
ASSESSING YOUTH IMPACT OF THE COMPUTER CLUBHOUSE NETWORK

MAY 2006 YOUTH IMPACT SURVEY ADMINISTRATION

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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 series of Youth Impact Surveys, made available on the World Wide Web to all Clubhouses. This report details the results of the fourth administration of the Youth Impact Survey in May 2006. 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).

This report is organized into three sections and three appendices, as follows:

Executive Summary. Highlights of significant findings regarding Clubhouse use, Member attitude, and the relationship between the two. We also present a brief summary of relevant recommendations for high quality after-school programs drawn from external research.

Clubhouse Use. A description of how Members are spending time at their respective Clubhouses.

Attitude Measures. The survey includes 13 separate scales, which can be clustered into three overarching topical areas: technological, academic, and social-emotional. This section describes the range of Members’ attitudes and relationships found between attitudes and Clubhouse use.

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

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

Appendix C—Review of Research on After-School Programming. A review of findings from other studies on the impact of several types of after-school programming on youth development.

Executive Summary

SRI International conducted an on-line Youth Impact Survey of Clubhouse Members during the month of May, 2006. In all, 982 Members across 69 Clubhouses responded to the survey¹. The survey had three main purposes:

- Assess the degree of utilization of Clubhouse resources, including frequency of visits, length of visits, and activities performed while at the Clubhouse.
- Measure several important Member attitudes and behaviors identified as desirable outcomes of Clubhouse participation
- Correlate the utilization of Clubhouses with Member attitudes

The survey of May 2006 was the fourth in a series of similar surveys. By tracking individual Members over time, we hope to eventually correlate utilization of Clubhouses with changes in Member attitudes.

Summary of Clubhouse Use

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: 83% of Members spend at least an hour each visit, and 34% 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.

Summary of Member Attitude Scales

The Youth Impact Survey is composed of 13 separate attitude scales, grouped into three clusters: social-emotional attitudes, academic attitudes, and technology use.²

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

¹ We filtered out Clubhouses who had fewer than 5 respondents to the Youth Impact Survey; thus the total number of Member surveys analyzed was reduced to 945. In addition, 25 Members did not indicate their gender, and could not be included in charts that break down results by gender. The final set of responses analyzed included 920 Members (390 girls, 530 boys) when gender was considered, whereas the larger set of 945 was used when gender was not analyzed.

² The scales were developed from existing frameworks and validated instruments for assessing outcomes in the youth development field (Michalchik, 2005).

not technologically oriented. Since the Youth Impact Survey is designed to be anonymous, alternative ways of identifying less-engaged Members should be considered.

Correlations of Clubhouse Use and Member Attitude

Correlations are a way of describing the relationship between two measures. The higher the correlation, the stronger the relationship. While it is important to remember that a high correlation does not necessarily mean that Clubhouse use causes more positive Member attitudes, a high correlation can serve as circumstantial evidence of a possible causal connection.

We found many positive correlations of Clubhouse utilization and Member attitudes. While there are nuances in the relationships among specific attitude scales, overall we find that:

- Attitude measures tend to be more strongly correlated with the length of Clubhouse visits than with the frequency of visits.
- Girls' social-emotional and academic attitude measures seem to correlate more strongly with Clubhouse utilization than do boys' measures.
- Boys technology use measures seem to correlate more strongly with Clubhouse utilization than do girls' measures.

Findings from External Research

In a widely-cited report titled *Community Programs to Promote Youth Development*, the National Research Council and the Institute of Medicine (2002) describe the characteristics of effective youth-serving Community Based Organizations (CBOs). The report identifies particular features that serve as the processes or "active ingredients" in programs that facilitate positive youth development. Four of these features stand out as particularly relevant to the design and programming of Computer Clubhouses:

- Physical and Psychological Safety. Safe and health-promoting facilities; practice that increases safe peer group interaction and decreases unsafe or confrontational peer interactions.
- Supportive Relationships. Warmth, closeness, connectedness, good communication, caring, support, guidance, secure attachment, and responsiveness.
- Opportunities to Belong. Opportunities for meaningful inclusion, regardless of gender, ethnicity, sexual orientation, or disabilities; social inclusion, social engagement and integration; opportunities for sociocultural identity formation; and support for cultural and bicultural competence.
- Opportunities for Skill Building. Opportunities to learn physical, intellectual, psychological, emotional, and social skills; exposure to intentional learning experiences; opportunities to learn cultural literacies, media literacy, communication skills, and good habits of mind; preparation for adult employment; and opportunities to develop social and cultural capital.

Many researchers have elaborated on the importance of these features in the context of technology-based CBOs. A psychologically safe environment, for example, provides youth with a

setting in which they feel comfortable exploring new technologies and making mistakes (CNYD, 2001). Technology-based programs also provide youth with a relatively level playing field, often making it possible for younger teens and pre-teens with more experience to provide support to older novices (Kim, D., 2004). These opportunities can help youth build positive relationships with peers and non-parental adults, an important factor in positive adolescent development (Eccles & Heath, 1994).

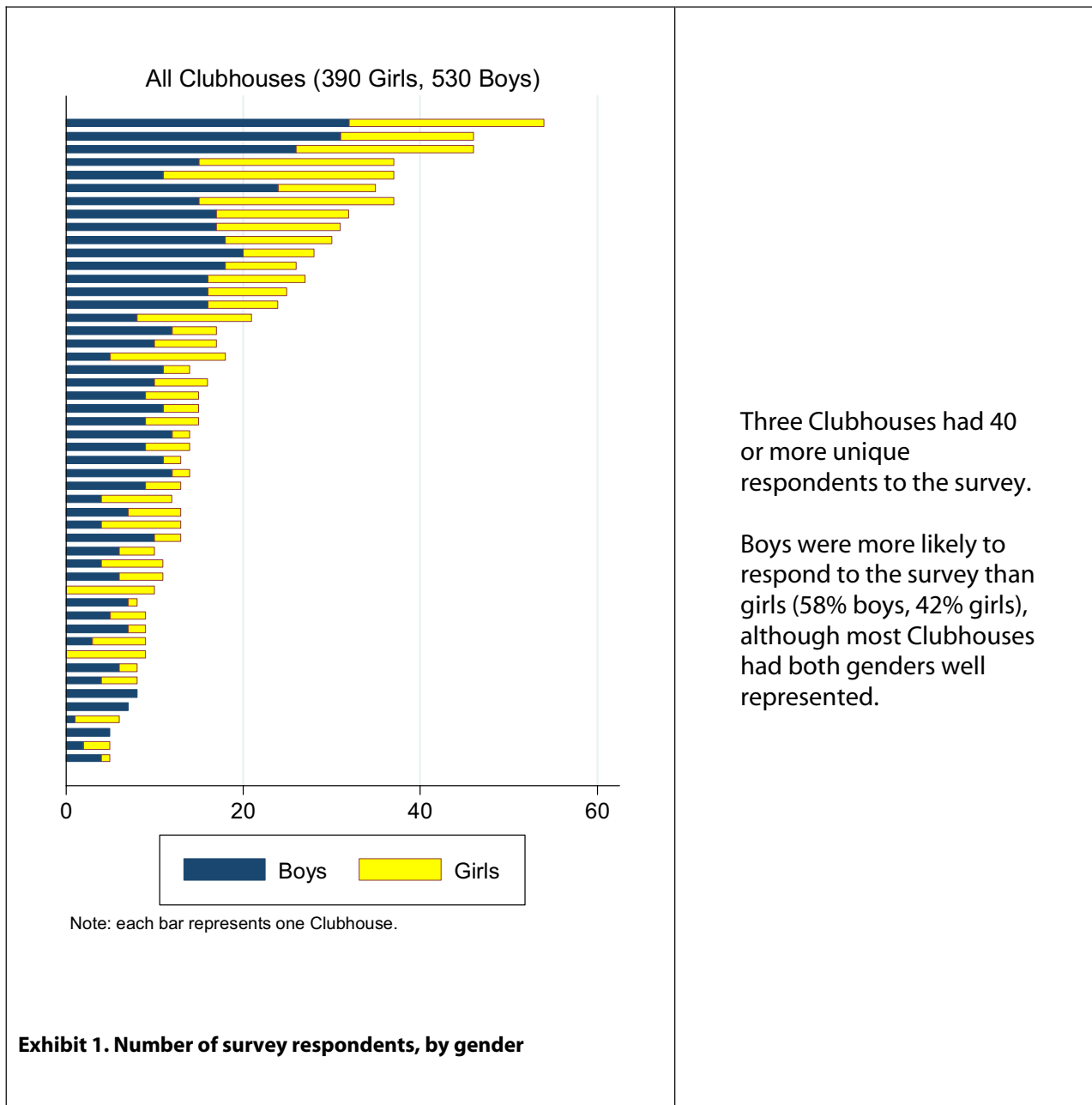
The features of technology-based programs that make youth feel safe and help them build relationships also contribute to the opportunities they have to experience a sense of belonging.

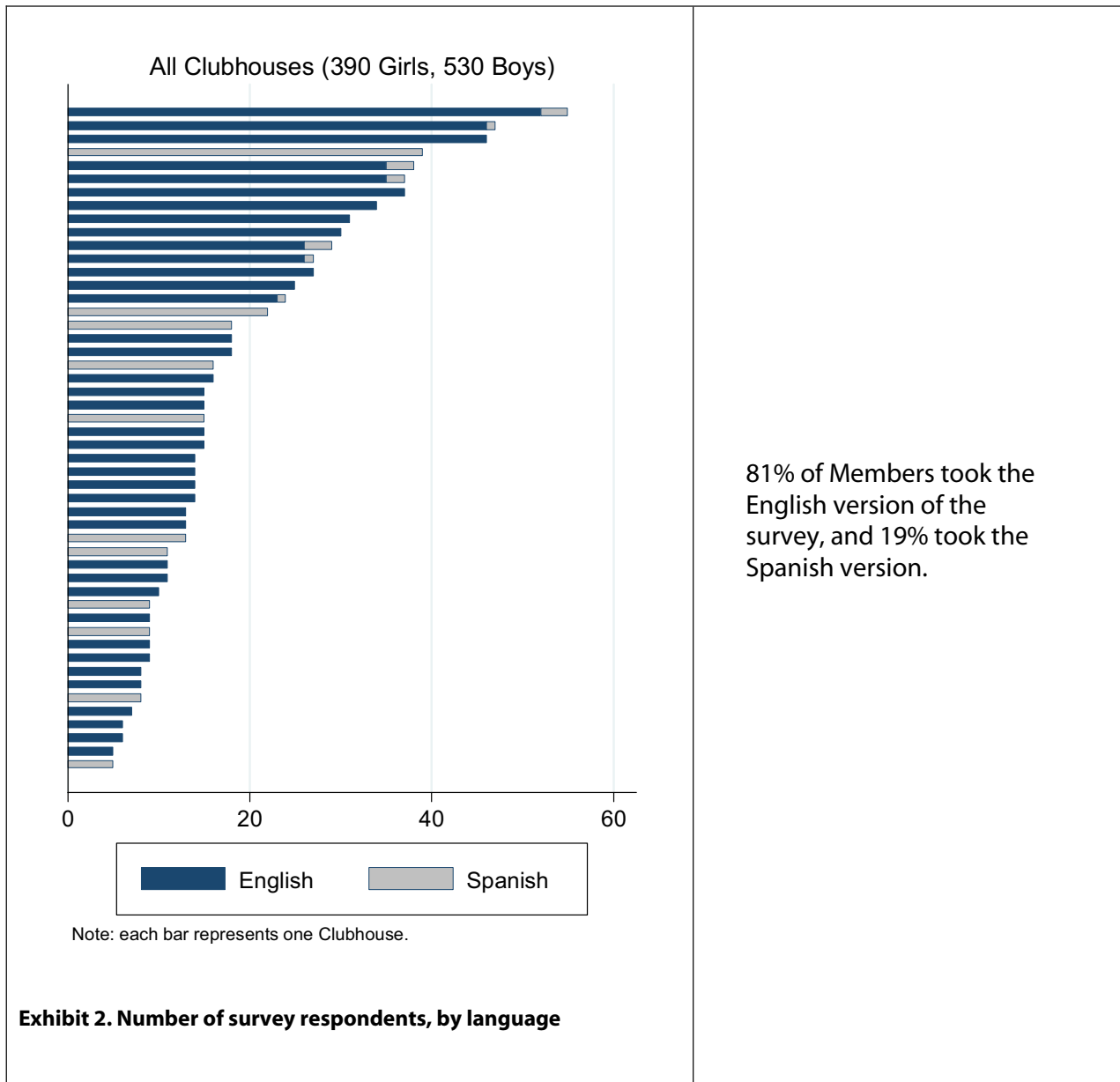
Eccles (1999) has noted that the psychological need for belonging is one of the driving forces in development, and that it becomes particularly salient during adolescence, when young people expand their connections in their communities to forge new bonds and gain acceptance in new settings. Optimally, these new settings provide youth opportunities to build job or life skills through hands-on activities involving cycles of planning, practice, and performance (McLaughlin, 2000). Technology-based CBOs support young people in developing skills that are especially valued and useful, enhancing their status, ability to contribute to society, and chances for success (CNYD, 2001; McLaughlin, 2000).

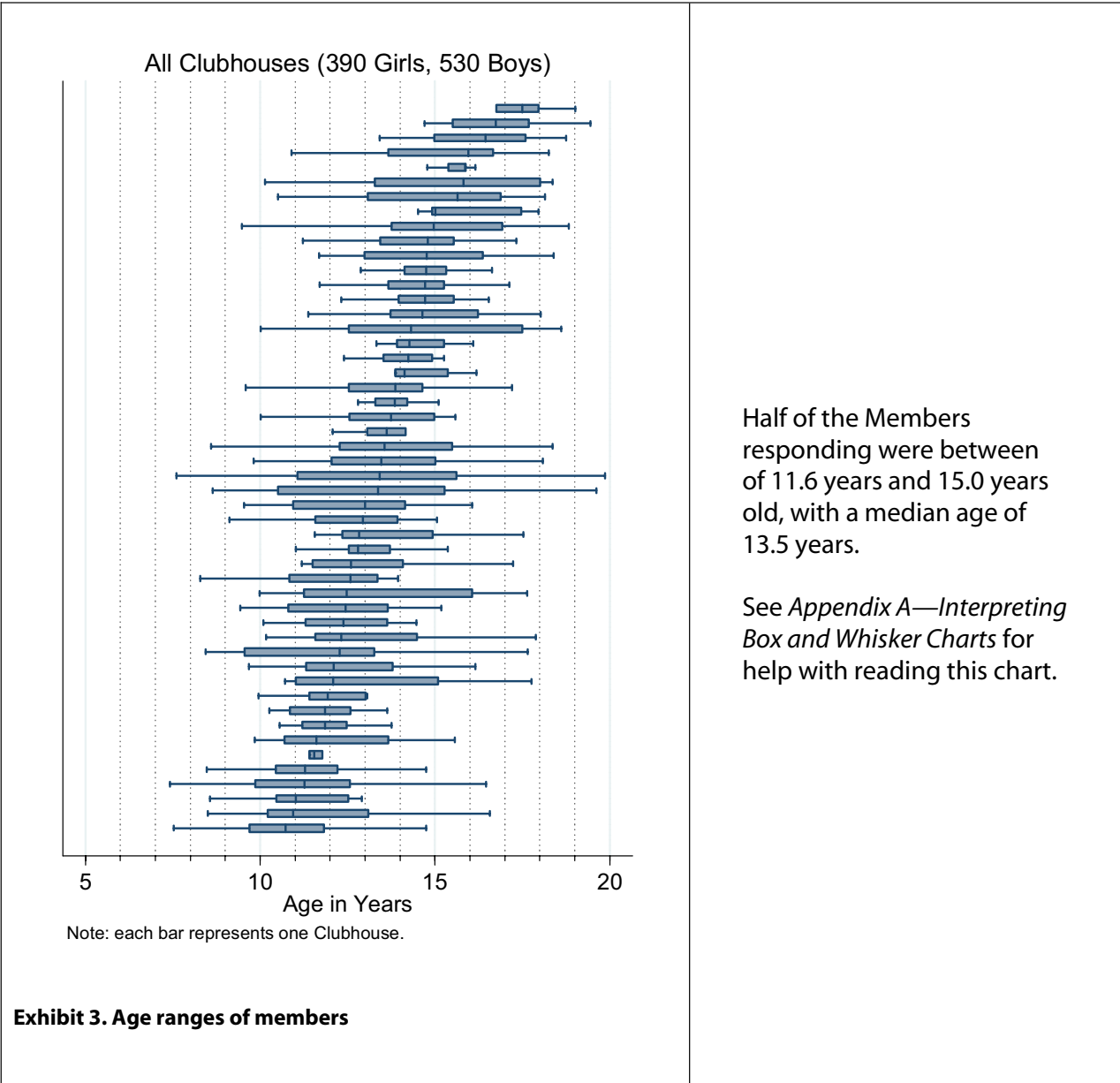
SRI International has conducted an extensive review of the research literature examining the impact of CBOs on youth development. A copy of this review is attached in *Appendix C—Review of Research on After-School Programming*. Many of the desirable features of CBOs identified in this review are measured via the use and attitude scales embedded within the Youth Impact Survey.

Clubhouse Use

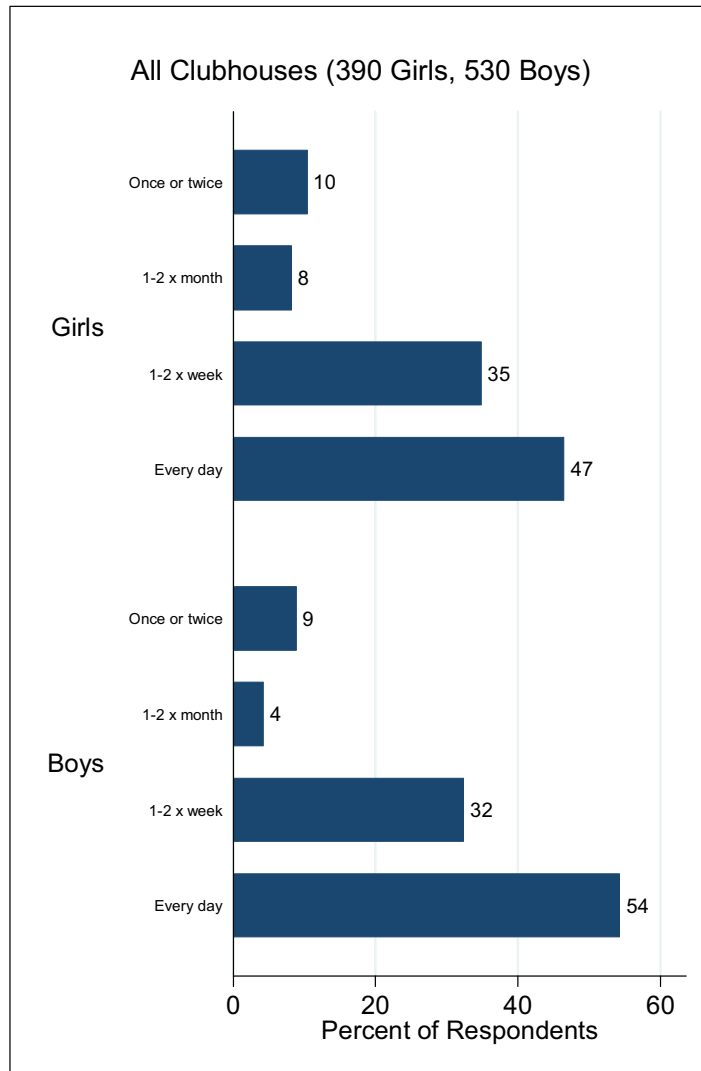
In this section, we present overall statistics describing how long and how frequently Members visit their Clubhouses and the distribution of activities performed. After eliminating surveys from Clubhouses with fewer than 5 respondents, as well as surveys where the Member's gender could not be determined, we calculated results for 920 Members (390 girls, 530 boys).







Clubhouse Activity



82% of girls and 86% of boys claim to visit the Clubhouse at least weekly.

Approximately 51% of Members visit the Clubhouse every day.

Exhibit 4. Frequency of visits to Clubhouses

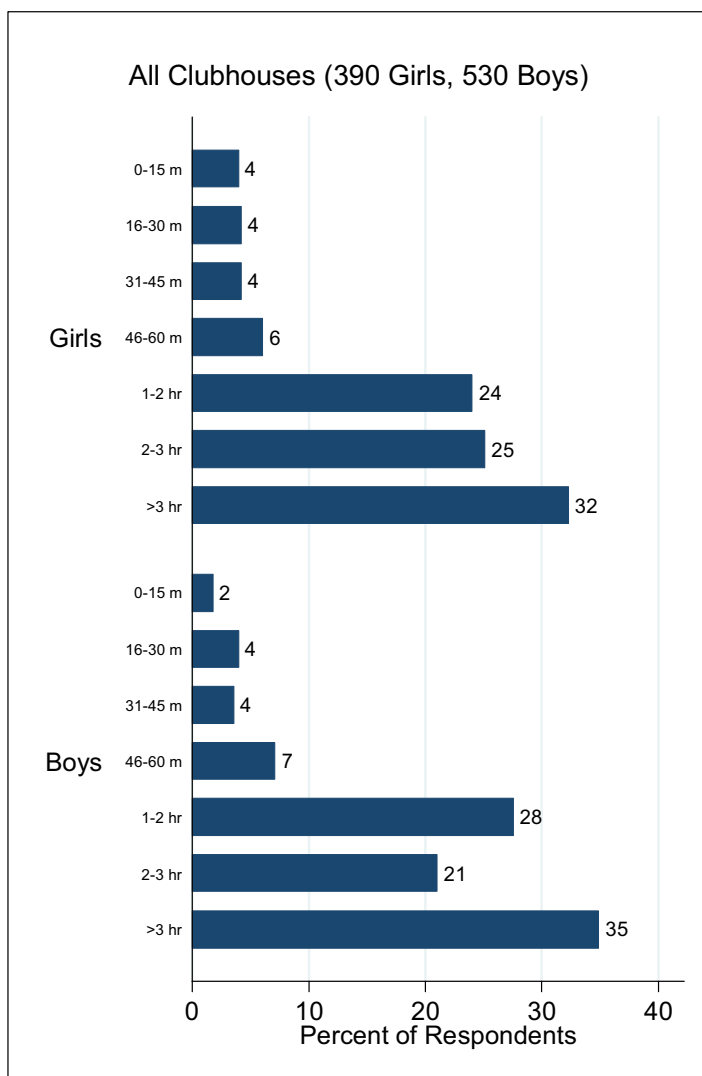


Exhibit 5. Duration of visits to Clubhouses

When Members visit the Clubhouse, approximately 81% of girls and 84% of boys report staying for at least 1 hour.

32% of girls and 35% of boys claim to stay for more than 3 hours during a typical visit.

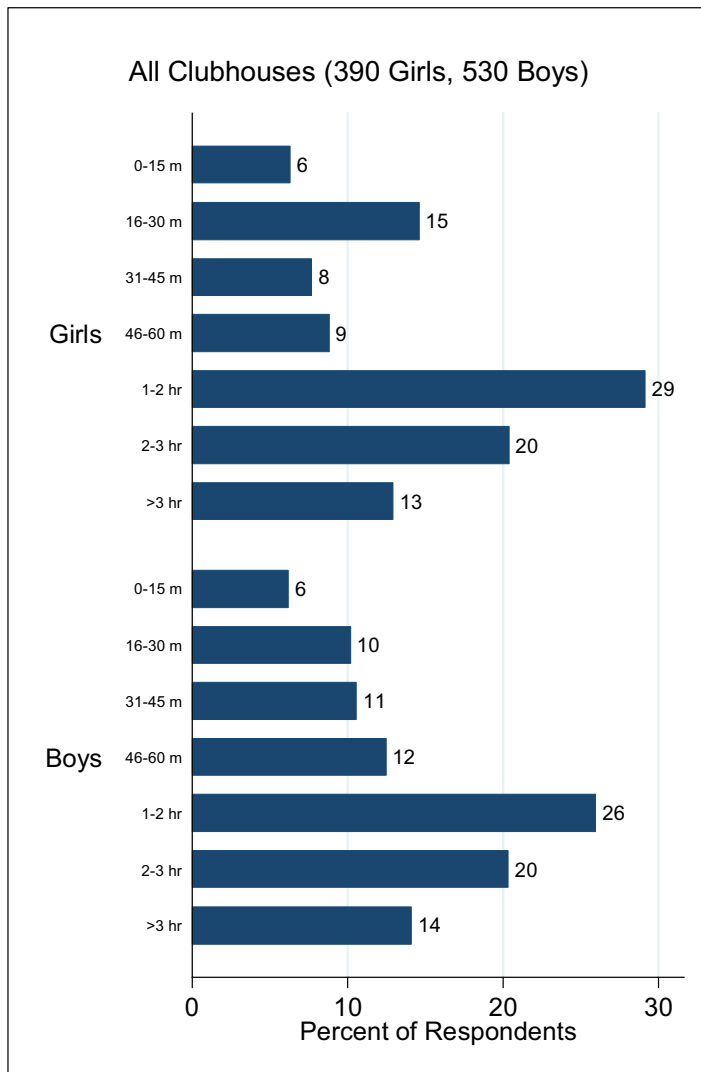


Exhibit 6. Time spent working on a computer during a Clubhouse visit

More than half of the members (62% of girls, 60% of boys) report working for at least one hour at the computer.

13% of girls and 14% of boys report working for more than 3 hours on the computer.

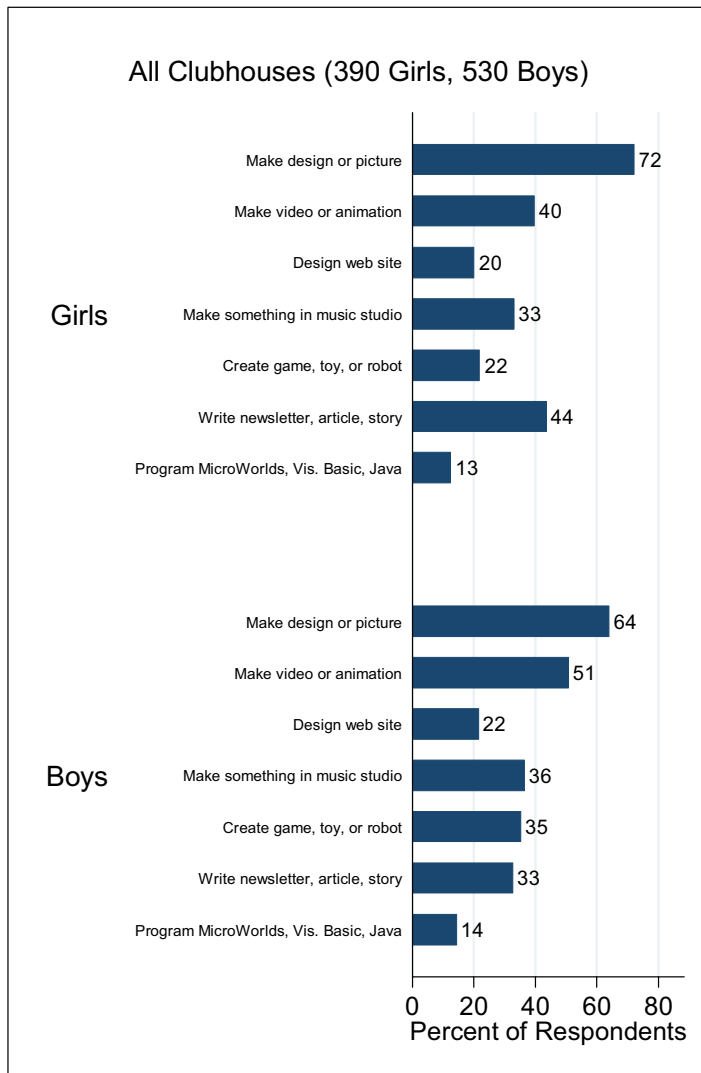


Exhibit 7. Percent of Members trying an activity at least once

90% of Members report *trying* at least one of the listed activities.

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

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

- Make a design or picture
- Write a newsletter, article, or story

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

- Make a video or animation
- Create a game, toy, or robot

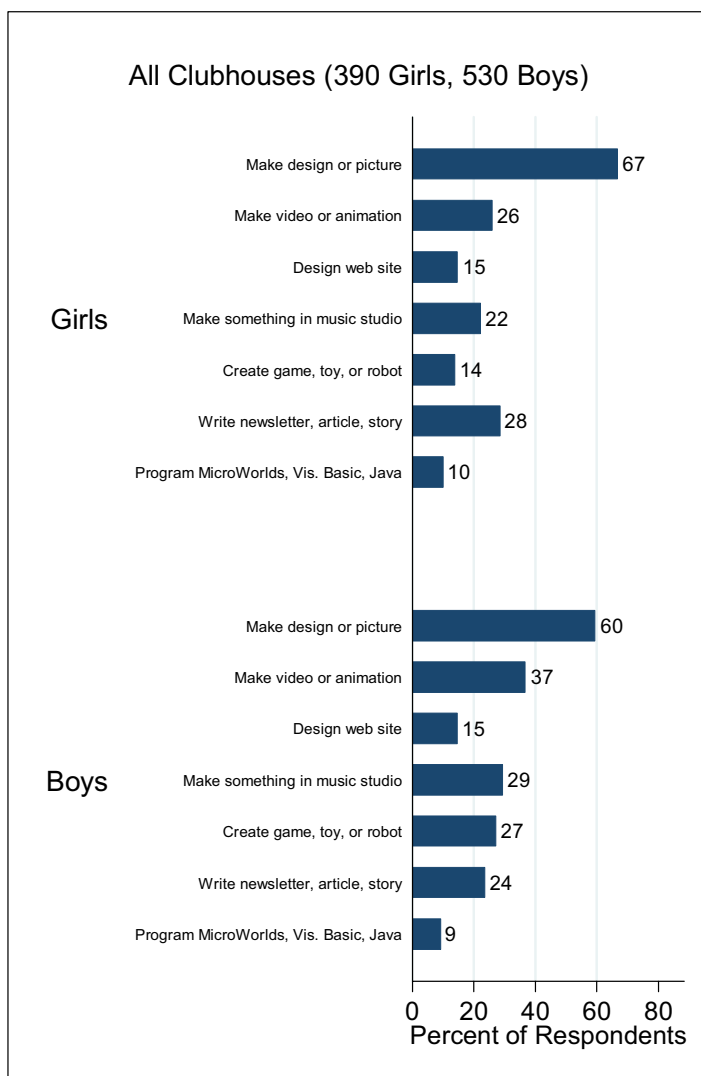


Exhibit 8. Percent of Members usually participating in an activity

86% 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 a design or picture

A higher percentage of boys than of girls usually do the following activities:

- make video or animation
- make something in a the music studio
- create a game, toy, or robot

Summary of Clubhouse Use

The results in this section corroborate those presented in prior reports. 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: 83% of Members spend at least an hour each visit, and 34% 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. Neither gender seemed unduly excluded from any of the listed activities. 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, the percentage of Members engaged in any particular activity rarely varied by more than 10 percentage points between genders. The most notable contrast (in terms of relative differences) was the percentage of girls who claim they usually engage in making a game, toy or robot (14%) versus the percent of boys who engage in similar activity (27%).

Recent research on youth development has begun to focus on types and patterns of participant attendance in out-of-school programs (Borden et al., 2005; Simpkins et al., 2004; Weiss 2005). These studies suggest that simple distinctions between, for example, frequent and infrequent attendance are not sufficient for understanding how participation affects youth outcomes. Length and intensity of participation are two additional factors, measured by the Youth Impact Survey, that typically vary among program participants that can lead to differing experiences and outcomes for youth.

Attitude Measures

The Youth Impact Survey is composed of 13 separate attitude scales. In this analysis, we group these scales into three clusters: social-emotional attitudes, academic attitudes, and technology use.

In this May 2006 survey wave, we have expanded our analysis of the attitude scales. We examine the correlation of attitude scales with Clubhouse utilization in two ways: the correlations between Clubhouses, and the correlations within Clubhouses.

To examine the correlations between Clubhouses, we first compute a mean level of each attitude scale and utilization measure for each Clubhouse. That is, each Clubhouse receives a single score for *Collaboration*, *Relationship with Adults*, etc., representing the average score of its Members on that scale. We then examine the correlation of attitude scales and Clubhouse utilization at the Clubhouse level. A positive association of attitude and utilization can be interpreted as follows:

Clubhouses where Members (visit more frequently; stay longer) tend to have higher average levels of (specific attitude).

In contrast, we also examine the correlations of attitudes and utilization within each Clubhouse. In this case, we take each Clubhouse one at a time, and compute the correlations of utilization and attitude across all the Members of that single Clubhouse. We then compute the mean of those measures across all Clubhouses. A positive association of attitude and utilization within Clubhouses can be interpreted as:

Within an average Clubhouse, Members who (visit more frequently; stay longer) tend to have higher levels of (specific attitude).

One implication of a strong correlation between Clubhouses is that there are systematic differences between Clubhouses on the two measures being correlated. For example, Clubhouses with longer access hours (leading to increased mean utilization) may also engender a more positive attitude. The important point is that correlations between Clubhouses are likely to be driven by Clubhouse-level differences, such as program differences or technology availability. We note that external factors such as local neighborhood conditions are also Clubhouse-level factors and may influence this correlation.

Strong correlations within Clubhouses (that is, correlations among individual Members) suggest that within a given Clubhouse, Members who utilize a Clubhouse more tend to have more positive attitudes. This correlation may be driven by factors related to the Clubhouse environment. For example, in a positive, effective Clubhouse, Members who spend more time while visiting are likely to feel a stronger sense of belonging. On the other hand, this correlation may be the result of external influences on Members. One possibility is that Members from emotionally healthy, stable, and adequately resourced families may be both emotionally healthier and more able to spend long periods of time at a Clubhouse.

In either case 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. Similarly, the correlations between Clubhouses may be explained by neighborhood effects – some

local populations may be simultaneously more disposed to visit the Clubhouses and to have more positive attitudes.

Illustration of Correlation Measures

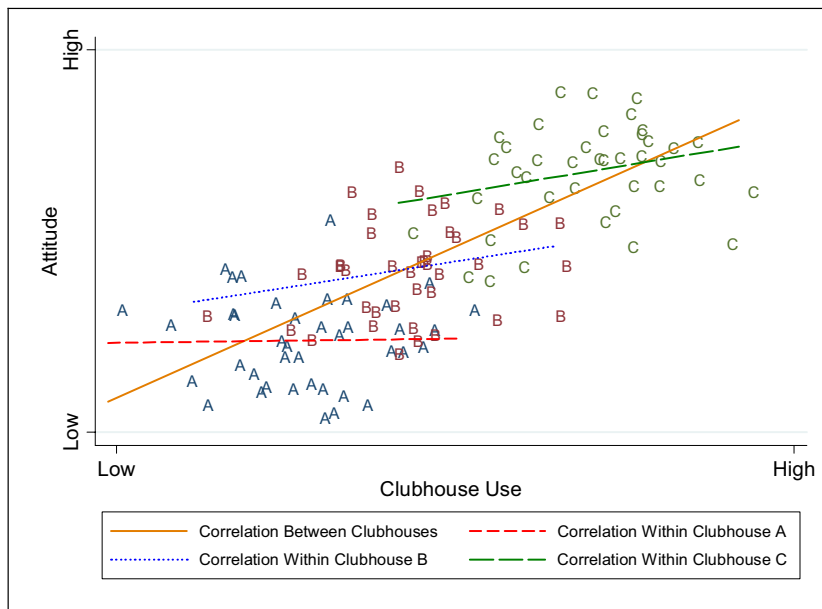


Exhibit 9. Illustration of Correlation Between and Within Clubhouses

These two types of correlations (correlations between Clubhouses and correlations within Clubhouses) are graphically illustrated in Exhibit 9 above. We illustrate a hypothetical set of members from three fictitious Clubhouses (labeled A, B, and C). Members from Clubhouse A show overall lower use and lower attitudes measures, while Members from Clubhouse C show higher use and attitude measures, with Members from Clubhouse B occupying the middle ranges of the scales. Between the three Clubhouses there is a clear association between use and attitude, and this is illustrated with the solid line running diagonally through all the Member data points. The slope or steepness of the line represents the strength of the correlation.

Within each Clubhouse, however, the correlations are less clear. Within Clubhouse A, for example, there is no discernable association between use and attitude—the dashed line through these Member points is relatively flat. That is, whether one is on the lower or higher end of the use scale within Clubhouse A, one's expected attitude is essentially the same.

In Clubhouses B and C, on the other hand, there are moderate positive correlations within each Clubhouse. For example, within Clubhouse C we find that Members who are higher users are on average also showing more positive attitudes.

In these fictitious Clubhouses we note the following observations:

- Some Clubhouses have both higher use rates and higher average Member attitudes than others; these two measures are correlated between Clubhouses. That is, Members who belong to a “high use” Clubhouse are also expected to show more positive attitudes.

- In Clubhouse A, there is little association between Clubhouse use and Member attitude. Members who visit for greater or lesser lengths of time tend to respond similarly to the attitude scales.
- In Clubhouses B and C, Members who spend more time at their respective Clubhouses also show higher scores on the attitude scales.

Because it is difficult to calculate correlations within individual Clubhouses with an acceptable degree of precision, in our results we present the average correlation within all the Clubhouses. In this illustration, that would be the average of the three lines within Clubhouses A, B, and C. Without a better response rate on the Youth Impact Survey, we cannot present the calculations within individual Clubhouses in our reports.

Last, when we present correlations below, we also show a vertical line or barrier within the bar charts. Because these correlations are only estimates from a sample of Members, and may fluctuate depending on which particular Members take the survey, we cannot be sure that relatively weak correlations would be replicated throughout the Membership as a whole. Thus we show a threshold beyond which we consider a correlation reliable enough (or “statistically significant” enough) to report.

Social-emotional Attitude Scales

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

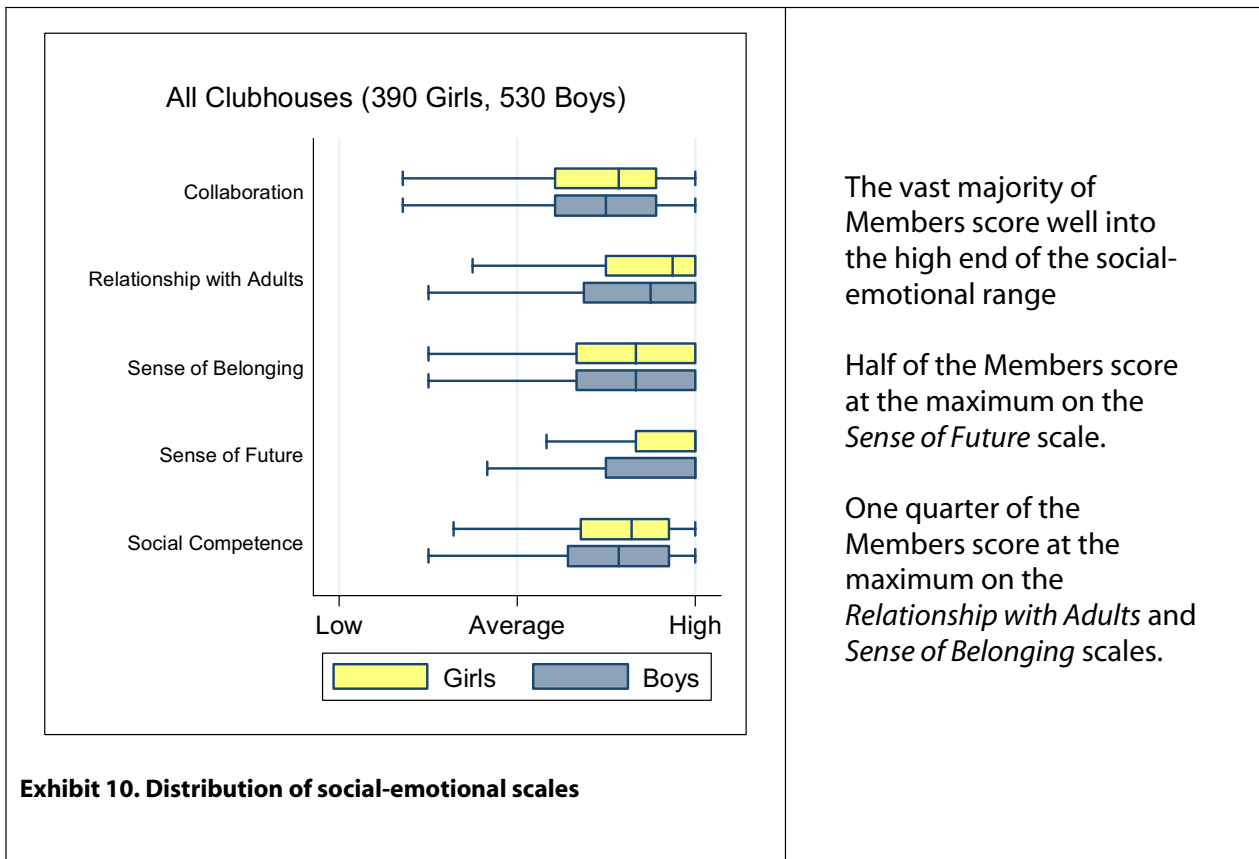
Collaboration: The degree to which Members listen to one another and engage in group projects.

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

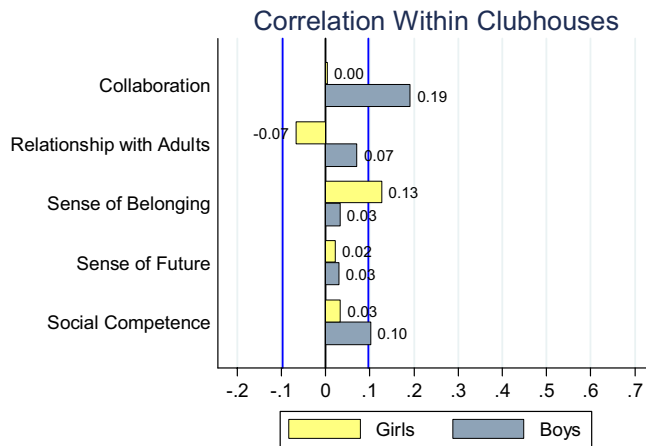
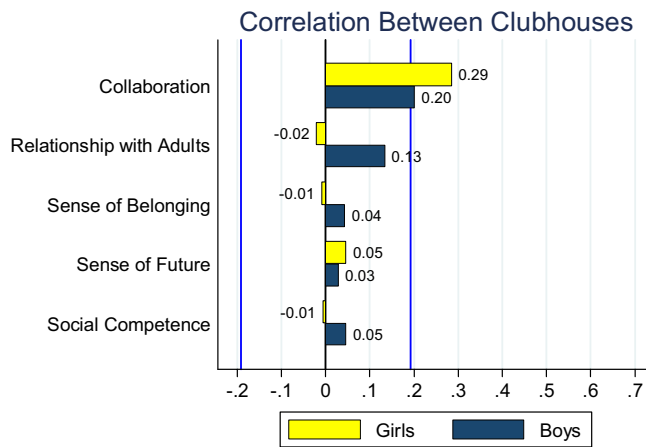
Sense of Belonging: A general sense of community at the Clubhouse.

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

Social Competence: Getting along with others.



Social-Emotional Scales and Visit Frequency



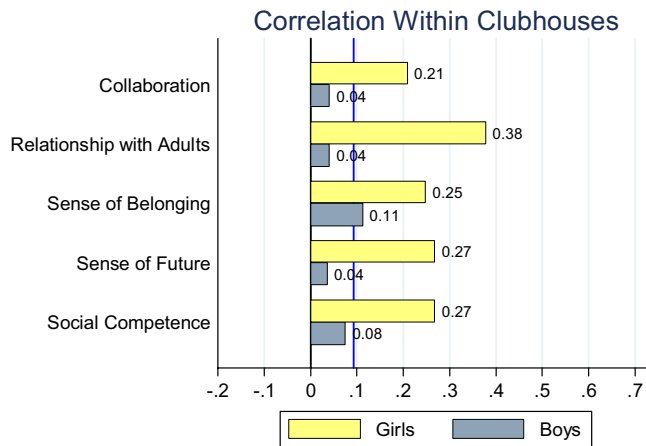
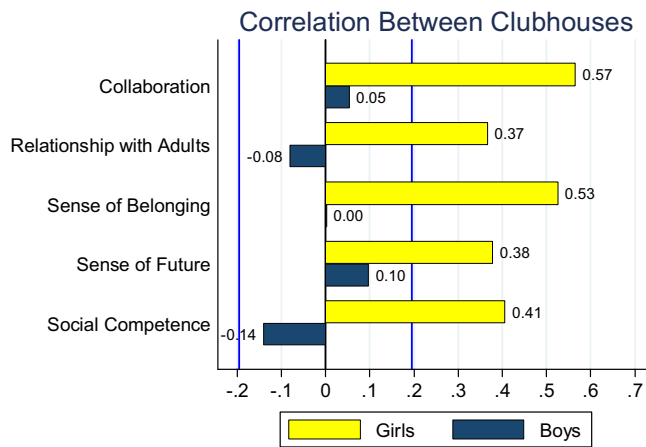
Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 11. Correlations of social-emotional scales with frequency of visits

Between Clubhouses, only the correlation of *Collaboration* with visit frequency is reliably positive. In Clubhouses where Members tend to visit more frequently, we find higher ratings of *Collaboration*.

Within Clubhouses, boys' ratings of *Collaboration* and *Social Competence* is correlated with frequency of visits. For girls, *Sense of Belonging* is correlated with visit frequency.

Social-Emotional Scales and Visit Length



Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 12. Correlations of social-emotional scales with length of visits

The correlations of visit length and all five social-emotional scales differ significantly by gender.

For girls, length of visit is positively correlated with all 5 social-emotional scales. For boys, on the other hand, there are no significant correlations between visit length and social-emotional measures.

This relationship holds both between Clubhouses (girls at Clubhouses with longer average visits show higher attitude scores) as well as within Clubhouses (at an average Clubhouse, girls who visit longer have higher attitude scores.)

Recall from Exhibit 10 that boys and girls show very similar overall ratings on the social-emotional scales. It is the relationship of these ratings with Clubhouse visit that differs by gender.

Academic Attitude Scales

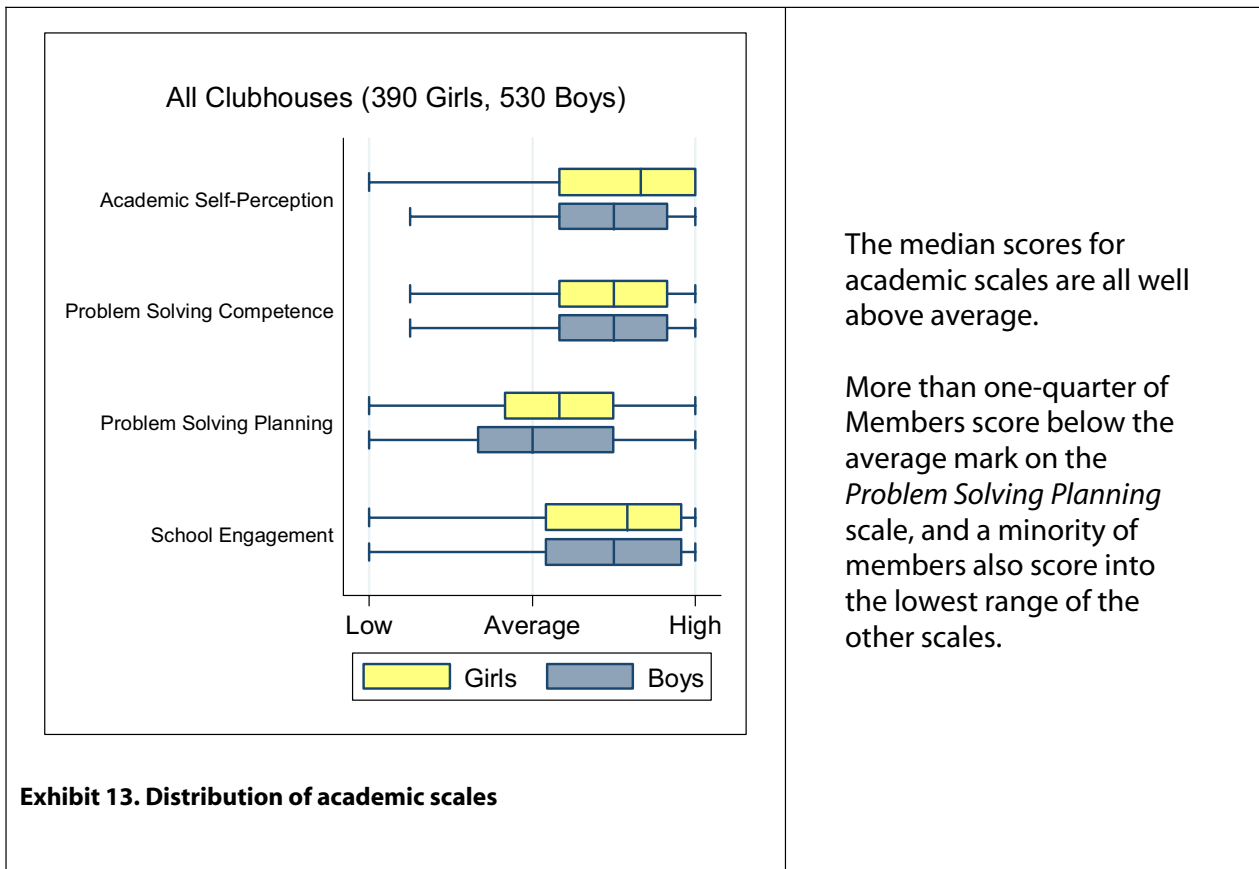
Four³ survey scales measured aspects of Members' academic attitudes.

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

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

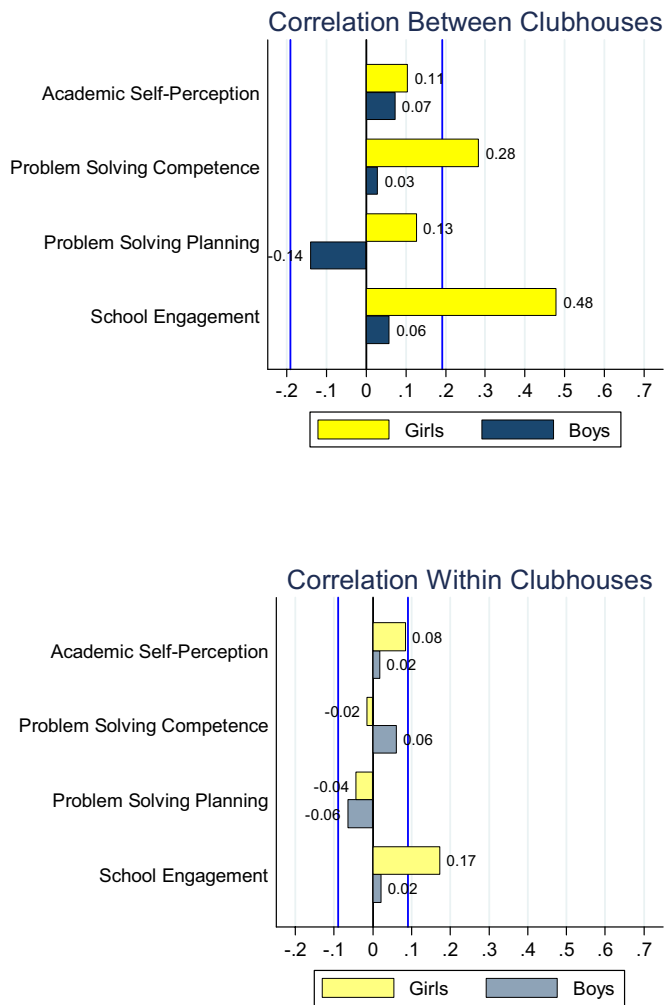
Problem Solving Planning: Degree of persistence and planning in problem solving.

School Engagement: Positive affect toward school.



³ 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.

Academic Scales and Visit Frequency



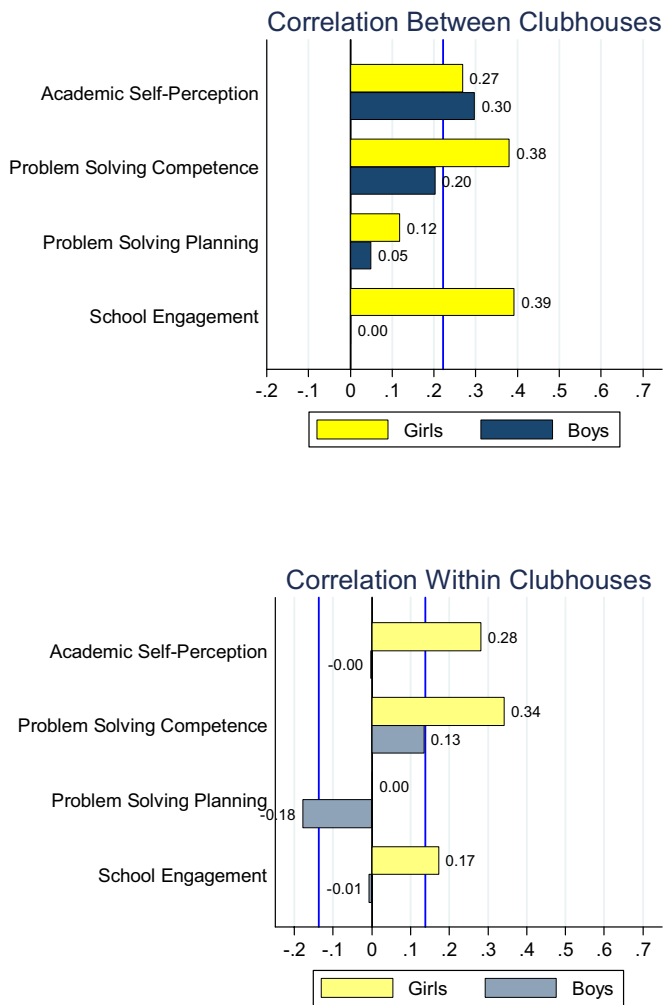
Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 14. Correlations of academic scales with frequency of visits

Girls' *School Engagement* is positively correlated with frequency of Clubhouse visits, both between and within Clubhouses. Girls' *Problem Solving Competence* is also positively correlated with visit frequency between Clubhouses.

Boys' ratings on academic scales are relatively insensitive to frequency of Clubhouse visits.

Academic Scales and Visit Length



Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 15. Correlations of academic scales with length of visits

Between Clubhouses, both boys' and girls' ratings of *Academic Self-Perception* positively correlate with average visit length. Moreover, girls' ratings of *Problem Solving Competence* and *School Engagement* are also sensitive to average visit length.

Within Clubhouses, girls show positive correlations of *Academic Self-Perception*, *Problem Solving Competence*, and *School Engagement* with visit length.

While boys also show a marginally significant relationship between visit length and *Problem Solving Competence*, they also exhibit a strong negative correlation between *Problem Solving Planning* and visit length within Clubhouses. That is, within an average Clubhouse, longer visits predict lower ratings of planning for boys.

Technology Use Scales

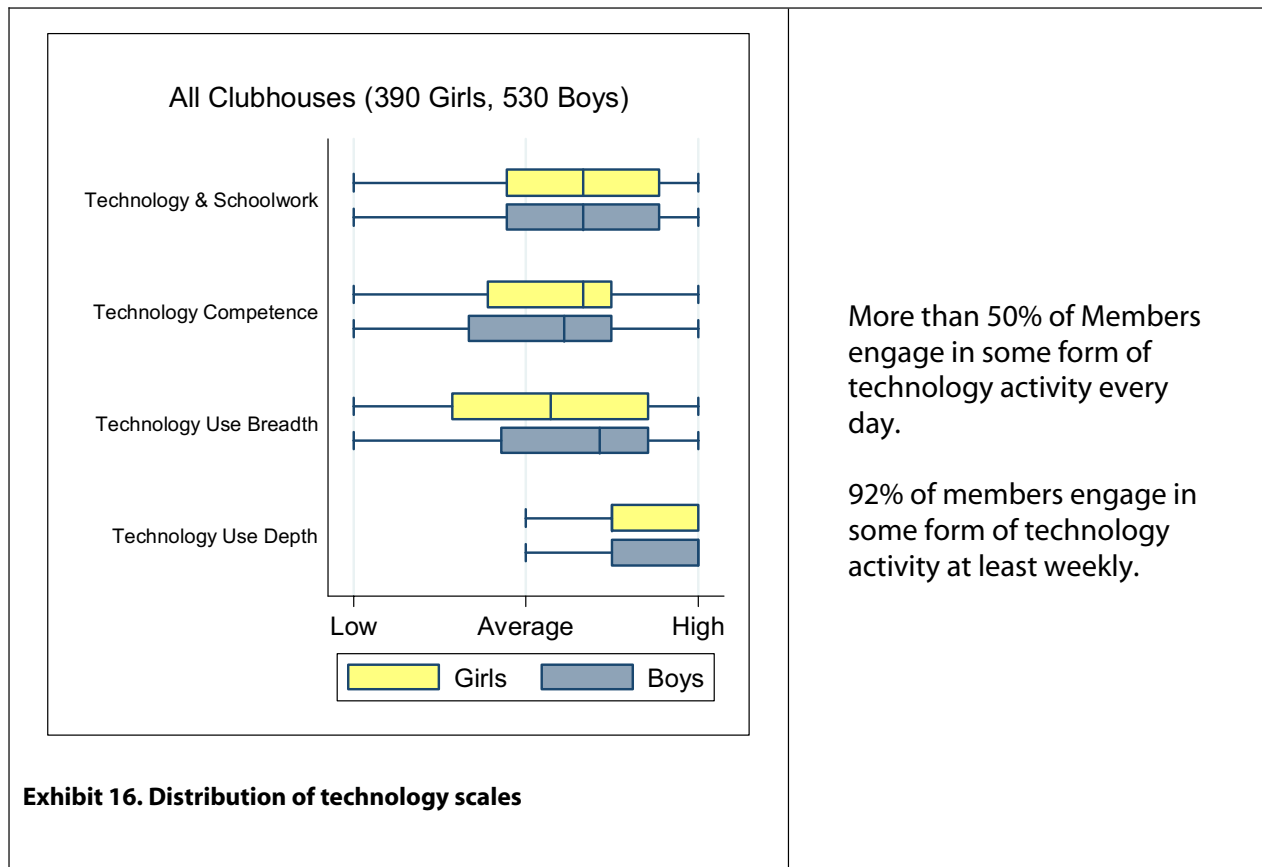
Four scales summarize Members' technology use. The two *Technology Use Breadth* and *Technology Use Depth* scales are derived from the same set of survey items.

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

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

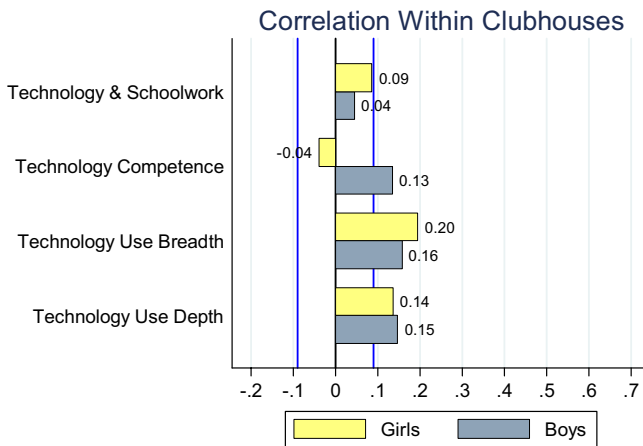
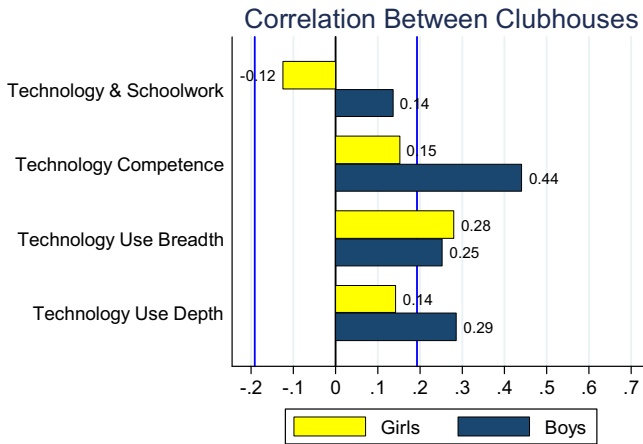
Technology Use Breadth: The number of different activities a member usually participates in at least once a month.⁴ The highest possible score indicates that a member participates in all seven of these activities at least monthly.

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.



⁴ 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.

Technology Scales and Visit Frequency



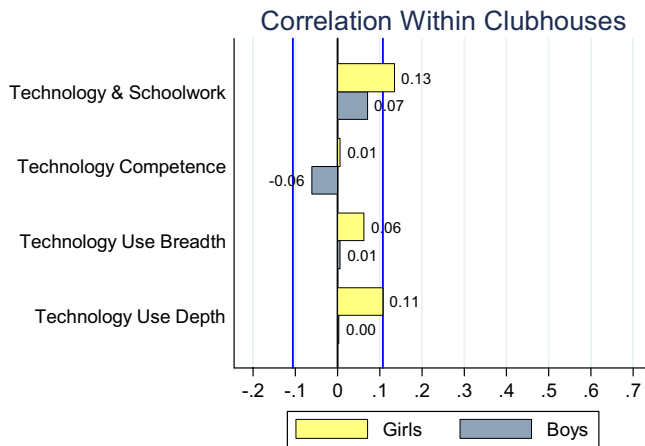
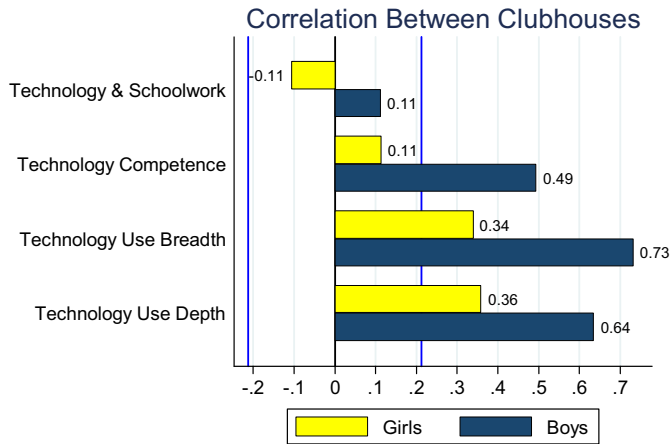
Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 17. Correlations of technology scales with frequency of visits

Between and within Clubhouses, frequency of visit is correlated with *Technology Competence* and both *Technology Use* measures for boys. However, only girls' breadth of *Technology Use* is correlated with visit frequency.

Technology Use Breadth & Depth are correlated with visit frequency within Clubhouses for both boys and girls. Furthermore, boys' ratings of *Technology Competence* increases with the frequency of Clubhouse visits.

Technology Scales and Visit Length



Note: Correlations that cross the blue line are reliably different from zero.

Exhibit 18. Correlations of technology scales with length of visits, by gender

While both boys and girls show significant positive correlations between visit length and *Technology Use*, the relationships are much stronger for boys than for girls. Also, boys at Clubhouses with longer average visit lengths tend to report higher levels of *Technology Competence*.

Within an average Clubhouse, girls who visit longer report greater use of *Technology for Schoolwork* and *Technology Use Depth*.

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 youth impact depends more on Members engaging in longer visits rather than more frequent ones. 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. In other words, our instrumentation may be more sensitive to correlations of length of visit and Member attitude simply because there is more variation in the length of visit to be measured.

We also note a gender difference in the sensitivity of attitude measures to Clubhouse visits. While boys and girls do not generally differ in the overall distribution of their attitude measures, in most of the social-emotional and academic sets of measures girls’ responses appear to be more strongly correlated to visit frequency and length than are boys’ responses. Put another way, boys’ responses to social-emotional and academic survey questions are less sensitive to Clubhouse visiting patterns than are girls’ responses. In contrast, on the Technology scales we see the opposite: Clubhouse visits tend to correlate more highly with boys’ responses than with girls’ responses.

New in the May 2006 survey is the distinction of correlations measured between Clubhouses and within Clubhouses. In prior reports, these measures were essentially collapsed – the reported correlations were driven by both Clubhouse-level variation as well as Member-level variation within the Clubhouses.

Both measures may provide insight on the impact of Clubhouse utilization, albeit in different ways. The presence of significant correlations between Clubhouses suggests that there is significant variation by Clubhouse both in utilization and the attitude scale under consideration. For example, were we to visit a Clubhouse with higher than average length of visits, we are much more likely to find Members with higher levels of *Academic Self-Perception* (correlation = 0.27 for girls and 0.30 for boys, see Exhibit 15). Similarly, Clubhouses with much shorter average visits tend to report lower average *Academic Self-Perception* levels. This suggests that something local to the individual Clubhouses—whether programmatic or environmental—is impacting both of these measures.

Within an average Clubhouse, there may also be a correlation of Clubhouse utilization and attitude measure for individual Members. That is, whether we observe a Clubhouse with lower than average or higher than average utilization, within that particular Clubhouse we may find that individual Members who spend more time visiting also report more positive attitude measures.

Continuing the example of *Academic Self-Perception*, we see that for girls, the correlation between *Academic Self-Perception* and length of Clubhouse visits is 0.28 for girls, and non-significant for boys (see Exhibit 15). Therefore, in an average Clubhouse, we would expect to see that girls who report longer visits are also reporting higher levels of *Academic Self-Perception*. For boys, on the other hand, we would find that *Academic Self-Perception* measures have no relationship to the length of their Clubhouse visits.

Thus, in cases where there is a strong correlation between Clubhouses, we should examine what is systematically different between higher use / higher attitude Clubhouses and others. There may be unmeasured programmatic and environmental factors that account for these differences. On the other hand, when we observe strong correlations within Clubhouses, this is evidence that longer or more frequent visits, on average, are good predictors of desirable attitudes regardless of Clubhouse, and that efforts to encourage greater utilization may have an impact on attitude.

Overall, analysis of the attitude scales yields the following trends:

- Attitude measures tends toward the positive end of the scales, and there are no substantial differences between boys and girls in those distributions.
- Attitude measures tend to be more strongly correlated with the length of Clubhouse visits than with the frequency of visits.
- Girls' social-emotional and academic attitude measures seem to correlate more strongly with Clubhouse utilization than do boys' measures.
- Boys technology use measures seem to correlate more strongly with Clubhouse utilization than do girls' measures.

Although the correlations between Clubhouses are stronger than the correlations within Clubhouses overall, these two sets of numbers should not be directly compared. In a sense, that would be an apples-and-oranges comparison of variation between institutions (Clubhouses) with variation between individuals (Members). Comparisons of individual correlations are legitimate as long as they are of the same type (i.e., all between Clubhouses or all within Clubhouses).

It should be noted that the literature on youth development addresses issues relevant to many of the findings reported here. Much of the literature, for example, speaks to the depth of engagement youth experience in community-based settings (Heath & McLaughlin, 1993; Zeldin et al., 1995), suggesting possible reasons for correlations such as the one between length of visit and positive attitudes we find in our study. Research studies from other fields also pertain to the findings presented here, indicating how well-designed, project-oriented environments provide young people the opportunity to build skills (Bransford et al., 2000) and develop identities based on positive attitudes about themselves and their relationship to others (Polman, 2006; Hull & Greeno, 2006).

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The following references were cited in the main body of this report. Note that *Appendix C—Review of Research on After-School Programming* contains its own bibliography of references.

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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.

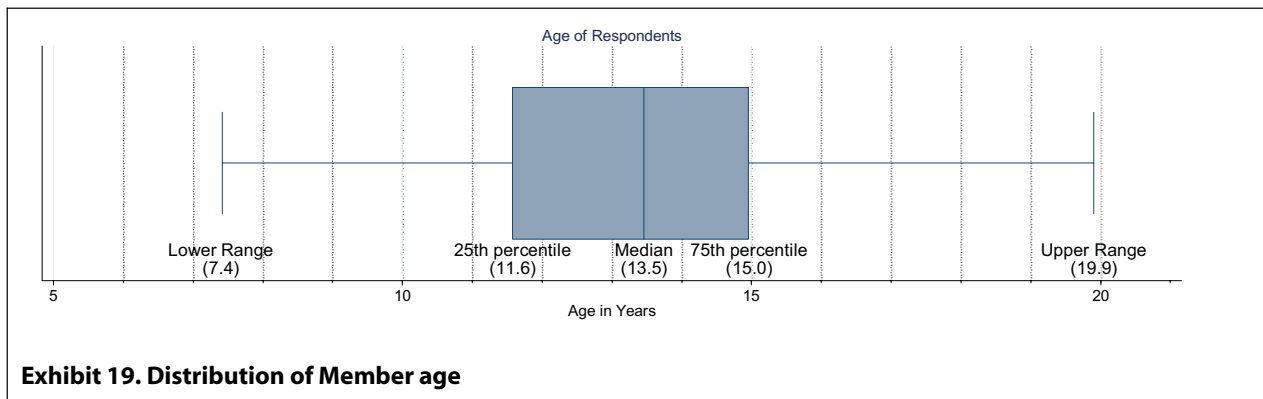


Exhibit 19. Distribution of Member age

In this example box and whisker graph, the median age (50th percentile) is 13.5 years, indicating that half of the Members were under 13.5 years of age and half over 13.5 years. The 25th percentile is 11.6 years—this means that 25% of the Members were under 11.6 years of age. Similarly, the 75th percentile of 15.0 indicates that 25% of the Members were over 15.0 years of age (or, conversely, 75% were under 15.0 years of age). The youngest Member responding to the survey was 7.4 years old, and the oldest was 19.9 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.

Appendix C—Review of Research on After-School Programming

Purpose and Scope of this Appendix

The purpose of this appendix is to review research on selected types of after-school programming, with an eye toward documenting academic, developmental, and social impacts on youth. As part of this appendix, we conducted a review of the central body of research about the following types of after-school programs:

- Academically-oriented after-school programming
- Mentoring programs
- Arts programming
- Sports and fitness programming
- Community technology centers (CTCs)

This appendix begins with an executive summary, highlighting the spectrum of outcomes impacted by after-school programs, and a summary of findings from this appendix. Following the executive summary is a broad review of the key developmental tasks of adolescence and some trends in after-school programming. The remainder of the appendix consists of program descriptions and research findings, organized by program type.

We have intentionally positioned community technology centers last in this taxonomy of programs. CTCs as a special type of after-school programming are a more recent innovation than the other categories listed. Early research on CTCs focused on the accessibility of technology and development of technical skills, outcomes unique to CTC programs. Researchers are only now beginning to systematically examine the broader impacts of CTCs – academic, developmental, and social – on youth. We believe that CTCs share many characteristics of more established forms of after school programs; in lieu of specific CTC impact studies, the research findings from the other four program types may apply to CTCs as well.

Executive Summary

Youth Development

The National Research Council and the Institute of Medicine (National Research Council & Institute of Medicine, 2002) have outlined a set of six concrete risks that can potentially compromise youth's achievement of developmental tasks. The six significant risks to youth's transition into adulthood are:

1. Difficulty in renegotiating relationships with families.
2. Involvement with a deviant peer group.
3. Failure to make connections with the kinds of adults, peers, and social institutions that facilitate transitions into mainstream adulthood.

4. Limited educational opportunities that compromise the development of intellectual and soft skills necessary for jobs.
5. Minimal engagement in civic and social institutions that constrain the development of skills necessary for full participation as a community member.
6. Experiences of intolerance that can alienate some youth can lead to withdrawal from conventional social institutions.

This same committee issued a formal list consisting of a set of eight desirable features of CBOs as developmental settings. The committee suggested these features can serve as the processes or “active ingredients” that CBOs can use in designing programs to facilitate positive youth development.

1. Physical and Psychological Safety. Safe and health-promoting facilities; practice that increases safe peer group interaction and decreases unsafe or confrontational peer interactions.
2. Appropriate Structure. Limited setting; clear and consistent rules and expectations; firm-enough control; continuity and predictability; clear boundaries; and age-appropriate monitoring.
3. Supportive Relationships. Warmth; closeness; connectedness; good communication; caring; support; guidance; secure attachment; and responsiveness.
4. Opportunities to Belong. Opportunities for meaningful inclusion, regardless of gender, ethnicity, sexual orientation, or disabilities; social inclusion, social engagement and integration; opportunities for sociocultural identity formation; and support for cultural and bicultural competence.
5. Positive Social Norms. Rules of behavior; expectations; injunctions; ways of doing things; values and morals; and obligations for service
6. Support for Efficacy and Mattering. Youth-based; empowerment practices that support autonomy; making a real difference in one’s community; and being taken seriously. Practices that include enabling; responsibility granting; and meaningful challenges. Practices that focus on improvement rather than on relative current performance levels.
7. Opportunities for Skill Building. Opportunities to learn physical, intellectual, psychological, emotional, and social skills; exposure to intentional learning experiences; opportunities to learn cultural literacies, media literacy, communication skills, and good habits of mind; preparation for adult employment; and opportunities to develop social and cultural capital.
8. Integration of Family, School and Community Efforts. Concordance; coordination; and synergy among family, school, and community.

Program Impacts

Research on the impact of after school programs on **academic** outcomes is mixed. Some studies indicated links to increases in academic and social skills and work habits (Engman, 1992; Henderson, 1990; Mercure, 1993; Milch, 1986). Other studies showed links between academic success and particular characteristics of programs; successful programs having formal, structured activities that are developmentally appropriate and of interest to the participants (Baker & Witt, 1995; Pierce, Hamm, & Vandell, 1999; Posner & Vandell, 1994; Rosenthal & Vandell, 1996; Vandell & Corasaniti, 1998).

Of the different forms of programming we reviewed, **mentoring** has the strongest research base. In well-designed evaluation of Big Brothers/Big Sisters, youth assigned to mentors were less likely to start using drugs and alcohol, less likely to hit someone, more likely to attend and do well in school, had better attitudes toward school, and reported improved peer and family relationships. (DuBois, Holloway, Valentine, & Cooper, 2002) In other settings, researchers have found mentoring effects were larger when the programs provided ongoing training for mentors, structured activities for the pairs, expectations about frequency of contact, and mechanisms for support, involvement, and contact. The researchers also found that frequency of contact, perceived closeness of the relationship from youth's perspective, and longevity of the match were critical best practices. (DuBois, Holloway, Valentine, & Cooper, 2002; Grossman & Rhodes, 2002; Herrera, 2004; Grossman & Johnson, 1999)

There is some research indicating links between **art programs** and increases in self-esteem, social skills, and leadership competencies (Mason & Chuang, 2001); higher involvement in community service activities, goals to pursue formal education past high school, and awards for academic achievement and school attendance (Heath & Roach, 2000); and better access to neighborhood resources, relationships with adults, and ability to work with others (Baker & Hull, 1998).

There is not much evidence about the effectiveness of **community-based sports and fitness** interventions, and the evidence that does exist is mixed. Some of the more consistent evidence of positive effects comes from Outward Bound-style adventure programs, which typically involve team-based physical challenges. A meta-analysis conducted on adventure programs suggests that participation in such activities influence leadership skills, self-concept, cognitive development and interpersonal skills (Hattie, Marsh, Neill, & Richards, 1997). This meta-analysis found that participation in adventure-based programs had the greatest effect on self control. This dimension included independence, confidence, self-efficacy, self-understanding, assertiveness, internal locus of control, and decision-making.

Despite the emerging attention directed at **Community Technology Centers** and initial findings of mastery of new technologies and enhancement of learning outcomes in CTCs, understanding how the learning and development happen in the centers has not been fully described. While earlier evaluations focused on the development of technological skills, research on the impact of CTCs on youth development is only now emerging.

The Developmental Tasks of the Second Decade of Life

Researchers from such fields as developmental psychology and education have identified several key developmental tasks for the second decade of life, which spans both early and late adolescence. These tasks are ones to which after-school programs, schools, and other youth-serving institutions must all pay close attention. Ideally, programs for youth provide young people with *opportunities* to develop with respect to one or more of the central tasks of adolescence.

Most young people pass into and through adolescence with few major problems, although many find it a difficult period in life. However, even those who experience a fairly easy transition must negotiate key developmental tasks. Erikson was one of the first researchers to identify the developmental tasks of adolescence as being the development of a sense of mastery, identity, and intimacy, and researchers over the years have expanded on this initial list to include such things as developing a sense of autonomy, sexuality, and achievement. There are few developmental periods characterized by so many changes at so many different levels as those experienced during adolescence – changes which not only open up opportunities for positive growth, but also opportunities for negative outcomes.

While the family has played a crucial role during childhood, and continues to be an important influence during adolescence, outside institutions (e.g., school, work) and relationships (e.g., teachers, friends, and peers) play an important role in helping adolescents make the transition from childhood to adulthood. Recently policymakers, practitioners, and families have embraced the idea that after-school programs for youth have the potential to provide contexts and opportunities for experiences that can play a critical role in helping adolescents master key tasks during this developmental period. Of particular importance is the idea that after-school programs can provide opportunities for experiences not readily available during the in-school hours.

- **Changing family relationships.** The changing nature of an adolescent's relationship with their parents gives adolescents an opportunity for greater independence from the family. After-school programs can provide a bridge between the family and the community, helping parents give increased independence to their adolescents while still maintaining a safe environment.
- **Deepening peer relationships.** Adolescents begin to have opportunities to explore new personal, social, and sexual roles and identities – developing peer relationships into deeper friendships and intimate partnerships. After-school programs can provide opportunities for adolescents to connect with peers in a positive way, exploring changing expectations among the peer group within focused and structured activities and opportunities.
- **Increasing exposure to the wider community.** Adolescents also begin to have opportunities to participate in experiences that give them opportunities to connect with adults outside of the family. After-school programs can help young people to participate in communities in meaningful ways – bonding with trusted adults outside of the family and exploring their own identity in a safe setting.
- **Developing skills and competencies.** Adolescents increasingly have opportunities to participate in experiences that help them develop educational and vocational skills and

competencies. After-school programs can provide extra support to help young people improve their learning skills and abilities, helping them to develop skills and competencies but also helping them to think about learning in new and novel ways.

Trends in After-School Programming

Broad developmental goals are just one influence on the nature of after-school programming. There are a number of trends in after-school programming that are influencing not only the content of programs, but also policy and funding for programs. For each trend, we have identified some goals for after-school programs that have been adopted by specific programs in recent years that reflect those trends.

Trend 1: More evidence-based programming

Within education and social services, the trend toward requiring more “evidence-based” practice continues to grow. The standard for “evidence” that a program works, moreover, is getting higher. For example, the *No Child Left Behind Act* defines scientifically-based research in education as involving “observation or experiment” that employs either a quasi-experimental or experimental design with random assignment. In social services, the trend toward requiring programs to show results is also continuing to expand.

Program goals that reflect Trend 1:

- To document impact of after-school curricula and increase the use of effective curricula (Institute of Education Sciences, U.S. Department of Education)
- To build successful, sustainable after-school programs based on successful district models (Council of Chief State School Officers)

Trend 2: Increasing focus on standardized achievement tests as the chief aim of education

In the recent past, education’s mandate has been broader than increasing student test scores; the goals of developing an educated citizenry and promoting young people’s social development were seen as important system-wide goals. Today, however, the goal of most reform in education (both within schools and outside schools) is improving achievement; achievement is measured primarily in terms of standardized test scores. Schools are held accountable for growth in these scores, and so, too, are many after-school programs.

Program goal that reflects Trend 2:

- To improve student achievement through after-school programs as measured by standardized test scores (Institute of Education Sciences, U.S. Department of Education)

Trend 3: The maturation of the youth development field

Youth development as a research tradition, perspective on practice, and approach to policymaking has matured in recent years. There are now a number of studies published that support the idea that a holistic, growth-focused approach to developing youth programs is necessary, even for youth living in high-risk environments. A focus on *developmental opportunity*, rather than risk, has now become an established norm for youth programming. In addition, a number of organizations

now exist to support the integration of a youth development perspective into after-school programming. At the national level The After-School Corporation (TASC) serves as a resource center for helping after school programs realize youth development ideals in their activities.

Program goals that reflect Trend 3:

- To restore the balance between academics and civic engagement as aims of education (American Youth Policy Forum)
- To develop a coordinated, comprehensive after school program for every young person in Detroit (Mayor of Detroit)

Trend 4: Tentative bridge-building between the education and youth development worlds

A recent trend has also been the attempt to begin to build systematic bridges between the worlds of school and after-school programs. In some communities, schools have sought to re-fashion after-school programs in the image of schools, with more academically focused activities led by certified teachers. In other communities, such as New York, youth development advocates have become powerful forces within schools, seeking to refashion secondary schools to provide more opportunities for youth voice, leadership, and authentic skill building. Often this link has been no more than a liaison between the school and after-school programs – facilitating communication and coordination. In most communities, this bridge-building has been undertaken with much unease, since the cultures of school and after-school programs have in the past been widely different and because many young people who are failing in school are youth who thrive in after-school settings.

Program goals that reflect Trend 4:

- To create schools as communities where youth and families can receive all their vital educational and social services (“full-service schools” movement)
- To bring what is known about youth development into discussions about education and learning, so that schools, libraries, community centers and other places young people spend time can become “youth-centered” learning environments (The Forum for Youth Investment)

Academically-Oriented After-School Programming

Landscape of Programming

In recent years there has been rapidly increasing attention paid to the role of after-school programs in promoting academic achievement. Historically, many after school programs were founded to provide a safe, well-supervised place for children in the out-of-school hours, provide opportunities for recreational activities, and to provide opportunities for social and emotional growth. However, more recently many programs have focused on helping students achieve academically. This has been particularly the case in the last 10 years where there has been increased focus by the federal government on test scores and school accountability. This increased focus on academics has been matched with increased funding for after school programs as a means of accelerating the achievement of students, particularly those at risk of academic failure due to poverty, lack of parental support, reduced opportunities to learn, and other socioeconomic and academic factors (Fashola, 1998).

Proponents of academic programming in the after-school hours argue that beyond providing enriching experiences and helping students avoid anti-social behavior or develop positive socio-emotional outcomes, after-school programs can help improve the academic achievement of students, particularly those students not achieving well during the in-school hours (Fashola, 1998). It is suggested that after-school programs can serve students better because of their unique setting – for example, a smaller number of children means more effective use of resources (e.g., better computer ratios, more room in classrooms, increased one-on-one tutoring).

Academically focused after-school programs vary widely in terms of the type of program and their purpose. One way of defining programs is by breaking them into three categories: day care, after-school programs, and school based extended day programs (Fashola, 1998). *Day care programs* typically focus on providing students with a safe, supervised environment - emphasizing recreational and cultural activities. Typically serving younger children (preschool through 3rd grade), these are seldom aligned with school activities and the programs typically emphasize safety, positive climate, and enjoyable activities. *After-school programs* are as likely to emphasize academic and non-academic activities. Typically serving school-age children (ages 5 – 18), these programs may or may not have links to schools. These programs provide instruction and classes of interest to the youth, with academic achievement and other school-related outcomes being either primary or secondary goals depending on the program. *School-based academic extended day programs* are directly connected to what takes place during the school day. While also including a mix of academic, recreational, and cultural programs, the academic goals are clearly defined and regular school staff often provide instruction to the students during these after-school hours.

One example of a community-based academically focused program operating in San Francisco, **826 Valencia** provides a variety of opportunities and experiences designed to help students, ages 8 – 18, develop their writing skills in the realm of creative writing, expository writing, and English as a second language. Knowledgeable volunteers help students with free one-on-one tutoring designed to help children discover their own voice. Free in-depth workshops are taught by professionals in a variety of topics such as SAT prep, creative writing, journalism, film, comics, and publishing to the Web. One workshop takes a group of students through the writing process from deciding on character and plot points, to typing the story into the computer, having an artist

illustrate the pages, and binding the final product so that each student takes home a copy of the book. In addition to offering free tutoring and workshops, they also help students create their own story collections, magazines, and other publications.

Further information about 826 Valencia can be found at: <http://www.826valencia.org/>

Research on Academically-Oriented After-School Programming

Although educators and policymakers have advocated before and after-school programs as a way of improving academic achievement (Melaville, 1998; U.S. Department of Education and U.S. Department of Justice, 1998), there are few published studies showing positive effects of these programs on academic outcomes. Overall, the research on the impact of after-school programs on academic outcomes has been somewhat mixed. Fashola (1998) reviewed 34 after-school and extended day programs that provided evidence of effectiveness for improving student outcomes. The programs he reviewed fell into 5 categories – language arts, study skills, other academic, tutoring, and community-based. All of the 34 programs were academically focused, and although much of the evidence of effectiveness was based on in-school use, many programs had also been adapted for out-of-school use.

In reviewing this and other research, some studies indicated links to increases in academic and social skills and work habits (Engman, 1992; Henderson, 1990; Mercure, 1993; Milch, 1986). Other studies showed links between academic success and particular characteristics of programs; successful programs having formal, structured activities that are developmentally appropriate and of interest to the participants (Baker & Witt, 1995; Pierce, Hamm, & Vandell, 1999; Posner & Vandell, 1994; Rosenthal & Vandell, 1996; Vandell & Corasaniti, 1998).

However, other research has found mixed results. For example, one recent study by the National Institute of Child Health and Human Development Early Child Care Research Network (2004) found that children who consistently participated in extracurricular activities during kindergarten and first grade obtained higher standardized test scores than children who did not consistently participate in these activities. However, no other type of out-of school care (before and after school programs, sitters, fathers, and non-adult care) was associated with child outcomes. This finding is consistent with other research showing the benefits of voluntary extracurricular activities such as sports, music, lessons, or clubs (Cooper, Valentine, Nye, & Lindsay, 1999; Eccles & Barber, 1999; Mahoney & Cairns, 1997), perhaps because of the higher levels of intrinsic motivation and engagement during extracurricular activities than during leisure or school (Larson, 2000). Although this suggests the importance of the after-school hours, the existing research has not found evidence of consistent benefits of before and after-school programs for academic outcomes at least for the early elementary grades.

While the body of literature on the effectiveness of academically focused after-school programs has been growing over the last 10 years, there is still limited research on the effects of programs on student achievement. Although there is some work showing the benefits of after-school programs for academic achievement, many studies have found highly inconsistent results. One reason for this inconsistency is the difficulty in conducting this research. Selection bias is a frequent problem, as after-school programs are generally voluntary and not mandated – therefore children choosing to attend after-school programs may differ in important ways from those not choosing to attend (e.g., prior academic functioning). In addition, it can be difficult to study these programs which

frequently vary greatly from one another in the type of care provided and goals of the program, as well as in the actual program activities. In addition, studying the effects of after-school programming on school-day academics can be challenging as the links between the two are often tenuous at best.

Still, although there is no easy answer as to what works best, and while more research clearly needs to be done, there is a sufficient body of literature to acknowledge that at a minimum, the time after school is a prime opportunity to complement what happens in school (Fashola, 1998). Although there is little research establishing definitive links between academic outcomes and after-school programs, researchers have begun to identify promising practices and recommendations for effective implementation of academic programs including the following:

- Create a structured program with clearly defined academic goals
- Develop procedures and expectations for both staff and students
- Establish and maintain formal links to schools – either through shared staff or a designated coordinator
- Hire qualified staff members and provide high quality professional development/training
- Provide one-on-one time for students to work with adults
- Include program evaluation that is linked to clearly defined academic goals
- Include families and students in planning in order to be responsive to participants needs and interests
- Have an advisory board

Mentoring Programs

Landscape of Programming

Mentoring programs are a type of youth development programs that focus on providing youth with a consistent, supportive relationship with a trusted adult or an older peer. The assumption behind mentoring programs is that many youth need an ongoing relationship with a positive role model, beyond their immediate family or school context. Mentoring programs vary in focus: some are aimed at promoting social development through recreation together, while others are aimed at providing support for specific skill development in areas like sports or academics. For all mentoring programs, some level of play and youth-directed activity is part of the program, in part because these activities are believed to build trust (Herrera, 2004). Mentoring programs are based in schools, community organizations, faith-based organizations, or in the workplace (typically as part of a workforce development program).

Most programs emphasize the need for mentoring relationships to endure over a long period of time – with many emphasizing the need for relationships to last a year or more. The duration of the relationship is believed to be critical, because it takes time for trust to develop in the relationship. Many serious issues addressed in mentoring programs – such as poor performance in school or family difficulties – do not arise and cannot be discussed with mentors until youth perceive there to be a strong and committed bond with the mentor.

The most well-known community-based mentoring program, **Big Brothers Big Sisters of America (BBBSA)**, has a structured approach to supporting mentors and mentees who are matched together. Program staff recruit and carefully screen volunteer applicants for one-to-one matches. Volunteers' backgrounds and preferences factor into the match. The program also screen youth, who usually come from single-parent households and who must (along with their parents) desire to enter into a match. Youth and adult pairs are expected to meet for 3 to 4 hours 3 times per month for at least a year.

A school-based program that operates in many California high schools is **AVID (Advancement Via Individual Determination)**. AVID was developed by University of California (UC) researchers aimed at providing African American and Latino students interested in going to college with the supports they would need to succeed in school and meet UC requirements. In many AVID schools, students have an AVID mentor who may provide 1-1 tutoring and counseling. Often, mentors also engage in fun recreational activities with mentees.

Research on Mentoring Programs

Of the different forms of programming we reviewed, mentoring has the strongest research base. There have been studies of the impact of mentoring using random assignment, which provides an unbiased estimate of the magnitude of mentoring's effects. There have also been studies that have examined what "best practice" is in the field, and best practices have been correlated with objective outcome measures.

An impact study of mentoring conducted by Public/Private Ventures found positive effects of mentoring after 18 months of participating in Big Brothers/Big Sisters of America's community-based mentoring program (Tierney, Grossman, & Resch, 1995). The study included 959 youth ages

10 to 16. Compared to youth randomly assigned to a control group, youth assigned to mentors were less likely to start using drugs and alcohol, less likely to hit someone, more likely to attend and do well in school, had better attitudes toward school, and reported improved peer and family relationships.

A meta-analysis of 55 outcome studies subsequently conducted found more modest effects of mentoring than did the experimental study by Public/Private Ventures (DuBois, Holloway, Valentine, & Cooper, 2002). Meta-analysis is a technique for estimating the size of effects across a wide range of studies. Although this particular meta-analysis found that average outcomes were smaller in size, it did confirm much of what program advocates believe are “best practices” in the field. The researchers found effects were larger when the programs provided ongoing training for mentors, structured activities for the pairs, expectations about frequency of contact, and mechanisms for support, involvement, and contact. The researchers also found that frequency of contact, perceived closeness of the relationship from youth’s perspective, and longevity of the match were critical best practices. Other studies that have since examined the effects of time (Grossman & Rhodes, 2002; Herrera, 2004) and the quality of relationships (Grossman & Johnson, 1999) have confirmed these dimensions as critical components of mentoring.

Research on school-based mentoring suggests some factors that are important to consider. School-based mentoring may be most conducive to improving behavior and relationships in school, which is a critical factor in school success (Herrera, 2004). However, researchers have not found school-based mentoring to have an impact on school attendance or on relationships with adults outside the school (Herrera, 2004). In addition, the relationship may need to last at least a year for academic outcomes to improve. Lee and Cramond (1999) found academic aspirations of youth in mentoring relationships improved only after a full year of participating in a mentoring relationship. Improving academic outcomes may, furthermore, need more than once per week to accomplish these outcomes. In school-based programs, it is no less important for programs to consider the role of informal, fun activities and developing a personal relationship with mentees. Taking time to talk about personal issues has been found to be important to relationship-building in school-based mentoring programs (Herrera, 2004).

A good resource for designing mentoring programs can be found at:

<http://www.nwrel.org/mentoring/>

After-School Arts Programming

Landscape of Programming

Not only are art programs widely offered in after-school settings, but the type of art programs also varies widely with programs offering visual arts and crafts, dance and movement, creative writing, trips to performances, drama or theater, and music instruction (Reisner, Russell, Welsh, Birmingham, & White, 2002; Reisner, White, Russell, & Birmingham, 2004). Programs offer visual arts and crafts and dance and movement most intensively and music instruction least intensively. Importantly, programs offered arts activities to youth in as great intensity as they did in cognitively or academically focused activities (Reisner et al., 2004).

Research on Art Programming

There is a growing body of evidence of the effects of music, arts, and drama on academic outcomes. The outcomes that have been measured included not only standardized test scores, but also (and somewhat more often) critical and creative thinking skills and motivation as well as aspects of social development. Research has indicated that participation in arts programs may help strengthen academic and social skills in such areas as reading, language, mathematics, writing, communicating, critical thinking, student motivation, and creative thinking (Catterall, Chapleau, & Iwanga, 2000; Deasy, 2002; Moga, Burger, Hetland, & Winner, 2000; Pankratz & O'Donnell, 2001). And while we did not find any studies that identified specific thresholds of participation for achieving outcomes, some studies have found effects from programs that meet as little as once per week for 4-6 months.

Much of the research on arts participation and academic achievement comes from in-school arts programs, and there is a relatively small research base on participation in and outcomes of after-school arts programs. However, there is some research indicating links between art programs and increases in self-esteem, social skills, and leadership competencies (Mason & Chuang, 2001); higher involvement in community service activities, goals to pursue formal education past high school, and awards for academic achievement and school attendance (Heath & Roach, 2000); and better access to neighborhood resources, relationships with adults, and ability to work with others (Baker & Hull, 1998).

Although there is an emerging consensus that involvement in the arts is often associated with academic, social, and developmental outcomes, there is less research that provides an empirical base for determining what high quality, effective arts programs look like. Researchers have, however, suggested the following areas are critical features of high quality arts programs:

- Designing innovative and complex learning opportunities in the arts; supporting direct connections between youth and professional artists; promoting youth direction, including encouraging youth to take and manage risks and be challenged through art experiences; creating an environment for hiring and developing high-quality staff; and involving family and community members (Catterall et al., 2000; The After-School Protocol Task Force, 2000);
- Opportunities for youth to plan and manage collaborative activities; modify their performances or products on the basis of external review and critique; and take risks and be challenged by adults and peers (Heath, 2001; Heath & Roach, 2000; Soep, 1996; Walker, 2003); and

- Developing high-quality staff who provide youth with meaningful input, provide high levels of support, and collaborate with outside artists (Heath, 2001; Ingram & Riedel, 2003; Ingram & Seashore, 2003; Mahoney, Schweder, & Stattin, 2002).

Researchers have also identified a number of barriers to implementing high-quality arts programming in after-school settings. These include addressing the needs of diverse students, dealing with inconsistent participation patterns of students, inexperienced staff and low pay (Weitz, 1996). There are also difficulties pertaining to scheduling and space including the tension created when the space that is allocated for arts programming must be kept in order and not get too messy, directly in contradiction of the norms of artists which emphasize creative self-expression (Quinn & Kahne, 2001). Finally, suitable assessments of arts learning are difficult to obtain, and there remains considerable disagreement about the kinds of links that ought to be forged between art and other subject matter (Catterall et al., 2000; Deasy, 2002; Eisner, 1998; Winner & Cooper, 2000; Wolf, 2003).

A community based program in Berkeley, California, the **Center for Digital Storytelling** is a non-profit arts organization rooted in the art of personal storytelling. They assist young people and adults in using the tools of digital media to craft, record, share, and value the stories of individuals and communities, in ways that improve all our lives. The goal of the workshop is to design and produce a 3-5 minute digital story. Students craft and record first-person narratives, collect still images and music with which to illustrate their pieces, and are guided through computer tutorials which enable them, with teacher support, to edit their own stories. Based in the idea that story telling and listening not only helps the teller in the telling, it helps the listener in the hearing, the Center for Digital Storytelling uses workshops to encourage thoughtful and emotionally direct writing to inspire participants and connect people across great distances.

After-School Sports and Fitness Programs

Landscape of Programming

There are a wide variety of sports, fitness, and recreational programs offered to young people in the after-school hours. These activities vary widely with respect to their frequency, duration, and relative focus on individual or team competition. There are some programs like Little League baseball that are seasonal, team competition sports activities sponsored by agencies. National youth organizations such as the YMCA and Boys and Girls Clubs offer team sports and a wide array of non-competitive, recreational activities. Some of these activities are drop-in, and they are relatively unstructured. There are club sports in which students pay for services, and free programs offered by community recreational programs. Intramural and interscholastic sports are two school-based forms of sports programming.

Not surprisingly, the goals of such programs differ widely; some activities emphasize skill development, while others emphasize teamwork, cooperation, or just having fun. Public health officials stress that sports and fitness activity can boost physical health and reduce the risk of obesity. Advocates of recreation from a youth development perspective emphasize that physical activity is a principal means of self-expression and creativity; in addition, physical activities at which youth excel can be a source for feelings of competence youth may not acquire from school (Halpern, 2003). Team building is a core feature of adventure-based programs such as Outward Bound, which engage youth in physical challenges with peers.

One local program that has sought to integrate youth development perspectives into community-based sports and fitness programs is **Team Up for Youth** of Oakland. Team Up for Youth provides training and grants to local community groups to develop physical fitness and sports programs. They emphasize variety in activities, from running to rowing to soccer and hip-hop dance. In addition, Team Up for Youth has developed a clearinghouse for resources on how to design programs to get youth moving that are consistent with the ideals of giving youth choice and voice in activities.

Research on Sports and Fitness Programs

There is not much evidence about the effectiveness of community-based sports and fitness interventions, and the evidence that does exist is mixed. Research has indicated that participation in sports activities have been linked to risk taking behaviors (e.g., increased alcohol consumption and violence), however, for the most part participation in sports programs have been associated with increased attachment to school, increased self concept, strengthening of leadership skills, a sense of belonging, and teamwork (Baker, Freedman, & Furano, 1997; Dworkin, Larson, & Hansen, 2003; Eccles & Barber, 1999; Hansen, Larson, & Dworkin, 2003). Programs are fun and inclusive and youth have a strong sense of ownership over activities, but sports in after school programs tend to be male-oriented or male-dominated (Halpern, Barker, & Mollard, 2000; Wilson, White, & Fisher, 2001; Youth Sports Leadership Project, 2002). In addition, some research suggests that physically active girls have a higher risk of developing body image and eating disorders than their less active peers (Kane & Larkin, 1997).

Rigorously designed experimental studies have generally shown positive effects of interventions to increase youth's level of physical activity. One multi-center randomized trial reported significant

results for increasing moderate to vigorous physical activity in physical education (PE) and increase vigorous physical activity outside of school (Stone, McKenzie, Welk, & Booth, 1998). A set of integrated clinical trials called the “Girls Health Enrichment Multi-Site Studies,” is examining the effectiveness of different community-based interventions to promote physical activity among African American girls entering puberty. To date, reports have yet to produce final results, but the study has been successful in documenting the feasibility of high-quality implementation of programs across a range of sites. At the same time, one quasi-experimental study that looked at the effects of a community-based program for fifth-graders found no positive effects, but the study did identify two factors—difficulty hiring qualified staff and low attendance—that contributed to the program not being implemented well and that are common to many programs (Pate et al., 2003).

Some of the more consistent evidence of positive effects comes from Outward Bound-style adventure programs, which typically involve team-based physical challenges. A meta-analysis conducted on adventure programs suggests that participation in such activities influence leadership skills, self-concept, cognitive development and interpersonal skills (Hattie, Marsh, Neill, & Richards, 1997). This meta-analysis found that participation in adventure-based programs had the greatest effect on self control. This dimension included independence, confidence, self-efficacy, self-understanding, assertiveness, internal locus of control, and decision-making.

Despite limited research on effective interventions, there has been research to suggest that in general, physical activities have important benefits for youth, and that on average, youth get very little exercise in school. For example, studies have found that participation in physical activity can increase adolescents’ self-esteem and reduce anxiety and stress (Render, Bar-Or, & Mitchell, 2002; U.S. Department of Health and Human Services and Department of Education, 2000). One study found that on average, children received only 25 minutes per week of moderate to vigorous activity in school physical education (P.E.) classes (i.e. less than 10% of the 60 minutes per day recommended by many current guidelines) (The National Institute of Child Health and Human Development Study of Early Child Care and Youth Development Network, 2003). The study also found that children were not attending P.E. class often enough or spending enough time being physically active in these classes – only 6% attended P.E. class daily and during P.E. class they engaged in under fifteen minutes of moderate to vigorous physical activity.

The Team Up for Youth Framework is available at: <http://www.teamupforyouth.org/10.html>.

Community Technology Centers

Landscape of Programming

CTCs have many of the features described by Heath and McLaughlin (1994) as characteristics of youth organizations: an inviting, friendly space for youth; a view of youth as resources; ample opportunities for participation; guidance from caring, supportive adults; and opportunities to master tools through authentic activity. These settings, moreover, are ones in which adults are more likely to position youth as resources than as problems to be solved or as targets of after-school care. Although young people who participate in CTCs tend not to have access to technology at home and may initially be as unfamiliar with technology as are staff, they typically learn how to use the technology quickly, often more quickly than do adults. Youth's emerging fluency with technology can provide an exciting focus for a youth development program.

CTC activities are housed in institutional settings that provide access to tools (i.e., computers and the Internet) to youth who are less likely to be able to use such tools as extensively elsewhere. Participation in CTCs is often exploratory (based on open access to different software tools, Internet-related tools, and peripherals) and encourages experimentation. But such opportunities also involve guided practice with new technologies (unlike library or home use of those technologies). The tools to which young people have access in CTCs are not just productivity tools to be used to fulfill curricular goals of school, they are also design tools used in the world of work that allow new avenues for creative self-expression (AQUENT partners, 1998). CTCs aim to make available for use many "adult" tools that professionals use, with the aim of providing youth with tools that – if they master them – provide youth with genuinely expanded opportunities for employment. In some cases, providing tools that empower youth means giving them tools that are easier to learn than adult productivity tools (Penuel, Gray, & Kim, 2003, December).

Adult leaders of successful CTCs value the diversity of ages, talents, experiences, and needs of the young people who participate in their programs. These adults show they respect and value the potential of youth through how they organize activities, space, and discussion in the programs. By employing youth's suggestions and supporting their initiative, adult leaders affirm young participants' experience of belonging in and having a voice in their organizations (Heath & McLaughlin, 1994; Seer, 2001). Seer (2001) gives explicit examples for ways that adult leaders can design programs to create "youth space" and support developmental needs of youth.

CTCs sometimes draw youth to their programs with the promise of helping them become active citizens or contributors to public dialogue. **OpenVoice**, an organization that supports teen-run online communities, focuses on enhancing civic engagement by training local youth staff to become technologically fluent in media production and to become digitally literate in maintaining and moderating online discussions across the country on issues of significance to youth. CTCs are also organized around computer use in spaces that are youth-friendly or where youth tend to gather outside of school. For example, the **CyberCafe** in Los Angeles is a youth technology center for gay, lesbian, bisexual, and transgendered (GLBT) youth. Most of the teen staff live in a shelter for GLBT youth. Participants contribute to the design and culture of the shelter and the CyberCafe, making them safe, inclusive spaces targeted to meet participants' needs. At both OpenVoice and CyberCafe, youth serve as teachers as well as learners, leading many different aspects of program activities under the guidance of adults and more experienced peers. This type of guided

apprenticeship is intended to allow youth to develop their own skills, contribute to the growth of others, and forge identities as valuable members of a community.

Research on Community Technology Centers

Although we know from research how technology can enrich learning for young people in schools (e.g., Becker et al., 1999), we know less about the role of technology in learning and development in the context of after school programs.

Still, research on CTCs has produced promising initial findings regarding mastery of new technologies. Michael Cole and his colleagues at the Laboratory for Comparative Human Cognition undertook some of the earliest work in this area. Cole's **Fifth Dimension** after-school program, which targets school-aged youth, incorporates widely-available educational software such as skill-boosting games in an activity setting that blends both fun and focused learning (Cole, Quan, & Woodbridge, 1995). Studies of the program have centered on its effect on younger children's learning and development of basic literacy skills. In a similar time frame, the pioneering work of researchers at MIT's Media Laboratory led to the development of the **Computer Clubhouse** model to promote technological fluency among urban youth. Research has focused on many aspects of the program model (Pryor et al., 2002) and on assessing program outcomes (Gallagher, 2006). Mitchell Resnick and program founders have also written about the design principles they used to create a constructivist learning environment at the heart of the Clubhouse model (Resnick & Rusk, 1996).

Nearly all externally funded CTCs depend on grants from organizations that require them to evaluate the effectiveness of their programs. However, the challenges of measuring program impact in the lives of youth have made it difficult for most CTCs to document program effectiveness (Korbak et al., 2000). Most evaluations of CTCs have focused on participant satisfaction and on centers' degree of success in creating and implementing programming matching the CTCs mission. Some of these evaluations have not differentiated outcomes for youth from those for adults. Others have not addressed what are commonly considered softer outcomes, focusing instead on such factors as job placement.

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