudes over the course of the year.

Appendix A—Interpreting Box and Whisker Charts. A short guide to interpreting the box-and-whisker chart, which we use to display the entire distribution of Members' attitude scores.

Appendix B—Youth Impact Survey Attitude Questions**.** The attitude related survey items administered to Clubhouse Members.

Significant Findings

- Youth Impact Survey participation jumped significantly in November: 22 new Clubhouses participated for the first time.
- More than 85% of Members visit their Clubhouses at least once a week, and 50% visit every day.
- 81% of Members spend at least 1 hour each visit, and 32% spend at least 3 hours per visit.
- There were no substantial differences in Clubhouse use between boys and girls.
- The majority of Members—in some cases, the vast majority—indicate positive social/emotional, academic, and technological attitudes.
- Nonetheless, there are scales where a noticeable minority of Members score in the lowest ranges of the attitude scales.
- Overall, scores on the attitude scales tend to correlate more strongly with the length of Clubhouse visits than with the frequency of visits.
- There are a few notable gender differences in how attitude scores vary with Clubhouse use.

Clubhouse Use

In this section, we present overall statistics describing how long and how frequently Members visit their Clubhouses and the distribution of activities performed. The format of this section mirrors that used in the two interim reports (based on the February and May surveys, respectively). The data for these charts, however, are pooled over all three waves of survey data. When a Member appears in more than one wave, the most recent survey data are used for that Member.

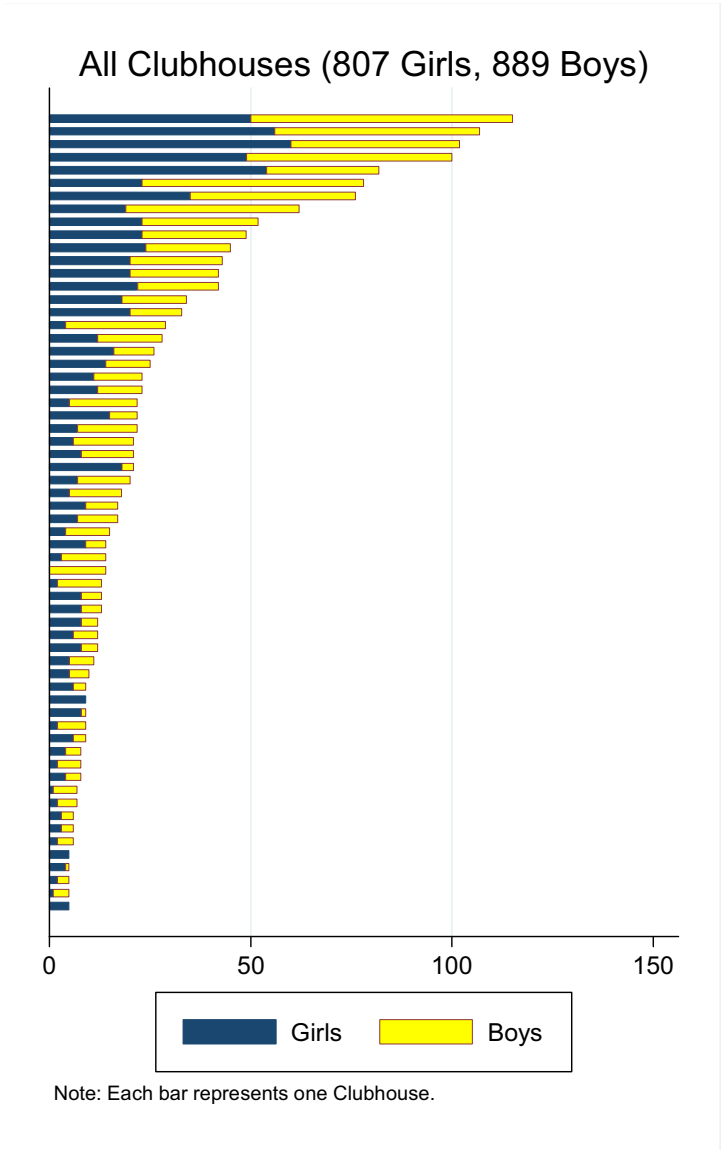
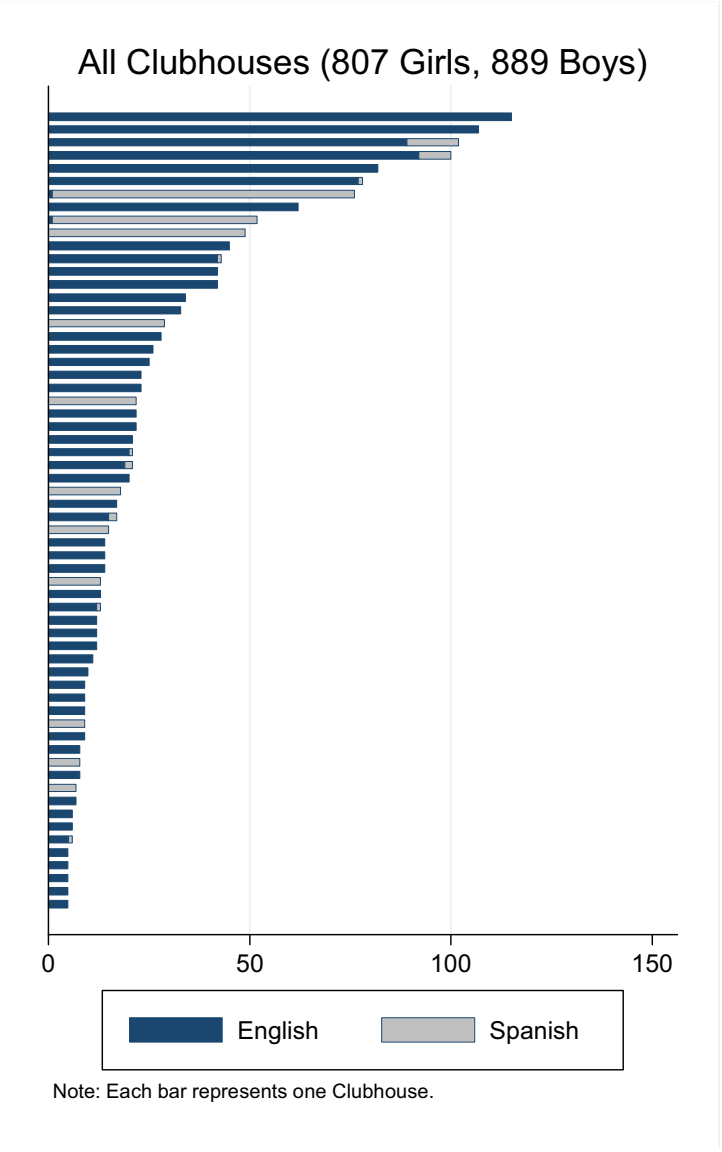


Exhibit 1. Number of survey respondents, by gender

Ten Clubhouses had 50 or more unique respondents to the three surveys.

The genders of the respondents were almost perfectly balanced across the network (52% boys, 48% girls), and most Clubhouses had both genders well represented.



Note: Each bar represents one Clubhouse.

Exhibit 2. Number of survey respondents, by language

81% of Members took the English version of the survey across the three waves, and 19% took the Spanish version.

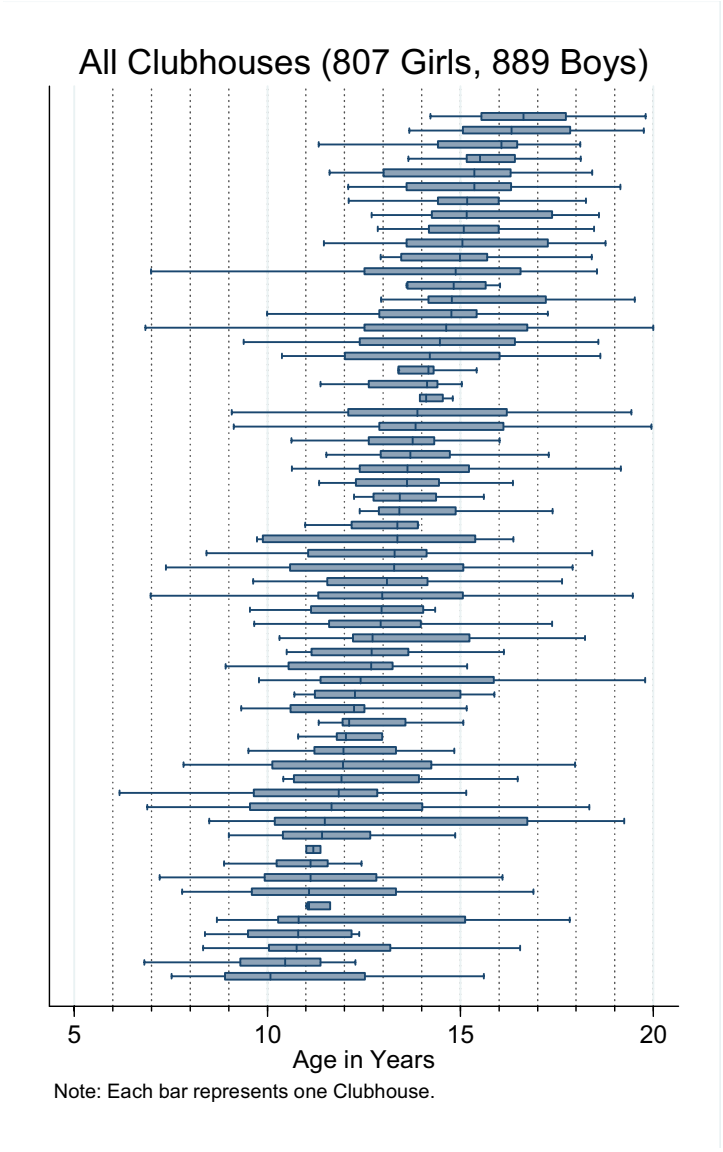


Exhibit 3. Age ranges of members

Half of the Members participating across the three waves were between of 11.3 years and 15.3 years old, with a median age of 13.3 years.

See *Appendix A—Interpreting Box and Whisker Charts* for help with reading this chart.

Clubhouse Activity

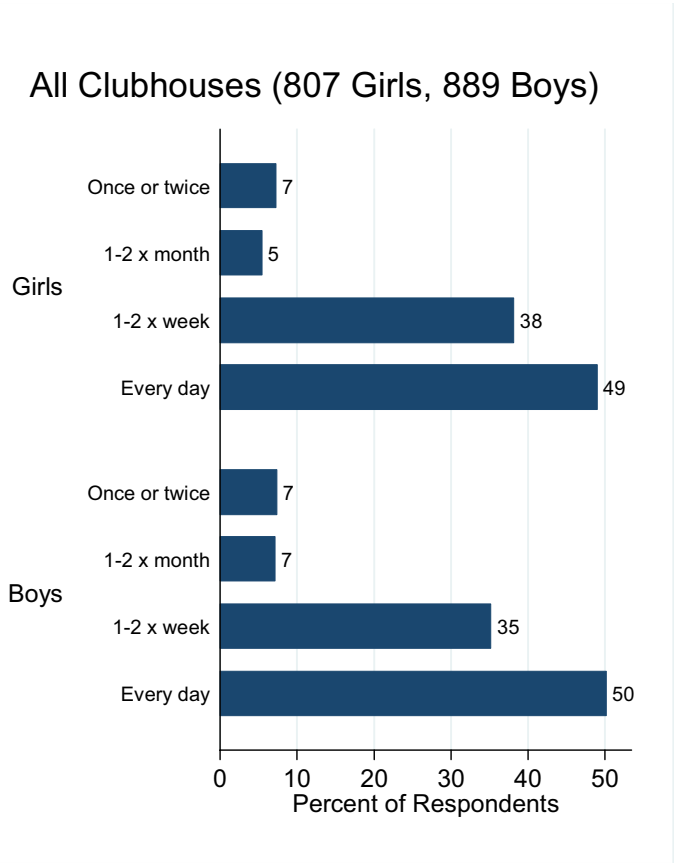


Exhibit 4. Frequency of visits to Clubhouses

87% of girls and 85% of boys claim to visit the Clubhouse at least weekly.

Approximately 50% of Members visit the Clubhouse every day.

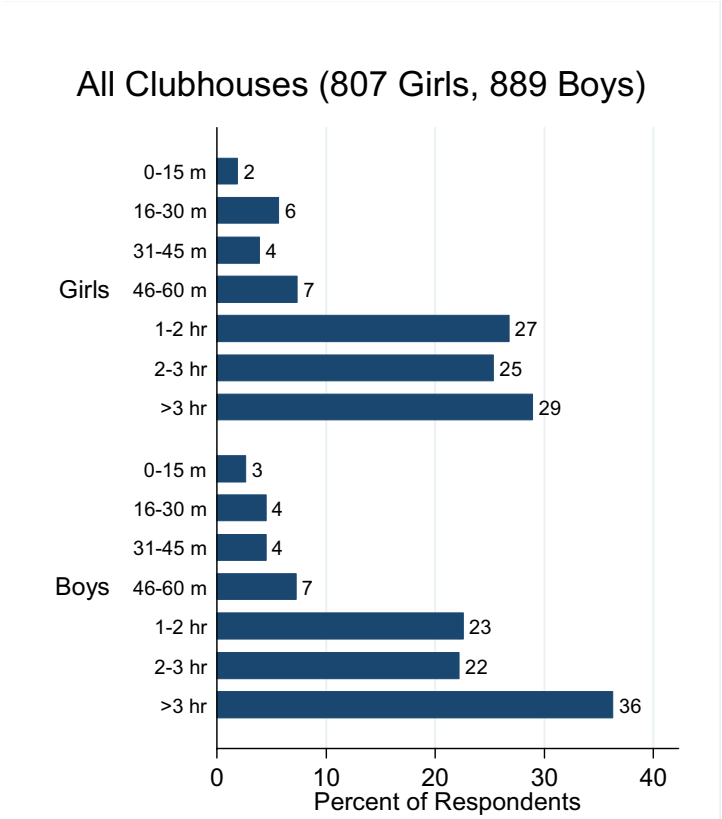


Exhibit 5. Duration of visits to Clubhouses

When Members visit the Clubhouse, approximately 81% of both boys and girls report staying for at least 1 hour.

29% of girls and 36% of boys claim to stay for more than 3 hours during a typical visit.

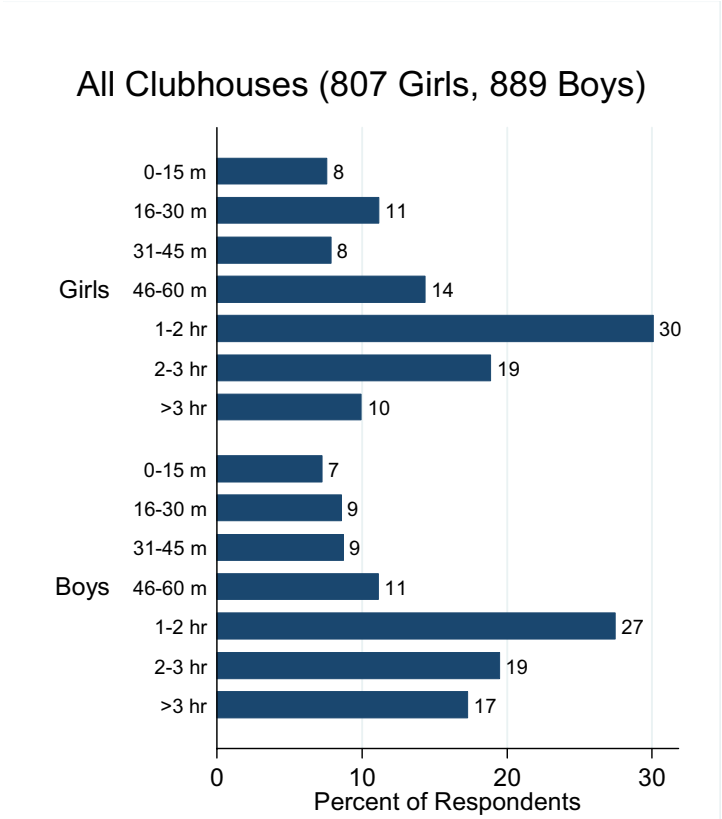


Exhibit 6. Time spent working on a computer during a Clubhouse visit

More than half of the members (59% of girls, 64% of boys) report working for at least one hour at the computer.

17% of boys report working for more than 3 hours on the computer, compared with 10% of girls.

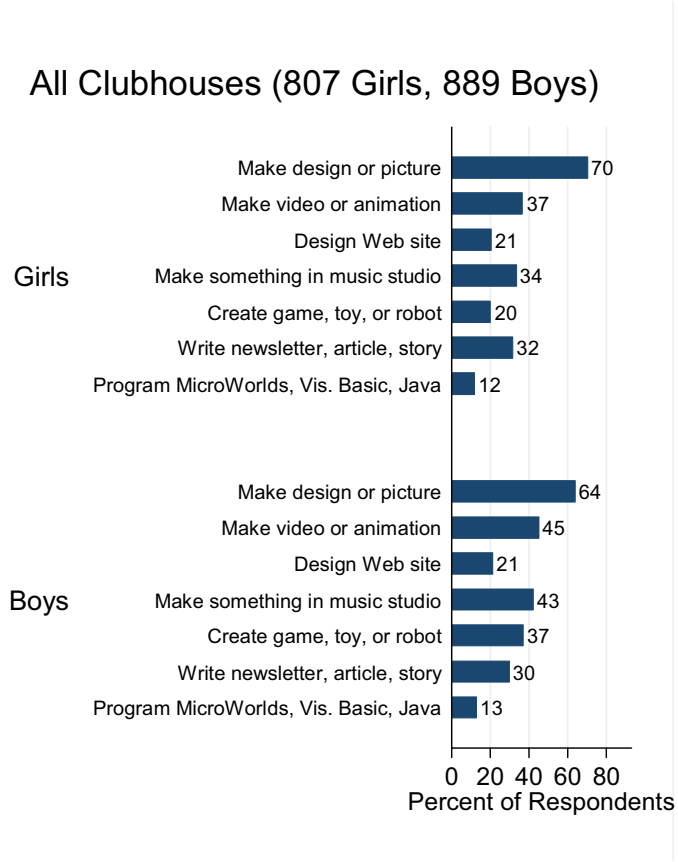


Exhibit 7. Percent of Members trying an activity at least once

94% of Members report trying at least one of the listed activities.

Making a design or picture is by far the most popular activity to try for both boys and girls.

A higher percentage of boys than of girls reported trying each of the following activities:

- Make something in a music studio
- Make a video or animation
- Create a game, toy, or robot

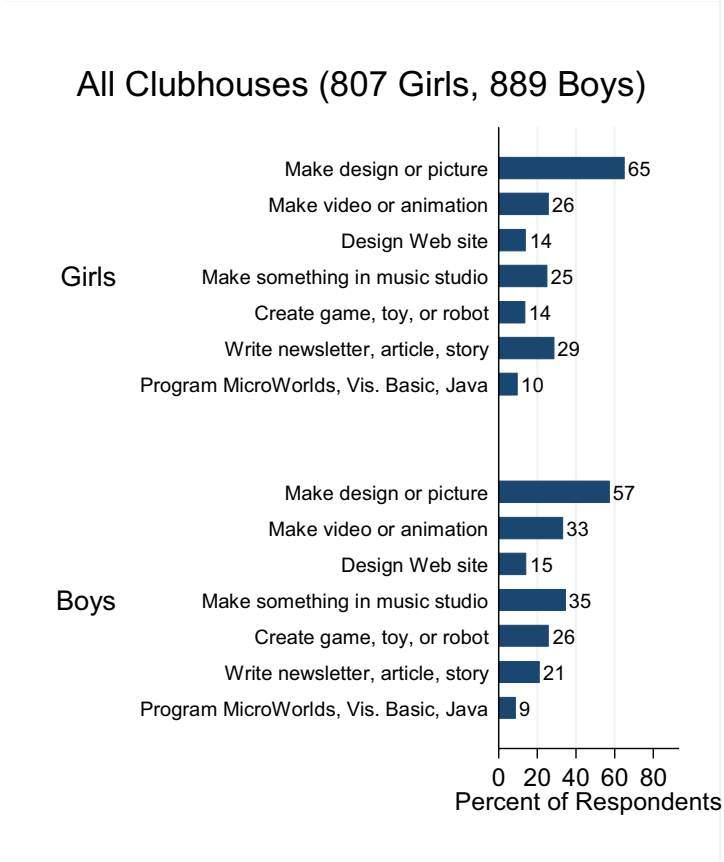


Exhibit 8. Percent of Members usually participating in an activity

91% of members reported *usually* participating in at least one of these activities.

A higher percentage of girls than of boys usually do the following activities:
- make designs or pictures
- write newsletters, articles or stories

A higher percentage of boys than of girls usually do the following activities:
- make something in a the music studio
- make video or animation
- create a game, toy, or robot

Summary of Clubhouse Use

The results in this section corroborate those reported in the interim reports for February and May. The vast majority of Clubhouse Members are visiting their Clubhouses at least weekly, with approximately half of Members visiting every day. Not only are Members visiting frequently, but they are staying for extended periods of time: 81% of Members spend at least an hour each visit, and approximately one-third of Members spend at least 3 hours each visit. The Clubhouses are being intensively used by the majority of the Membership. Moreover, we do not observe strong gender differences in the frequency or length of Clubhouse visits.

Members clearly prefer some activities to others, as evidenced by the list of activities Members indicated they usually participate in. Even the least frequent activity listed—computer programming—is participated in by 10% of the Membership. Although there are some gender distinctions with regard to activity preference, they seemed relatively minor compared with the overall participation rates. Neither gender seemed unduly excluded from any of the listed activities.

Attitude Measures

In the interim reports for February and May, we described the distribution of scores on 13 attitude scales, covering everything from a sense of belonging to the use of technology in schoolwork. For analysis, we group these scales into three clusters: social/emotional attitudes, academic attitudes, and technology use.

Whereas the February report illustrated these scores only for Members as a whole, the report for May broke out these scales for girls and boys separately. We continue to distinguish between male and female Members in this report.

We have examined the attitude scales in two different ways. First, we report the overall distribution of attitude scales—the median values, as well as the dispersion of values over the range of the scale. We generally report these measures in pairs, showing measures for boys and girls side by side for comparison.

We also report the correlation of attitude scales with Clubhouse utilization. This is similar to the analysis conducted in the interim reports. This correlation indicates how Members' measures on the attitude scales correspond with their use of the Clubhouse at a given point in time. For example, do Members who visit their Clubhouses more frequently tend to score higher on the *Technology Use* scale?

The existence of these correlations by themselves is not sufficient evidence that making longer visits *leads to* higher levels of *Collaboration*, *Relationship with Adults*, etc. It may also be that Members who are predisposed to collaboration tend already to have positive relationships with adults, find the Clubhouse a compatible environment, and therefore spend more time there. That is, it may be that the Members' personal attitudes lead to spending more time at the Clubhouse, rather than the reverse.

Social/Emotional Attitude Scales

Five survey scales measured aspects of Members' social or emotional development.

Collaboration: The degree to which Members listen to one another and engage in group projects/

Relationship with Adults: Trusting and feeling respected by Clubhouse adults.

Sense of Belonging: A general sense of community at the Clubhouse.

Sense of Future: A sense that one has a promising future.

Social Competence: Getting along with others.

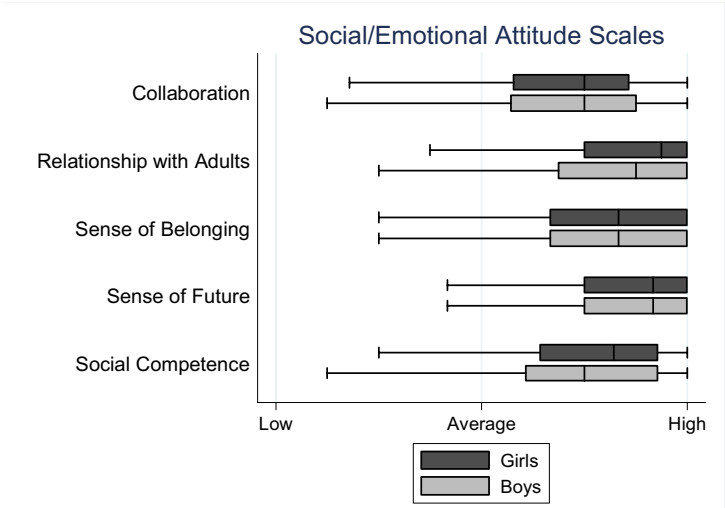
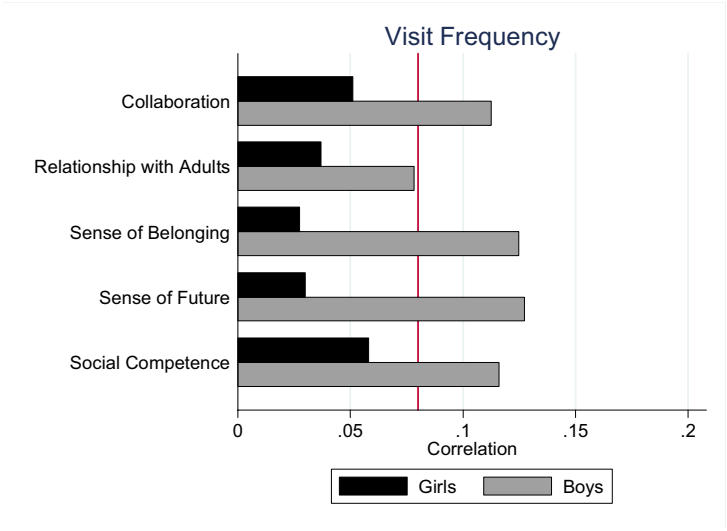


Exhibit 9. Distribution of social/emotional scales, by gender

The vast majority of Members score well into the high end of the social/emotional range, although a minority of Members score fairly low.

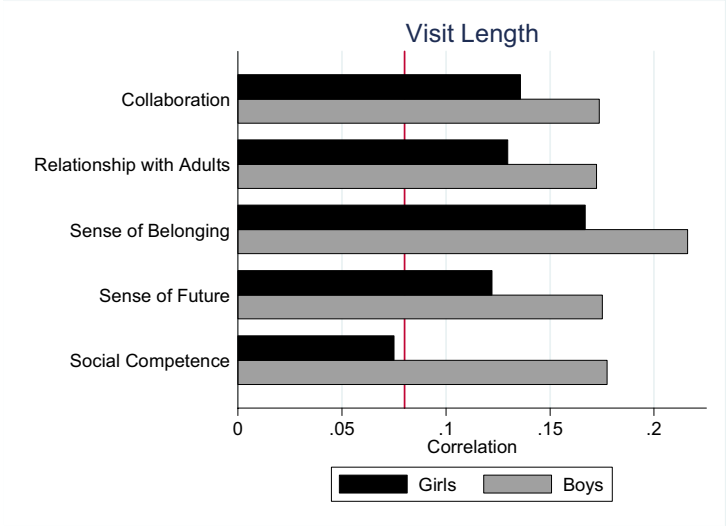


Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 10. Correlations of social/emotional scales with frequency of visits, by gender

Boys' scores on social/emotional scales correlate slightly with the frequency of Clubhouse visits.

Girls' scores on social/emotional scales have little if any relationship to the frequency of Clubhouse visits.



Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 11. Correlations of social/emotional scales with length of visits, by gender

Both boys' and girls' social/emotional scores are sensitive to the length of Clubhouse visits.

The only significant gender difference is in *Social Competence*—boys' scores are more related to length of visits, while girls' scores are relatively insensitive to visit length.

Academic Attitude Scales

Four[1] survey scales measured aspects of Members' academic attitudes.

Academic Self-Perception: Belief in one's ability to engage in academic work.

Problem Solving Competence: Belief in one's ability to solve problems.

Problem Solving Planning: Degree of persistence and planning in problem solving.

School Engagement: Positive affect toward school.

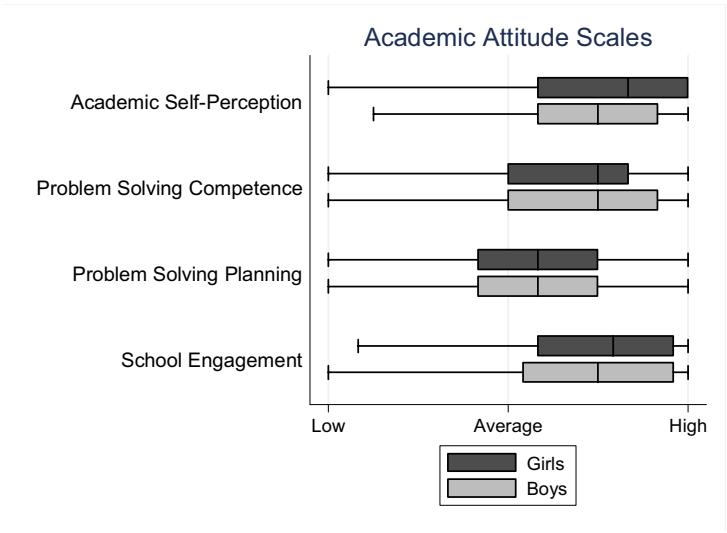


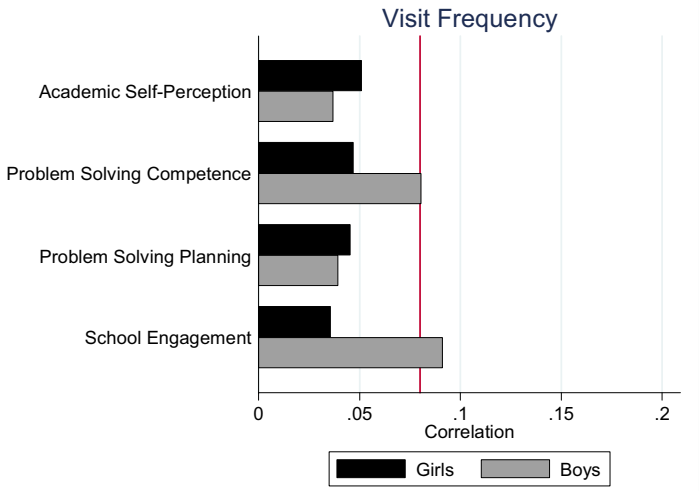
Exhibit 12. Distribution of academic scales, by gender

The median scores for academic scales are all well above average.

Fully one-quarter of Members score below the average mark on the *Problem Solving* scales, and a minority of members also score into the lowest range of the other scales.

There are no significant differences in academic attitude between boys and girls.

[1] A fifth measure, *Academic Self-Doubt*, has been omitted because of technical problems with that scale. The essential data from that measure are also captured by *Academic Self-Perception*, which we discuss.

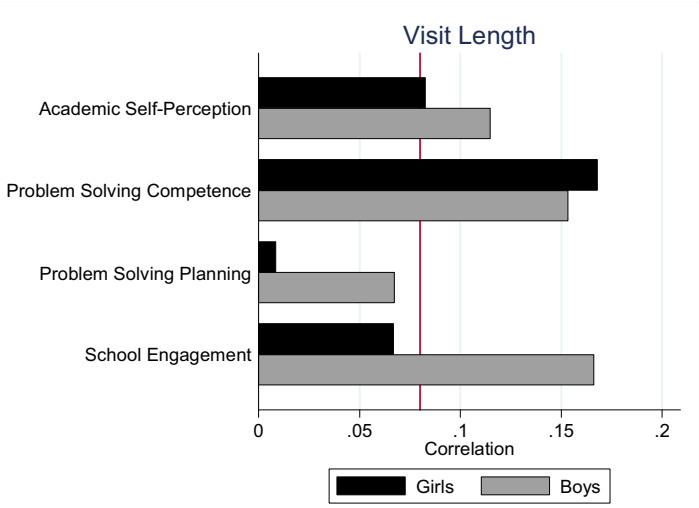


Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 13. Correlations of academic scales with frequency of visits, by gender

Overall, academic scales are relatively insensitive to frequency of Clubhouse visits.

Only boys' *School Engagement* and *Problem Solving Competence* are measurably related to Clubhouse visits.



Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 14. Correlations of academic scales with length of visits, by gender

Academic Self-Perception and *Problem Solving Competence* are related to visit length.

School Engagement is related to visit length for boys only.

Technology Use Scales

Four scales summarize Members' technology use. The two *Technology Use Breadth* and *Technology Use Depth* scales are derived from the same set of survey items.

Technology & Schoolwork: Belief that using technology improves the quality of one's academic work.

Technology Competence: Self-assessment of expertise, averaged across six activities.

Technology Use Breadth: The number of different activities a member usually participates in at least once a month.[2] The highest possible score indicates that a member participates in all seven of these activities at least monthly.

Technology Use Depth: The engagement with the Member's most frequent activity. The highest possible score indicates that a Member participates in that activity every day.

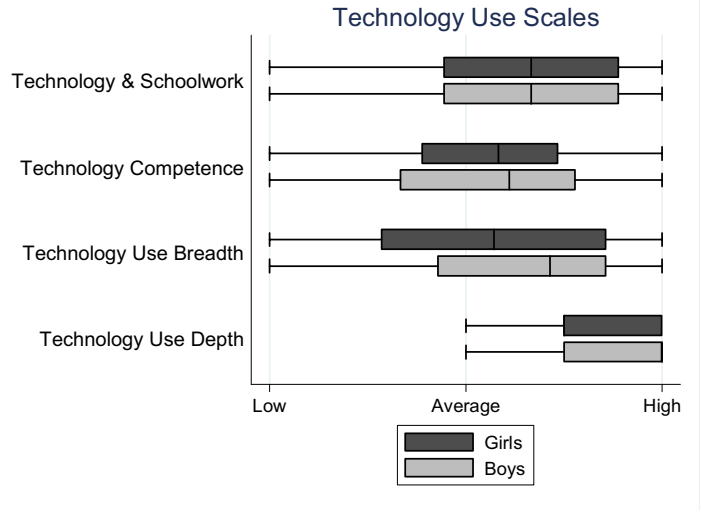


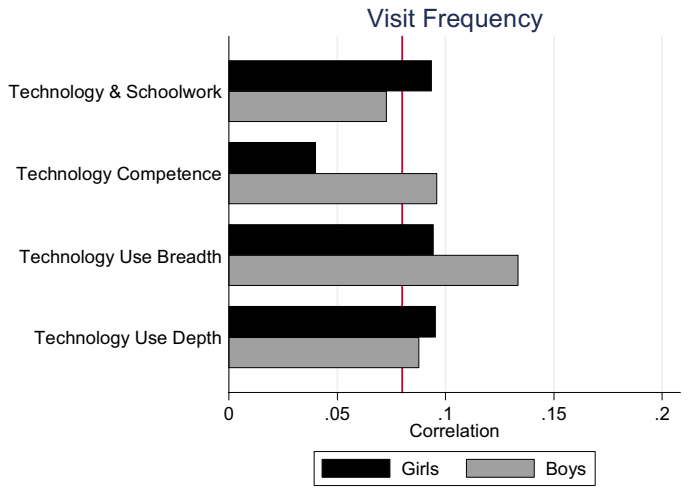
Exhibit 15. Distribution of technology scales, by gender

Boys, on average, usually engage with more types of technology than girls do.

More than 50% of boys and girls engage in some form of technology activity every day.

90% of members engage in some form of technology activity at least weekly.

[2] The seven listed activities were: work with MP3 or music files; edit my papers using a computer; create a presentation or animation; play computer games; do programming; create or maintain Web sites; create or edit digital photos or movies.

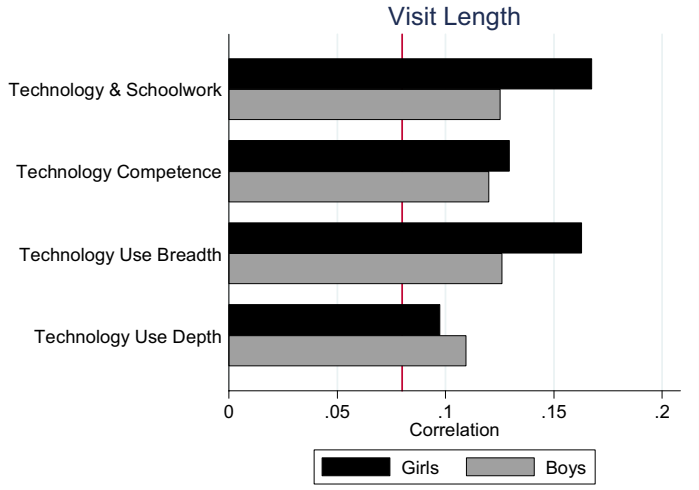


Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 16. Correlations of technology scales with frequency of visits, by gender

Both measures of technology use are marginally correlated with frequency of Clubhouse visits.

Boys' perception of technical competence is more strongly related to visit frequency than is girls'.



Note: Correlations greater than .08 are reliably greater than zero.

Exhibit 17. Correlations of technology scales with length of visits, by gender

All four technology measures are positively associated with the length of Clubhouse visits.

There are no significant gender differences in these associations.

Summary of Attitude Scales

On all of the measured scales, more than half of the Members score above the midway point in the scale. In many cases, a strong majority of Members are in the highest end of the scale range. Most Members have positive social/emotional, academic, and technical attitudes.

However, some Members clearly score in the low range of these scales. It is likely that each Clubhouse has at least a few Members who are feeling socially isolated, academically uncertain, or not technologically oriented. Although the Youth Impact Survey is designed to be anonymous, alternative ways of identifying less-engaged Members should be considered.

As a rule, responses to the attitude scales appear more sensitive to the length of visits than to the frequency of visits. This may indicate that a "Clubhouse effect" depends more on Members' engaging in longer visits rather than more frequent ones. It may also be that well-adjusted Members have both the time and the desire to spend this time at their Clubhouses. An alternative explanation, however, is purely statistical. Note that the vast majority of Members are visiting at least weekly, and half visit daily. With only a small portion of the Members visiting the Clubhouses relatively rarely, it is difficult to associate any attitude measure with the frequency of Clubhouse visits—it would be like trying to detect correlations with academic achievement when almost everybody is receiving "A" grades.

There are particular instances where we observe significant gender differences in the relationship of attitude measures to Clubhouse use. Each gender gap has its own particular implication for further investigation; the reader is encouraged to consider possible explanations for reported gender differences.

Survey Participation Patterns

The number of Clubhouses participating in this survey increased over time. This is due to both the establishment of new Clubhouses in 2005, and a concerted effort to recruit more Clubhouses into the effort following the February administration. Exhibit 18 shows two charts summarizing the number of participating Members by survey month (gray bars) and the number of participating Clubhouses (black bars). We note in particular the addition of 22 new Clubhouses to the survey data between the May and November waves.

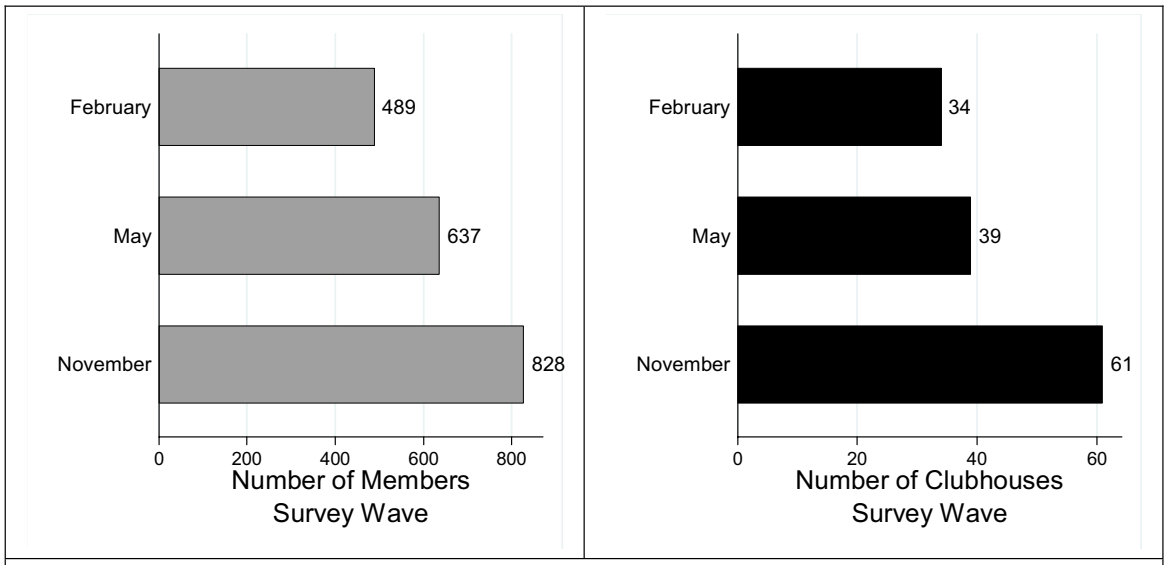


Exhibit 18. Total number of Members (gray bars) and Clubhouses (black bars) participating in Youth Impact Survey, by month

In addition to the raw number of survey respondents in each month, we also need to know how many Members took the survey at multiple time points. We specifically designed this survey to be taken more than once by Members. To preserve anonymity, we did not ask the Members for their names in the February and May waves. Instead, we asked for their full birth date and gender. In all but a few cases, these two characteristics served as unique identifiers for each Member, allowing us to track particular survey responses over time.

After the May survey results were collected, we were disappointed to find a relatively small overlap between February and May survey participants. Anecdotal feedback from Clubhouse leaders suggested that we had not adequately communicated the importance of Members' taking the Youth Impact Survey multiple times. Some Members thought, "I've already taken this survey in February, so I don't need to take it again." Thus, for the November administration, the Clubhouse Network leadership communicated the need for repeat survey takers to the Clubhouse

administrators. Posters were created, urging Members to participate in the survey even if they had done so previously.

The effectiveness of our recruiting efforts was unclear. Clearly, 22 new Clubhouses participated in the November survey. Of those Members who participated in February and May, however, only a small minority took surveys more than once across the three months.

The chart in Exhibit 19 shows the total distribution of survey takers by survey wave and number of surveys taken. Of the 489 total Members who took the first survey in February, only 33 would eventually take all three waves. An additional 98 Members in that February wave would take one more survey, in either May or November. Similarly, of the 637 Members responding in May, 466 took the May survey only.

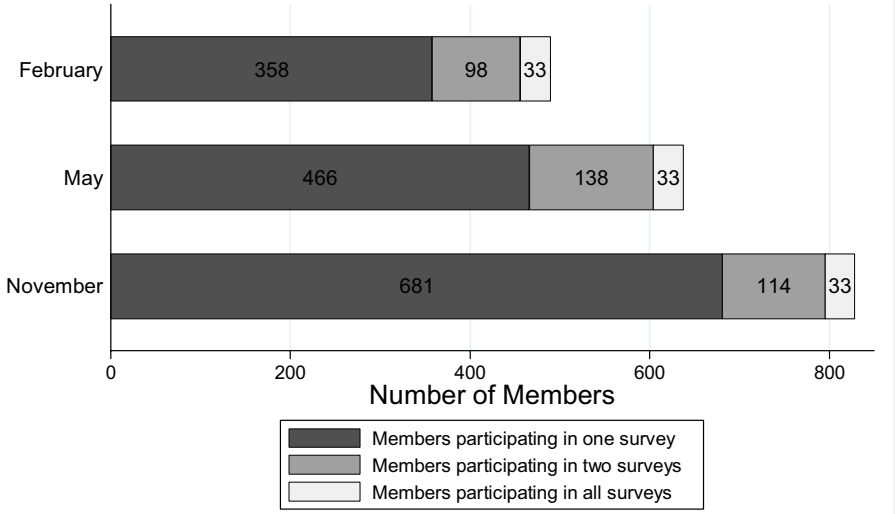


Exhibit 19. Number of Members participating in each survey, by month and participation frequency

In all, we have responses for 1,713 unique Members across 73 Clubhouses for the three waves of survey data. Because we report aggregated results to individual Clubhouses, we require a Clubhouse to have at least 5 participating Members in order to receive a report. After dropping a few survey responses from Clubhouses where fewer than 5 Members participated, we had a final set of 1,696 Members—807 girls and 889 boys.

This is a sufficient number of respondents for obtaining precise estimates of measures across the entire Network. In addition, this large number of respondents allows us to investigate the overall relationship between Clubhouse utilization and Member attitudes to a narrow margin of error.

Unfortunately, of these 1,696 Members, only 208 took at least two Youth Impact Surveys. Our ability to follow Members over time and to relate their *changes* in attitude to Clubhouse participation was therefore somewhat limited.

We did investigate the relationship between Clubhouse participation and change in attitude scales over time, but the small degree of overlap hindered our ability to draw definite conclusions. Furthermore, youth development simply takes time—a 9-month span between February and November is a relatively short time to detect significant change in a Member.

We believe that it will be possible in the future to make stronger claims regarding the true impact of Clubhouse participation on Members' growth trajectories, as long as (1) we have a sufficient, representative sample of Members taking multiple waves of the Youth Impact Survey and (2) we allow enough time to pass to detect significant growth in the Members.

Appendix A—Interpreting Box and Whisker Charts

Box and whisker charts were invented to summarize the distribution of measures on several scales all in the same graph. It is a very compact and visually informative method for displaying data.

The box and whisker chart below shows the overall distribution of Clubhouse Members' ages. The gray box is composed of 3 vertical lines: the left side of the box, a line in the middle, and the right side of the box. These correspond to the 25th, 50th, and 75th percentiles of the data. That is, the lowest 25% of ages fall to the left of the box and the highest 25% to the right of the box, and the middle 50% are enclosed by the box. The median (or 50th percentile) is indicated by the line in the middle of the box. The "whiskers" indicate the approximate range of all the data after trimming extreme outliers.

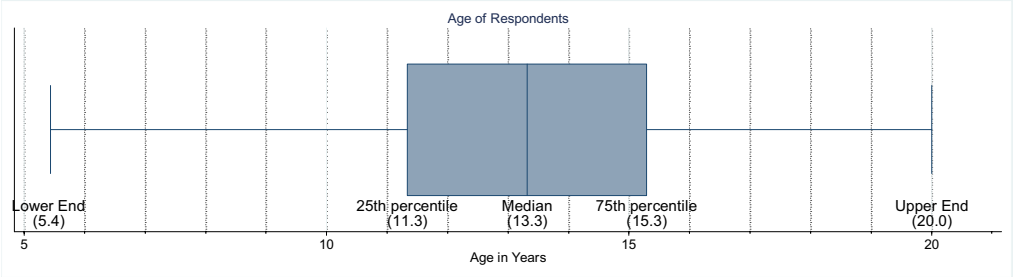


Exhibit 20. Distribution of Member age

In this example box and whisker graph, the median age (50th percentile) is 13.3 years, indicating that half of the Members were under 13.3 years of age and half over 13.3 years. The 25th percentile is 11.3 years—this means that 25% of the Members were under 11.3 years of age. Similarly, the 75th percentile of 15.3 indicates that 25% of the Members were over 15.3 years of age (or, conversely, 75% were under 15.3 years of age). The youngest Member responding to the survey was 5.4 years old, and the oldest was 20 years old (ages greater than 20 years were ignored as likely erroneous data).

Appendix B—Youth Impact Survey Attitude Questions

Collaboration

When you've worked on a project with other kids in a group, how well did you and kids in your group:

- Listen carefully to what everyone else had to say.
- Make sure that everybody had a chance to talk.
- Work together to finish the project.
- Help somebody else when they were stuck.

Thinking about yourself, how much do you:

- Like to work on projects with other kids.
- Feel like you do a better job when you work with other kids.
- Get along with the other kids in your group.

Problem Solving Competence

Thinking about times when you have a problem with something. How much do you agree with these ideas about your problem solving?

- I am good at solving hard problems.
- When I have a new problem, I usually feel sure that I can solve it.
- I know that if I work hard enough, I can solve almost any problem that I have.

Problem Solving Planning

Thinking about times when you have a problem with something. How much do you agree with these ideas about your problem solving?

- When I try to solve a problem, but it doesn't work, I don't think about it anymore
- When I have a hard problem, I don't make a plan for what to do to solve it.
- I usually just do whatever I think of first, without thinking it through.
- (Note—these items were "reverse scored" such that low agreement indicates high planning.)

Social Competence

Think about times when you are with people your own age, how much do you agree with these ideas about your feelings?

- I like it when I can make them happy.
- I like it when they look up to me.
- I like it when I can make their lives easier for them.
- I like it when I really know someone's feelings.

How good are you at

- Getting to know new people?
- Having a nice long talk with someone new that you want to be friends with?
- Asking someone new to do something fun or interesting with you?

Sense of Belonging

How much do you agree with these ideas about the Clubhouse?

- The leaders at the Clubhouse make me feel wanted and accepted.
- I feel like I am an important Member of the Clubhouse.
- Coming to the Clubhouse helps make me happier in my life.

Relationship with Adults

Thinking about the adults at the Computer Clubhouse, how true are each of the following?

- They usually say something nice when you do something good.
- I could go to them for help in an emergency.
- I feel that they accept me.
- I feel like I can trust them.

Sense of Future

How much do you agree with these ideas about your future?

- I will do good and useful things with my life.
- I have high goals and expectations for myself.
- I will get the kind of job I want.

Technology Competence

How well can you do the following?

- Use drawing or painting software to create pictures.
- Use a video camera and editing software to make a video.
- Use a digital camera and/or scanner to get pictures into a computer.
- Use presentation software (like PowerPoint) to create a presentation.
- Use multimedia software to create a product.
- Create a Web site.

Technology Use

How often do you do the following?

- Work with MP3 or music files
- Edit my papers using a computer
- Create a presentation or animation
- Play computer games
- Do programming
- Create or maintain Web sites
- Create or edit digital photos or movies

Technology and Schoolwork

When you are using a computer (instead of paper and pencil) to do your schoolwork, do you

- Create a better-looking finished product (than if you didn't use a computer)
- Write better
- Seem to understand things better when using a computer

School Engagement

How much do you agree with these ideas about school?

- I look forward to going to school each day.
- I like being in school.
- I am happy when I am in school.

- I work very hard for school.
- When I have schoolwork to do, I keep working on it until it is finished.
- I care a lot about getting good grades at school.

Academic Self-Perception

How much do you agree with these ideas about school?

- I can really pay attention in class.
- When it comes down to it, I can really work hard at school.
- I think I'm just as smart as other kids are.

Academic Self-Doubt

How much do you agree with these ideas about school?

- I have a hard time making myself listen carefully to my teachers.
- I often think that I am not as smart as my classmates.
- Although I often try very hard, I don't master things that others do easily.