

**Report on the 2022
Youth Impact Survey of
Clubhouses & Teen Tech Centers**
AUGUST 2022

Prepared for
The Clubhouse
Network &
Best Buy
Foundation

Prepared by
Informing Change



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EXECUTIVE SUMMARY

In this report, we share findings, insights, and considerations drawn from a survey of members (ages 13–22) participating in programming at Best Buy Teen Tech Centers (**TTCs**) and **Clubhouses: Where Technology Meets Imagination**. All TTCs and Clubhouses are affiliates of The Clubhouse Network (**TCN**). Informing Change fielded the survey in January and February of 2022. The online version of the survey was available in nine languages, with an option to complete a paper-based survey which was made available in English only.

In the *Youth Impact Survey (YIS)*, we asked program members about their TTC/Clubhouse experiences, what was most important to them, their growth in STEAM knowledge, technical and core skills, their future interests, and the ways participating in TTCs/Clubhouses contributed to these.

A total of 1,012 members from 17 countries completed the 2022 YIS.ⁱ The survey includes responses from:

- 526 Teen Tech Center members, 440 Clubhouse members, and 46 respondents who were uncertain of their TTC/Clubhouse name.
- Members who identify as male (55%), female (39%), and non-binary (4%).
- Members in the US who predominantly identify as Black/African American (41%) or Latinx/Hispanic (30%).
- Members who are in high school (71%), elementary/middle school (19%), and post-secondary school (4%).

Teen Tech Centers, Clubhouses & Covid

TTCs/Clubhouses throughout the world continued to respond to the Covid-19 pandemic and experience the pandemic's effects during early 2022 when we fielded the YIS. As a result of the pandemic, some sites remained closed in early 2022, others provided programming online, others were open either at reduced or full capacity, or a combination of these scenarios.

Findings

Here, we present findings from the 2022 YIS related programmatic outcomes and TTC/Clubhouse member experience. Overall, members report improved or increased important skills and perceptions of themselves. They report favorable experiences at their TTC/Clubhouse and with the adults who mentor them.

Skill Development

Members spend time developing skills within the science, technology, engineering, arts, and mathematics fields (STEAM) and at the intersection of art and technology at TTCs/Clubhouses. By interacting with adults at TTCs/Clubhouses and pursuing their interests, members are exposed to workforce and social skills needed to be successful in their educational and career endeavors.

ⁱ We originally received a total of 1,495 responses. A subset of responses was excluded from analysis because they were duplicate responses (multiple responses from the same person), did not meet the survey age requirement, or were too incomplete to include in the analysis.

Respondents generally report their TTC/Clubhouse experience contributes most to developing skills that relate to being **resilient (91%)**, **comfortable using technology (87%)**, and **creative (83%)** (Exhibits ES1 and ES2). Respondents also tend to reflect that their TTC/Clubhouse experience contributes more to their **core skills (82%–91%)** than **technical skills (65%–72%)**, *except* for greatly boosting their comfort and ability to interact with technology, which is much higher than other technical skills (87%).

EXHIBIT ES1. TTC/Clubhouse Contribution to Technical Skills (n=955–967)

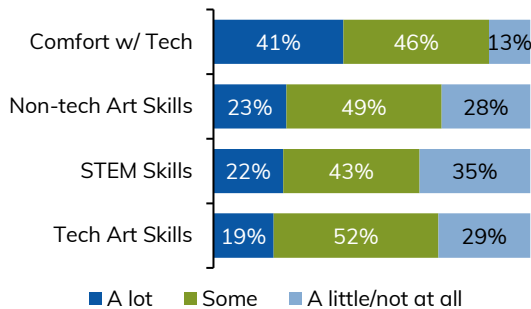
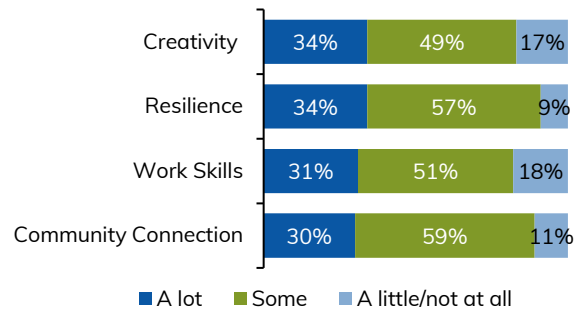


EXHIBIT ES2. TTC/Clubhouse Contribution to Core Skills (n=956–976)



Those with frequent participation rate TTC/Clubhouse contributions slightly higher than those with infrequent attendance, particularly for creativity, resilience, and comfort with technology skills.

Education & Interests: TTCs/Clubhouses foster a commitment to education. Eighty-three percent (83%) of respondents say their TTC/Clubhouse increased their commitment to either doing well in school or continuing their education beyond high school.

- Most respondents express a high level of interest in STEM (75%) and the arts (74%).
- Just over three-fourths of respondents say their interest in studying STEM (76%) or art (80%) increased “a lot” or “some” because of their TTC/Clubhouse experience.
- Graduating from high school is “important” or “very important” for 97% of respondents.
- Only a few differences based on gender/sex were observed. Female members are more likely to report they plan to attend university (68%) than males (51%), and males are more likely to attend a two-year (14%) or job-specific program (17%) compared to females (9% and 10%, respectively).

Optimism & The Future: Respondents report that the TTC/Clubhouse experience builds their optimism about the future. Respondents agree or strongly agree that they...

- ...feel more optimistic about their future because of their TTC/Clubhouse participation (92%).
- ...will be able to get the kind of job they want in the future because of their TTC/Clubhouse participation (90%)
- ...are now equipped with the technology skills (90%) and personal skills (93%) they’ll need to be successful in their future careers because of their TTC/Clubhouse participation.

Respondents’ Experience with Teen Tech Centers & Clubhouses

Respondents describe their TTC/Clubhouse as a fun or cool place to try new skills, be creative with technology, and have an opportunity in a constructive environment outside the constraints of a typical school and classroom setting. Words like “fun,” “new,” “creative,” “technology,” and “learn” are among the most common words members use to describe their TTC/Clubhouse experience.

Respondents attend their TTC/Clubhouse frequently and tend to stay for long periods of time. Almost two-thirds come to their TTC/Clubhouse multiple times per week and spend more than two hours per week there.

We found a few differences in attendance frequency based on demographic characteristics:

- Male respondents reported higher rates of frequent participation (defined as 12 or more hours per month) (71%) than female respondents (61%).ⁱⁱ
- Asian/Asian-American members and youth who wrote in a unique race/ethnicity response reported the lowest rates of frequent participation (42% and 48%, respectively).

When asked about feelings of safety, connection, and belonging, nearly all respondents report high levels of satisfaction and positive experiences. Respondents agree or strongly agree that they feel safe (97%), like their opinions are considered (95%), and like they belong (94%) at TTCs/Clubhouses.

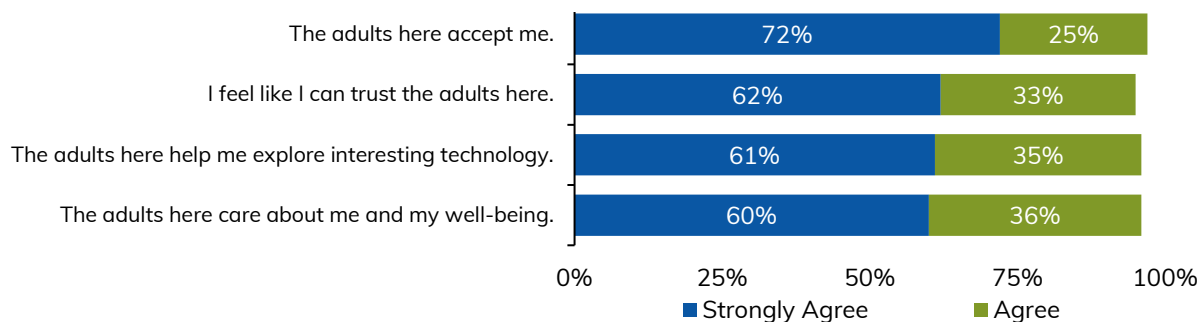
What Matters to Members

It is most important to respondents that TTCs/Clubhouses are safe spaces where they can do creative things with technology that interests them. Over 90% of respondents reported that the following five reasons are important or very important reasons they visit their TTC/Clubhouses. TTCs/Clubhouses are: 1) safe and happy places to be, 2) where members can be creative, 3) do things that interest them, 4) work with cool technology, and 5) learn new skills.

Experiences with Adults

Nearly all respondents report having “positive” (88%) or “somewhat positive” (9%) experiences with adults at their TTC/Clubhouse. Respondents describe their relationships with adults as a two-way street and nine in ten respondents (91%) “agree” or “strongly agree” that adults at the TTC/Clubhouse learn from them as well. The multi-directional and inter-generational learning demonstrates the depth of collaboration at TTCs/Clubhouses and the sense of agency and confidence that young people experience there, which are critical qualities for future success (**Exhibit ES3**).ⁱⁱⁱ

EXHIBIT ES3. Experience with Adults (n=1,010–1,012)



ⁱⁱ To categorize the frequency with which a member attends their TTC/Clubhouse, we calculated a scale based on how often and for how long a member attends their TTC/Clubhouse. We then grouped the responses into two categories: frequent attendance for those who attended at least 12+ hours a month and infrequent attendance for those who attended less than 12 hours a month. See Appendix C for more details on the categories and analysis.

ⁱⁱⁱ Bars do not add up to 100% and include only two response options. Response options not shown include: Disagree, Strongly Disagree, I prefer not to say.

Discussion & Considerations

Overall, the YIS results provide insight into highly favorable and influential experiences at TTCs/Clubhouses. Members have overall positive experiences in activities, with caring adults and with their peers, which result in improved technical skills related to STEAM, improved core skills, and increased commitment to the future—including future education, career pursuits, and general belief in the possibility of what the future holds. Members value the opportunity to freely explore things that interest them—an approach that is embedded within TCN’s Learning Model.

Results from this year’s Youth Impact Survey are very similar to the results from the survey conducted most recently in 2019. There are a few differences between the two years. Compared to 2019, in 2022:

- More respondents reported growth in STEAM skills and core skills like project design, time management, communication, decision-making (6%-15% more).
- Slightly fewer respondents were likely to strongly agree or agree that their TTC/Clubhouse experience influenced growth in areas such as problem solving and self-efficacy (2%-7% less).
- Slightly fewer respondents were likely to strongly agree or agree that their TTC/Clubhouse experience influenced them having favorable perspectives on the future (3%-7% less).

The YIS provides a few key insights for TTC/Clubhouse leadership to consider as they plan for the future.

For Programming & Strategy

- Continue creating an encouraging, safe environment for members. At a time when mental health issues are a concern for youth around the world, the high levels of feeling safe (97%), a sense of belonging (95%), and peer support (94%) point to an important role TTCs/Clubhouses play throughout the Covid-19 pandemic.^{iv} The YIS results highlight the importance of having a safe space for members, who rely on the safe and energizing atmosphere.
- The decline in the proportion of members with positive outlooks on the future leaves a gap for needed support. TTCs/Clubhouses have the important opportunity to dedicate individualized attention to members that supports their futures, a finding that is supported by research that shows low-income students mentored by guidance counselors and other adults are more than twice as likely to attend some postsecondary education than students who have no mentoring relationship.^v
- The finding that female respondents are more likely to attend university than males (68% compared to 51%) is a notable difference, although it reflects the reality of college matriculation in the US.^{vi} TTCs/Clubhouses may consider designing programming specific to address this gap and support men on educational and academic paths, particularly young Black men and other men of color who experienced a dramatic decline in college enrollment during the pandemic.^{vii}

^{iv} <https://www.nytimes.com/2020/11/12/health/covid-teenagers-mental-health.html>

^v https://pathways.gseis.ucla.edu/publications/201209_MentorshipRB.pdf

^{vi} <https://educationdata.org/college-enrollment-statistics#:~:text=92.0%25%20of%20college%20students%20are,olds%20are%20enrolled%20in%20school>

^{vii} <https://www.insidehighered.com/news/2021/09/27/college-leaders-seek-boost-enrollment-black-men>

- There is value in frequent TTC/Clubhouse attendance as well as infrequent or even occasional attendance. We encourage TTCs/Clubhouses to explore ways to promote regular attendance while also maintaining opportunities for members who attend infrequently, ensuring all members have access to the opportunities that interest them.

For Evaluation

Consider revising the evaluation approach to strengthen results and ease the burden on TTC/Clubhouse staff and members. Here are a few places to start: shorten the survey; use data from sources, methods, and approaches other than a survey (e.g., digital registration information, TCN’s online community and member portal—The Village); consider participatory approaches to ensure the evaluation tools are relevant to a global audience.



INTRODUCTION

In this report, we share findings, insights, and considerations drawn from a survey of members (ages 13–22) participating in programming at Best Buy Teen Tech Centers (**TTCs**) and **Clubhouses: Where Technology Meets Imagination**. All TTCs and Clubhouses are affiliates of The Clubhouse Network (**TCN**). In the *Youth Impact Survey* (**YIS**), we asked members about their experiences at TTCs/Clubhouses, what was most important to them, their growth and future interests, and the ways participating in TTCs and Clubhouses contributed to these.

Although carrying different names, TTCs and Clubhouses are related historically, and in principles and core design. Clubhouses first opened in Boston in 1993, to provide technology-oriented access and creative and educational opportunities for young people from underserved communities. Over the years, the number and geographic reach of Clubhouses expanded significantly, in part through funding from the Best Buy Foundation, which adapted the Clubhouse model in developing TTCs to reach even more potential members from under-resourced and underserved communities.

Clubhouses and TTCs are guided by the four principles of the Clubhouse Learning Model:

Principle 1: Support learning through design experiences

Principle 2: Help members build on their own interests

Principle 3: Cultivate an emergent community of learners

Principle 4: Create an environment of respect and trust

TTCs and Clubhouses include programming elements that have been shown to promote post-secondary educational and career achievements. As articulated in the Best Buy Foundation’s TTC Elements & Drivers of Success (**Appendix A**), these include elements related to quality programming, mentorship, and experiential learning.

TTCs include additional programming and opportunities, such as Best Buy employees serving as volunteers, scholarship opportunities, and paid internships for members. TCN provides resources and services to all its affiliates (both TTCs and Clubhouses), including start-up support, professional development, new technology innovations, evaluation and assessment, partnership opportunities, and access to an online community for members, mentors, and staff. Both organizations work closely together to create and deliver quality experiences for all members.

The 2022 Youth Impact Survey (YIS)

The Best Buy Foundation and The Clubhouse Network (TCN) partnered with Informing Change to update, administer, and analyze the network-wide *Youth Impact Survey* (YIS) for participating youth (**members**) at Teen Tech Centers (TTCs) and Clubhouses.¹ We based the YIS on a previous version conducted by Inverness Research in 2019. Staff at TCN, Best Buy Foundation, and Informing Change worked together to update and revise the survey.

Informing Change fielded the survey in January and February of 2022. The online version survey was available in nine languages, with an alternative option to complete a paper-based survey which was made available in English only.

A total of 1,012 members from 17 countries completed the 2022 YIS.² We asked survey respondents to identify the TTC/Clubhouse to which they belong. Among the 1,012 respondents, 526 named a Teen Tech Center organization or program, 440 named a Clubhouse, and 46 were uncertain of their TTC/Clubhouse. We include all responses in our aggregate results but exclude the 46 respondents who did not identify their organization or program from detailed Clubhouse or TTC analyses.

In this report, we primarily share descriptive statistics on survey results. See **Appendix B** for a full list of survey questions and data tables. We conducted several tests of association between survey items and between survey items and demographics as described in **Appendix C**. We highlight meaningful and significant differences where they arise.



The Clubhouse Network's (TCN) mission is to provide a creative and safe out-of-school learning environment where young people from underserved communities work with adult mentors to explore their own ideas, develop new skills, and build confidence in themselves through the use of technology.³

Founded in collaboration with the MIT Media Lab, the first Clubhouse: Where Technology Meets Imagination, opened in 1993. Currently, there are nearly 130 Clubhouses and Teen Tech Centers in 21 countries, reaching more than 25,000 members each year.



Teen Tech Centers (TTCs) are a program of the Best Buy Foundation. Best Buy TTCs are safe, after-school learning environments equipped with cutting-edge technology. Participating members learn new skills, receive academic support, nurture meaningful adult and peer relationships, and prepare for the careers of the future.⁴ Best Buy first launched TTCs in 2012, to help teens from disinvested communities explore technology. There are 35 TTCs across the country with plans to expand to more than 100 by 2025.⁵

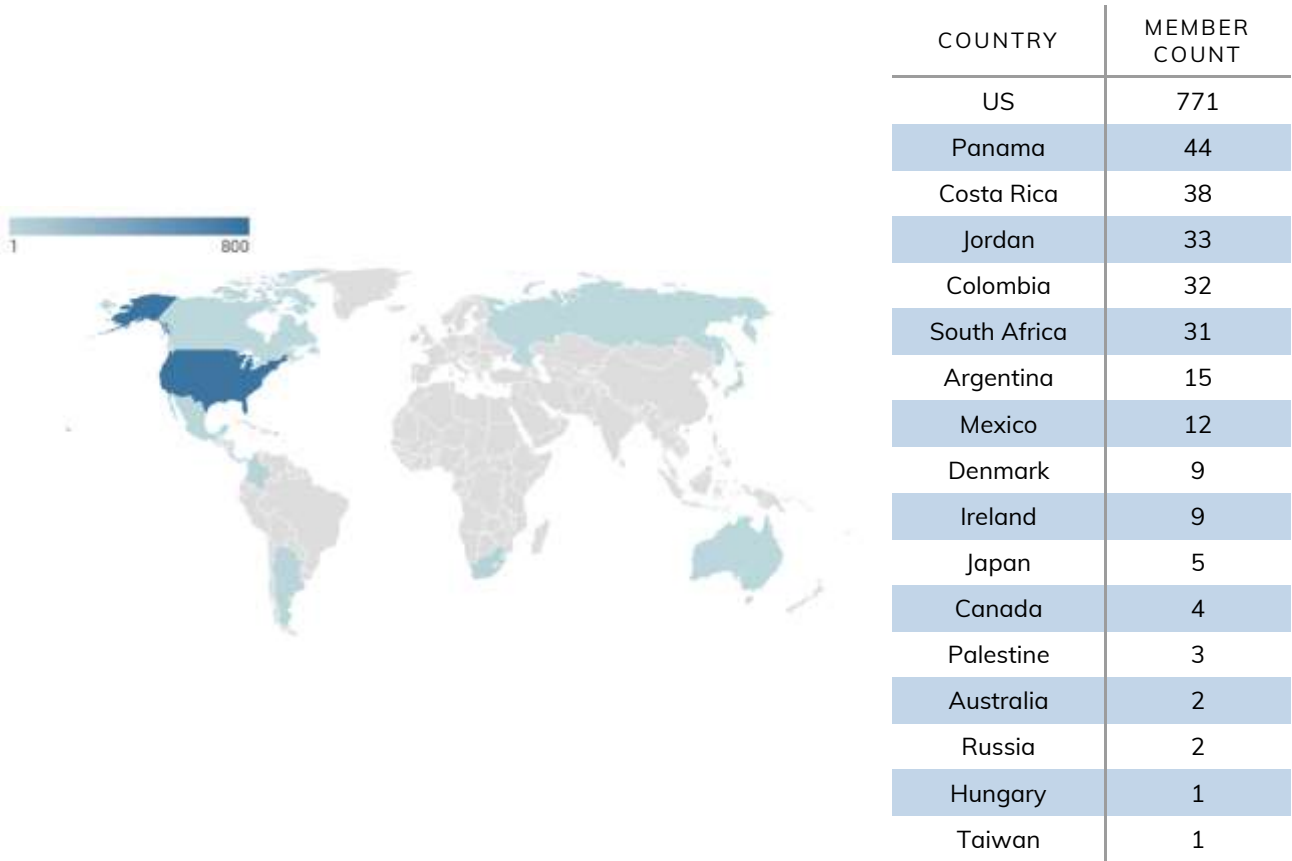
¹ The survey was originally developed by Inverness Research.

² We originally received a total of 1,495 responses. A subset of responses was excluded from analysis because they were duplicate responses (multiple responses from the same person), did not meet the survey age requirement, or were too incomplete to include in the analysis.

SURVEY RESPONDENT DEMOGRAPHICS

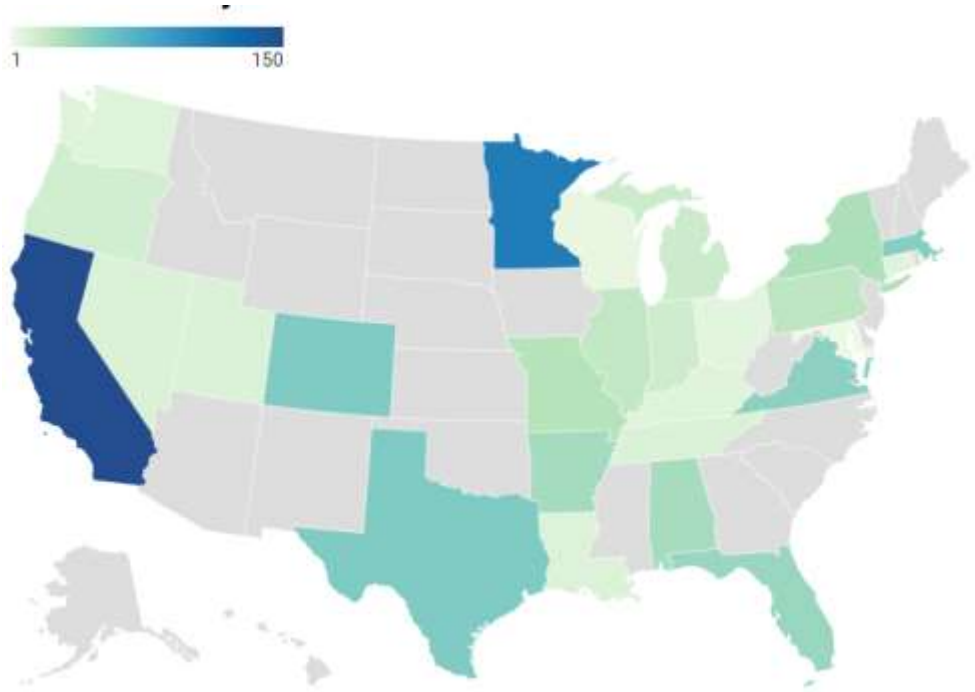
TTC/Clubhouse members from 17 countries completed the YIS, including 771 responses from US members, and 241 responses from 16 other countries (**Exhibit 1**).

EXHIBIT 1. Members Who Completed the Survey by Country



Among the responses from 27 US states, a majority came from California and Minnesota (**Exhibit 2**).

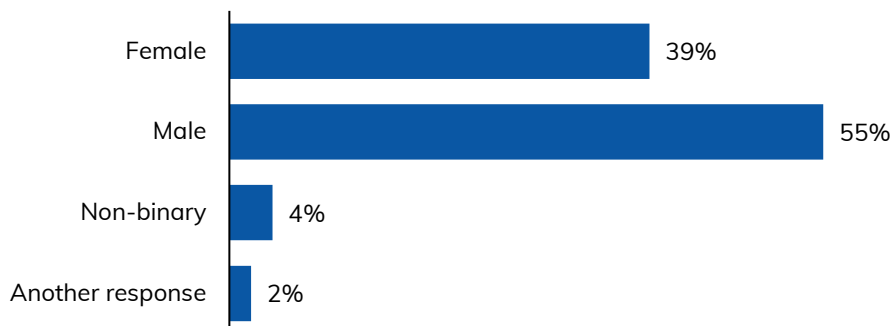
EXHIBIT 2. US Responses by State



STATE	MEMBER COUNT	STATE	MEMBER COUNT
CA	148	MI	16
MN	110	IN	15
CO	47	OR	14
TX	47	NV	10
MA	44	TN	10
VA	42	UT	10
FL	37	LA	9
AZ	33	KY	8
AL	32	WA	8
NY	29	CT	7
MO	25	OH	6
PA	22	WI	4
IL	20	MD	2
DC	16		

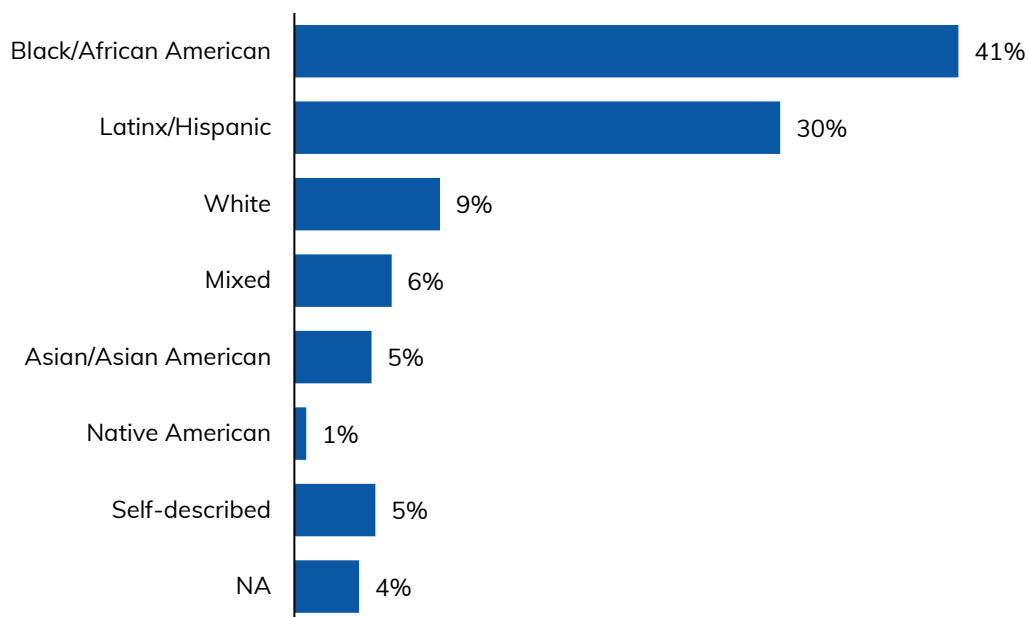
Among survey respondents who identified their gender/sex, a higher proportion of respondents identify as male (55%) compared to female (39%), and roughly 4% identify as non-binary gender (Exhibit 3).³

EXHIBIT 3. Gender or Sex (n=738)



In the US, most survey respondents are Black/African American (41%) or Latinx/Hispanic (30%) (Exhibit 4).⁴

EXHIBIT 4. Respondents by Race/Ethnicity (US Respondents only) (n=566)



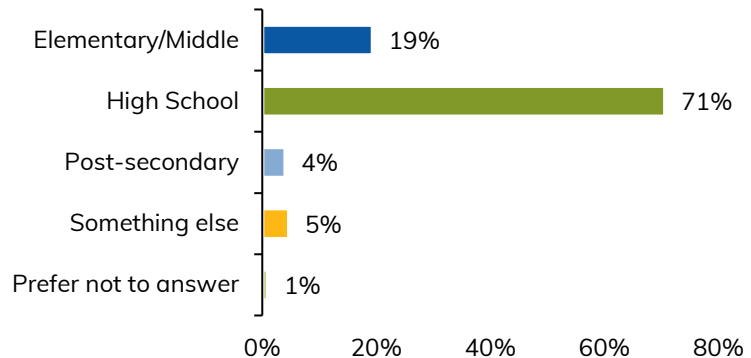
³ Results are limited to responses submitted in Latin characters and exclude responses unrelated to gender/sex.

⁴ Many respondents in the US left this question blank and did not answer it. Blank responses are excluded from the graph.

During the 2021–22 school year, most respondents were in high school or secondary school (**Exhibit 5**). Among US high school students, a proportionate number of respondents (16%–19%) are represented in each grade (grades 9–12).

Most members who reported their school status as “something else” indicated they are either in a career technical training program or apprenticeship, or have completed secondary school/high school equivalent, e.g., have a GED and are not currently in school.

EXHIBIT 5. Member Grade (n=961)



Teen Tech Centers, Clubhouses & Covid

TTCs/Clubhouses throughout the world continued to respond to the Covid-19 pandemic and experience the pandemic’s effects during early 2022 when we fielded the YIS. As a result of the pandemic, some sites remained closed in early 2022, others provided programming online, others were open either at reduced or full capacity, or a combination of these scenarios. Over half of the survey respondents (57%) have been TTC/Clubhouse members exclusively during the Covid era, beginning their participation in 2020.

We expect participation across the TTC/Clubhouse network to be lower than previous years during this time as organizations adapt to local restrictions and contexts. We also expect this to mean that some members have interacted with TTCs/Clubhouses in a primarily remote and virtual format, establishing and building relationships online.

FINDINGS

Next, we present findings from the 2022 YIS related programmatic outcomes and TTC/Clubhouse member experience. Overall, members report improved or increased important skills and perceptions of themselves. They report favorable experiences at their TTC/Clubhouse and with the adults who mentor them.

Skill Development

Members spend time developing skills within the science, technology, engineering, arts, and mathematics (STEAM)⁵ and at the intersection of art and technology at TTCs/Clubhouses. By interacting with adults at TTCs/Clubhouses and pursuing their interests, members are exposed to workforce and social skills needed to be successful in their educational and career endeavors.

⁵ We use the acronym STEAM when the arts are included in the activities or concepts we discuss. We also reference STEM when relevant, which excludes intentional artistic elements. For a more nuanced discussion of STEAM vs. STEM, visit <https://stemeducationguide.com/stem-v-steam/>

The survey asked members to rate the degree to which their TTC/Clubhouse experience contributed to the development of 10 specific STEAM skills (e.g., graphic design, audio production), 10 core skills (e.g., communication, decision-making), and 11 skills related to technology and creativity (e.g., confidence using technology, creative expression). We grouped technology skills, art skills, and other technical skills into four technical-skill composites: 1) comfort with technology, 2) non-technology art skills, 3) STEM (science, technology, engineering, and mathematics) skills, and 4) tech art skills. We grouped core skills and other skills related to creativity into four additional core-skill composites: 1) creativity, 2) resilience, 3) work skills, and 4) community connection.⁶

Respondents generally report their TTC/Clubhouse experience contributes most to developing skills that relate to being **resilient (91%)**, **comfortable using technology (87%)**, and **creative (83%) (Exhibits 6 and 7).**⁷ Respondents also tend to reflect that their TTC/Clubhouse experience contributes more to their **core skills (82%–91%)** than **STEAM skills and technical skills (65%–72%)**, *except* for greatly boosting their comfort and ability to interact with technology (87%). Respondents report increases in the comfort with technology similar levels to core skills. This transferrable skill will help them succeed as they explore new technologies in the future.

EXHIBIT 6. TTC/Clubhouse Contribution to Technical Skills & STEAM Skills (n=955–967)

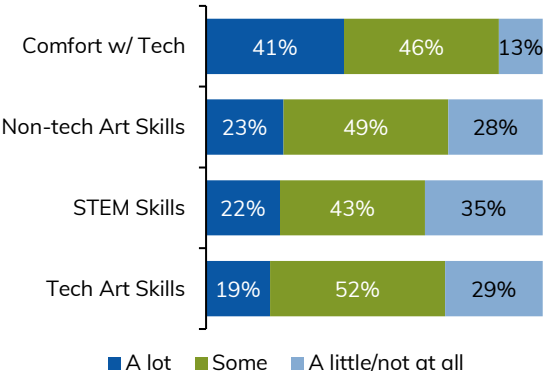
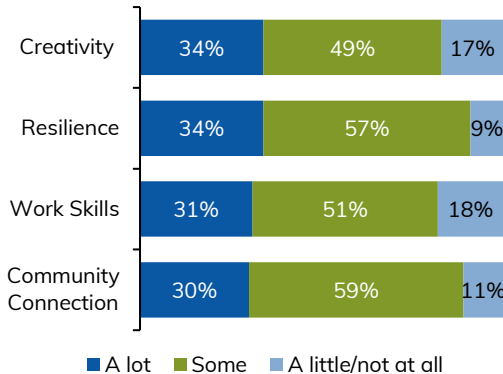


EXHIBIT 7. TTC/Clubhouse Contribution to Core Skills (n=956–976)



Those with frequent participation rate TTC/Clubhouse contributions to skill development slightly higher than those with infrequent attendance, particularly for creativity, resilience, and comfort with technology skills. For example, compared to frequent participants, respondents who participated infrequently are 61% more likely to report little or no contribution to their comfort with technology and 17% less likely to report that TTC/Clubhouse contributed “a lot” to their comfort with technology.

⁶ We use the term “technical skills” to reference the knowledge and training needed to execute a task, including those within a specific field of knowledge. Core skills relate to personality traits used to approach or complete tasks.
⁷ These constructs were created from multiple items as outlined in Appendix C.

Education & Interests

TTCs/Clubhouses foster a commitment to education. Eighty-three percent (83%) of respondents say their TTC/Clubhouse increased their commitment to either doing well in school or continuing their education beyond high school (**Exhibit 8**).

EXHIBIT 8.

HOW MUCH HAS YOUR EXPERIENCE AT THE TEEN TECH CENTER/CLUBHOUSE AFFECTED...	INCREASED A LOT	INCREASED SOME
your commitment to doing well in school?	52%	31%
your commitment to continuing your education after high school?	56%	27%

Most respondents express a high level of interest in STEM (75%) and the arts (74%) (**Exhibit 9**).⁸ Participating in Clubhouses and Teen Tech Center programming appears to contribute to these interests. Just over three-fourths of respondents say their interest in studying STEM (76%) or art (80%) increased “a lot” or “some” because of their TTC/Clubhouse experience (**Exhibit 10**).⁹

EXHIBIT 9. Interest in STEM & Arts (n= 973)

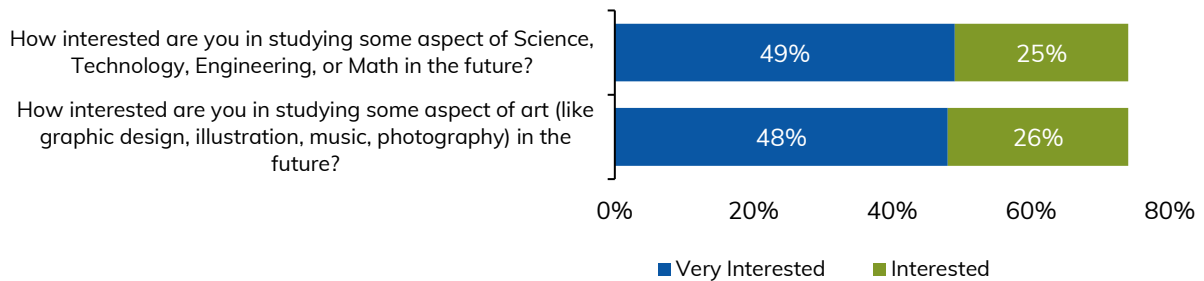
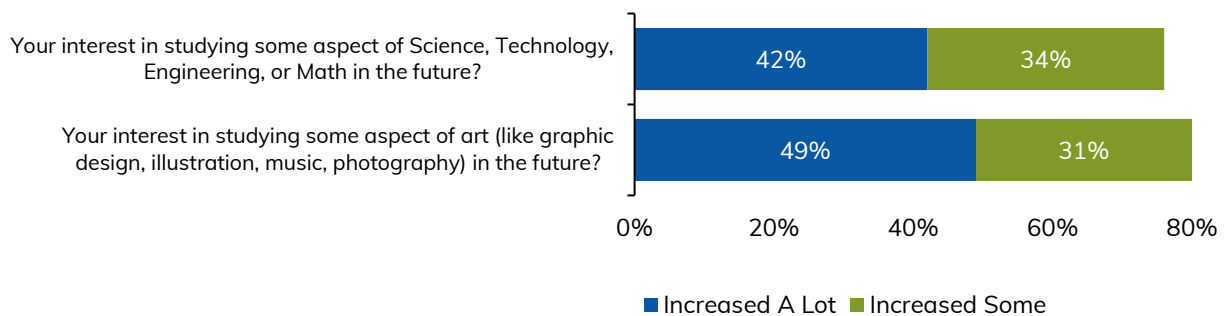


EXHIBIT 10. Influence of Participation on Interest in STEM and Arts (n=973)

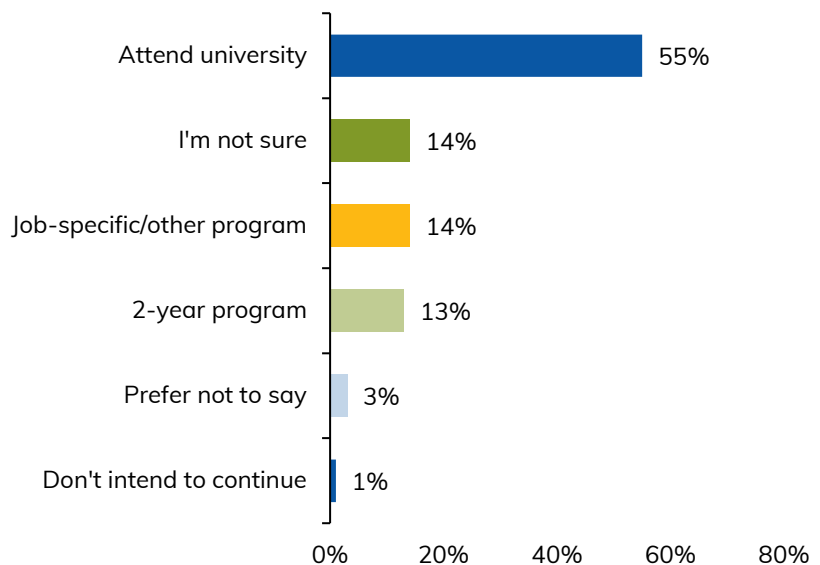


⁸ Bars do not add up to 100% and include only two response options. Response options not shown include: Slightly interested, Not at all interested, I prefer not to say.

⁹ Bars do not add up to 100% and include only two response options. Response options not shown include: No influence, decreased some, Decreased a lot, I prefer not to say.

Graduating from high school is “important” or “very important” to 97% of respondents and just over half of respondents (55%) plan to attend four or five-year university (**Exhibit 11**). The second biggest educational draw is to attend an educational program geared toward a specific job, either through a technical institute or 2-year university (13%), or another educational or training program (14%). Some respondents still have doubts about what educational avenues to pursue after high school—14% of respondents who feel it is “important” or “very important” to graduate high school are not sure how they intend to continue their education.

EXHIBIT 11. Future Education Plans for Members Who Place Importance on High School Graduation (n=940)



A few differences based on gender/sex observed. Female members are more likely to report they plan to attend university (68%) than males (51%). Males are more likely to attend a two-year (14%) or job-specific program (17%) compared to females (9% and 10%, respectively).

Optimism & The Future

Respondents report that the TTC/Clubhouse experience builds their optimism about the future. Over 90% agree or strongly agree that the experience at their Teen Tech Center or Clubhouse made them more optimistic about their future.

Nine out of ten respondents (90%) “agree” or “strongly agree” that they will be able to get the kind of job they want in the future because of their TTC/Clubhouse experience. They agree or strongly agree that they are now equipped with the technology skills (90%) and personal skills (93%) they’ll need to be successful in their future careers. There were no significant demographic differences among the small number of respondents who disagreed that TTCs/Clubhouses contribute to their optimism about their career and future.

Members’ experiences with adults are significantly associated with their perception of the TTC/Clubhouse’s impact on their future.¹⁰ As a member’s rating of their experience with program leaders increases, so too does their agreement that their optimism about the future increased because of their experience at their TTC/Clubhouse.

¹⁰ (p < 2e-16)

Respondents' Experience with Teen Tech Centers & Clubhouses

Respondents attend their TTC/Clubhouse frequently and tend to stay for long periods of time (**Exhibit 12**). Almost two-thirds come to their TTC/Clubhouse multiple times per week and spend more than two hours per week there.

EXHIBIT 12. Frequency of Participation (n=1,011)

HOW OFTEN DO YOU USUALLY COME TO THE TEEN TECH CENTER/CLUBHOUSE OR PARTICIPATE VIRTUALLY?	%	HOW LONG DO YOU USUALLY STAY OR PARTICIPATE?	%
Almost every day it is open	37%	3 hours or more	45%
Once or twice a week	46%	Between 2–2.5 hours	26%
Once or twice a month	11%	Between 1–2 hours	24%
Less than once a month	6%	Less than an hour	6%

Some differences in frequency of participation based on demographic characteristics were evident from survey responses. We found that two-thirds of respondents (67%) visit their TTC/Clubhouse “frequently” (at least 12 hours per month), and male respondents are more likely to visit their TTC/Clubhouse frequently (71%) than female respondents (61%).¹¹ We also found that Asian/Asian-American members (5% of survey respondents) and respondents who wrote in a unique race/ethnicity response (5% of survey) reported the lowest rates of frequent participation (42% and 48%, respectively).

We asked members how they would describe their TTC/Clubhouse to a friend.¹² “Fun,” “new,” “creative,” “technology,” and “learn” are among the most common words members use to describe their TTC/Clubhouse experience. Respondents describe their TTC/Clubhouse as a fun or cool place to try new skills, be creative with technology, and have an opportunity in a constructive environment outside the constraints of a typical school and classroom setting. They also describe connections to adults and other members, but less often than the learning and activities they experience at TTCs/Clubhouses.

EXHIBIT 13. Frequent TTC/Clubhouse Descriptors



¹¹ To categorize the frequency with which a member attends their TTC/Clubhouse, we calculated a scale based on how often and for how long a member attends their TTC/Clubhouse. We then grouped the responses into two categories: frequent attendance for those who attended at least 12+ hours a month and infrequent attendance for those who attended less than 12 hours a month. See Appendix C for more details on the categories and analysis.

¹² We analyzed the open-ended responses to this question results using sentiment analysis based on common words used to describe TTCs/Clubhouses.

When the rare negative sentiment was shared, respondents most often describe feeling bored or being disrupted by another member.

When asked about feelings of safety, connection, and belonging, nearly all respondents report high levels of satisfaction and positive experiences (**Exhibit 14**).¹³

EXHIBIT 14. Agreement with Statements of Safety, Connection, and Belonging

	STRONGLY AGREE/AGREE
I feel safe at The Teen Tech Center/Clubhouse	97%
I feel like my opinions are considered at The Teen Tech Center/Clubhouse	95%
I feel like I belong at The Teen Tech Center/Clubhouse	95%
I feel like I could go to other members if I need help	94%

What Matters to Respondents

We asked members about 11 different characteristics of TTCs/Clubhouses that are important reasons why they attend their TTC/Clubhouse. Each of the 11 reasons are important or very important to over 80% of respondents. Only 0–3% of respondents state that a given trait was *not* at all important. Taken together, the highest-ranking items suggest that it is most important to respondents that TTCs/Clubhouses are safe spaces where they can do creative things with technology that interests them (**Exhibit 15**).¹⁴

EXHIBIT 15. (n=1,012)

HOW IMPORTANT IS EACH OF THE FOLLOWING AS A REASON YOU GO TO YOUR TEEN TECH CENTER OR CLUBHOUSE?	VERY IMPORTANT/IMPORTANT
A safe and happy place to be	94%
Being creative	93%
Doing things that interest me	92%
Working with cool technology	92%
Learning new skills	91%
Learning from adults	89%
Having positive relationships with adults	89%
Having input into what happens	85%
Reflecting on what I'm thinking, feeling, doing, or learning	85%
Helping other people	84%
Seeing my friends or making new friends	81%

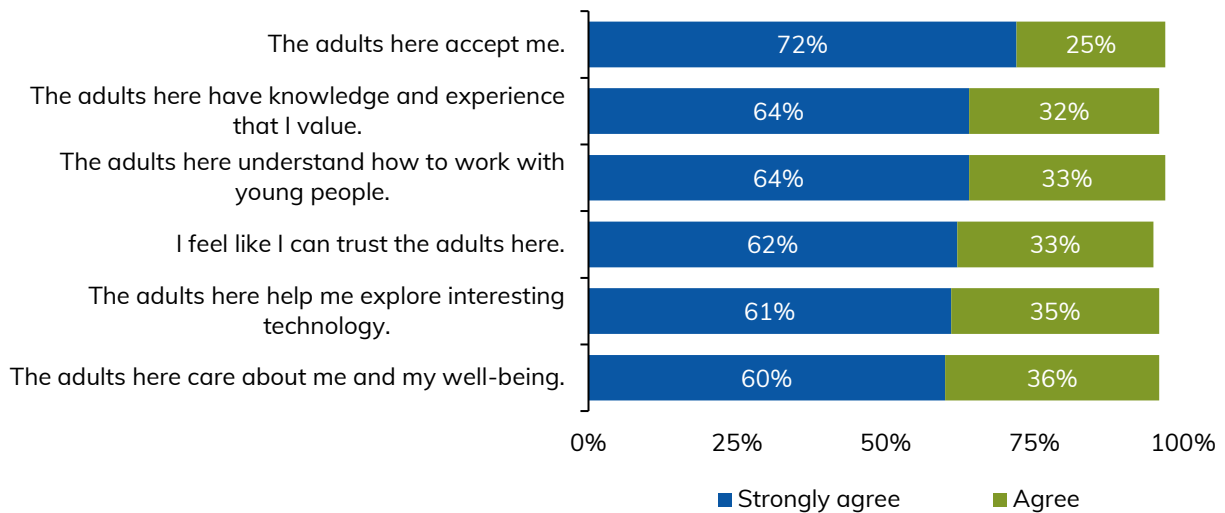
¹³ More details on these items can be found in Appendix B.

¹⁴ More details on these items can be found in Appendix B.

Experiences with Adults

As noted earlier, nearly 90% of respondents report that learning from adults and having positive relationships with adults are reasons they attend the Teen Tech Center or Clubhouse. When asked about their experiences with adults who lead programs at TTCs/Clubhouses, nearly all respondents report “positive” (88%) or “somewhat positive” (9%) experiences.¹⁵ Respondents report that the adults in their programs at TTCs/Clubhouses understand how to work with them and create a welcoming environment where they feel accepted and cared for (**Exhibit 16**).¹⁶

EXHIBIT 16. Experience with Adults (n=1,010–1,012)



Respondents across all grades, genders/sexes, and race/ethnicities (in the US) have similarly positive experiences with adults. We did not observe any significant differences in their ratings of TTC/Clubhouse staff or mentors.

Respondents describe their relationships with adults as a two-way street; they agree that the adults at their TTC/Clubhouse help them explore interesting things, and nine in ten respondents (91%) “agree” or “strongly agree” that adults at the TTC/Clubhouse learn from them as well. The multi-directional and inter-generational learning demonstrates the depth of collaboration at TTCs/Clubhouses and the sense of agency and confidence that young people experience there, which are critical qualities for future success

¹⁵ Of the 1,010 who responded to this question, nine (9) report they disagree with the questions about adults at their TTC/Clubhouse. Unfortunately, their survey responses and open-ended comments do not provide insight into why they may disagree. They hail from different TTCs/Clubhouses.

¹⁶ Bars do not add up to 100% and include only two response options. Response options not shown include: Disagree, Strongly disagree, I prefer not to say.

DISCUSSION & CONSIDERATIONS

Teen Tech Center and Clubhouse programming is guided by factors documented in the Best Buy Foundation's TTC Elements & Drivers of Success (**Appendix A**) and TCN's Learning Model principles. The Learning Model sets the tone for a TTC/Clubhouse experience steeped in respect, exploration, and trusting creative relationships. We discuss the Youth Impact Survey results, using these frameworks as a guide.

Overall, the YIS results provide insight into highly favorable and influential experiences at TTCs/Clubhouses. Members have overall positive experiences in activities, with caring adults and with their peers, which result in improved hard skills related to STEAM, improved core skills, and increased commitment to the future—whether that is further education, career pursuits, or general belief in the possibility of what the future holds.

Results from this year's Youth Impact Survey are very similar to the results from the survey conducted most recently in 2019. Overall, the average mean rating of survey items increased 0.28 points, and the percentage of respondents selecting the highest two ratings (e.g., agree and strongly agree), increased by 6.95%. Compared to 2019, in 2022:

- More respondents reported growth in STEAM skills and core skills like project design, time management, communication, decision-making (6%–15% more).
- Slightly fewer respondents were likely to strongly agree or agree that their TTC/Clubhouse experience influenced growth areas such as problem solving and self-efficacy (2%–7% less).
- Slightly fewer respondents were likely to strongly agree or agree that their TTC/Clubhouse experience influenced them having favorable perspectives on the future (3%–7% less).

At a time when mental health issues are a concern for youth around the world, the high levels of feeling safe (97%), a sense of belonging (95%), and peer support (94%) point to an important role TTCs/Clubhouses play throughout the Covid-19 pandemic.¹⁷ We encourage TTC/Clubhouse leaders to continue monitoring the development of their members to help identify ways to further support members through challenging contexts and conditions.

TTC/Clubhouse programming is aligned with current research about the support members need to build skills and succeed now and in the future. The Search Institute¹⁸ contributed to this body research, identifying 40 supports young people need to succeed. Many of the supports that appear in the Search Institute's findings are core to TTC/Clubhouse programming, including the following components that members report are important reasons that they attend their TTC/Clubhouse and are influential in their lives:¹⁹

- **Adult Relationships:** Young person receives support from three or more non-parent adults.
- **Creative Activities:** Young person spends three or more hours per week in lessons or practice in music, theater, or other arts.
- **Caring School Climate:** School provides an encouraging, caring environment. TTCs/Clubhouses assume the role of schools in creating environment.

Research also shows that youth with mentors are more likely to be successful in school, be leaders in their communities, and enter young adulthood with opportunities for ongoing education and career choices. Yet 16 million American young people—or one in three—will reach the age of 19 without having

¹⁷ <https://www.nytimes.com/2020/11/12/health/covid-teenagers-mental-health.html>

¹⁸ <https://www.search-institute.org/our-research/development-assets/developmental-assets-framework/>

¹⁹ The Best Buy Foundation's TTC Elements & Drivers of Success draws on multiple factors in the Search Institute's Development Asset ® Framework.

had a mentor of any kind outside their family.²⁰ TTCs/Clubhouses provide caring, trusted adults with meaningful opportunities to mentor youth and young adults.

TTCs/Clubhouses provide members with opportunities to freely explore things that interest them—stemming from Principle 1 of TCN’s Learning Model (Support learning through design experiences—Guided by the philosophy that learning is actively constructed rather than being successfully achieved through instruction).²¹ There is a growing commitment to the concept that “interest drives learning.”²² This type of learning, through design experiences that is grounded in member’s interests at TTCs/Clubhouses, promotes members’ development of STEAM skills, creativity, and collaboration (among other skills). Members value the opportunity to explore technologies and activities that interest them.

The YIS provides a few key insights for TTC/Clubhouse leadership to consider as they plan for the future.

For Programming & Strategy

- **Continue creating an encouraging, safe environment for members.** TTCs/Clubhouses experienced interruptions in programming during the COVID-19 pandemic. The YIS highlights the importance of having a safe space for members, who rely on the safe and energizing atmosphere.
- **TTCs/Clubhouses have the important opportunity to dedicate individualized attention to members that supports their exploration and pursuit of education after their TTC/Clubhouse experience.** Research shows low-income students mentored by guidance counselors and other adults are more than twice as likely to attend some postsecondary education than students who have no mentoring relationship.²³ During the Covid-19 pandemic, the proportion of members with positive outlooks on the future and planning for the future declined, leaving a gap for needed support.
- The finding that female respondents are more likely to attend university than males (68% compared to 51%) is a notable difference, although it reflects the reality of college matriculation in the US where women are 24.7% more likely to enroll in higher education than men are.²⁴ **TTCs/Clubhouses may consider designing programming specific to address this gap and support men on educational and academic paths, particularly young Black men and other men of color** who experienced a dramatic decline in college enrollment during the pandemic.²⁵
- The finding that TTC/Clubhouse members’ attendance frequency makes a difference in degree of growth highlights the potential associated regular attendance. At the same time, it also provides evidence of the value of infrequent or even occasional attendance. We encourage TTCs/Clubhouses **to explore ways to promote regular attendance while also maintaining opportunities for members who attend infrequently.** Consider the characteristics of members who attend infrequently and what TTC/Clubhouse staff and leaders could do to ensure these members have access to the opportunities that interest them.

²⁰ <https://www.mentoring.org/resource/the-mentoring-effect/>

²¹ Rusk, N., Resnick, M., Cooke, S. “Origins and Guiding Principles of the Computer Clubhouse.” https://theclubhousenetwork.org/wp-content/uploads/2018/12/OriginsGuidingPrinciplesClubhouse_Resnick.pdf

²² <https://www.kqed.org/mindshift/32503/how-the-power-of-interest-drives-learning>

²³ https://pathways.gseis.ucla.edu/publications/201209_MentorshipRB.pdf

²⁴ <https://educationdata.org/college-enrollment-statistics#:~:text=92.0%25%20of%20college%20students%20are,olds%20are%20enrolled%20in%20school>

²⁵ <https://www.insidehighered.com/news/2021/09/27/college-leaders-seek-boost-enrollment-black-men>

For Evaluation

Explore ways to shorten the survey.²⁶ Youth Impact Survey respondents took between 2 minutes and 3 hours to complete the current 80-item survey. When trimming the outliers at the bottom and top 10%, YIS respondents spent a mean average of 22 minutes on the survey and a median of 15 minutes. The length of time spent on the survey may lead to respondent fatigue, less attention to later items in the survey, or lack of survey completion.

We found a high degree of consistency in member responses on related items and on the same items year after year. We see potential to take advantage of the consistency by reducing the number of items in the survey about the TTC/Clubhouse environment, peers, and adults, and the list of skills.

Methods other than the YIS may be useful to collect data about attendance frequency and other participation information. For example, TCN is currently exploring ways to have members sign in and out of TTCs/Clubhouses digitally. This tool may provide more accurate and complete attendance and participation information than the self-reports in the YIS. The member profile could also be linked to basic information (e.g., demographic, geographic) and to survey responses, eliminating the need to ask for these items on the survey itself. If unique participant identifiers are included, this could also support repeated measures analyses—looking at changes or similarities for the same person over multiple years.

The Village, TCN’s online learning hub for Clubhouse members, mentors, and staff, to connect with a global community of Clubhouses, may also provide some insights into member interactions with each other and with mentors. Though limited to online interactions, evaluations including the Village could help identify the number and qualities of active users, type, frequency, and trends of engagement, social network reach, and the extent to which online engagement translates to or influences in-person interactions and outcomes for youth (e.g., relationship development, confidence, creativity). Informing Change has previously conducted evaluation specifically of online platforms to assess their uptake, utility, and perceived impact on its users. A similar evaluation approach would align with an evaluation of The Village, situating The Village as one of TCN’s program components. It would not replace a holistic evaluation with inquiries into the full TTC/Clubhouse experience.

Consider and address the utility of a global survey. The 2019 and 2022 YIS were designed by consulting firms in the US, and as a result, some questions may not fit the vast diversity of cultures TTCs/Clubhouses serve, particularly for Clubhouses outside the US. Assess which survey themes and questions are relevant across cultures and contexts, and which should be refined to be more culturally specific and responsive.

²⁶ SurveyMonkey analyzed a random sample of roughly 100,000 surveys that were 1–30 questions in length (less than half the length of the YIS). They found that once respondents reach an 11th question, the amount of time respondents devote to a single question decreases. Beginning with question 11, respondents speed through surveys, providing less accurate and less thoughtful responses. See more at https://www.surveymonkey.com/curiosity/survey_completion_times/

Appendices

Appendix A: Best Buy Foundation’s TTC Elements & Drivers of Success.....A1

Appendix B: Teen Tech Center & Clubhouse Youth Impact Survey – 2022 Results & Data TablesB1

Appendix C: Methods C1

Appendix A: Best Buy Foundation’s TTC Elements & Drivers of Success

TTC Elements & Success Driver Research.

Core components that have been proven to impact post-secondary education/career success.

HIGH QUALITY PROGRAMS

Constructive Use of Time: 3+ hrs/wk in creative activity

Caring Adult: support from 3 or more nonparent adults

Environment: Safe, encouraging & caring

Search Institute (1997, 2006)



MENTORSHIP

3 of top 4 predictors of college enrollment among low-income youth are related to mentors

Low-income youth mentored by guidance counselor, etc. are more than twice as likely to attend some postsecondary education than students who have no mentoring relationship

Research Brief (2012)

EXPERIENTIAL LEARNING

Supports student motivation for learning

Promotes learning through critical reflection

Initiates deep and lasting connections with course material

UNT Teach CoUNT Ctr for Learning Experimentation, Application, and Research (2016)

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Appendix B: 2022 Youth Impact Survey Data Tables

2022 RESULTS & DATA TABLES | ALL TTCS & CLUBHOUSES

THERE ARE FOUR MAIN SECTIONS IN THE SURVEY.

1. BACKGROUND INFORMATION ABOUT MEMBERS (PARTS 1 & 2)
2. MEMBERS' TTC/CLUBHOUSE EXPERIENCE
3. HOW MEMBERS' TEEN TECH CENTER/CLUBHOUSE IS CONTRIBUTING TO THEIR LIVES
4. MEMBERS' THOUGHTS ON THE FUTURE

Section 1 - Background information about you (Parts 1 & 2)

1. Responses:

- a. 1,012 total responses
 - Complete: 972 (96%)
 - Partial (completed at least through Clubhouse Experience section): 40 (4%)

2. TTC or Clubhouse affiliation:

- Clubhouse: 440 (43%)
- TTC: 526 (52%)
- Not sure: 46 (5%)

3. Which country are you in?

WHICH COUNTRY ARE YOU IN?	COUNT	PERCENT
I am in the United States	771	76%
I am in another country	241	24%
Grand Total	1012	100%

4. Gender

ROW LABELS	COUNT	PERCENT
Male	427	56%
Female	287	39%
Non-binary	24	4%
Different response/other lang	37	2%
Grand Total	775	100%

5. **Race/Ethnicity**

ROW LABELS	COUNT	PERCENT
Black/African American	231	41%
Latinx/Hispanic	171	30%
White	53	9%
Mixed	36	6%
Asian/Asian American	26	5%
Different response/NA	20	4%
Somali	6	1%
Ethiopian	6	1%
Native American	4	1%
African	3	1%
Afro-Latino	3	1%
Indian	2	0%
Latinx/Indigenous	2	0%
Brazilian	2	0%
Afghan	1	0%
Grand Total	566	100%

6. Age (as of end of March)

ROW LABELS	COUNT	PERCENT
13	139	11%
14	173	15%
15	180	17%
16	197	20%
17	161	17%
18	87	10%
19	37	4%
20	15	2%
21	18	2%
22	5	1%
Grand Total	1012	100%

7. Grade (During the 2021-22 School Year)

RESPONDENTS IN THE US	COUNT	PERCENT
5	1	0%
6	2	0%
7	43	6%
8	122	17%
9	118	16%
10	141	19%
11	135	18%
12	118	16%
I am in a career technical training program or apprenticeship	5	1%
I am in a GED program	2	0%
I am in college/university (community college or four-year college/university)	15	2%
I do not have a high school diploma or GED and am NOT in school	3	0%
I have a high school diploma or GED and am NOT in college/university	12	2%
I prefer not to answer	12	2%
Something else	5	1%
Grand Total	734	100%

RESPONDENTS OUTSIDE THE US	PERCENT	COUNT
I am in primary school	8%	18
I am in secondary school	72%	164
I have completed secondary school/high school equivalent and am NOT in school	6%	14
I am in post-secondary school or higher education	9%	20
I am in a career technical training program or apprenticeship	1%	3
I have not completed secondary school/high school equivalent and am NOT in school	0%	1
Something else (Please describe your school situation):	3%	7
Grand Total	100%	227

8. What year did you first start coming to your Teen Tech Center/Clubhouse? Approximately...

ROW LABELS	COUNT	PERCENT
2012	19	2%
2013	8	1%
2014	14	1%
2015	20	2%
2016	20	2%
2017	72	7%
2018	92	9%
2019	141	14%
2020	96	10%
2021	470	47%
I'm not sure	58	6%
Grand Total	1010	100%

8a. [If you started in 2021] Approximately what month did you first start coming to your Teen Tech Center or Clubhouse?

ROW LABELS	COUNT	PERCENT
January	27	6%
February	26	6%
March	5	1%
April	9	2%
May	10	2%
June	39	8%
July	16	3%
August	37	8%
September	47	10%
October	81	17%
November	77	16%
December	59	13%
Not sure	37	8%
Grand Total	470	100%

9. How often do you usually come to The Teen Tech Center/Clubhouse or participate virtually?

(Check the choice below that comes closest to describing your participation over the past 6 months.)

ROW LABELS	COUNT	PERCENT
1. Less than once a month	61	6%
2. Once or twice a month	114	11%
3. Once or twice a week	464	46%
4. Almost every day it is open	372	37%
Grand Total	1011	100%

10. When you come to The Teen Tech Center/Clubhouse or participate virtually, how long do you usually stay or participate? Approximately...

(Check the box that comes closest to describing your typical participation over the past 6 months.)

ROW LABELS	PERCENT	COUNT
1. Less than an hour	6%	61
2. Between 1-2 hours	24%	238
3. Between 2-2.5 hours	26%	261
4. 3 hours or more	45%	451
Grand Total	100%	1011

11. Have you attended a global Clubhouse Teen Summit in Boston?

ROW LABELS	PERCENT	COUNT
Yes	2%	18
No	89%	902
Not sure	9%	91
Grand Total	100%	1011

11a. If yes, what year did you attend? (Select all that apply)

- 2018 – 13 (Count)
- 2016 – 2 (Count)
- 2014 – 0 (Count)
- 2012 – 1 (Count)
- I'm not sure – 3 (Count)

Section 2 – Your Teen Tech Center or Clubhouse Experience

Please help us understand what it is like to be at your Teen Tech Center/ Clubhouse. This section should take you approximately 5 minutes to complete.

How important to you is each of the following reasons in terms of why you go to your Teen Tech Center or Clubhouse? (Select one in each row)

	VERY IMPORTANT	IMPORTANT	A LITTLE IMPORTANT	NOT AT ALL IMPORTANT	I PREFER NOT TO SAY
12. My TTC/Clubhouse is a place where I can learn new skills.	56%	35%	7%	0%	1%
13. My TTC/Clubhouse is a place where I can see my friends or make new friends.	46%	35%	15%	3%	2%
14. My TTC/Clubhouse is a place where I can learn from adults.	52%	37%	8%	2%	1%
15. My TTC/Clubhouse is a place where I can be creative.	66%	27%	5%	1%	1%
16. My TTC/Clubhouse is a place where I can do things that interest me.	68%	24%	6%	1%	1%
17. My TTC/Clubhouse is a safe and happy place to be.	67%	27%	4%	1%	2%
18. My TTC/Clubhouse is a place where I can work with cool technology.	64%	28%	6%	1%	1%
19. My TTC/Clubhouse is a place where I can have positive relationships with adults.	55%	34%	8%	2%	2%
20. My TTC/Clubhouse is a place where I can help other people.	50%	34%	12%	3%	2%
21. My TTC/Clubhouse is a place where I can have input into what happens.	47%	38%	11%	2%	3%
22. My TTC/Clubhouse is a place where I can reflect on what I'm thinking, feeling, doing, or learning	54%	31%	11%	3%	2%

When thinking about the **adults** at your own Teen Tech Center/Clubhouse, how much do you agree or disagree with each of the statements below? *(Select one in each row)*

	I STRONGLY AGREE	I AGREE	I DISAGREE	I STRONGLY DISAGREE	I PREFER NOT TO SAY
23. The adults here help me explore interesting technology.	61%	35%	2%	0%	2%
24. The adults here understand how to work with young people.	64%	33%	1%	0%	2%
25. The adults here accept me.	72%	25%	1%	0%	2%
26. I feel like I can trust the adults here.	62%	33%	1%	0%	3%
27. The adults here have knowledge and experience that I value.	64%	32%	1%	0%	2%
28. I feel that I can go to the adults here for help with a personal problem.	49%	37%	6%	1%	6%
29. The adults here care about me and my well-being.	60%	36%	1%	0%	3%
30. The adults here learn from me and my friends.	50%	41%	3%	1%	5%

31. Overall, my experience with the adults that lead the programs at my Teen Tech Center or Clubhouse is...

(Choose one)

ROW LABELS	COUNT	PERCENT
Positive	889	88%
Somewhat positive	90	9%
Somewhat negative	6	1%
Negative	3	0%
Not applicable to me	22	2%
Grand Total	1010	100%

How much does each of the following statements match your own Teen Tech Center or Clubhouse experience?

(Select one in each row)

	I STRONGLY AGREE	I AGREE	I DISAGREE	I STRONGLY DISAGREE	I PREFER NOT TO SAY
32. I feel safe at The Teen Tech Center/Clubhouse.	70%	27%	1%	0%	2%
33. I feel like I belong at The Teen Tech Center/Clubhouse.	60%	35%	2%	0%	3%
34. I feel like I could go to other members if I need help.	56%	38%	3%	0%	3%
35. I feel like my opinions are considered at The Teen Tech Center/Clubhouse.	61%	34%	2%	0%	3%

Section 3 - How your Teen Tech Center/Clubhouse is contributing to your life

We want to learn more about how your Teen Tech Center/Clubhouse is contributing to your life. This section should take you approximately 7 minutes to complete.

How much has your Teen Tech Center/Clubhouse experience helped you develop or build your skills in the following areas?

(Select one in each row)

	A LOT	SOME	A LITTLE	NOT AT ALL	I HAVEN'T DONE THIS	I PREFER NOT TO SAY
36. Graphic Design (digital art, illustration)	35%	29%	13%	3%	19%	2%
37. Audio (music, beats, sound effects, podcasts)	35%	24%	15%	4%	22%	1%
38. Video and Animation	29%	27%	13%	5%	25%	1%
39. 3D (creating a 3-dimensional design, object or image)	28%	24%	12%	7%	28%	1%
40. Photography	35%	21%	12%	5%	25%	1%
41. Arts and Crafts (painting, drawing, sculpture)	35%	25%	13%	5%	21%	1%
42. Coding (building web pages, or programming apps, interactive projects or games, including using Scratch)	26%	23%	15%	8%	27%	1%
43. Engineering (hands-on construction or designs to solve a problem)	24%	25%	12%	8%	29%	1%
44. Robotics (designing and building objects that do tasks)	26%	21%	12%	9%	31%	1%
45. Writing (stories, poetry, spoken word, lyrics, journalism, presentations)	25%	21%	15%	8%	30%	2%
46. Other (anything that does not fit into one of these activities – please tell us the activity) _____	i	i	i	i	i	i

How much has your Teen Tech Center/Clubhouse experience contributed to your ability to do the following? (Select one in each row)

	A LOT	SOME	A LITTLE BIT	NOT AT ALL	I PREFER NOT TO SAY
47. Design, make and create something based on an idea you came up with.	55%	27%	9%	5%	4%
48. Manage your time to work on projects and make deadlines.	48%	31%	11%	5%	5%
49. Find resources and information to support the development of your ideas.	53%	31%	8%	5%	3%
50. Ask for help from others when you need it.	59%	27%	8%	2%	3%
51. Explain your ideas and thinking to other people.	57%	26%	9%	4%	4%
52. Communicate with different audiences.	51%	31%	11%	4%	4%
53. Behave in a professional manner (arrive on time, be prepared, complete tasks in a timely manner)	57%	28%	8%	2%	3%
54. Make positive choices in your life (friends, family, school, etc.).	62%	26%	6%	2%	4%
55. Know more about Science, Technology, Engineering and Math related fields and careers.	51%	29%	12%	5%	3%
56. Know more about Arts, Music, Design, Film, and other creative careers.	57%	25%	10%	4%	4%

How much do you agree or disagree with each of the statements below about Technology & Creativity? (Select one on each row)

Because of my experience at the Teen Tech Center or Clubhouse:

	I STRONGLY AGREE	I AGREE	I DISAGREE	I STRONGLY DISAGREE	I PREFER NOT TO SAY
57. I've learned how to use more technology.	57%	36%	3%	1%	3%
58. I am more confident using technology.	53%	38%	5%	1%	3%
59. I use technology more often than before I came here.	49%	33%	12%	2%	4%
60. I am better able to get along with other young people when I work with them	51%	39%	5%	1%	4%
61. I have more skills to design, make or create things.	54%	36%	5%	1%	4%
62. I have more ways to express myself creatively using a variety of media.	54%	37%	4%	1%	5%
63. I am better at following a project through from start to finish.	48%	42%	5%	1%	4%
64. I have more skills to help other people make things.	47%	42%	6%	1%	5%

65. I am getting better at solving hard problems.	47%	42%	6%	1%	5%
66. I am learning to experiment, try things out, and solve problems through trial and error.	52%	40%	3%	1%	4%
67. I know that if I stick with something long enough that I can usually solve the problems I run into.	54%	38%	3%	1%	4%

Because of my experience at the Teen Tech Center or Clubhouse:

	I STRONGLY AGREE	I AGREE	I DISAGREE	I STRONGLY DISAGREE	I PREFER NOT TO SAY
68. I am more interested in contributing to my local community.	47%	40%	5%	1%	6%
69. I have a better understanding of people from different backgrounds.	53%	38%	3%	0%	6%

Section 4 - Your thoughts on the future

We would like to learn about your thoughts on the future. This section should take you approximately 5 minutes to complete.

	VERY IMPORTANT OR INTERESTED	IMPORTANT OR INTERESTED	SLIGHTLY IMPORTANT OR INTERESTED	NOT AT ALL IMPORTANT OR INTERESTED	I PREFER NOT TO SAY
70. How important is it to you that you graduate from high school/secondary school?	83%	13%	2%	1%	1%
71. How important is it to you to continue your education after high school/secondary school? (For example, trade school, college, university, etc.)	70%	20%	8%	1%	1%
72. How interested are you in studying some aspect of Science, Technology, Engineering, or Math in the future?	49%	25%	17%	8%	2%
73. How interested are you in studying some aspect of art (like graphic design, illustration, music, photography) in the future?	48%	26%	17%	7%	2%
74. How likely do you think it is that you will use skills you learned at your Teen Tech Center/Clubhouse in your future career or job?	58%	30%	8%	2%	2%
75. How important is it to you to find ways to “give back” to your Teen Tech Center / Clubhouse?	55%	33%	8%	1%	4%

76. If you intend to continue your education, are you most likely to: (Check one)

ROW LABELS	COUNT	PERCENT
Attend a university (college) or other school of 4 or 5 years	520	53%
I'm not sure	140	14%
Attend a technical institute or other type of 2-year school	129	13%
Attend a school to learn a specific job	84	9%
Prefer not to say	34	3%
Attend another type of educational or training program (please describe the program):	28	3%
Attend an on-the-job training program for a specific job	26	3%
I don't intend to continue with education after high school	12	1%
Grand Total	973	100%

How much has your experience at the Teen Tech Center/Clubhouse affected the following (Select one in each row)

	INCREASED A LOT	INCREASED SOME	NO INFLUENCE	DECREASED SOME	DECREASED A LOT	I PREFER NOT TO SAY
77. Your commitment to doing well in school?	52%	31%	13%	0%	0%	3%
78. Your commitment to continuing your education after high school?	56%	27%	13%	1%	0%	3%
79. Your interest in studying some aspect of Science, Technology, Engineering, or Math in the future?	42%	34%	19%	1%	1%	4%
80. Your interest in studying some aspect of art (like graphic design, illustration, music, photography) in the future?	49%	31%	15%	1%	1%	3%

How much do you agree or disagree with each of the statements below? (Select one in each row)

Because of my experience at the Teen Tech Center or Clubhouse:

	I STRONGLY AGREE	I AGREE	I DISAGREE	I STRONGLY DISAGREE	I PREFER NOT TO SAY
81. I will be able to get the kind of job I want in the future.	52%	38%	3%	1%	6%
82. I will have the technology skills to be successful in my future career.	48%	42%	4%	1%	5%
83. I am more confident that I will have the personal skills (like teamwork, communication) to be successful in my future career.	58%	35%	3%	0%	4%
84. I am more optimistic about my future.	59%	33%	3%	0%	5%

Appendix C: Methods

SURVEY, OUTREACH, & SAMPLING

From November to December 2021, Informing Change adapted the previous iteration of the Youth Impact Survey that Inverness Research administered in 2019. We programmed the survey into the online platform, Alchemer. The survey was also available to TTC/Clubhouse members in paper format. We then distributed the survey to coordinators at TTCs/Clubhouses worldwide. Coordinators at each location administered the survey to members via paper and online methods, which were created to account for varying levels of technological access among the regions served by TTCs/Clubhouses. Some TTCs/Clubhouses had reduced hours or were closed due to Covid. The survey was available from January 5 to February 28, 2022 and in nine languages: Arabic, Danish, English, Hebrew, Japanese, Mandarin, Portuguese, Russian, and Spanish.

In the end, we received 1,012 responses from eligible TTC/Clubhouse members from 95 TTCs/Clubhouses around the world (after removing duplicate responses and responses of any member younger than 13 years old at the time of submission in accordance with the Children’s Online Privacy Protection Act of 1998). We received responses in seven of the nine available languages: 828 responses in English, 137 in Spanish, 31 in Arabic, 8 in Danish, 5 in Japanese, 2 in Russian, and 1 in Mandarin Chinese.

Although some survey takers took less than 2 minutes to complete the survey, a significant portion took more than 3 hours. Trimming out the bottom and top 10% to limit the effect of outliers, the mean time spent on the survey is 22 minutes and the median is 15 minutes.

COMPOSITE MEASURES & STATISTICAL ANALYSES

To categorize the frequency with which a member attends their TTC/Clubhouse, we calculated a frequency variable from two survey items: how often a member attends (number of days per month) and how long a member attends (number of hours per visit) their TTC/Clubhouse. Given the distributions, we collapsed the final variable into two categories: frequent attendance for those who attended at least 12+ hours a month and infrequent attendance for those who attended less than 12 hours a month (see **Exhibit C1**).

EXHIBIT C1: Attendance Frequency Categories

	3 HOURS OR MORE	BETWEEN 2 AND 2.5 HOURS	BETWEEN 1 AND 2 HOURS	LESS THAN ONE HOUR
Almost every day it's open	Frequent	Frequent	Frequent	Infrequent
Once or twice a week or so	Frequent	Frequent	Infrequent	Infrequent
Once or twice a month or so	Infrequent	Infrequent	Infrequent	Infrequent
Less than once a month	Infrequent	Infrequent	Infrequent	Infrequent

To maximize the use of data from which we draw inferences, we created composite variables out of groups of questions relating to experience in the TTC/Clubhouse, contribution of the TTC/Clubhouse to personal and skill growth, and interests (see **Exhibit C2**). The values of these variables were determined by assigning all answers numerical equivalents (e.g., “Strongly agree” = 4, “Agree” = 3, and so on), transforming the Likert scales of this data to fit a common 4-point scale,¹ and calculating the average value within each composite variable. Using R software, we conducted chi-square tests to determine whether any two composite variables, in addition to demographic variables (e.g., race/ethnicity, gender), exhibited statistically significant relationships.

We found few statistically significant differences in composite scores across demographic groups. As most of the experience, contribution, and interest variables and associated composites were strongly skewed in the positive direction and displayed limited variability, similarity between demographic groups may be a statistical artifact. Alternatively, it is possible that groups across TTCs and Clubhouses experience the program similarly and report similar outcomes. We are unable to definitively draw conclusions about the reasons for similarities and differences from our current data, but we note differences that are statistically significant throughout the report to highlight trends that may be worth exploring or monitoring further in the future.

EXHIBIT C2: Details on Composite Variables

COMPOSITE VARIABLE	QUESTION NUMBERS INCLUDED IN COMPOSITE (SEE DATA TABLES IN APPENDIX B FOR QUESTION WORDING)
Attendance	9: How often do you usually come... or participate virtually? 10: When you come..., how long do you usually stay or participate?
Skills Development (Experience)	12: My TTC/Clubhouse is a place where I can learn new skills. 15: My TTC/Clubhouse is a place where I can be creative. 16: My TTC/Clubhouse is a place where I can do things that interest me. 18: My TTC/Clubhouse is a place where I can work with cool technology. 22: My TTC/Clubhouse is a place where I can reflect on what I'm thinking, feeling, doing, or learning.
Social Aspect (Experience)	13: My TTC/Clubhouse is a place where I can see my friends or make new friends. 20: My TTC/Clubhouse is a place where I can help other people. 34: I feel like I could go to other members if I need help. 35: I feel like my opinions are considered at The Teen Tech Center/Clubhouse.
Safety (Experience)	17: My TTC/Clubhouse is a safe and happy place to be. 32: I feel safe at The Teen Tech Center/Clubhouse. 33: I feel like I belong at The Teen Tech Center/Clubhouse.
Experience with Adults (Experience)	14: My TTC/Clubhouse is a place where I can learn from adults. 19: My TTC/Clubhouse is a place where I can have positive relationships with adults. 21: My TTC/Clubhouse is a place where I can have input into what happens. 23: The adults here help me explore interesting technology. 24: The adults here understand how to work with young people. 25: The adults here accept me. 26: I feel like I can trust the adults here. 27: The adults here have knowledge and experience that I value. 28: I feel that I can go to the adults here for help with a personal problem. 29: The adults here care about me and my well-being. 30: The adults here learn from me and my friends. 31: Overall, my experience with the adults that lead the programs at my Teen Tech Center or Clubhouse is...
STEM Skills (Contribution)	42: Coding (building web pages, or programming apps, interactive projects or games, including using Scratch) 43: Engineering (hands-on construction or designs to solve a problem)

¹ Specifically, we transformed the scales of questions 72-75 from 5-point to 4-point scales. (i.e., 1,2,3,4,5 = 1,2,2.5,3,4)

COMPOSITE VARIABLE	QUESTION NUMBERS INCLUDED IN COMPOSITE (SEE DATA TABLES IN APPENDIX B FOR QUESTION WORDING)
	44: Robotics (designing and building objects that do tasks) 55: Know more about Science, Technology, Engineering and Math related fields and careers.
Tech Arts Skills (Contribution)	36: Graphic Design (digital art, illustration) 37: Audio (music, beats, sound effects, podcasts) 38: Video and Animation 39: 3D (creating a 3-dimensional design, object or image) 40: Know more about Arts, Music, Design, Film, and other creative careers.
Non-tech Arts Skills (Contribution)	40: Photography 41: Arts and Crafts (painting, drawing, sculpture) 45: Writing (stories, poetry, spoken word, lyrics, journalism, presentations) 56: Know more about Arts, Music, Design, Film, and other creative careers.
Resilience (Contribution)	60: I am better able to get along with other young people when I work with them. 65: I am getting better at solving hard problems. 66: I am learning to experiment, try things out, and solve problems through trial and error. 67: I know that if I stick with something long enough that I can usually solve the problems I run into.
Creativity (Contribution)	47: Design, make and create something based on an idea you came up with. 49: Find resources and information to support the development of your ideas. 61: I have more skills to design, make or create things. 62: I have more ways to express myself creatively using a variety of media.
Comfort with Tech (Contribution)	57: I've learned how to use more technology. 58: I am more confident using technology. 59: I use technology more often than before I came here.
Work Skills (Contribution)	48: Manage your time to work on projects and make deadlines. 49: Ask for help from others when you need it. 52: Communicate with different audiences. 53: Behave in a professional manner (arrive on time, be prepared, complete tasks in a timely manner)
Connection to Community (Contribution)	54: Make positive choices in your life (friends, family, school, etc.). 64: I have more skills to help other people make things. 68: I am more interested in contributing to my local community. 69: I have a better understanding of people from different backgrounds.
Interest in Future Education	70: How important is it to you that you graduate from high school/secondary school? 71: How important is it to you to continue your education after high school/secondary school? (For example, trade school, college, university, etc.)
Interest in Future Technology	72: How interested are you in studying some aspect of Science, Technology, Engineering, or Math in the future? 79: Your interest in studying some aspect of Science, Technology, Engineering, or Math in the future?
Organizational Impact on Thoughts on Future	77: Your commitment to doing well in school? 78: Your commitment to continuing your education after high school? 81: I will be able to get the kind of job I want in the future. 82: I will have the technology skills to be successful in my future career. 83: I am more confident that I will have the personal skills (like teamwork, communication) to be successful in my future career. 84: I am more optimistic about my future.

EXHIBIT C3
Key Themes of Member TTC/Clubhouse Experience
(Composite analysis)
(n=1,004-1,008)

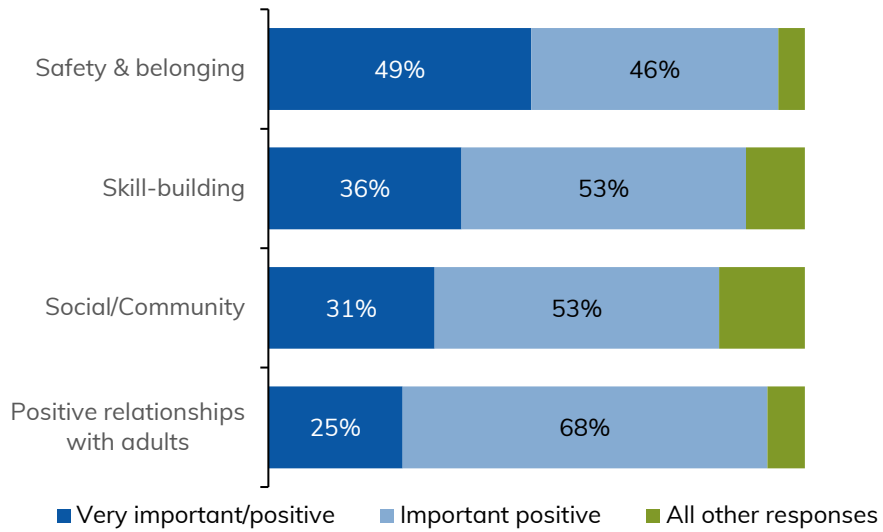
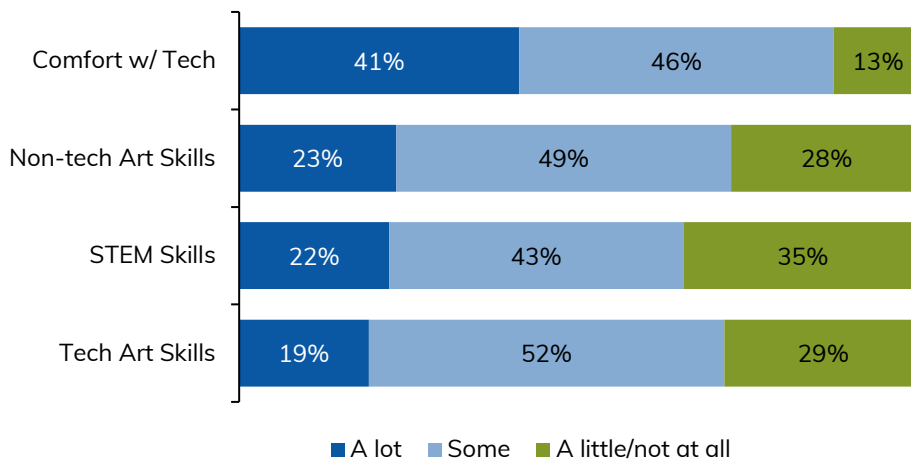
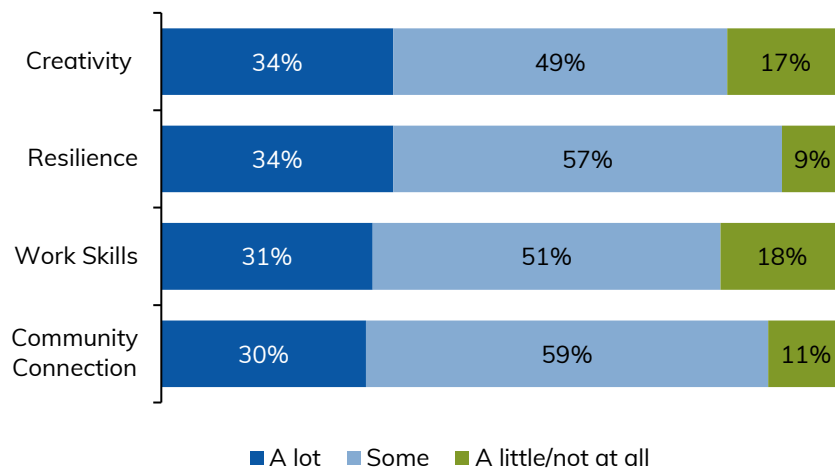


EXHIBIT C4. TTC/Clubhouse Contribution to STEAM & Hard Skills (n=955-967)



**EXHIBIT C5. TTC/Clubhouse Contribution to Core Skills
(n=956-976)**



**EXHIBIT C6
Members' thoughts on the future (Composite analysis)
(n=961 - 973)**

