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Program Evaluation • Consultation • Market Research

ScienceMakers: African Americans and Scientific Innovation Summative Evaluation

PREPARED BY
Elizabeth R Bachrach, Ph.D.
Karina Lin, B.A.
Irene F. Goodman, Ed.D.

SUBMITTED TO
Julieanna Richardson
Founder and Executive Director
The HistoryMakers

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INTRODUCTION

In 2009, *The HistoryMakers* was awarded a four-year grant from The National Science Foundation (DRL-0917612) to create *ScienceMakers: African Americans and Scientific Innovation* (ScienceMakers). ScienceMakers builds upon *The HistoryMakers'* extant oral history archives by allowing for new interviews with 180 of the nation's top African American scientists and facilitating dissemination of the information. The overall goal of this endeavor is to increase awareness in the general public of the contributions of African American scientists (i.e., short-term outcomes), thereby ultimately leading to increased participation in science, technology, engineering, and math (STEM) (i.e., long-term outcomes).

Over the course of the grant period, ScienceMakers engaged its three primary audiences (STEM professionals, adults, and students) via several project deliverables: a social media outreach campaign including a student YouTube contest, 13 public programs developed and then hosted in partnership with eight science centers and community organizations, an interactive website, and a three-volume toolkit (described further, below). An Advisory Board and external program evaluation were also included as grant deliverables.

In addition to the deliverables originally planned, ScienceMakers partnered with Carnegie Mellon University's Entertainment & Technology Center and created an interactive digital video archive of the interviews with ScienceMakers. This comprehensive video archive is considered by the project team as the most significant resource developed as a result of the grant. It is central to the project overall as all other materials complement and are complemented by this resource. The ScienceMakers website holds the digital archive, which, as of October 2012, displays full interview transcripts and video for 40 Science Makers, with a goal of 100 by December 2012 and 180 by July 2013.

Beginning in June 2012, *The HistoryMakers* contracted with Goodman Research Group, Inc. (GRG), an evaluation research firm in Cambridge, MA that specializes in program evaluation, to conduct summative evaluation over five months during the project's final year.

SCIENCEMAKERS PROJECT ACTIVITIES/DELIVERABLES

ScienceMakers Public Programs: Student and Evening Programs

Between 2010 and 2012, public programs were held in ScienceMakers partnering institutions, including science museums, one university, and one church. Daytime student programs attended by students and educators included presentations by ScienceMakers, hands-on activities led by museum staff, and opportunities for students to interact in small groups with the scientists, interviewing them and later presenting what they learned. Evening programs were held in the same institutions and presentations were made by the same panel of scientists. Formative findings led to modifications to the targeted audiences, such that students with particular interest in science were invited to participate in the student programs. In addition, based on feedback

in Year 1, more hands-on activities were added to the student programs in Year 2.

Special ScienceMakers Public Programs: A Night with Warren Washington and A Night with Bernard Harris

On June 11, 2012, at the National Academy of Sciences (NAS) in Washington, D.C., Dr. Ralph Cicerone, President of the NAS and Chair of the National Research Council, interviewed ScienceMaker and National Medal of Science Laureate, Dr. Warren Washington. The interview focused on Dr. Washington's life and work and was designed to honor his outstanding contributions. The conversation was taped by *The HistoryMakers* for airing nationally on PBS-TV and a dinner reception followed. Representatives from the National Science Foundation, as well as friends and colleagues of Warren Washington and of *The HistoryMakers*, were invited to attend the event.

A similar public program was held on March 15, 2011 at Howard University. NPR Correspondent Corey Dade interviewed astronaut, medical scientist, and management executive Bernard Harris about his life as a scientist, philanthropist, and trailblazer. The program was taped by Howard University's WHUT Studios.

ScienceMakers Three-Volume Toolkit

Three volumes of ScienceMakers Toolkits have been developed and widely disseminated, free of charge, to educators, STEM professionals, and the general public over the past three years. In all, the Toolkits contain biographies of 203 ScienceMakers and a range of science activities for different age levels, some that correspond directly with specific ScienceMakers' work. Volume One has an accompanying DVD with clips from ScienceMakers' interviews. Formative evaluation findings led to the decision that an accompanying DVD was not necessary for subsequent volumes. In addition, formative feedback led to reorganization for Volumes Two and Three to include increased focus on the STEM fields and related careers in addition to the focus on African American scientists.

ScienceMakers Interactive Website and Digital Archive

The ScienceMakers pages of the HistoryMakers website house descriptions and access to all of the various ScienceMakers resources, including the digital archive of completed ScienceMakers interviews. The ScienceMakers Digital Archive holds the full video transcripts from interviews with ScienceMakers. Brief stories (i.e., video clips) can be searched by name or keyword, or map. The archive contained 40 interviews at the time the evaluation was conducted, with a goal of 100 interviews to be in place by December 2012, and 180 by July 2013. Findings from GRG's narrative analysis of a sample of interview transcripts led to enhanced introduction to the digital archive including the overall purpose and suggestions for navigation and use. Additionally, brief descriptions of the contexts in which ScienceMakers discussed various topics across the interviews were added to enhance users' searching strategies.

SUMMATIVE EVALUATION OF *SCIENCEMAKERS*

GRG's research questions focused on assessment of the extent to which the following short-term outcomes, stated in the program logic model, were achieved:

- Increased awareness of, and interest in learning more about, the **achievements and contributions** of minority scientists, among the general public.

- Increased awareness of, and interest in learning more about, **different STEM-related careers** among students.

- Increased confidence among STEM professionals, educators, and other adults to **discuss STEM careers with students** and encourage interests and beliefs about their abilities to pursue a STEM-related career.

The full project logic model is included in the Appendix A.

Data collected from users of each ScienceMakers deliverable were examined to assess effectiveness of each one individually as well as combined as a whole project. In the following sections, we describe each program activity and its reach among the intended audiences and we present findings related to each short term outcome. Conclusions and recommendations are presented in the context of thinking ahead to next steps for the ScienceMakers team as well as for potential follow-up with users of the ScienceMakers materials to examine sustained impacts and assess longer term outcomes.

METHODS

GRG designed and conducted several evaluation activities in order to examine the project's success in meeting its stated goals, both overall and with respect to the contribution of each project resource.

MEASURES AND PARTICIPANTS

ScienceMakers Public Programs Secondary Data Analysis

GRG compiled data files received from both *The HistoryMakers* and Knight Williams (ScienceMakers' formative evaluators) containing data collected from public programs between 2010 and 2012. GRG merged data files that contained variables common to all the programs and conducted analyses across programs for the three participant groups: Students, Educators (i.e., educator attendees of public programs for student groups), and the General Public (i.e., attendees of evening public programs).

Students were primarily in either middle or high school, and were divided evenly by gender. The majority (70%) was African American. Nearly one quarter (21%) was Spanish, Hispanic, or of Latino origin, and 13% were Caucasian. The accompanying educators were mostly women (72%) and were African American (78%) or Caucasian (40%)[1]. Evening public programs were attended by the general public (ages 6-90); two thirds of attendees were parents, guardians, or educators of young children. Nearly half of evening program attendees worked in education and one quarter were in the health or medical field.

Additional Public Program Event Surveys

GRG also developed a survey and collected data from the *A Night with Warren Washington* program (ANWWW). Surveys were included in the packets given to all attendees and were completed at the end of the interview and before the reception. GRG received 141 completed surveys, representing 40% of the audience of 330 attendees.

The majority of ANWWW attendees were African American women with a Master's or Doctoral degree, working in the fields of science, education, or public policy. Ages of attendees ranged from 20 to 86 years, with a median age of 55 years. They attended the program because of their personal or professional interest in the achievements of African American scientists; their general interest in science, STEM-related programs, and STEM-related policy decisions; and their personal connection to *The HistoryMakers* or ScienceMakers. About one quarter attended because of a specific science-related interest, one quarter attended due to their interest in STEM-related career opportunities, and nearly one in five attended because of a personal connection to the speaker.

[1] Note: participants could select more than one option to describe their major racial or ethnic background.

ScienceMakers Toolkit Recipient Survey and Interviews

GRG received from *The HistoryMakers* a database of toolkit recipients (i.e., toolkits were distributed at conferences by ScienceMakers Advisory Board members, and in response to direct requests, from 2010-2012). GRG contacted recipients, by email and/or phone, to inquire about their use of the toolkits in the form of a brief online survey, and to invite them to participate in a phone interview about their experience.

Among the 35 formal and informal educators who completed the survey, 29 recalled receiving the Toolkit, most received (n=22) and used (n=18) only one volume. Six people received multiple volumes and five of those recipients used two volumes. They used the Toolkit with teachers, students (including PreK-12), or both; a few also used their Toolkit with librarians, community members, or church members. Most of the nine users who GRG interviewed about their use and impressions of the toolkit were informal educators who had received the toolkit at a ScienceMakers public program or at an NSTA conference. They prepared for use by flipping through the pages to see who was included and read a few of the biographies. Those who had not yet used the Toolkit planned to use it in the coming school year with students and/or teachers.

ScienceMakers Interactive Website and Digital Archive Survey

GRG developed and programmed an online survey to obtain feedback about the ScienceMakers website with a specific section focused on use and impressions of the Digital Archive of ScienceMaker interviews. Between July 16 and September 7, 2012, visitors to the ScienceMakers website were highly educated (52% had a Master's degree; 18% had a Doctorate), White or Caucasian (66%) or Black or African American (25%) women (63%), between the ages of 35-64 (76%). More than half were employed full time, many teaching in a field not related to science. The majority learned about the website from GRG's invitation to complete the survey; about one in seven came to the site from The HistoryMakers homepage or learned about it from friends, family, or colleagues.

Most were visiting both the website overall and the digital archive for the first time on the day they completed the survey. They went to the site to learn more about the ScienceMakers initiative overall, and to explore and see who was included in the digital archive, as well as to incorporate information into lessons in or outside of the classroom. About one-third explored the archive for personal interest and curiosity or professional interest, to determine whether they could use the resource with students or for grant proposals. They navigated the archive using either the Table of Contents or the Keyword Search, and they watched up to five stories from the interviews of up to five ScienceMakers.

ScienceMakers Interviews Narrative Analysis

GRG received from *The HistoryMakers* a sample of 20 interview transcripts and conducted qualitative analysis of common themes and the ways in which

interviewees addressed and discussed key topics. The analysis was meant to provide recommendations to the ScienceMakers team about organization and positioning of the digital video archive. In August, GRG submitted to *The HistoryMakers* (GRG, August 2012) findings and recommendations for additional introductory information and organization of the digital archive. Many of these modifications were made and are currently reflected in the ScienceMakers Digital Archive.

Appendix B includes additional details about GRG's data collection procedures and response rates for each ScienceMakers resource. Appendix C provides the full demographic breakdown for all evaluation respondents. Table 1 shows the number of completed surveys reflected in the data files sent to GRG. Table 2 shows the number of participants in GRG's primary data collection activities.

Table 1
Secondary Data Sent to GRG: Number of Respondents

Public Program	Location	Students	Educators	General Public
How The Universe Came To Be	St. Louis Science Center (SLSC)	82	9	77
The Value Of Science: Improving The Quality Of Life	The Museum Of Science And Industry (MSI)	76	11	180
Biology: From Molecules To Man	Center Of Science And Industry (COSI)	76	13	79
African American Perspectives	Allen Temple Baptist Church (Berkeley)	98	11	212
Breaking Barriers: Women In Science	Science Museum Of Minnesota (SMM)	14		53
Atlanta: Connections In Science,	Fernbank Science Center			93
Blazing Trails: African Americans in STEM,	SciWorks			48
Total Number of Respondents:		**346**	**44**	**742**

Table 2
Primary Data Collected by GRG

	Invited	Number of Surveys Completed
Toolkit Recipient survey	307	35
Toolkit User interviews	18	9
Interactive Website and Digital Archive survey*	1011	143

** Two separate groups were invited to review and comment on the Website: 1) List of professionals associated with The HistoryMakers and/or with the National Science Foundation (provided by The HistoryMakers), and 2) A list of elementary, middle, and high school educators, primarily in social studies and history.*

In the cases for which GRG conducted primary data collection and analysis, response rates were affected by a variety of factors, including those related to:

- the particular ScienceMakers resource,
- the timing of the evaluation activity, and
- the population from which a sample was drawn.

For example, GRG received contact information for toolkit recipients up to two years after their receipt of the toolkit. As was expected, by both GRG and *The HistoryMakers*, we learned that many did not recall receiving the toolkit or those who received it were no longer at the same school or institution. Feedback about the toolkit, therefore, is limited to those who recalled using the resource and may or may not reflect fully the extent of use nationally.

While we attribute the response rate for this data collection activity to the time lapse between distribution of the toolkits and the request for feedback, ScienceMakers' formative evaluator conducted an online survey with educators in 2010, shortly after educators requested the toolkit and received a similar response rate (i.e., the formative online survey was completed by 8 out of the 25 educators invited). This is an area worth exploring further in future evaluation research in effort to understand better why response rates for this deliverable are low.

Conversely, website users were invited to comment on the website shortly after the site was launched and many were not aware of the website prior to an invitation to review it for GRG's evaluation. Website visitors reflected a sample that was invited to review and comment on the site, rather than a sample of website visitors who discovered or sought out the site on their own. Responses and feedback may change, with more time for repeated visits and for use of the digital archive stories with students in and out of school.

Subgroup Analyses

Evaluation data were examined for group differences regarding demographic characteristics (e.g., gender, race/ethnicity, age) and additional groups depending upon the deliverable and the sample. For example, public programs analyses focused on cross-program differences as well as overall findings. For the website and digital archive, we conducted analyses to determine whether there were differences between educators and non-educators as well as between those more or less likely to be involved with STEM-related work and policy. For the majority of findings, there were no such group differences (i.e., visitor response to the website did not differ by those groupings). Where statistically significant differences were revealed, they are reported and presented graphically.

Statistically significant ($p < .05$) findings are reported in the results section. Statistical significance is a measure of the likelihood that an effect is due to systematic factors rather than to mere chance. The p-value is the likelihood of detecting a false effect by chance; thus, when $p < .05$, the chance is less than five percent of detecting an effect when there is no "true" effect. In other words, one can be confident that a significant group difference is, in fact, a meaningful difference.

RESULTS

The results section is organized as follows:

- Brief summary of the relative contribution of each project activity to the program's short-term outcomes
- Findings related to intended short term outcomes
- Users' impressions and ratings of project deliverables

Long term outcomes were not addressed in the current evaluation. Recommendations are made at the end of the report for future evaluation activities that may serve to assess mid-term and long-term outcomes of exposure to ScienceMakers resources.

SUMMARY OF OUTCOMES RELATED TO EACH ACTIVITY

While each deliverable was intended to work with the others to achieve the same overall project goals, there was evidence to support that some contributed more strongly to one or another of the projected outcomes.

- Public programs resulted in participants becoming **more aware of the achievements** made by African American scientists and learning about their work and contributions in a variety of STEM fields. Attendees felt they **learned more about the range of STEM careers** and expressed **interest in learning more** about them. Adult attendees of the evening programs felt more comfortable and **equipped to encourage youth** to explore and pursue STEM-related work.

- The toolkit led formal and informal educators to feel more **equipped to teach youth about the variety of STEM careers** and about the achievements and contributions of such a large number of African American scientists. Some also became more aware themselves of such achievements. Most notable was discovering this comprehensive resource that they can reference for lessons both for youth and adult audiences.

- The interactive website and digital archive resulted in **increased awareness of the achievements of minority scientists**, to a greater extent than in the increased awareness of the range of STEM careers. This may be due, in part, to the visitors to the site, most of whom were educators and/or already working in a STEM-related field. Visitors felt **more equipped to encourage youth** to explore STEM-related opportunities, due to the comprehensive database of scientists whose background and experiences they can share with students.

Table 3 shows the outcomes associated with each deliverable; a check-plus (✓+) indicates a stronger impact.

Table 3
Outcomes Associated with Each ScienceMakers Deliverable

	Public Programs	Toolkit	Website/ Digital Archive
Increased awareness of, and interest in learning more about, the **achievements and contributions** of minority scientists, among the general public.	✓+	✓	✓+
Increased awareness of, and interest in learning more about, **different STEM-related careers** among students.	✓+	✓	✓
Increased confidence among STEM professionals, educators, and other adults to **discuss STEM careers with students** and encourage interests and beliefs about their abilities to pursue a STEM-related career.	✓+	✓+	✓+

SHORT TERM OUTCOMES ACHIEVED

After participating with one or more of the ScienceMakers activities, students, adults, and STEM professionals expressed increased awareness of the achievements of African American scientists.

Before exposure to any ScienceMakers resources, members of all three target audiences reported they knew *a little* or *some* about African American achievements in science. After exposure, all expressed that their awareness of the range of accomplishments had increased, and they were interested in learning more.

Student Public Programs

Students, after participating in a public program, reported their interest in learning more about the achievements of African American scientists *increased some*. Average ratings across all programs were 5.73, above the midpoint, on a 7-point scale from 1 (*Decreased strongly*) to 7 (*Increased strongly).* Shown in Table 4, students who attended *The Value of Science: Improving the Quality of Life* at MSI reported relatively higher increased interest while students who attended *Biology: From Molecules to Man* at COSI, reported relatively lower increased interest. Note, the student group that attended this COSI program (the first of several ScienceMakers programs held at COSI) was not selected based on any prior known interest in science. While their ratings do indicate increased interest in the areas most relevant to ScienceMakers, their initial lack of science-related interests is likely reflected in their relatively lower ratings overall compared to the other student program participants.

Table 4
Students' Increased Interest in Learning about the Achievements of African Americans

	N	Interest in Learning More
The Value of Science: Improving the Quality of Life (MSI)	73	6.04
Breaking Barriers: Women in Science (SMM)	14	5.93
African American Perspectives (Allen Temple)	94	5.69
How the Universe Came to Be (SLSC)	76	5.63
Biology: From Molecules to Man (COSI)	75	5.53

Scale: 1 (*Interest decreased strongly*) to 7 (*Interest increased strongly)*

As evidence of their increased awareness, about half of all students who attended a public program were able to list a specific achievement of African Americans in the field of science. A handful at each program wrote that they did not remember any specific achievements.

Among those who did list an achievement that stood out, they remembered the following:

- Education/Degrees accomplished
- Positions/Awards received
- Scientific discoveries made
- Books written
- How they went to "*something from nothing*"
- Being the first (e.g., "*woman to travel to deep sea*", African American "*chair of NACEPT*")

Among those who attended African American Perspectives at Allen Temple Baptist church (Berkeley) 11 girls and 3 boys listed Dr. Dawn Wright's achievement of being the first African American woman to go undersea in a submarine as what they remembered most.

The word cloud below (Figure 1) shows words that student used to describe the achievement they remembered most. Words used by more students are indicated by the larger font size. As listed above, many students were struck by the degrees and awards the scientists achieved, and many noted that they were women and that they helped society in some way with their work and their discoveries.

Figure 1
Achievements that Stood Out Most for Student Public Program Attendees

Similarly, educators who accompanied students at the public programs believed that what stood out as most interesting for their students were:

- That the scientists overcame hard times, worked hard, and achieved,
- Their background and life stories, and
- That they were real people and did not fit into the stereotype of a scientist.

Evening Public Programs

Attendees of the evening public programs also reported increased awareness of African Americans' achievements in science. Even with nearly three quarters (71%) of them reporting they knew *some* or *a lot* about such achievements before the program, a large majority (89%) *agreed* or *strongly agreed* that their awareness increased after the program. In addition, the majority (78%) said the program caused them to think or feel about scientists in a new or different way.

Among the 23% who said the evening public program did not change their thinking about scientists, explanations were that they were scientists themselves, and that they already valued, liked, and respected scientists and what they do. The program enhanced their already strong appreciation for science.

ANWWW

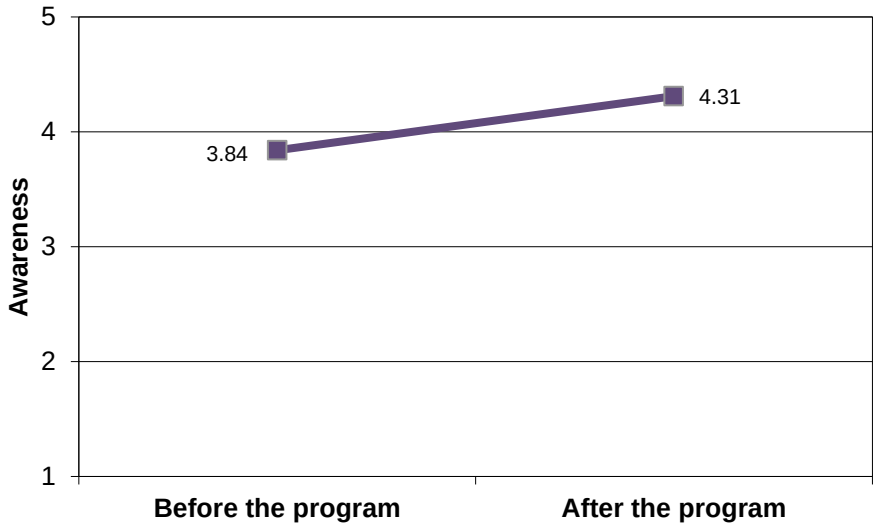
Attendees at the special ANWWW public program had a statistically significant increase in their awareness from before to after the program, as shown in Figure 2. Nearly half of them had prior personal and professional interest in the

achievements of African American scientists, and selected such interest as their reason for attending the event.

Before attending, the majority of the ANWWW audience was already aware of African Americans' achievements in science; one third was *highly aware*. Despite their prior knowledge, the majority (85%) said their awareness increased *quite a bit* or *a great* deal.

- 83% were *quite a bit* or *a great deal* more interested in seeking out more information about achievements of African American scientists.
- The vast majority (87%) plan to spend more time reviewing ScienceMakers materials.

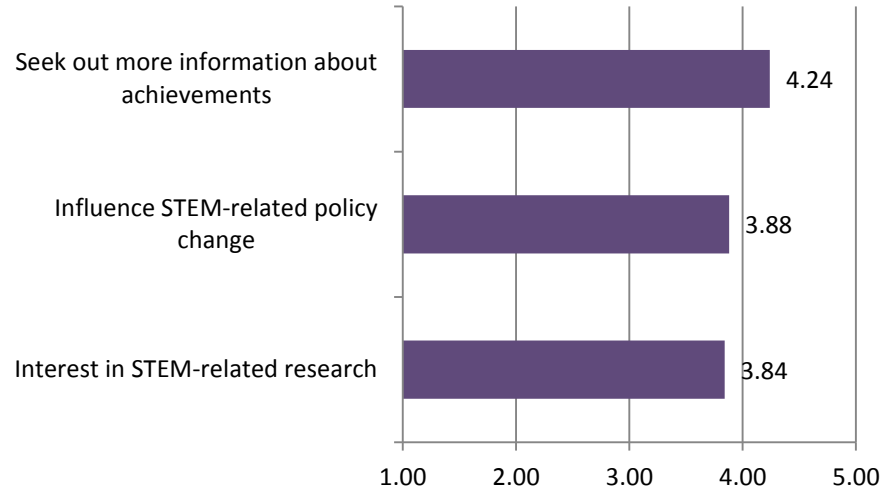
Figure 2
ANWWW Attendees' Awareness of African American Achievements in Science before and After the Program



N=141
Before the program Scale: 1 (*Not at all aware*) to 5 (*Highly aware*)
After the program scale: 1 (*Not at all*) to 5 (*A great deal*)
Statistically significant difference, p<.05.

Moreover, the program increased their interest in influencing STEM-related policy change, and their general interest in STEM-related research. Shown in Figure 3, average ratings were close to 5 on a scale of 1 (*Not at all*) to 5 (*A great deal*).

Figure 3
ANWWW Attendees' Reported Increased Interest



N=141
Scale: 1 (*Not at all*) to 5 (*A great deal*)

Website

After reviewing the website and the digital archive, visitors agreed they were more aware of the achievements of African American scientists and had increased interest in learning more about them. Average ratings were 4.23 and 4.17, respectively, on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

- 91% *agreed* or *strongly agreed* that they were more aware of the achievements of African American scientists as a result of visiting the website.
- 81% were interested learning more.

Analyses revealed significant differences among those respondents who were members of *The HistoryMakers* NSF database and those who were educators recruited by GRG. Those from *The HistoryMakers* (Mean=4.46) were significantly more interested in learning more about African American scientists than were educators GRG recruited (mean= 4.03).

Toolkit

Informal and formal educators valued the toolkit as a resource from which to draw concrete information that can raise student awareness of African American achievements in STEM. Most noted their appreciation of the sizeable database of scientists and their respective backgrounds from which to draw information; they preferred this accessibility rather than having to do an online search for such information.

After participation in public programs, especially, and (to a slightly lesser extent) after reviewing the website, digital archive, and toolkit, users expressed increased awareness of the range of STEM-related careers and interest learning more.

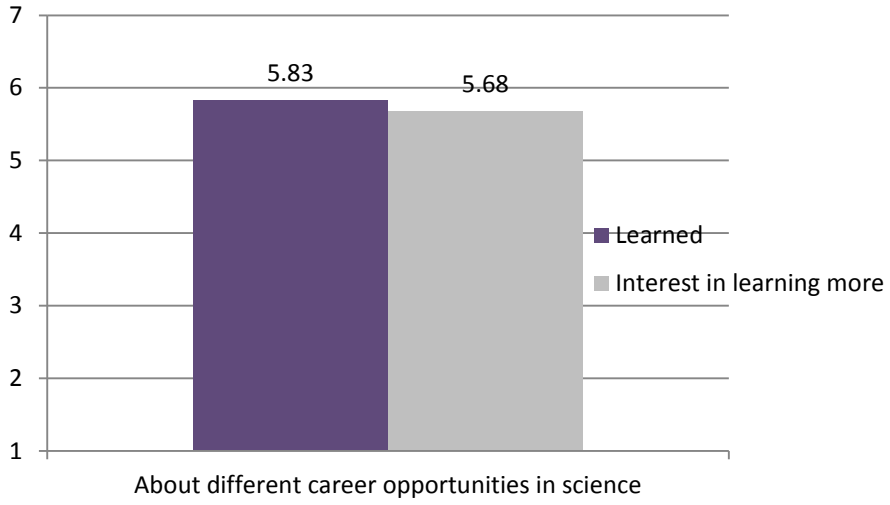
Similar to their learning about the achievements of minority scientists, those who were exposed to one or more ScienceMakers resources learned about the different career opportunities that exist in science and expressed some interest in learning more.

Student Public Programs

Students who attended a public program rated both their actual learning about science careers, as well as their interest in learning more about such careers quite high. As shown in Figure 4, average ratings for both items were strong: between 5 and 6 on a 7-point scale. These ratings suggest that with one exposure to ScienceMakers, the public program effectively conveyed new information to students. Their reported interest in learning more, while strong, indicates room for growth.

This reflects an opportunity for educators to follow up by implementing video stories from the digital archive along with information and activities from the toolkit to extend student learning as well as sustain their growing interest. Prior studies of educational interventions GRG has conducted have shown that students tend to benefit more from continued exposure to a resource than from a one-time only exposure. Longer term impact is more likely when there is ongoing exposure.

Figure 4
Students' Learning and Interest in Learning More about Careers in Science



N=315
Statistically significant difference, p<.05.

"I have been trying to think of what do I want to go to college for and spending time with the science makers have explained to me different scientific fields."

Across five of the ScienceMakers public programs, students who attended *The Value of Science: Improving the Quality of Life* at the MSI in Chicago rated their **learning** about career opportunities in science higher than did those who attended *Biology: From Molecules to Man* at COSI in Ohio. Students who were members of a church STEM club and attended *African American Perspectives* at Allen Temple Baptist Church in Berkeley, CA rated their **interest in learning more** about science careers higher than did students at the COSI program. These findings lend further support for the idea that students who have expressed prior interest in science, and have participated in related activities, respond quite well to the ScienceMakers public programs. See Table 5. Students' interest in learning about science in general was about the same or slightly higher than interest in learning about science careers.

"They did help me to better understand the different jobs that scientists do."

Table 5
Students' Learning and Interest in Learning More about Careers in Science: Across programs

	N	Learned	Interest in learning more about:	
			Science Careers	Science Generally
The Value of Science: Improving the Quality of Life (MSI)	74	6.18*	5.82	5.88
How the Universe Came to Be (SLSC)	73	5.88	5.58	5.50
African American Perspectives (Allen Temple)	94	5.70	5.90*	5.91
Biology: From Molecules to Man (COSI)	76	5.63	5.33	5.37
Breaking Barriers: Women in Science (SMM)	13	5.46	5.50	6.00

* *Statistically significantly higher than students who attended COSI program*
Learned Scale: 1 (*Learned nothing*) to 7 (*Learned a lot*)
Interest Scale: 1 (*Decreased strongly*) to 7 (*Increased strongly*)

As is often the case, educators who accompanied students at the public programs rated their perceptions of student interest in learning about science careers and science in general high, and slightly higher than did students themselves. See Table 6.

Table 6
Educators' Perceptions of Student Interest

	Across all programs	
	Students N=332	Educators N=42
Interest in learning more about different career opportunities in science	5.66	5.98
Interest in learning more about the subject of science in general	5.69	5.92

Interest Scale: 1 (Decreased strongly) to 7 (Increased strongly)

Career opportunities that stood out as most interesting to students differed by location and corresponded with the presentations made by the ScienceMakers they met.

MSI:	SLSC:	COSI:	Berkeley:
Biology	Engineering	Microbiology	Oceanography
DNA	Physics	Study of cancer; bacteria; microorganisms (sigma receptors)	Chemistry
How immune system works		Neuroscience	Engineering
Rett Syndrome		Pharmacology	Geophysics

All but a very small number of student program attendees believed the scientists featured were good role models for people their age. They listed a wide range of reasons:

- They come from the same place as us
- Succeeded despite challenges and "*low odds*"
- They are someone to look up to
- They are encouraging and motivating
- They are respectful
- They are inspirational; achieved their dreams
- They are successful and accomplished
- They are strong and smart, educated, and have good careers
- Because there are not enough African American scientists/role models
- They show you can do anything you put your mind to
- Their work is interesting and important

"They didn't come from really wealthy families, but worked hard to reach their goals."

Representative student quotes follow:

- "*They are perfect examples that black people can do anything."*
- *"They helped me see how important their jobs are."*
- *"For one, they're black, two, they're very inspiring and strong people."*
- *"They help us understand we need to not quit."*
- *"I can see myself doing what they're doing."*

Evening Public Programs

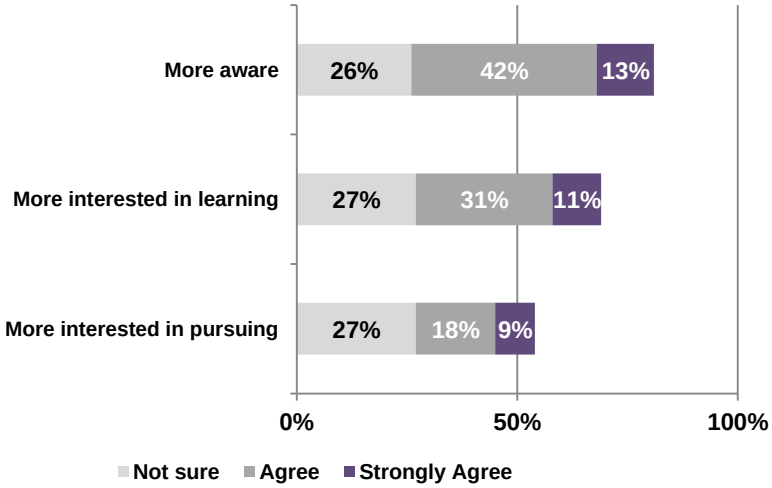
The majority of attendees of the evening public programs (72%) agreed or strongly agreed that the program broadened their knowledge of the different career opportunities that exist in science. Recall, this is a lower proportion compared to the 89% who agreed the program increased their awareness of achievements of African American scientists. A few participants explained their ratings to indicate they were already involved in work or teaching in fields of science, "*I thought the program was excellent--lower rating speak to my 20 years of experience teaching and training students."*

Website

A similar pattern was revealed for those who reviewed the ScienceMakers website and Digital Archive. A little over half (55%) of those who visited the website *agreed* or *strongly agreed* that they were more aware of STEM-related career opportunities after visiting. On average, website visitors were more aware of career opportunities in STEM -- to a significantly greater degree -- than they were more interested in learning more about such opportunities. And both were statistically significantly higher than how interested they were in pursuing a STEM-related career. See Figure 5.

As a result of reviewing the site, nearly ally website visitors (91%) agreed they were more aware of the achievements of African American scientists, while fewer (55%) agreed they were more aware of STEM-related career opportunities.

Figure 5
Website Visitors' Awareness of and Interest in STEM-Related Careers



N=141
Mean ratings on a scale of 1 (*Strongly disagree*) to 5 (*Strongly agree*) were: More aware: M=3.47; More interested in learning: M=3.16; More interested in pursuing: M=2.75

"I think a STUDENT would become more interested in career options by looking at the site; as a teacher, I am not."

In explanation of those ratings, most visitors noted they were already set in careers and were "*not using the website for this function."* Several noted that students may be influenced in this way, however, and that they would share the information with students and encourage students to pursue a career in STEM.

> *"I think if I were younger and less settled in my current occupation, I would be more interested in pursuing a STEM career from reviewing this site."*
>
> *"I am already a STEM professional and know of work in this area to broaden participation in STEM. The fact that the site did not increase my knowledge significantly is no reflection on the site! It is merely that I am already quite knowledgeable about this work."*
>
> *"I think this site is/will be very inspirational to young African Americans."*

After attendance at public programs, and review of the toolkits, website, and digital archives, parents and educators felt more confident and more equipped to teach students and encourage their interest in STEM careers.

Evening Public Programs

Just under two thirds of the evening public program attendees were parents, guardians, grandparents, or educators of children. As a result of the program, nearly all of them (90%) felt more equipped to communicate with youth about scientists, the kinds of work they do, and/or career opportunities in science. They explained that the program inspired them to spend more time exploring science with their children, and that they were more aware of how to encourage children to explore possibilities in science. They now know of more specific scientists and History Makers they can reference, they have more examples to share with students about the potential for science-related achievements, and they feel confident they can explain that there are options beside medical school, and that science can "*relate to anything in the universe."* A few noted they may not feel fully equipped, but they do feel more enthusiastic.

"I'm past grateful for you all to be role models to my grandsons in attendance."

The majority (84%) of all evening program participants *agreed* or *strongly agreed* that they will discuss and share information from the program with others. They see the value, "*because science/math is discouraged"* and they *"feel African American young people need this stimulation."*

ANWWW

Similarly, two-thirds of the ANWWW program attendees were likely to implement ScienceMakers materials in their own STEM programs or agendas after the program and three-quarters were likely to seek out ways to engage African American scientists in research and policy decisions after the program. See Table 7.

"Because of the nature of the work that I do, I wouldn't have the opportunity to engage the ScienceMakers in my own programs or feature one of them. I am sure if I was in the position to do so, I would."

Table 7
ANWWW Attendees Likelihood to Continue/Use their Experience

	Mean Scale: 1-5
Discuss it with others	4.75
Spend more time reviewing ScienceMakers materials	4.29
Seek out ways to engage African American scientists in research decisions	3.98
Seek out ways to engage African American scientists in policy decisions	3.97
Implement ScienceMakers programming or materials in your own STEM programs or agendas	3.73

N=141

Regarding their own future work related to STEM research, policy, or teaching, attendees noted that they are now aware of ScienceMakers resources, including the website, where they can turn for information and/or to invite actual scientists to speak with their audiences face to face.

Website

Those who reviewed the website and digital archive described ways they would use the information with youth. A few teachers (n=8) explained they would incorporate information into a classroom or out-of-school lesson and would recommend the website to science teachers, as "*it is a great resource, especially when doing research."* They felt it provided "*a wealth of information"* and that including the interviews of some of the featured scientists would *"enhance any science curriculum.*" One participant would "*try to encourage my administration to include it in the curriculum as a supplemental option."*

"Working with many students of color, I want students to know that they are just as likely to become an inventor or science teacher or scientist as they are to become any other profession."

Toolkit

Educators who reviewed and/or used the ScienceMakers toolkit see it as another comprehensive resource for educators and students with a wealth of information. They appreciate the lists of local scientists they can include in lessons with students and youth. They can find local scientists to invite to their program or to highlight as examples to students from their own communities or regions. Due to inclusion of scientists who come from communities like their own, look like they do, and are not necessarily famous -- yet have made significant positive contributions to society -- educators perceive the toolkit as having great potential for making students aware that they can be scientists themselves.

> *"Want to give students a hook to hang onto. This material from ScienceMakers seems to be very good way to let kids know kids like themselves can do well."*

Use of one or more ScienceMakers resources motivated users to review additional materials and to engage further with the content.

"Sharing information about this Science Maker will be instrumental in what I share with students. In addition, it increased my understanding of how policy affects us."

Evening Public Programs and ANWWW

After attending an evening public program, the majority of those who worked with children or youth were prepared to communicate with youth about scientists, the kinds of work they do, and/or career opportunities in science. Similarly, those who attended the ANWWW program were likely to continue discussions with others and seek out ways to engage African American scientists in policy and research decisions.

Beyond continued discussion, ANWWW attendees were also highly likely to spend more time reviewing ScienceMakers materials, which they learned were available as a resource for information as well as a pool of scientists they can invite to speak to various audiences. All attendees of this program were also given a copy of the ScienceMakers Toolkit.

"I'm limited in my exposure to STEM policy, but I'd appreciate now having Science Makers as a resource."

Website

Those who reviewed the ScienceMakers website and digital archive also noted that they are now aware of this comprehensive resource and they will explore it further. As shown in Table 8, visitors were *very likely* to recommend the site and discuss its content with others, and to spend more time reviewing additional ScienceMakers materials, including visiting the website again. They were relatively less likely to seek out ways to engage African American scientists in research and policy decisions. This is likely due to their professional positions; 52% were teachers and not necessarily in a position to be involved with such decisions.

Table 8
Website and Digital Archive Visitors' Likelihood to Engage Further with ScienceMakers

	Mean (Scale: 1-5)
Recommend the website to a friend or colleague.	3.91
Visit the website again.	3.80
Discuss content from the website with others.	3.70
Spend more time reviewing ScienceMakers materials.	3.62
Implement ScienceMakers programming or materials in my own science, technology, engineering, and math (STEM) programs or agendas.	3.05
Feature one of the ScienceMakers in a public program.	2.89
Seek out ways to engage African American scientists in research decisions.	2.75
Seek out ways to engage African American scientists in policy decisions.	2.70

N=143
Scale: 1 (Not at all likely) to 5 (Extremely likely)

"I am the Education and Outreach Coordinator for a NSF sponsored research lab, and I love ScienceMakers! I've used the site to find scientists and activities to complement our LEGO robotics and Family Engineering programs. Previously, finding African-American scientists to feature has been difficult to do without real research, even with the internet. Thank you!"

Recall that one-third of those who completed the website survey were previously involved with *The HistoryMakers* and/or the National Science Foundation in some way. Analyses revealed that – as a result of visiting the website – members of that group were statistically significantly more likely than their counterparts to:

- Implement ScienceMakers programming or materials in their own STEM programs or agenda.
- Feature one or more ScienceMakers in a public program.
- Seek out ways to engage African American scientists in policy decisions.

Additionally, analyses revealed that women were more likely than men to:

- Visit the website again
- Discuss content from the website with others
- Spend more time reviewing ScienceMakers materials

Users of ScienceMakers materials were satisfied with the resources they saw and suggested ways to increase use among a wider audience.

ScienceMakers Public Programs

Students rated the overall experience of the public programs they attended quite positively, with highest ratings for how much they learned. Overall, they *learned a lot*, found the information *clear* and *liked* the overall experience.

Shown in Figure 6 below, *How the Universe Came to Be* at SLSC received relatively higher ratings regarding how much students liked the experience and found the information to be clear. *Biology: From Molecules to Man* at COSI received relatively lower ratings, particularly for how interesting students found the program.

Students' explanation of their ratings reflected some program-specific feedback:

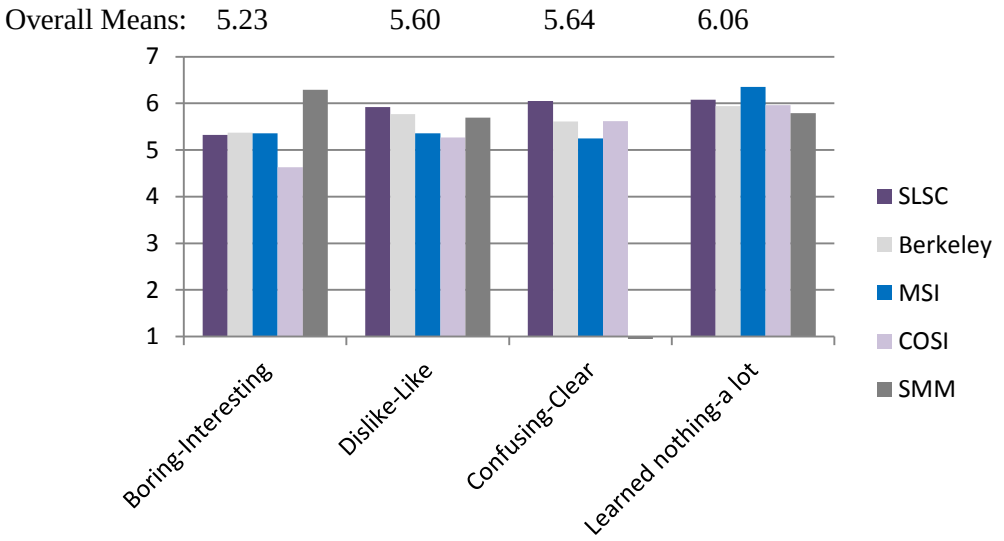
- Students at the COSI program had mixed comments. Some said the program was "*cool"* or "*fun and educational"* while others noted it was too long, did not hold their interest, and needed more breaks between scientist presentations.

- Nearly all of the students at the MSI program enjoyed the experience, learned something new, and found it interesting. They noted specific topics they particularly liked (e.g., the brain and mice, and DNA) and appreciated the scientists' style, "*I love the way the scientists go to the direct point*."

- Most of the students at the SLSC program explained that they liked some parts better than others. A few gave overall positive comments, such as "*I really liked all of this,"* and some suggested they would have liked to have had more activities.

- Comments from students at the Berkeley program ranged from, what they found most appealing, "*interesting with all the new things they presented to us"* to a general lack of understanding of the intent of the program: it was "*confusing because it was not clear about why you're doing this, or what is the purpose of what the program is doing."*

Figure 6
Students' Overall Ratings of the Public Programs



N=346
Scales: *1 (Least positive) to 7 (Most positive)*

Among the different elements of the public programs, students were most interested in the events' in-person scientist interviews and experiment demonstrations and relatively less interested in the at-school activities (e.g., watching a video and/or reading scientists' biographies) that they did prior to attending the program. See Table 9.

Table 9
Student Interest in Public Program Elements

	N	Mean 1-7
Today's in-person scientist interviews	322	5.70
Today's experiment demonstrations	246	5.61
Today's question/answer periods	319	5.51
YouTube Challenge/Scavenger Hunt (COSI and SLSC only)	22	5.05
The scientist video interviews on DVD (watched at school)	206	4.90
The written scientist biographies (read at school)	314	4.55

Scale: 1 (Not at all interesting) to 7 (Extremely interesting)

Examination of each program revealed that the scientist interviews, experiments, and at-school review of scientist biographies were received particularly well by MSI students, with relatively lower ratings on those same items among students at the COSI program and the Berkeley program. Across all programs, girls rated the experiment demonstrations higher than did boys (average ratings were 5.82 v 5.42 out of 7).

Student suggestions for improvement related to the at-school work before the program included:

- Make the written biographies shorter, more interesting, and easier to understand
- Add more personal information to the biographies
- Add pictures of what the scientists do
- Add more interaction to the video interviews to make them more interesting

COSI:
"What I liked most is the way they love to talk about what they do."

"I learned a lot and may consider science."

Student suggestions for improvement related to the program onsite included:

- Add more experiments and more activities
- In the presentations, add more interactive opportunities and ask scientists to explain some of the terminology that is likely unfamiliar to the students

As noted earlier, after receiving feedback from public programs in the first year, changes were made such that more hands-on activities were added to programs. In addition, during programs in the second year, students had opportunities to tour the museums and visit scientist stations on the floor where possible. Leaders of a few of the public programs followed up by encouraging students to enter the YouTube contest, seeking opportunities for continued student engagement with scientists.

What students liked most across all of the public programs was meeting and learning about the ScienceMakers, their lives, and their experiences, and doing activities with the scientists. Students appreciated how engaging the scientists were and that they took time out of their day to speak with them. They learned new things, and enjoyed doing the activities.

SLSC:
"I like how they were nice and told us we can be anything we wanted to be."

"That I could sit and ask questions and not be in school, but I can still learn."

A few comments specific to the public program they attended:

Liked at COSI: (n=72)

- Getting to interact with different scientists
- Liked that the scientists were African American
- Hearing about the scientists' lives, background, and what they are doing to help the world
- Learned new things

Liked at MSI: (n=74)

- Getting to do the experiments (and eating the candy involved)
- Listed a specific scientist they liked best (Williams, Jarvis, Cooper)
- Hearing about what the scientists do
- Learned about things they did not know before

Liked at SLSC: (n=76)

- Meeting and hearing from and about the ScienceMakers' lives
- Doing experiments and activities themselves
- The informal learning setting

- Learning something new

Liked at Berkeley: (n=97)

- Meeting and hearing about the scientists' lives; they were interesting, informative, smart, funny, genuine, inspiring
- Interviews; scientists took the time to answer their questions
- Playing jeopardy to learn about the scientists and what they do

Berkeley:
"I like how the speakers told us their experiences whether positive or negative."

"I liked the scientists who took their own free time and effort to make a difference in young people."

Liked at SMM: (n=12)

- Meeting and learning new things from the scientists.

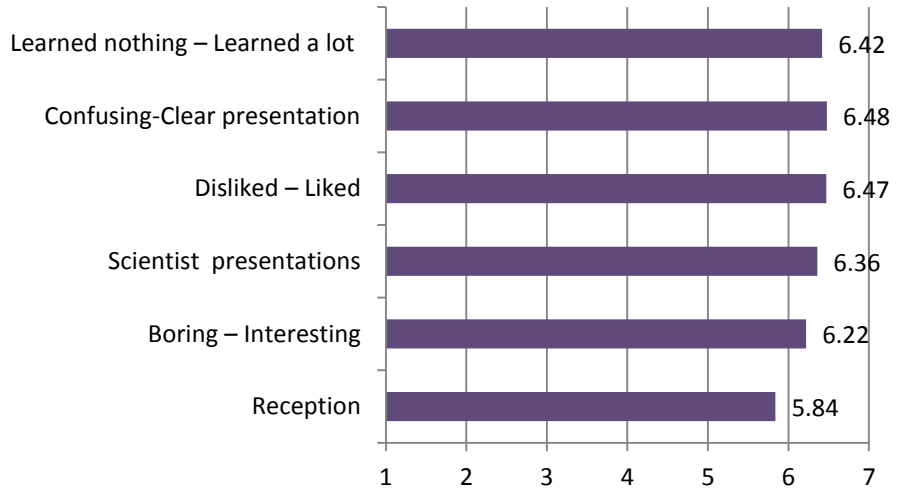
What students did not like about the programs related primarily to the length of the program, considered in some places to be too long to sit through. They lost interest at points, and did not have as much opportunity to interact with the scientists or to do as many experiments as they would have liked. A few students at Berkeley noted they felt unprepared and that they were told several times that they should have been more prepared for the question and answer period.

Evening Public Programs

Attendees' impressions of the evening public programs, including the ANWWW program, were quite positive across all locations. Attendees of the evening programs particularly enjoyed the scientist presentations and they found the scientists' life stories and experiences personally relevant.

Shown in Figure 7, all ratings were close to 7, the highest possible rating. The one element that was rated lower than a 6 out of a possible 7 was the program reception; receptions received higher ratings by attendees at the SciWorks and Berkeley programs, and lower ratings form the SMM program attendees. Attendees at the ANWWW program rated the program overall between *very good* and *excellent*; mean rating was 4.58 out of a possible 5.

Figure 7
Ratings of the Evening Public Programs



N=716
Scale: 1-7 (*lowest to highest*)

Generally, attendees of the evening public programs felt the level of the science presented was *just right*, with an average rating of 4.45 on a scale from 1 (*too little science)* to 7 (*too much science)*.

Website and Digital Archive

Among the elements included on the ScienceMakers website, visitors considered the ScienceMakers Interviews and ScienceMakers Digital Archive relatively most useful. Areas of the site that were visited by fewer visitors were the YouTube Contest, The Advisory Board, and the Toolkit. See Table 10.

Table 10
Website Visitors' Ratings of Website Elements

	Mean Scale (1-5)
ScienceMakers interviews	3.85
ScienceMakers Digital archive	3.58
ScienceMakers Public programs	3.25
Connect with ScienceMakers	3.21
ScienceMakers Toolkit	3.11
ScienceMakers Advisory Board	2.43
ScienceMakers YouTube Contest	2.36

N=143
1 (Not at all useful) to 5 (Extremely useful)

Generally visitors were satisfied with the appearance, organization, and ease of navigation of the website, with average ratings between *good* and *very good* (nearly 4 on a five-point scale). See Table 11.

Table 11
Website Visitors' Ratings of the Appearance and Style

	Mean (1-5)
Look and feel	3.97
Ratio of text to graphics	3.85
Organization	3.82
Navigation	3.80
Ease of use	3.77

N=141
Scale: 1 (Poor) to 5 (Excellent)

While some visitors found the site to be a *"well organized site, visually appealing, easy to navigate*," and were able to load and watch videos easily, others had difficulty with navigation and experienced inconsistent success reaching the pages they wanted to review. "*I could not access any of the interviews or clips. It kept looping back to the starting page of ScienceMakers.*

Then I would try to navigate and sometimes I would be able to." GRG shared early feedback about navigation issues with the ScienceMakers team and those technical issues have been corrected.

Visitors *agreed* that the information in the archive was interesting, and it was easy to search for a specific person or topic. As described earlier, most website visitors were reviewing the digital archive for the first time when they completed the survey. The most-watched ScienceMakers were Shirley Ann Jackson (28%) and Warren Washington (18%). From watching the interview clips, they learned the personal "*real life stories*" of these "*unique individuals*" and that it was "*more powerful to hear someone tell of an experience than to just read about it."* They also learned about the challenges the scientists faced and that they "*had to work hard to achieve their goals*."

No particular type of story stood out as the most interesting to a majority of visitors. Visitors' favorites were divided among: Research & Work, Challenges Faced, and Education. See Table 12. This likely reflects the fact that, when they completed the survey, visitors did not spend enough time exploring the archive to have established a favorite story or story-type. Recall, most respondents watched up to five stories in all. Following up with a sample of these respondents would allow us to determine whether they have visited the digital archive over time, and whether a favorite type of story has emerged after such visits.

Table 12
Stories Website Visitors Found Most Interesting

	Percentage
Research & Work	25%
Challenges Faced	23%
Education	15%
Childhood	11%
Mentors	10%
Family Members' Background	8%
Philosophical (i.e., "What do you want your legacy to be?")	7%
Awards	1%

N=138

When we examined preferred story type by age group, we found no statistically significant differences, yet, a few differences were noted such as:

- More 25-34 year olds were interested in Challenges Faced
- More 35-44 year olds were interested in Education, Mentors, and Family Background, and Childhood
- More 45-54 year olds were interested in Research and Work

These differences by age group may reflect the visitors' current life interests and what they find more personally relevant. For example, the younger visitors may be recent graduates facing the challenge of looking for work of their own; the older group may be more established with their own research and work and interested in learning more about others' similar experiences.

The majority of website visitors agreed that the information in the digital archive was interesting and it was easy for them to search for a specific person or topic. See Table 13.

Table13
Website Visitors Ratings of Digital Archive Elements

	Mean (1-5)
The information was interesting to me.	4.20
It was easy to search for a specific person.	4.03
It was easy to search for a specific topic.	3.92
The information was useful for my work.	3.69

N=141
Scale: 1 (Strongly disagree) to 5 (Strongly Agree)

"I would use the website to show students examples of African American STEM professionals. I would also focus on the stories of their educational experiences and difficulties to show students that people can overcome their obstacles if they work hard."

Reflecting on their experiences, 28% of website visitors learned something personal about the ScienceMakers, as the interviews showed "*the real person behind the very serious profession of scientist."* Several (28%) learned something about the challenges they faced and how they overcame those to pursue their education. A few (12%) reported they were unable to watch the videos on their computer because the videos downloading made the screen blink; they became frustrated and left the webpage.

To make young people aware of African American leaders in the STEM professions, 36% of participants said they would use information from the website in the classroom for school projects. Others suggested using it as a research resource, in museums, and via social media.

- Research: "*The archive helps students do research using several skills - reading, listening, and interpretation of the oral and written histories. I would like my students to view the archive and then explore what they want to know more about."*

- Museums and outreach: "*Inclusion in other museum or outreach facility programs; kiosks in public locations."*

To make the archive more appealing to students/young people, suggestions included making the design less serious and formal by adding pictures and interactive video (13%), improving the categorization and search options (12%), including younger scientists (9%), adding more interactivity (e.g., classroom materials, quizzes, trivia) (9%), and increasing publicity and advertising (8%). Nearly one in five (17%) said it is fine as is.

- Design: "*More pictures and an emphasis on their childhood and the path to where they are. Most students will not care much about what awards they won, but they will be interested in how they can relate to these people in life events."*

"Design is a bit conservative. I would like to see more contemporary color usage and a more dynamic design that matches the upbeat graphic that today's learners use."

- Improve search/categorization: "*Sort interviews alphabetically, by field of study, PhD program, and awards."*

  "Maybe be able to search on the most viewed videos or ratings."

  "Perhaps special tabs for students, teachers, and parents would be useful. Teachers are the most interested in the 'whys' of the project. The students would be looking for 'what does this have to do with me?' …"

- More interactivity*: "Include discussion questions for use in the classroom with lesson plan connections."*

  "Maybe a page for educators aligning with our state standards to help incorporate the archive into classrooms."

"Develop strategy for making the Archives more accessible. Don't require a log in, or allow users to create a log in name and password as they enter the site for the first time (instead of having to go to a different screen)."

To make the archive more interesting to a wide range of users, beyond students and youth, similar design suggestions were repeated. A few visitors also suggested ways to increase accessibility (14%) and to publicize it more (13%), by connecting it *"to Black History Month sites and curriculums"* and *"publicize it in places where young students frequent, such as churches and in their schools. Publicize it also in college and university classes and science departments. It is really a wonderful resource."*

"I think it needs to be advertised more - I wouldn't have known about it if I wasn't a teacher who got an email to look it up. This site is great for more than just teachers and should be advertised to a wider group of potential people."

Visitors envisioned using the archive to make young people aware of African American leaders in the STEM professions by using the videos as a resource for class assignments including research, presentations, and extra credit; to build student interest in science; and to make connections across topics.

Toolkits

Whether or not they had used the toolkit with others yet, recipients saw value in the resource and expressed plans for continued use with multiple groups of students and teachers, and to make others aware of it as a resource.

Users considered the toolkit a good resource to enhance current projects and activities and to add to their existing educational tools. Biographies and videos (i.e., DVD in Volume 1 only), were used as entry points for group discussion and activities as well as for individual student research. End user responses have been positive, with some children expressing a new interest in science as a career.

Toolkit users hoped their audience would see science as "*interesting and fun*," and would learn how scientists work and appreciate the value of such work. They hoped that by seeing scientists who are in their own community, who look like them, and who have contributed positively to society, youth and adults will change their image of science and of what they are capable of doing themselves.

Users of the toolkit were pleased with the depth of information provided. Suggestions to enhance use included ways to make more people aware of it, and to make it more user-friendly. As is, it is considered a useful tool albeit not appealing and user-friendly such that one can receive it and begin use. Users noted that the presentation of the information, while comprehensive, is dense and may look "*boring*." A different layout may create a more inviting and user-friendly experience for both educators and students.

"Find a curriculum organization, and work with some people whose job it is to make curricula. Work with professional curriculum designers."

Organizational suggestions included:

- breaking it into smaller parts, perhaps by science discipline, and
- more clearly describing what is included and how to use it.

Stylistic suggestions included:

- adding a page of pictures "*like a yearbook,"* and
- noting where the scientists are and what they have contributed.

Another suggestion was to note, in the Table of Contents, which scientists have or have not contributed to "*major paradigm shifts*."

As presented, some information is missed, and a few educators expressed interest in information or resources that already exist in the toolkit, such as hands-on activities and grouping scientists by discipline. Very few knew the toolkits were available, in their entirety, on the ScienceMakers website. With a more comprehensive promotional campaign that highlights all of the ScienceMakers materials, where and how they can be accessed, and their complementarity, use is likely to increase.

CONCLUSIONS

Beginning our data collection activities late in spring 2012, in the last year of the ScienceMakers program, GRG's summative evaluation has examined overall program effectiveness and made recommendations. As a result, The HistoryMakers can use the lessons learned in future related projects that propose to make use the ScienceMakers resources. Two prospective projects include plans to:

1. Bring the digital archive alive in order to reach and engage a broad range of youth and the general public.
2. Provide professional development for educators who will learn culturally competent ways to present ScienceMakers resources to their respective audience groups.

Overall, data from the summative evaluation activities indicate that the project has effectively met short-term outcomes. The majority of program activities were successfully delivered to the three target audiences (youth, adults, and STEM professionals), with evidence of the achievement of program goals.

ScienceMakers components that stood out as particularly strong and positive were:

- In-person meetings and interactions with scientists during the public program presentations
- The interviews and digital video archive on the website
- The compilation of such a comprehensive list of scientists and their background information in the toolkits

These are well-positioned to continue to complement one another, particularly when members of the intended audiences know about all of them. Following are conclusions drawn from the summative evaluation.

Students and adults alike benefit quite a bit from meeting, hearing, and interacting in-person with scientists.

The students explained in detail that their in-person meetings influenced them quite a bit. Some of them read through biographies at school in advance of the public program. This preparation, however, did not compare to the in-person experience. Students were surprised and appreciative that the scientists took time to speak to them and with them. Students believed the scientists featured were good role models for people their age. They found the scientists inspiring and they learned about science and science careers in a way that made more of an impression than just reading alone. The considerable value added from meeting a scientist in person is a finding we have seen in evaluations of regional Science Festivals, as well.

Second to the in-person experience, video is better than reading with its potential to engage and sustain the interest of a wider range of users, particularly younger audiences.

Users of the interactive website and the digital archive, most having reviewed it only once, saw the potential value in showing video clips to youth and students to engage them. Adults and STEM professionals noted that they themselves learned more about the achievements of African American scientists. However, they believed that the student and youth audience could benefit the most from reviewing the video clips and subsequent independent research, in or out of the classroom, to learn more about the wide range of featured scientists.

The ScienceMakers materials, together, have the ability to reach a broad audience including youth, parents and guardians, educators, STEM professionals and policy-makers with sustainable effects.

Each deliverable individually provided information and resources that contributed to achievement of the overall project goals, with evidence to suggest that some contributed more strongly to one or the other goals. The combination of resources, therefore, can be seen as a powerful overall educational tool.

- Public programs led to increased awareness of achievements and contributions made by African American scientists. While learning from the scientists themselves about their backgrounds, education, and achievements in a variety of STEM-related fields, attendees also learned about the range of STEM careers and were interested to learn more. Adults felt more prepared to share this information with youth, and STEM professionals were motivated to learn more and apply it to their research and policy work where relevant.

- The key benefit of the interactive website and digital archive was seen in visitors' increased awareness of the achievements of minority scientists. Visitors with less prior science and education background (e.g., students, parents, general public) may be more likely to also learn more about the variety of STEM-related careers and opportunities than visitors who are already experienced in STEM.

- The toolkit led formal and informal educators to feel more equipped to teach youth about the variety of STEM careers and about the achievements and contributions of African American scientists. With such a large number of featured scientists, some also became more aware themselves of such achievements; most notable, was discovering this comprehensive resource that they can reference for lessons both for youth and adult audiences.

- The various ScienceMakers resources led adult users, including educators and non-educators, to feel more confident and equipped to encourage youth to explore STEM related opportunities, due to the comprehensive resources of scientists whose background and experiences they can share with students.

EVALUATOR RECOMMENDATIONS

GRG makes the following recommendations to the ScienceMakers team regarding ways to promote and revise and/or re-package the ScienceMakers resources such that they may reach and benefit as wide an audience as possible within the parameters of the intended outcomes.

Define the audiences of interest and tailor outreach activities accordingly, to increase likelihood of sustained interest in learning more about African American scientists and personal STEM-related career opportunities.

The majority of ScienceMakers events and activities were attended and used by highly educated adults, most of whom were African American women, and many who were already involved in or appreciative of the fields of science. The fact that these audiences learned more themselves, suggests that audiences with less prior related knowledge may experience substantially more growth in the intended areas.

- Students benefitted significantly from the public programs. The potential for them to learn from working with the digital video archive on the interactive ScienceMakers website is yet untapped. Starting with educators and training them to bring students to the website with a specific purpose and clear direction is likely to engage students and sustain their interest in exploring careers in science. The added benefit of the video stories may serve as the motivational catalyst that provides a tangible resource that they can use to continue to explore and learn.

- The added introductory information on the digital archive is well-positioned for integration of some suggestions made by visitors to the website. For example, the already-added context and description of ways in which ScienceMakers address and discuss certain topics can be enhanced further with graphics, photographs, and video of the scientists engaged in some of their daily activities. Those activities may or may not be work-related; together, they will add a dynamic perspective to the information they provide in their interviews.

- The toolkit was recognized as a comprehensive and valuable resource that educators can use to enhance existing activities and lessons. It also provides information for use as starting points for discussion and for group and individual research. More awareness of the toolkit, along with preparation and suggestions for how to navigate and select the information and tailor it for specific audiences, is likely to increase the use and long-term value of this resource.

In promoting the ScienceMakers resources nationally, emphasize the existing local community connections that are easy to find and build upon.

Capitalize on the value of connections to communities by highlighting the information about where the featured scientists grew up, went to school, and worked. The fact that the ScienceMakers have made contributions to society and have stayed connected to their own communities is inspiring and motivating to students and adults who value such community connections.

Make the ScienceMakers materials available and accessible in smaller packages to encourage use, even in the absence of training.

The resources are comprehensive and appreciated for their thoroughness. Nonetheless, as packaged, they appear overwhelming, and consequently important elements are overlooked (i.e., particularly the toolkit). Packaging the information in smaller, digestible pieces will make it easier to navigate, will familiarize users with all that is included, and will help them easily select parts that will be the most useful for personal or professional use with relevant audiences/end users.

Following are resource-specific recommendations to raise awareness and capitalize on the aspects that were positively received and influential, while also noting the ways in which each complements the other.

- **Digital Archive**

Supplement the video footage with lively and dynamic graphics, sounds, and interactivity to increase engagement among a wide audience. Include footage showing scientists doing their work, presenting to different audiences, as well as enjoying time with their friends and family.

- **Interactive Website**

While ongoing modifications are a part of any website in order to keep information up-to-date, the site overall should have enough consistency that visitors can go back to it multiple times and know what to expect, how to navigate, and how to find what they need. With too many changes, and occasional glitches, people will be discouraged and less likely to return or to recommend it to others.

Increase accessibility of the website overall, and streamline the navigation from one element to another.

Promote the website and digital archive as a tool for teachers to use along with their students. Students, at this point, are an untapped audience. Use of social media to integrate the videos and integrate the materials into the classroom may enhance student use of the resource.

Add graphics and materials that can pique users', including students', interests, such as interactive quizzes, and discussion questions. For educators, these are resources that can be easily integrated into lessons.

- **Toolkit**

  In its electronic version on the ScienceMakers website, break the three volumes of the toolkit into smaller units by theme. For example, smaller units can be arranged by science discipline, regions where the scientists live, educational background, or age of the scientists. A clear introduction to exactly what is included, how it is organized, how users can find and select relevant sections, and tips for how to use the information will all contribute to a more user-friendly supplemental curriculum tool.

  Since teachers may choose to integrate pieces of the toolkit information into existing lessons, consider uploading to the website files in a format that allows for editing, and encourage teachers to modify and move around the information to suit their needs and those of their audience. Strengthen the link between the digital archive material and the toolkit material in a way that encourages and enhances use of both.

The summative evaluation, as designed, focused primarily on short-term program outcomes. GRG makes the following recommendations for further follow-up evaluation to address mid- and longer-term outcomes.

Re-contact a sample of evaluation participants to learn about any additional use of ScienceMakers materials and related outcomes.

Provided we have the necessary contact information, GRG can develop follow-up surveys for the various evaluation participant groups.

- Attendees of public programs, particularly adults, expressed confidence and interest in sharing information they had learned with youth.
- Website visitors expressed interest in visiting the site again to explore further and to view more of the stories in the digital archive. They also described specific ways in which they would engage students with the online resources.
- Toolkit users reported plans to share the toolkits as a resource with colleagues and to use the toolkit with student and adult groups.

For all of these groups, follow-up surveys would address the extent to which they have used ScienceMakers resources on their own and with others, including other adults, educators, STEM professionals, and youth and student groups. Survey questions would be developed to assess specifically the mid-term and long-term outcomes expressed in the ScienceMakers logic model including:

- Parents, educators, and STEM professionals will discuss STME careers with students
- All audiences seek additional information
- Organizations, businesses, and schools incorporate African-American contributions to STEM
- Students are more academically engaged in STEM
- African-American students enter STEM careers
- Scientists engage in more interdisciplinary collaborations

Overall, evaluation of the ScienceMakers program supports the considerable value of this comprehensive resource tool. Positioning the variety of materials in such a way that a range of users can easily find and select elements that they need, will enhance the overall effectiveness. Increasing the range of people who are aware of the resource and all that is has to offer will contribute to the long term sustainability of this work.

LIST OF APPENDICES

Appendix A: Program Logic Model

The HistoryMakers

ScienceMakers Program Logic Model

Problem Statement

Low awareness of STEM & lack of role models leads to reduced African-American participation in STEM fields

Goal

Improve public awareness of African-Americans' contributions to STEM, and thereby increase their participation in STEM.

Long-Term Outcomes

Organizations, businesses, & schools incorporate African-American contributions to STEM
Students are more academically engaged in STEM
African-American students enter STEM careers
Scientists engage in more interdisciplinary collaborations

Rationales

Scientists and engineers are required for economic growth, but few young people consider science a viable career choice.

Increasing African-American participation in STEM will provide more of the scientists and engineers needed for economic advancement.

Assumptions

Program participants will have access to external resources with which to learn more about science.

Science Centers will continue to incorporate ScienceMakers resources without additional funding from HistoryMakers or NSF.

Resources

NSF Grant Funds

HistoryMakers' Staff & Facilities

Science Centers' Staff & Facilities

ScienceMaker Scientist Participation

Student, Adult, and Educator Audience

Activities

ScienceMaker Interviews

Public Programs

DVD Toolkit & Toolkit Manual

Website & Digital Archive

Outreach & Social Media Activity

Outputs

180 Scientists Interviewed & Archived

6000 Public Program participants

6000+ Toolkits distributed, including digital copies

15,000+ unique web visitors, 500+ followers on Twitter

All Science Centers Contacted

5 Published news items

Mid-Term

Parents, educators, and STEM professionals discuss STEM careers with students

All audiences seek additional information

Short-Term

Increased awareness, interest & knowledge of African-American achievements in STEM among all audiences

Increased awareness, interest, and knowledge of STEM careers among students

Parents, educators, and STEM professionals feel equipped to discuss STEM careers with students

Appendix B: Details about Data Collection Methods

Public Programs Secondary Data

Data files from eight public programs were received from The HistoryMakers and Knight Williams. Student data were merged across five programs, for a total of 346 students. Adult participant data were merged across seven programs, for a total of 742 respondents. Educator data were merged across four programs, for a total of 43 educators. The questions and their order varied between several of the surveys used for each event and therefore, data were missing for some questions within each set of surveys. GRG created a "master" survey and SPSS data files for the student, educator, and adult data.

A Night with Warren Washington Attendees

Surveys were included in the packets given to all attendees of the *A Night with Warren Washington* program (ANWWW). Completed surveys were collected after Dr. Ralph Cicerone, President of the National Academy of Sciences and Chair of the National Research Council, interviewed Dr. Warren Washington. GRG received 141 completed interviews. This represents 40% of the audience of 330.

Website and Digital Archive Visitors Survey

In June 2012, GRG created a website placeholder survey meant to "pop up" on The ScienceMakers website. Due to several factors, including pop-up blockers and other technical issues, the response rate was very low. A decision was made, when the full survey was ready, to email invitations directly to partners of The HistoryMakers and to GRG's internal database of educators. Invitations to the ScienceMakers website and digital archive survey were sent out to 716 contacts included in The HistoryMakers' partner database on July 16th, 2012 and to 367 history and social studies teachers and educators in GRG's internal database on August 14th, 2012. The 367 potential participants from GRG's database were told they would receive a $15 Amazon gift card for reviewing the website and completing the survey. The website survey was developed and programmed by GRG and included questions about the website's organization and content. A separate section was included to address the digital archive, specifically.

The survey had 154 respondents upon closing. Of the 154 respondents, 48 respondents (37%) were from The HistoryMakers' original partner database and 95 respondents (66%) were educators from GRG's internal database. Calls were made to a random selection of members of The HistoryMakers' partner database on July 25th and 26th. Most of the calls were unanswered; those who responded indicated that they were too busy to complete the survey, or were not aware that they were a part of The HistoryMakers partner database. In addition, 44 contacts from The HistoryMakers' partner database opted out – some were no longer working at their organization. Reminder emails were sent out until the close of the survey on September 7th, 2012.

Toolkit Users

GRG received a database of 407 toolkit recipients; 370 of them had email addresses. The database included educators and administrators who had received a ScienceMakers Toolkit at some time since July 2010. GRG programmed a brief online survey and invited, via email, the 370 contacts to complete the survey indicating whether they recalled receiving and using the toolkit. GRG made phone calls to 50% of the 107 contacts without an email address, to collect the same information. In all, GRG received 35 responses to the initial survey. Respondents who remembered receiving the toolkit were invited to participate in a telephone interview about their experience. Participants who completed the interview would receive a $25 Amazon gift

card. GRG completed 9 interviews with toolkit recipients, including six who have already used the toolkit and three who plan to do so in the coming school year.

Appendix C: Demographic Profiles of Evaluation Participants

Public Program Attendee Respondents

		Students N=346	Educators N=44	Evening program participants N=742
Gender	Female	59%	72%	67%
	Male	41%	28%	33%
Race/Ethnicity	Native Hawaiian or Pacific Islander	15%		1%
	Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian	15%		3%
	African American/Black	70%		86%
	American Indian/Alaskan Native	3%		3%
	White or Caucasian	13%		15%
	Spanish, Hispanic or Latino Origin	21%		6%
Degree	High school grad or less			19%
	Some college or technical			18%
	Associate degree(s)/2-year degree			
	Bachelor's degree(s)/4-year degree			35%
	Courses or degree above college			58%
	Some graduate school			
	Master's Degree			
	Professional degree(s)			
	Doctorate degree(s)			
	Other			
Age range				6-90
Fields worked in	Education			48%
	Health/Medicine			26%
	Science			19%
	None of those			38%

Audiences Educators Serve

Audience they serve	
Elementary school	32%
Middle school	66%
High school	48%
College	8%
Adult community members	11%
Other (all grades, families, museum attendees)	23%
Settings in which they work	
K-12 school	74%
College/University	20%
Technical/Trade school	0%
Science Center/Museum	28%
Other (Community based organizations, parent workshops, tutoring program, consulting work)	23%

A Night with Warren Washington Attendee Respondents

		ANWWW N=141
Gender	Female	64%
	Male	36%
Race/Ethnicity	American Indian/Alaskan Native	1%
	Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian	1%
	African American/Black	71%
	Native Hawaiian or Pacific Islander	0%
	White or Caucasian	25%
	Other ("Multinational/Multiracial)	1%
	Spanish, Hispanic or Latino Origin	2%
Degree	High school grad or less	1%
	Some college or technical	5%
	Associate degree(s)/2-year degree	2%
	Bachelor's degree(s)/4-Year degree	17%
	Master's Degree	32%
	PhD/Professional degree(s)	43%
Age	Range: 29-86	M=55 yrs
Fields worked in	Science	37%
	Engineering	10%
	Math	4%
	Education	33%
	Health/Medicine	8%
	Public policy	18%
	Other (e.g., informal education, law, non-profit)	23%

Website Survey Respondents

		The HistoryMakers NSF Contacts	GRG Educator Contacts	Overall
Gender	Female	50%	59%	56%
	Male	50%	40%	44%
Race/Ethnicity	American Indian or Alaska Native	0%	5%	4%
	Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian	3%	3%	3%
	Black or African American	61%	9%	23%
	Native Hawaiian or Other Pacific Islander	0%	3%	3%
	White or Caucasian	31%	78%	65%
	Other	6%	4%	5%
	Spanish, Hispanic or Latino Origin	3%	5%	5%
Degree	Some college or technical	3%	1%	2%
	Associate degree(s)/2-year degree	0%	3%	3%
	Bachelor's degree(s)/4-Year degree	11%	11%	11%
	Some graduate school	8%	11%	11%
	Master's Degree	31%	60%	52%
	Professional degree(s)	0%	4%	3%
	Doctorate degree(s)	47%	7%	18%
	Other	0%	2%	2%

Appendix D: Annotated ScienceMakers Surveys

ScienceMakers Interactive Website and Digital Archive Survey

1. How did you learn about the ScienceMakers website?

	Percentage
Invitation to complete this survey	63%
HistoryMakers website Homepage	15%
Friend/family member/colleague	12%
ScienceMakers Public Program	9%
HistoryMakers website Education page	8%
A Night with Warren Washington event	6%
Link on another site	6%
ScienceMakers Toolkit	5%
Social networking site (e.g., Facebook or Twitter, blogs)	1%
Other, please specify:	13%

N=143
Click here to view responses for "Other, please specify:

2.1 ***(if selected "ScienceMakers Public Program)*** Which ScienceMakers Public Program(s)? Check all that apply.

	Percentage
Atlanta: Connections in Science (2/3/2012)	23%
Breaking Barriers: Women in Science (1/13/2012)	15%
The Color of Science (2/11/2011)	15%
Biology: From Molecules to Man (2/26/2010)	15%
How the Universe Came to Be (1/15/2010)	15%
The Nature of the Universe (2/25/2011)	8%
Bay Area Launch of ScienceMakers (10/13/2010)	8%
Exploring the Science of Genetics (3/30/2012)	8%
Blazing Trails: African Americans in STEM (2/24/2012)	8%
A Night with Bernard Harris (3/15/2011)	8%
The Age of Dinosaurs (2/17/2011)	0%
African American Perspectives (3/4/2011)	0%
The Value of Science: Improving the Quality of Life (2/6/2010)	0%

N=13

2. Is this your first visit to the ScienceMakers pages on The HistoryMakers website?

	Percentage
Yes	74%
No	26%

N=136

3. What were your primary reasons for visiting the ScienceMakers website? *(Check all that apply for today and any previous visits.)*

	Percentage
To learn more about the ScienceMakers initiative overall	56%
To see who is included in the list of ScienceMakers	35%
To explore the ScienceMakers Digital Archive	32%
To incorporate information into a classroom or out-of-school lesson	28%
For my own research	22%
To learn more about ScienceMakers Public Programs	22%
To learn more about The HistoryMakers social networks	22%
To learn how I can get involved with the ScienceMakers initiative	12%
To see who is on the ScienceMakers Advisory Board	8%
Other, please specify:	8%

N=143

4. How useful do you find each of the following features of the ScienceMakers website? *(If you haven't reviewed or used a particular feature, please check NA: Not Applicable.)*

	Mean (1-5)	Not at all useful (1)	A little useful (2)	Somewhat useful (3)	Very useful (4)	Extremely useful (5)	N/A
ScienceMakers Interviews	4.02	1%	4%	15%	46%	28%	6%
ScienceMakers Digital Archive	4.16	1%	4%	11%	34%	36%	14%
ScienceMakers Public Programs	3.69	0%	9%	30%	29%	20%	12%
Connect with ScienceMakers	3.83	1%	6%	19%	39%	19%	17%
ScienceMakers Toolkit	4.06	0%	4%	13%	33%	26%	25%
ScienceMakers YouTube Contest	3.22	5%	17%	17%	21%	11%	30%
ScienceMakers Advisory Board	3.20	4%	18%	21%	17%	12%	28%

N=139-143

Note: Mean ratings do not include respondents who selected N/A

5. Please rate each of the following aspects of the ScienceMakers website:

	Mean (1-5)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Organization	3.82	2%	4%	26%	44%	23%
Navigation	3.80	3%	9%	20%	44%	25%
Ease of use	3.77	2%	9%	26%	38%	26%
Look and feel	3.97	0%	6%	25%	37%	33%
Ratio of text to graphics	3.85	0%	9%	28%	35%	30%

N=141-142

6. As a result of visiting the ScienceMakers website, how likely are you to do the following?

	Mean (1-5)	Not at all useful (1)	A little useful (2)	Somewhat useful (3)	Very useful (4)	Extremely useful (5)
Visit the website again.	3.80	5%	8%	18%	39%	30%
Spend more time reviewing ScienceMakers materials.	3.62	6%	11%	22%	34%	26%
Discuss content from the website with others.	3.70	5%	7%	28%	33%	27%
Recommend the website to a friend or colleague.	3.91	4%	6%	21%	36%	34%
Seek out ways to engage African American scientists in research decisions.	2.75	24%	20%	24%	20%	12%
Seek out ways to engage African American scientists in policy decisions.	2.70	25%	20%	27%	19%	10%
Implement ScienceMakers programming or materials in my own science, technology, engineering, and math (STEM) programs or agendas.	3.05	18%	17%	24%	25%	16%
Feature one of the ScienceMakers in a public program.	2.89	17%	24%	25%	23%	12%

N=141-143

6.1 Please explain any of your above ratings and specify the relevant statement(s). (Click here to view responses)

Most common responses were related to educators' integration of ScienceMakers materials into their curriculum. 35% said they could do so, and 15% said the materials were not relevant for their curriculum.

7. As a result of visiting the ScienceMakers website, how strongly do you agree or disagree with the following?

	Mean (1-5)	Strongly disagree (1)	Disagree (2)	Not sure (3)	Agree (4)	Strongly agree (5)
I am more aware of the achievements of African American scientists.	4.23	1%	5%	2%	55%	37%
I am more interested in learning more about African American scientists.	4.17	0%	4%	9%	52%	35%
I am more aware of career opportunities in STEM.	3.47	4%	15%	26%	42%	13%
I am more interested in	3.15	7%	24%	27%	31%	11%

learning more about career opportunities in STEM.						
I am more interested in pursuing a STEM-related career.	2.76	15%	31%	27%	18%	9%

N=141-143

7.1 Please explain any of your above ratings and specify the relevant statement(s). (Click here to view responses)

In explanation of their ratings, most noted they were already set in their careers so the website did not encourage them to pursue a new career (30%); they already had significant knowledge of careers in STEM (12%). 19% explained that they would use the materials in the classroom and encourage students to pursue a career in STEM.

ScienceMakers Digital Archive

8. Including today's visit, how many times have you gone to the archive? *(Check one.)*

	Percentage
One time	60%
Two or three times	27%
Four or five times	9%
More than five times	5%

N=142

9. For what reasons did you explore the archive? *(Check all that apply.)*

	Percentage
To see who was included	65%
Professional interest	32%
Personal interest	26%
To look for information about a specific topic	20%
To look for one or more specific ScienceMakers	20%
Other; Please describe: (Click here to view responses)	11%

N=143

9.1 (If "personal interest" was chosen): Please explain. (Click here to view responses)

Personal interest:

The most common explanations were: 'looking for resources for youth/teaching' (24% of responses), and general interest and curiosity (21%). For example, participants said they explored the digital archive "[to see] who to highlight when talking to youth" or to use it "as a resource for students of a similar background". Other participants were interested in a specific ScienceMaker, some of whom they interacted with at a public program.

9.2 (If "professional interest" was chosen): Please explain. (Click here to view responses)

Professional interest:

The majority of these respondents were teachers interested in finding new material for the classroom. Many teachers were interested in seeing if the archive could be used with their students or incorporated into their set of teaching tools. Other responses included possibly using the archive for museum exhibits and NSF grants.

10. How did you use the archive? *(Check all that apply.)*

	Percentage
Table of Contents	59%
Keyword search	41%
Map Search	9%
Other; please describe: (Click here to view responses)	6%

N=143

11. How many ScienceMakers interviews did you watch at least in part? (Check one.)

	Percentage
Less than 5 ScienceMakers	84%
5-10	16%
11-20	1%
More than 20	0%

N=139

12. Please indicate the ScienceMakers you watched. *(Check all that apply).*

	Percentage
Shirley Ann Jackson	31%
Warren Washington	18%
Ayanna Howard	17%
Wanda Austin	16%
Krishna Foster	13%
Darnell Diggs	12%
Lovenia Deconge-Watson	11%
Albert Antoine	10%
Luther Williams	10%
Larry Gladney	9%
Clayton Bates	9%
Julian Earls	9%
J.K. Haynes	9%
Gibor Basri	9%
Legand Burge, Jr.	8%
Julius H. Taylor	8%
George Campbell, Jr.	7%
John Watson	7%
Tyrone Hayes	6%
Robert Bragg	6%

Herman White	6%
Clifford Johnson	5%
Robert Bullard	5%
Ronald Mickens	5%
Frederick Oliver	5%
Alfred Brothers	5%
Renaldo Jenson	5%
George Jones	5%
Alvin Kennedy	5%
William Lupton	5%
John Terry	5%
Lloyd Ferguson	5%
John Hall	5%
S. Allen Counter	4%
Edwin Cooper	4%
Marc Hannah	4%
Kevin Kornegay	4%
William Lester, Jr.	4%
James Sith	4%
Bobby Wilson	4%

N=127

13. How many stories/clips did you watch, per ScienceMaker? *(Check one.)*

	Percentage
Less than 5 stories/ScienceMaker	86%
5-10	9%
11-20	1%
More than 20	1%
It varied by ScienceMaker	3%

N=139

14. Which type of story did you find most interesting? *(Check one.)*

	Percentage
Research & Work	25%
Challenges faced	23%
Education	15%
Childhood	11%
Mentors	10%
Family Members' Background	8%
Philosophical (i.e. "What do you want your legacy to be?")	7%
Awards	1%

N=138

15. What did you learn from the interviews you watched? (Click here to view responses)

16. How strongly do you agree or disagree with the following statements about the archive?

	Mean (1-5)	Strongly disagree (1)	Disagree (2)	Not sure (3)	Agree (4)	Strongly agree (5)
It was easy to search for a specific person.	4.03	2%	1%	14%	58%	25%
It was easy to search for a specific topic.	3.92	2%	4%	13%	61%	20%
The information was interesting to me.	4.20	2%	1%	8%	54%	36%
The information was useful for my work.	3.69	4%	7%	24%	46%	19%

N=140-141

17. How would you use the archive to make young people aware of African American leaders in the STEM professions? (Click here to view responses)

	Percentage
Classwork/School project	52%
Sharing with students	12%
Research Resource	11%
Other, cannot code	7%
Social media	4%
Share with colleagues/educators	4%
Museums/Outreach	3%
Would not use	2%

N=102

18. What suggestions do you have to make the archive more appealing to students/young people? (Click here to view responses)

	Percentage
Nothing, already appealing	17%
Design - not intuitive, too serious, needs more pictures/videos	15%
Other suggestions	13%
Improve categorization and search	12%
Cannot code	12%
Younger/more contemporary scientists	9%
More interactivity, add trivia, quizzes, classroom materials	9%
Publicity/Advertising	8%
More up-to-date and "cooler" additions	3%
Put in other formats	2%

N=92

19. What suggestions do you have to make the archive more interesting to a wide range of users? (Click here to view responses)

	Percentage
It's fine the way it is	26%
Make less formal, give broader appeal	16%
Publicize it	16%
Better organization/easier navigation	14%
Make the site more appealing to younger users	8%
Other	7%
Make the site/content more accessible	5%
More activities/interactive games	5%
Cannot code	3%

N=87

Please Tell Us About Yourself:

The final few questions ask for background information to help the ScienceMakers team better understand its audience and the diversity of participants' backgrounds. Your responses to these questions will be used for statistical purposes only; however, the questions are optional.

20. Are you:

	Percentage
Female	61%
Male	39%
Other	0%
Prefer not to respond	0%

N=142

21. In what year were you born?

	Percentage
Under 18	0%
18-24	2%
25-34	15%
35-44	34%
45-54	25%
55-64	17%
65+	7%

N=137

22. Your Race/Ethnicity: *(Please select one or more to describe your major racial background.)*

	Percentage
American Indian or Alaskan Native	4%
Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian	1%

Black or African American	25%
Native Hawaiin or Other Pacific Islander	1%
White or Caucasian	66%
Other	6%

N=143

23. Are you of Spanish, Hispanic, or Latino origin?

	Percentage
Yes	4%
No	96%

N=141

24. What is the highest degree you have earned? *(Check one.)*

	Percentage
High school diploma or the equivalent (GED)	0%
Some college or technical	1%
Associate's degree(s)/2-year	1%
Bachelor's degree(s)/4-year	9%
Some graduate school	11%
Master's degree(s)	51%
Professional degree(s) (e.g., MD, DDS, DVM, LLB, JD, DD)	4%
Doctorate degree(s) (Ph.D. or Ed.D.)	21%
Other (e.g., Education Specialist, Ed.S.)	1%
Prefer not to respond	0%

N=143

25. Are you: (Check all that apply.)

	Percentage
A full time student	3%
A part time student	7%
Currently employed full time	59%
Currently employed part time	6%
Currently unemployed	2%
Currently teaching in a science-relate field	14%
Currently studying in a science-related field	1%
Currently working in a science-related field	15%
Currently teaching in a field not related to science	40%
Currently studying in a field not related to science	4%
Currently working in a field not related to science	4%

N=143

26. What state do you live in?

	Percentage
Alabama	5%
Alaska	0%
Arizona	3%
Arkansas	0%
California	6%
Colorado	2%
Connecticut	2%
Delaware	4%
District of Columbia	4%
Florida	3%
Georgia	7%
Hawaii	0%
Idaho	1%
Illinois	9%
Indiana	1%
Iowa	1%
Kansas	1%
Kentucky	0%
Louisiana	0%
Maine	0%
Maryland	1%
Massachusetts	6%
Michigan	2%
Minnesota	1%
Mississippi	0%
Missouri	4%
Montana	1%
Nebraska	1%
Nevada	0%
New Hampshire	0%
New Jersey	4%
New Mexico	0%
New York	4%
North Carolina	2%
North Dakota	0%
Ohio	2%
Oklahoma	4%
Oregon	1%
Pennsylvania	4%
Puerto Rico	0%
Rhode Island	0%
South Carolina	0%
South Dakota	0%
Tennessee	4%
Texas	4%
Utah	1%
Vermont	0%
Virginia	6%
Virgin Islands	0%

Washington	1%
West Virginia	0%
Wisconsin	0%
Wyoming	0%

N=140

Open Ended Responses

Q6.1 As a result of visiting the ScienceMakers website, how likely are you to do the following? Please explain any of your above ratings and specify the relevant statement(s).

1st of all, the website was not fully accessible on my iPad. Many teachers use iPads in the classroom and having fully working websites is important.

2nd There was very little I could really explore! I couldn't access the toolkit or even the interviews since I wasn't willing to pay. The free registration would not have allowed me to download anything...not much use at all.

In general, teachers are over stress, over worked, and under paid. There is no way I could justify paying for this website, especially considering it would pretty much be a blind purchase since there are no samples or free trials available. There are too many free websites that have similar information available....not even tempted.

I am however, interested in the content of the interviews. If they were readily available at no charge I would love to use them.

African-American scientists does not fit anywhere in our program due to the standards we use. African-American topics are too narrow in concepts. We would do something like, Interesting People in Science, as opposed to just black scientists.

Any time you show an interview with ANY scientist, African American or not, gives a child a shot at selecting that for an occupation.

As a content specialist and an online teacher, I do not have to do with policy, but I will let the science and math digital content specialists and managers know about the site and its features.

As a reading teacher I will only use this website in a limited manner. In particular, I would use the biographies to aid in reading strategies

As a social studies teacher, I may use this website to research African American scientists for lessons, but it will not be a main site for me.

As an African American, I find it difficult to find information about other African American Scientists. As a former undergraduate chemistry major, I find this site very interesting. I would definitely recommend to my colleagues.

As an art teacher I integrate a lot of Science. I'm especially interested in sharing with students the similar types of thinking artists and scientists employ.

Because I am a Social Studies teacher, I do not teach any science or math classes. However, I will pass along the website URL and description to my colleagues.

Because of the nature of the work that I do, I wouldn't have the opportunity to engage the ScienceMakers in my own programs or feature one of them. I am sure if I was in the position to do so, I would.

Engaging African American scientists in policy decisions is not a process I am directly involved in. I would try to encourage my administration to include it in the curriculum or as a supplemental option.

Feature one of the ScienceMakers in a public program. I would not do this since I don't have a public program for it.

Great site to use with my urban MS HS programs.

I am a history coordinator-- could see using this as models for student oral history. Connecting to state or national history and science frameworks and making content searchable by that content (or by commonly taught classes such as 'high school biology' or 'middle school US history' would be helpful.

I am a history teacher, so I would have to let the science department deal with policy decisions, etc. But I have already sent the link to the site to our science department chairperson.

I am a social studies teacher, so this website does not really fit into my curriculum. However, there are pieces that can be used for units on Civil Rights. I would also recommend this website to my science colleagues and to anyone I know who teaches in a predominantly African-American community, as this website would be a great resource for empowering those students.

I am a social studies teacher. So i would utilize the videos in my classroom, but not seeking out ways to engage African American scientists in research decisions. I did not register and log into the website and therefore was unable to view some content.

I am an African American scientist who works in the national science policy arena and I continue to engage scientists of color whenever possible in my work and networking opportunities.

I am impressed with the variety, amount and quality of the content on the ScienceMakers web pages. I would certainly recommend it to anyone interested in learning more about African American scientists and engineers.

I am in the Walt Whitman history grant and I would share this site with my co-workers who all teach history

I am new to the Science Maker's Website so I will most likely do more searches on the site and determine how to incorporate it into my classroom as I teach. I am excited about the interviews that I can explore. The interviews allow students an opportunity to hear first-hand accounts.

I am no longer in the classroom, I am now an administrator

I am not involved in Policy making capacity as the director of a museum. If I can make decision that a Science Maker could impact I would definitely use one.

I do programs 'The science & Math of the Underground Railroad' I use parts of the Science toolkit for gallery activities for patrons. I have two programs coming up. I would like to partner with History Makers to do more.

I am retired and no longer make research or policy decisions.

I am the Education and Outreach Coordinator for a NSF sponsored research lab, and I love ScienceMakers! I've used the site to find scientists and activities to complement our LEGO robotics and Family Engineering programs. Previously, finding African-American scientists to feature has been difficult to do without real research, even with the internet. Thank you!

I only answered 'a little likely' because I don't interface with many African-American scientists...the ones that I do know are already being utilized to support K-12 STEM outreach.

I do not teach a science, technology, engineering, or math course, therefore I will not be able to implement the material. However, I will recommend the content to colleagues who will most likely do so.

I do not teach science.

I don't do some of these activities. It's interesting, but i would make it easier to get to the actual interview content. it's too many clicks in. guess it was a decision about participant privacy?

I spend a lot of hours on the web, but I didn't find the History Makers website intuitive nor did the Science Makers portion of it make it easy to find useful media. I can go to YouTube and find hundreds of hours of 'free' video, why would I pay $30 month for History Makers when I can't even preview sample material (even if it were lower resolution, not suitable for projection)? The limited interview information provided was less than I could find for many of the figures I'm familiar with on Wikipedia or by visiting their faculty profiles at their universities or other affiliations. There wasn't enough value here to justify the effort involved.

I think this is a good infusion of African studies and Science.

I think this site is amazing. I love how everything is dedicated to the hard work of African Americans. I think this would be a great site for my students to use for research and just for basic information.

I thought that it was great and very helpful

I was unable to access any of the interviews without a link provided by Goodman. They site makes no sense without easy access to the media. Further, while I understand the importance of revenue generation to keep the overall project going, the membership fees are troubling if the intent is to give underserved groups access to this archive.

I was unaware of the wealth of information on this site. Including interviews of some of the scientists would enhance any science curriculum.

I will be very likely to. One back to this website and to use it in my classroom.

I will explore new concepts from the site and implement them in my classroom use

I will highlight these science makers among others in my presentations and research.

I will mention the website to the science department chair where I teach.

I work with students who have learning disabilities. This website will be a resource for me as I engage my students in learning activities. I am fortunate to have access to a SMART Board so I am able to easily share the website videos and other materials with my students.

I would have to spend more time reviewing the web site further, but during the time I spent I found it to be very useful.

I would like to add this component to a project we do for Black History Month. There are a lot of resources and materials that I feel would be relevant for their research.

I would not at this time recommend this website to a colleague due to the trouble I had trying to explore it. However, as a member of the SM Advisory Board I am quite committed to their mission, but due to the fact that I had a VERY difficult time navigating and logging on to the website, I can't yet recommend it. I kept being told I couldn't access things, even though I continued to follow the directions to set up new account and new passwords. I hope to be able to recommend it in the future, as its potential is extraordinary. But, it must be improved for usability! Also, when I could access items such as videos about public programs, I found them very repetitive and not specific to the item I clicked on.

I would recommend this website to my other team teachers that teach science. It is a great resource, especially when doing research.

If the opportunity presented itself, I would definitely feature one of the ScienceMakers in a public program.

I'm a history teacher.

I'm primarily a history teacher, so my interest is more in linking what I learned here to the history that I teach. My plan is to use this site after the AP exam is over, as well as to be sure that the science department is aware of the resources here.

It is not a reflection on the quality of the site but rather the limited nature of my free time and the different direction of my teaching and research needs.

It would be helpful to have a short summary or list of topics discussed in the public programs section. Thank you. Wonderful resource.

It's just not content that I am interested in.

Maybe I had navigation problems, but I only found 2 ScienceMakers.

My area of interest (and teaching) is American history. I can use the African American scientists in a historical and biographical way, but I don't teach a STEM class, and there are limited areas where I can use the information in my curriculum.

My curriculum is largely focused on American and World history. Generally speaking these resources would be, at best, a brief aside to talking about contemporary issues.

My ratings have less to do with the website and more to do with my student demographics. While I will use the website to broaden my students' preconceptions of African Americans, I won't use it as much as I would if I had more African American students who would benefit from seeing such powerful role models.

My students don't know about these historians. The curriculum isn't set up to cover history-makers.

My use of the website would be limited because I have in depth knowledge of the program and its participants. I would definitely refer others to it.

My women's group, National Association of University Women in Chicago is always looking for accomplished female speakers.

Since I am an African-American engineering faculty member, implementing ScienceMakers programming might be useful for comparison or reference, but not required for me to engage African American scientists / engineers.

Some of my colleagues may be able to use this but I will be able to fit a lot of this into my history lessons.

Spend more time reviewing ScienceMakers materials...

Definitely, I will spend additional time reviewing the ScienceMakers materials. The featured interviews are extremely informative and very enjoyable reading. The FAVORITE SECTION in each profile is a brilliant idea. It was funny to see the favorite food, color, etc. of the interviewees and to see the overlap. It caused me to ask why so many of the featured scientists cited COLLARD GREENS as their favorite food. This is just an example of the funny and rich tidbits in the biographies. Beyond this, the most valuable and helpful text is the description of the lives and scientific backgrounds of these brilliant people.

The flash is somewhat distracting on the pages.

The pages load quickly and I also liked the interaction with the videos. The events and programs with the times was helpful and also I liked the media where you could download the kit.

The section that is the most valuable is the one with videos of the scientists in ScienceMakers Public Programs. It's the stories of the people that are the hook. Students don't want to know details such as where a person got his or her degrees, they need to hear what they did with the education they got and what inspired them and continue to inspire them.

I could only find the complete menu on one web page. I thought that no matter where I am in the site I should be able to get to the other sections with one click. It took me a long time to get comfortable with navigating the site.

The videos were an issue with live streaming. I had to frequently wait while the video paused. I think this is due to live streaming issues.

The website navigation was a disaster. I was using Safari. I could not access any of the interviews or clips. It kept looping back to the starting page of ScienceMakers. Then I would try to navigate and sometimes I would be able to. I wanted to download the ScienceMakers toolkits, made a login, then it would kick me out. Then I would log on again and try to get the pdf...it would kick me out. Horrible. I would like to use the interviews for my research but it seems impossible to actually get to them!

Think the information provided will enhance my lessons.

This is an excellent educational source

This is very new to me so I am a bit unsure how it will influence my decisions in these areas

This will be extremely helpful with supporting our African American students identify with other successful African Americans.

This will help with my preparations for the Museum's African-American History Month Celebration, as well as give me a place to look first when seeking video of scientists for future exhibits.

Using the Common Core standards and implementing more of the STEM approach to teaching math and science, I would be more likely to use any reference material available to me. My school has a high Hispanic population versus African American, but I like to show kids, especially minorities, that there is a world out there that has yet to be discovered using science and math.

We are looking for ways to implement using primary sources within our curriculum.

Well organized site. Visually appealing. Easy to navigate.

While I am a social studies teacher, the content of the website does not connect directly to the general social studies content. However, I can find ways to tie in the innovations of the African American scientists to the history that I teach.

While I am not a science or math teacher, I can implement material in the aspect of ss/literature class when using informational text and research.

Working with many students of color, i want students to know that they are just as likely to become an inventor or science teacher or scientist as they are to become any other profession.

Would showcase some of the ScienceMakers for special attention during Black History Month.

Q7.1 As a result of visiting the ScienceMakers website, how strongly do you agree or disagree with the following? Please explain any of your above ratings and specify the relevant statement(s).

Again, as a black scientist in my 50s, I'm not looking to pursue a career

Again, my professional role is within STEM education and in motivating STEM careers for diverse groups. Therefore, the website hasn't had a profound influence on me in that direction. However, through my involvement with ScienceMakers and what I could get out of the currently difficult to navigate website, there are many stories out there about African-American scientists that continue to amaze and impress me!

Again, this site will be useful for me in that I teach history and it has many things I can use especially on black history.

As a female, when I went to school, it wasn't mentioned much about science careers for females. The closest you could probably be was a nurse. Using the information and STEM concepts, it opens a bigger world for the interest of science to grow for everyone.

As a teacher of modern U.S. History, I am mostly interested in any materials that I can use to teach my students about the contribution of African American scientists to our modern world.

aware of career opportunities in STEM. I want to continue pursuing my career in STEM until I retire.

Great to see these profiles! I'm not looking for a new career so that's why i disagreed with some statements.

Had good ideas easy to use

I already have a career I enjoy in social studies education.

I already have a career path chosen and it does not include STEM.

I am already a STEM professional and know of work in this area to broaden participation in STEM. The fact that the site did not increase my knowledge significantly, is no reflection on the site! It is merely that I am already quite knowledgeable about this work.

I am already a STEM scientist PhD.

I am already in a career so I am not using the website for this function.

I am currently a professor in computer science and I am

I am familiar with initiatives to promote STEM careers. I don't find this website particular effective in that regard. Although there is STEM material 'weaved in,' the same content could be much more productively presented to stress the STEM component.

I am happy in my current field and so I would not be interested in pursuing a STEM-related career.

I am happy to show my students those who made a contribution.

I am interested in learning information about individuals that I'm not as familiar with

I am interested in utilizing the website for classroom resources.

I am more interested in pursuing a STEM-related career.

I am not interested in pursuing STEM-related career because I made my career choice a few decades ago and I still find my choice to be satisfying.

I am not pursuing another career at this time.

I am retired and no longer looking for a career.

I am satisfied in my career, but for my students the website is helpful for career outlook.

I am very happy with my career as an educator. I'm proud to work in the public school system. I teach 4th grade so I don't really do much with careers.

I can take this information and use it in my classroom.

I did not explore career opportunities in STEM so I am not aware of any positions or how I can be involved.

I did not see any specific connection between success as scientists and career and educational pathways. I would want this to be much more explicit and help a young person see the many steps and choices they must follow to be a part of the STEM field. There was also a strong leaning toward academic experts and less so toward industry professionals.

I do feel more informed about African-American Scientist than I was before due to exploring the website and I feel obligated to share this good resource with colleagues.

I do not know STEM so I will explore the options following this survey.

I do not think a website needs to be solely dedicated to black scientists. There are lots of other people - I prefer to cover scientists or important people in general - I don't care what color or ethnicity they are.

I enjoy connecting youth to STEM and getting them excited about the possibilities that come with an engineering career path. Do I want to do STEM...? Not so much.

I found the content interesting but it does not necessarily capture my imagination.

I have already established my career and will continue to pursue career choices in the field of history education.

I like working with science and math and engaging students in learning and building on what others have accomplished.

I liked how the pull down tab had the different makers what you could read up on and the information/picture on each biography.

I really like the website, it contains a lot of information for a wide variety of students

I teach American history at the college level.

I teach history and only looked at from a historian view. This web site is extremely good and helpful.

I think a STUDENT would become more interested in career options by looking at the site; as a teacher, I am not.

I think if I were younger and less settled in my current occupation, I would be more interested in pursuing a STEM career from reviewing this site.

I think it would be important for students to read about all the opportunities about a career in STEM.

I think some of this pertains more to a science teacher than to me, but I certainly appreciate the chance to participate.

I think this site is/will be very inspirational to young African Americans.

I want my students to work with and meet scientists who will help them explore how science can be a part of their education, lifestyle and future.

I was fascinated by the achievements of the scientists and it encouraged me that: 1) there are, and have been, many African-Americans in these science fields; and 2) that people with the means and status are trying to motivate African-American students to believe the dream and pursue academics. Anyone with a modicum of intelligence recognizes the terrible plight of the inner-city, African American student. And the newsmakers and the general public have chosen to lay the blame at the feet of teachers as opposed to other contributing factors such as poverty, violence, joblessness, hopelessness, and deep-seated racism. This site can help change many perceptions of the opportunities that do exist and the ability of African-Americans to embrace the opportunity.

I was very favorably impressed by the large number of accomplished African American scientists and engineers featured on the ScienceMakers website. If I were an African American or a teacher of African American students, I would certainly encourage my students to explore this website to learn more about career opportunities in STEM.

I will encourage my students to pursue a career in these areas, but I'm happy as an elementary teacher.

I would have given more favorable answers if there had been more profiles. I would also like for the featured profiles to represent more women.

If there are opportunities available, I am definitely interested and eager to find out. I learned new things just from viewing this website.

I'm not sure why this information is important to me.

Most of the above questions are irrelevant to me, since I am already aware of all aspects of this survey.

See the video clips was extremely helpful. It puts a real face on the people who have created history.

The achievements of African Americans in history, especially in the field of science will be of use to me. However, I am not as interested in looking further into the career opportunities in STEM

The diversity of African American scientists' specialties will allow me to connect at least one with the areas of study in the elementary science curriculum.

The last question does not apply to me - Need an NA category

The last three questions do not apply to me.

The stories told by the ScienceMakers helps me to gain additional appreciation of how I can be a role model and supporter / mentor for others.

The subject matter is not what is driving education right now. Teachers have too many standards to teach, rather than focusing on something like this that tends to be more of a social issue and not an educational issue.

The web site was very informational.

This is a great site to introduce to AA researchers.

This is rated 'not sure' because of my age and because I am not currently working as a laboratory scientist. However, I definitely plan to use the ScienceMakers website to interest younger people in studying the sciences.

This question is not applicable to me since I have significant prior knowledge. The site would definitely inform others.

This website makes me want to learn more about African American scientists and the STEM initiative.

Very interesting!

9.1 (If "personal interest" was chosen): Please explain.

African American and Women Scientist

As a resource for students of a similar background

Curiosity

Data for lessons at school

General interest
I am a history teacher; I try to utilize resources
I do similar work
I feel encouraged + hopeful hearing these stories.
I have met several of the interviewees
I know several of the ScienceMakers
I like to see if I recognize anyone from lectures.
I teach American History
I wanted to hear the stories.
I wanted to see the interests of those scientist
I was curious if any of my professors had been interviewed
It was interesting to hear the scientists talking
Looked to see how many i knew about
Looking for teacher resources.
Motivation
Needed info on a particular SM
See how historical backgrounds affect scientists
Seeing who to highlight when talking to youth
Teacher
The 'A Night...' invitation was very well designed
The content of interviews & styles of interviews.
To enjoy the knowledge that is accessible here.
To locate the specific details of an individual's
To see the range of individuals included.
To see what was there

9.2 (If "professional interest" was chosen): Please explain.

As a teacher I am always looking for new ideas
Assistance with an NSF grant
Curriculum development
For this survey
For use in the classroom.
General Interest

History
I am a Special Education Teacher and am always res
I am a third-grade teacher.
I am an educator.
i have a nonprofit that exposes youth to STEM w
I have a PhD/expertise in STEM
I teach American History
I teach science and math.
Ideas for including info in my instruction
I'm a teacher. I would like to use this in my class
I'm an archivist
I’m doing retrospective interviews with scientists
In my line of work, I do my best to include this this
incorporation into my 4th grade class
integrate into curriculum
interested in streaming video for my class
Leadership and impact of these scientists.
looking for inclusion of female scientists -
Material for museum exhibits
My portfolio includes STEM education
Oral History research on African Americans in STEM
professional growth / share with students
Research and university administration priorities
See how historical backgrounds affect scientists
See what I could incorporate into classroom
Teacher
To be able to use the content in my classroom
To effectively evaluate the website
To further my teaching tools
To make suggestions to teachers
To see how to use it with my students.
To see if I could use the archive in classes.
To see the quality of the interviews

to use in my history class

Wanted to explore this website

ways to engage learners in the material

Q15 What did you learn from the interviews you watched?

About many backgrounds.

About the work of the scientist

All seemed to face many challenges to succeed in their field.

Being the 'first' is not easy.

Better understanding of AA in search

Broad range of interests of the SM

Connections to products and advances...and how close some of the people are to my area.

Diversity of backgrounds and wide range of contributions to the field of science

Everyone has a story to tell that can teach us about ourselves.

Greatly learned things about the education of these history makers. They were well put together and informative.

Hardships overcome by them.

How important education was.

How they were able to overcome obstacles in life and career.

How varied the scientists can be and how helpful they will be for students.

I basically skimmed the articles without in-depth research today

I concentrated on female scientists so that I could incorporate it in Women's History month as well as Black History Month

I didn't watch an interview in its entirety.

I do not look at scientists at race, so I was happy to see so many in case a teacher is looking for a topic on African American month.

I enjoyed their life history.

I Googled more information in his life and found out more about his experiences and work

I knew both scientists. Interviews filled in gaps in my knowledge about them.

I learned about unique individuals, most of which I knew little or nothing about

I learned how different professionals faced the challenges and obstacles before them to become leaders in their respective fields. It is very beneficial to gain insight on the careers of those who have paved the way for future trainees.

I learned how minorities can achieve just as strongly in a classroom when they have strong advocates guiding them in their educational opportunities.

I learned it is more powerful to hear someone tell of an experience than to just read about it.

I learned that the interviews were quite in-depth and provided a truly comprehensive view of the scientists.

I learned that the quality of the interviews is poor, both technically as video and in terms of the interviewing. I took coursework in oral history when I took my graduate degree in history, and you wouldn't pass the class with that quality of work. More disturbing, however, was the interviewer's use of the term 'oriental' to refer to an Asian American professor; I have students of many different 'races,' and the term oriental is a racist/imperialist term we discuss, but do not use in my classroom, so I wouldn't show a clip like that unless it was to discuss prejudice!

I learned that they all had struggles in their lives, but that they still pursued their dreams.

I learned the real life stories of these people.

I liked that it showed it in a video form because it was more interesting to watch and stay focused on. The information flowed together nicely giving an overview too in an educational format.

I love getting the personal side of these people's lives. It also gives you a feeling that they are sharing with you as well as the interviewers. It provides a sense of humanity to which we can all relate. I want these interviews to be highly accessible, and consistently used. They are a great resource for countless reasons including inspiration, research, content knowledge, and learning about the background and lives of people in the sciences.

I mostly learned about the background of these two scientists. Glad to finally find a way into the digital archive via this survey. Don't know why I couldn't get in via the website. I am bookmarking the page RIGHT NOW.

I renewed my sense of how difficult it often was for African American scientists to join the profession, but I saw that they often had extraordinary courage and dedication.

I think learning about how the scientists were able to overcome challenges and pursue education were the most important parts of the interviews.

I think this would be great tool in the classroom with intermediate grades and up.

I thought it was interesting how science became a passport to other opportunities in life for most of these individuals.

I was looking for information on women scientists who were African American.

I was particularly interested in the women and noticed comparative patterns in childhood experiences, education, challenges, and mentors.

I was unable to watch any of the interviews because I was not provided a login.

I wasn’t able to watch them without a log in. I tried creating a log-in but it did not register for some reason and I ran out of time to do this. It would help a lot to provide a log-in with full access to your site to all survey participants.

Interesting to hear some of the stories shared

Interviews are great for showing the 'real' person behind the fairly serious profession of scientist.

It is always interesting to know people's beginnings.

Learned about how the family members influenced these difference makers.

Looking for common threads in challenges

Many of these great people overcame severe obstacles to get where they are in science. Some due to gender, others race.

mentors remain important today, but 20-40 years ago they were absolutely essential for the advancement of these scientists

More about them and their project.

Mostly well educated from good schools.

Need to be able to check areas of interest in each Science makers interviews.

Oh, and I learned some cool stuff about the culture of nuclear physicists and their moral code.

On the practical side, I learned I can't access the archive through the regular website - just through a provided link.

P.S. I am planning to watch more - I am in the middle of a busy academic summer, with project and publication deadlines.

People can be fascinating

Personal character

Personal stories - trials and achievements

Some of the scientists came from homes that were more financially secure than others, but all the ones I viewed said that they had happy childhoods. I was very surprised about that. I grew up in an area whose families were financially secure, but were not necessarily a happy place to grow up.

Success depends largely upon character.

That it wasn't easy. The scientist had to work to reach their goals. You can achieve your goals if you put your mind to it.

That these men were able to do great things, often coming from humble origins.

That these people have a rich family history as well as being renowned for their work.

That they were driven people who succeeded.

That this is an incredible resource, which I hope to use for future projects.

The challenges faced by African American Scientists

The challenges that they faced.

The cognitive, sociocultural and spiritual constructs that made the individual achievements possible.

The diversity of the list.

The future of space travel in the U.S.

the hard work and dedication each has

The life stories can be really inspiring to students. Not everyone is stuck in dead end jobs and poverty.

The role of science and politics as it related to the 2004 election.

The struggles some of them faced to get where they are.

The variety of pathways to achieving one's career / area of recognition

There are a lot of sources that are readily available for my students. I enjoyed the video clips and before I watched, I was unaware of who these African Americans were and what they did.

There is always more history to be learned.

There were a variety of reasons for why people became interested and involved in the science profession.

These were difficult. I was forced to read transcripts because the video was always downloading. This caused the screen to blink between the actual image, and squiggly lines. It was frustrating enough that I left the archive.

They starts of these individuals was not always the easiest and how they overcame.

They were interesting and not too long

Unable to login

Was not interested in watching since I have in depth knowledge. Will be an excellent tool for others.

We all begin the same - it's exciting to share people's childhood's with students so they can see themselves in those who they think are so different than them.

When I went on the website, it indicated that interviews were listed under four categories: research, mentoring, administration and education. Only the Research ScienceMakers came up. On the other three pages the message was 'Sorry, no makers were found. Try another search.'

Q17 How would you use the archive to make young people aware of African American leaders in the STEM professions?

As a lang. arts teacher and science teacher, I would conduct a research writing assignment for biographies of these scientists. I would allow students to select an individual and research their lives and accomplishments using this site.

As a resource if they are doing projects or have questions or want to talk to someone locally.

Assign research project

Assign them to use the website for research

Assignments creative web pages for school

Black History Month, Civil Rights lessons

By using this website within my classroom and giving them web address to. Having them do report on important members within the website.

Classroom extension or as a resource for research projects.

Collaboration with science classes on key research areas in relation to history instruction

Connect to particularly courses and unit content!

Could be used for research as well as Black History month. In doing so, young people should become aware of the opportunities they have in a STEM profession.

Could be used in any STEM focused program or in a classroom. Also as part of a career exploration exercise.

During a unit on African American history, I would assign students a leader to look at in the archive and then write about them based on what they learned.

Each year we study scientists and their contribution to the field of science. I would definitely include many scientists from this site.

Fold it into classroom experience.

For research

For students interested in science it helps to show the many different branches.

Give each of them a different person to research

Had students search for info on specific people. Held debate later

Have them choose research a leader.

have them research a specific person

Highlighting a career path, education path, or childhood story of any of these professionals.

I am not sure; I do not teach science.

I am preparing for a school visit. I will use the archive to gather information about scientist to describe to students.

I could have my students create presentations about STEM professions using the interviews as a primary resource. The content as primary resources would be useful for any similar project.

I could see how I could use this information in the teaching of social studies. However, I was totally unfamiliar with anyone in the archive. Therefore I just searched for everyone, and selected a few people that popped up.

I could see using this in the classroom as part of an overall research project.

i don't work in this area.

I think I might have students each research one of the scientists.

I will ask each of my students in American history (usually 25 in a class) to listen to one of these interviews so that they will have a grasp on the life of one individual from the second half of the twentieth century. For me, the focus would be the patterns of childhood, education, challenges and mentors in the person's experiences.

I will be sharing it via social media

I will incorporate information/video clips/interviews from the relevant scientists into learning activities in the elementary science curriculum.

I will use it to identify African-American scientists in obscure or newly developing STEM areas, like natural gas 'fracking'.

I would allow the interviews to give my students a first hand view of the importance of African-Americans in our history because they have been untold throughout our history books.

I would allow them to search for topics that interest them and listen to an interview of someone who is accomplished in that field. I would also encourage them to look for scientists that are from their home state or town.

I would ask them to listen to the complete interview of one person and decide what were the pivotal events in the scientist's life that contributed to his or her success.

I would assign them a person to research and have them use the archives only for the research.

I would assign them to research a scientist and do a power point for the class to view as a presentation

I would become active in social media.

I would embed the clips into my moodle for observations.

I would give my students the website and they can use it to research and do a project on one.

I would have the students complete a web quest to research specific leaders.

I would have them research these people for a report.

I would have them search on several people and read the biography and become more aware of some of the African American leaders.

I would make the science chair aware of the site.

I would probably share this resource with science educators on my campus because they would more readily use this content in their curriculum.

I would provide links to teachers.

I would relate it to U.S. history and politics.

I would show it to them.

I would show them the clips, starting with their childhoods, to show them that as children, how they became interested in science or math. I think personal interests builds real interest.

I would specifically choose the younger scientists and pick interesting clips from their interviews.

I would use it in a self-directed websearch lesson.

I would use it in the classroom as a source my students. I would walk students through all the features of the website. I would also use the digital archives and tool-kits in the classroom.

I would use shorter clips to help students understand careers choices and preparation, as well as obstacles faced and overcome.

I would use the biographies to aid in reading strategies

I would use the video clips in order to inspire students to pursue their dreams. Also, I would use the archive to allow students to research possible careers or interests.

I would use the website to show students examples of African American STEM professionals. I would also focus on the stories of their educational experiences and difficulties to show students that people can overcome their obstacles if they work hard.

I would use this archive to show them how many African American leaders there are in the world around us, and how with hard work, they could become strong leaders as well.

I would want to make sure that the person interviewed had experiences relevant to the interests of the young person to whom I was recommending the archive.

I wouldn't use the archive because of the reasons I discussed on the last screen. I would stick to using material from other sources which is of better quality both technically and in terms of content.

I wouldn't. I teach history but I'm sure the science teachers would love it.

I'm afraid that in my 4th grade classroom there wouldn't be a great opportunity to use the interviews. We are so driven by the common core standards and the county pacing guides we have very little time for anything else.

In a relational setting

In exhibition and part of our Museum outreach and educational programming.

Include the clips as part of the on-line blackboard course extra credit assignments.

Inclusion in other museum or outreach facility programs; kiosks in public locations

Independent study with the site

Information and building interest

Integrate this resource into lesson plans for teachers.

Introduce in class; have students work with interviews to create a project to share with class.

Introduce them to the sight during relevant curricula experiences and in personal research and development.

It would be a great attention getter or computer lab research day.

It would depend on the situation I believe. For all young people, I would make sure they were aware of the value of the archive as a research resource. Then, I would hope that their topic would be informed by these interviews, and in concert with watching them, hope that the fact that these are African Americans who had made such extraordinary achievements would become a natural fact for them (and not a surprise). For young people of color, I would use these archives similarly, but would also make sure that they realized that these are people like themselves, and hope that this would allow them to envision themselves moving into STEM careers.

Just tell them

Let them do searches and journal findings.

Let them explore it.

Make great assignments for oral reports

n/a

Not sure - the look and feel does not seem to be something young people would take to and the navigation is complicated. I would want to see a greater focus on what the subjects lives were like when they were young - these comments are there but you would have to hunt for them rather than have them featured in some way.

Once they see that someone else succeeded they will know they can also.

Our districts is rolling out Problem Based Learning so this is an excellent site to use to learn more about what and who are teaching and working in science

Presentation of videos as part of museum exhibits, extracting quotes for label text, too.

Research on people with a follow-up biography report or a research paper about their contribution to our society.

show a video clip or two in class

Since students (middle/elementary/high) are so technologically inclined, I think it is great to have them look at this website because it's all online and on video --- something that appeals to them a lot. Also, the scientists are not 'celebrities' -- they look like normal people who are simply content with their lives (She says, I don't know how you got them all to smile!), and I think it would really appeal to them because it shows that you can be a scientist and the dream is very attainable

Site for them to get more information and peak interest in Science.

Social media

Students could research a person that is related to a field in which they may be interested in.

The archive helps students do research using several skills - reading, listening and interpretation of the oral and written histories. I would like my students to view the archive and then explore what they want to know more about.

The archive would be a great tool in a classroom setting, as well as a resource for a school report

The site was very easy to navigate.

The videos would be great for Black History month and when we are talking about Civil Rights. Most of the people are old enough to have lived through the modern Civil Rights Movements.

These archives should be made available to science teachers at 7-12 grade levels and at community colleges to use in the class rooms. If you haven't already, work with teacher associations and school administrator associations to get the word out and raise awareness among these stakeholders. Going through the unions may be another route

They might research one AA to see how they relate to them or just what their area of focus was and how they grew in to it.

This would be a great site for the students to search in their free time but it also would be a great resource to use during black history month. I think this will appeal to the young boys and girls that are African American and interested in STEM professions.

To provide awareness to my students

Use Web 2.0 tools - blogosphere, twitter, videos, etc, targeted at young people. That's where they play.

When I teach reading, I often include non-fiction materials and we also do a biography project. I would include this site as a great reference!

When teaching students about technological innovations that affect the past and the present, I would make sure to include the African American science makers to show students that there is more diversity among the innovators.

Work in groups and complete a 'scavenger hunt' for facts. The group locating the most facts within a certain timeframe would win an award.

Yes

Yes

You could have students create presentations on various leaders for the class. They could write letters to these individuals, incorporating both science and ELA standards.

Q18 What suggestions do you have to make the archive more appealing to students/young people?

A list of the people included in the archive in an easy to search table of contents.

Add activities to complete.

Add some younger scientists

Add video.

ask young people what works...but off the top of my head, I'd suggest putting the interviews on YouTube and other popular media outlets.

Better advertising.

Connections between everyday life and science, connections to art, connections to urban and low-income lifestyles.

Creative web pages

Depends on what age group of young people you are targeting. For much younger audiences it really needs to be much less text dense, more audio/video, photo, animation focused.

Design is a bit conservative. I would like to see more contemporary color usage and a more dynamic design that matches the upbeat graphic that today's learners use.

Expand the field of scientist

Experiment with a format where you crowd source and identify the questions that your users want answered and organize your content by questions with multiple answers.

Feature the 'business stuff' such as board of directors, 'about us' less prominently on main page

For 8th grade, less text and more obvious what the site is about

Guides for searching for people. And easier access or availability for standard information such as STEM and purpose behind the page.

Had no suggestions for the archive itself, thought it was great (but she noted that there were some people she was sure should be on there but weren't). She did say that she wasn't sure if it is 'advertised' enough -- not enough people know it, and if they did, they would surely use it

Have shorter clips edited together around themes. Generally have shorter clips available. watching 1 minute of YouTube is a long time!

I also think that the list of the 4 major areas is confusing. I think they could be briefly defined or be changed into better headings. The words themselves made me think--boring. Quite honestly, at first I didn't want to click on anything except Research because that sounded like it had some action! Administration--dull category. Could it be something like Leaders of Science Organizations? A word like leaders is closer to an active verb! Students want action!

I cannot answer this question because I was not given access to the archive.

I do not have any suggestions.

I don't have any suggestions.

I think it is ok as is

I think it is very nice, visually. Maybe a musical backdrop or voiceover by someone they can relate to...Wyclef, Alisha Keyes, etc.

I think it's fine as is. Trying to make the archive more appealing to students is not as important as compelling interviews and content.

I think more graphics and larger fonts.

I think more historical background on scientists of the past would add.

I think the entire setup needs to be rethought. I don't think we need transcripts scrolling below the video. I do think you need high quality video that can be projected full-screen.

I think there should be more publicity in the public school system with increased marketing. In addition, the prices of the archive are somewhat expensive.

I thought the archive was very engaging. I would not make any changes with the exception of making sure to keep it updated.

I thought the public program videos of the scientists interacting with students were the most appealing parts of the site. There was a lot of energy and emotion shown in those videos, much more so than the more formal interviews.

I would make sure that the video descriptions are short and catch the viewers' attention. In particular, I would use terms/ideas that are relevant to students.

I would want something more curated. Also, I don't think young people will be patient enough for the 'talking head' format - there needs to be more 'showing' than 'telling' to engage them.

I'm not sure it's useful because it would be difficult to address any one specific standard with the information.

I'm not sure.

Improve the topic search function. Perhaps give students examples of what to search and links that come up as a way of modeling for students.

Include discussion questions for use in the classroom with lesson plan connections.

Include it on sites that students access. I have it on the USABO Facebook page which students access.

Include more women. Five out of 40 was woefully inadequate.

Include more younger people.

Interactive games

Interactive in some way.

Interview more younger scientists. There are young people who are already leaders in their fields.

It is quite serious and functional looking currently. It could use some jazzing up to be more appealing.

Just publicize it. The format is great- it's so easy to see what is in the interviews, go to the relevant parts and let myself get sucked in by curiosity to watch other segments.

Kid friendly graphics for elementary students

Less formality -- just do the interview without making the person spell their name, etc.

Looked good!

Make the enormous NSF logo smaller and in a more appropriate place.

Maybe a page for educators aligning with our state standards to help incorporate the archive into classrooms.

Maybe be able to search on the most viewed videos or ratings

More access to / reference of points of connection to students' current experiences.

More discussion about scientists’ background and child hood.

More graphic content linked directly from social media.

More graphics & interactive components

more graphics?

More images/video of young people. History-makers in training.

More 'leaders' who are 'younger' or more in the publc eye.

More pictures and an emphasis on their childhood and the path to where they are. Most students will not care much about what awards they won, but they will be interested in how they can relate to these people in life events.

More programs in many different types of venues not just schools

More relevant offerings and up to date selections

N/A

None

None

None

None, it has youth appeal

Not sure

not sure, looks good to me

Not sure...I see the format as excellent for high school students.

Nothing at this time.

offer to four - 12th grades in a flyer to districts

Perhaps add a 'fun facts' section or a little quiz section to see how much they learned.

Perhaps divide up or create a separate section for elementary students. A shorten or less detailed version would be beneficial to younger students.

Really, it is pretty nice.

Some kids are hooked on animated versions of library books, so maybe a cartoonish interview. Another way is making the video interactive where they can listen, answer a question, and then hear the rest of the interview.

some more contemporary individuals they may know.

Sort interviews alphabetically, by field of study, PhD program, and awards.

Speaking engagements

That might be in teachers arena to set up the interest areas.

The challenges the scientist faced really catch their attention.

The mission statement and logo should be at the bottom of each page, so that young people see the CONTENT first.

The set-up is very effective as is; no change seems to be needed.

The site is very appealing.

The teacher might need to be very familiar with this system to help students learn how to access it. My guess is that the students familiar with computers can catch on quickly.

The way the videos are arranged is visually overwhelming. I like the fact that there are short clips, and I can't think of another way to present them, other than instead of 25 different pictures

of the same person, you should accentuate the topic more. When you look at a specific topic, you only get a partial sentence about the topic, instead of a clear bold title.

There could be a sort of preview of the interviews, a short introductory video, for example.

There needs to be an easier way to BROWSE content, for someone who has no idea about these individuals.

This is great!!

Wider variety and a summary when you hover over an individual to determine interest

You feature young scientists which is great -- keep featuring young people -- even people doing interesting graduate work.

You have to come up with a 'hook' that will get the younger people's attention and hold it.

You much allow the video to be viewed on the iPad and you must offer either some sample interviews for free or some sort of trial period for people.

Younger up and coming History Makers.

Q19 What suggestions do you have to make the archive more interesting to a wide range of users?

A little better search engine an access from outside.

again individuals from contemporary times as well

Connect the site to Black History Month sites and curriculums

Connect to Discovery Education Streaming-- this is a very popular resource with K-12 teachers.

Connections between everyday life and science, connections to art, connections to urban and low-income lifestyles.

Continue to advertise the scope and opportunities for using the materials in an interdisciplinary way through professional journals OAH, NCSS, NCTE, etc.

Develop strategy for making the Archives more accessible.

Don't require a log in, or allow users to create a log in name and password as they enter the site for the first time (instead of having to go to a different screen).

Easier way to access a table of contents.

Get the word out

Give the user more of an idea of what History Makers are so that they may search more appropriately.

Have a question and answer interactive at the end of the video to make sure facts were fully understood.

Have people submit lesson plans of how they used this content.

Have photos of key objects or things they've invented worked on discovered etc.

Highlight a childhood section. Everyone likes that.

I can’t really think of a way to make it more appealing to me personally

I found it interesting. I liked the special collections best.

I incorporate science & math in UGRR Quilt Programs to diverse audiences and show that we use it every day.

I think it is good.

I think it is set up pretty well for a wide range of viewers. It would be helpful if the navigation ran left to right instead of from the top down. It could be set up like a scrolling timeline.

I think it is useful.

I think it needs to be advertised more - I wouldn't have known about it if I wasn't a teacher who got an email to look it up. This site is great for more than just teachers and should be advertised to a wider group of potential people.

I think it's great the way it is, other than having the first video being the spelling of the name and the 'People' type questions. The first video should be dynamic enough to catch the attention of the viewer.

I think more historical background would add

I think publicity is the biggest proponent. You have to get out there to be recognized.

I think that perhaps there should be different portals for different kinds of users.

I think that there is too much information in the archive per scientist which can be overwhelming. Maybe one more layer of menu is needed so that a person can narrow it down to 10 clips at a time. A lot less overwhelming.

I think the general public needs to be made more aware of the contributions of African Americans to STEM. One avenue for doing that is to target informal learning programs. These usually have the flexibility to consider alternative curriculum or interesting topics and/or collections.

I would give more publicity to the archive- professional journals and/or state/national association publications related to public education. I think that if educators knew of these resources, they would use them in the classroom readily.

I'm not sure if I was navigating correctly, but is there a way to stack the video clips and listen at one sitting, as opposed to hearing single clips at a time?

Include more women. Five out of 40 was woefully inadequate.

Include people of other races as well even though this seems to go against the whole idea of the website.

Include younger individuals possible more relatability

Increased marketing, exposure, the archive has to find a way to tap into pop-culture of the youth it hopes to serve.

Interactive games/quizzes

Involve a wider group of people

It is good the way it is.

Keep adding primary sources.

Keep it updated, simple and easy to navigate.

Less formality and more real life type situations for mid to high school levels

level it off by user age group

Limited use without log-ins

Look to multiple disciplines beyond stereotypical science areas. The notion that science is everywhere is a valuable link

make a broader appeal to a more varied audience and make them aware of the programs offered, etc.

Make the media easier to access. Make it the first thing you view when coming to the site. Make it about the collection and not each person alone. Create wrap-around content that shows the life of a scientist and emphasizes pathways to success.

Many of my colleagues and the students with whom I work, have disabilities, so I like the highlighting and automatic reader. However; the font size is quite small.

Maybe provide worksheets or organizers for the students to use when gathering information.

More emphasis on their lives and the road to what they achieved. If people can relate to the life experiences, they will find the archive more interesting and want to learn more about the people.

More graphics and larger fonts.

More pertinent information.

More recognition of how these people have contributed to current society and our technological world, rather than just as role models for other African Americans.

Na

None

None

None

None

None

None

None

None that I can think of.

None, it covered a wide range of backgrounds from sports to entertainment.

None, it has appeal to a wide range of users.

None.

None...this archive has a specific audience and is able to reach that audience.

Not sure, looks good to me

Perhaps include people of all ethnicities who overcame adversity, poverty, or other obstacles to become successful.

Perhaps special tabs for students, teachers, parents would be useful. Teachers are the most interested in the 'whys' of the project. The students would be looking for 'what does this have to do with me?' I think it's important to address these questions but not with dense sections of text. One particularly dense paragraph is the one that begins: In 2009, the National Science Foundation awarded The HistoryMakers a three-year grant. . . I think this is sure to be skipped by the readers who need the site the most. I would think a bullet list would be easier to quickly grasp what the site is all about. Or, question/answer formats work well, too.

Personally, I think you should target youth and the audiences that work/interact with them.

Publish flyers to districts

Re-conceptualize how you have ground-up these people's lives into little bits. You miss the connections when yo disconnect the pieces. With a proper interviewer, the linkages between childhood, education, professional work and so forth only come together when you see the whole video!

Same advice as the previous question

See above.

See above.

She mused that it was hard to get adults to appreciate STEM when they have had no experience with science during their school years -- especially when they have the attitude that science is just NOT for them. Said would appeal to adults, too, but should focus on students because that's where you can easily change their attitudes and get them on the right track

Shorter clips. links to books/ articles they did. profile page?

Sort interviews by 'generation' related to US history (eras or decades).

Spread the word.

Stop focusing only on one group of people - science is interesting no matter what color your skin is!!

texting option

The archive could be divided into grade ranges where the same content is presented with consideration for maturity levels.

The level of interest will depend upon both the quality of the interviews and the relevance of the interviewees experiences to the student watching the interview.

The set up is very effective as is; no change seems to be needed.

The site is interesting.

The term 'archive' by its nature might be off-putting to some younger users...

This is targeted to the science community only.

To publicize it in places where young students frequent, such as churches and in their schools. Publicize it also in college and university classes and science departments. It is really a wonderful resource.

you are not giving away money, so don't assume that this will appeal to a broad range of users. Target your audiences...NAACP, environmental justice movements, black professional societies, black student organizations (both undergrad and graduate levels), HBCU science and engineering programs.

A Night With Warren Washington Public Program

1. Which of the following *best* describes your reason for attending? *(Check ONLY ONE.)*

	Percentage of Respondents
Personal interest in the achievements of African American scientists	47%
Professional interest in the achievements of African American scientists	43%
General interest in science	39%
Interest in STEM-related programs	35%
Interest in STEM-related policy decisions	33%
Personal connection to HistoryMakers/ ScienceMakers	31%
Specific science-related interest	27%
Interest in STEM-related career opportunities	21%
Personal connection to the speaker	17%
Other; please describe:	9%

N = 139

2. How would you rate today's event overall?

Mean (1-5)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
4.58	0%	0%	6%	30%	64%

N = 131

3. To what extent did today's event …

	Mean (1-5)	Not at All (1)	Only a little (2)	Some (3)	Quite a bit (4)	A great deal (5)
Increase your awareness of the achievements of African American scientists	4.30	0%	1%	14%	39%	46%
Increase your interest in seeking out more information about the achievements of African American scientists	4.24	1%	2%	15%	39%	44%
Increase your interest, generally, in STEM-related research	3.85	3%	4%	29%	32%	32%
Increase your interest in influencing STEM-related policy change	3.89	4%	5%	28%	25%	38%

N = 136-140

Totals may not sum to 100% due to rounding.

4. To what extent did today's event …

	Mean (1-5)	Very unlikely (1)	Unlikely (2)	As likely as not (3)	Likely (4)	Very likely (5)
Discuss it with others	4.75	0%	1%	1%	21%	77%
Seek out ways to engage African American scientists in research decisions	3.98	2%	8%	15%	28%	37%
Seek out ways to engage African American scientists in policy decisions	3.97	2%	8%	20%	32%	39%
Spend more time reviewing ScienceMakers materials	4.29	2%	2%	9%	39%	48%
Implement ScienceMakers programming or materials in your own STEM programs or agendas	3.73	6%	13%	18%	29%	35%

N = 126-140
Totals may not sum to 100% due to rounding.

5. What did you learn about the Science Makers model, programming, or materials that can be helpful to you in your work related to STEM research or policy? (Click here for responses.)

The final few questions ask for background information to help the ScienceMakers team better understand its audience and the diversity of participants' backgrounds.

6. In which of the following fields do you work?

	Percentage of Respondents
Science	36%
Engineering	10%
Math	4%
Education	32%
Health/Medicine	8%
Public Policy	17%
Other	23%

N = 141

7. Before tonight's program, how aware were you of African Americans' achievements in science?

Mean (1-5)	Not at all aware (1)	(2)	(3)	(4)	Highly aware (5)
3.85	2%	9%	23%	34%	32%

N = 136

8. Your gender

	Percentage of Respondents
Male	36%
Female	64%

N = 138

9. Your age group

	Percentage of Respondents
1926	1%
1930	1%
1933	2%
1934	1%
1935	1%
1938	2%
1939	3%
1940	1%
1941	2%
1942	1%
1943	1%
1944	1%
1945	1%
1946	5%
1947	2%
1948	3%
1949	2%
1950	4%
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1964	2%
1965	2%
1966	2%
1967	2%
1969	3%
1972	1%
1973	1%
1975	1%

1976	1%
1977	2%
1979	4%
1980	3%
1981	3%
1983	4%
1986	1%
1988	1%
1993	1%
1996	1%

N = 64
Totals may not sum to 100% due to rounding.

Mean age: 53
Range: 16-86

10. Your Race/Ethnicity (*Please select one or more to describe your major racial background.*)

	Percentage of Respondents
Black or African American	71%
White or Caucasian	25%
American Indian or Alaska Native	2%
Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other Asian	2%
Other	2%
Native Hawaiian or Other Pacific Islander	0%

N = 136
Totals may not sum to 100% because respondents could check more than one.

11. Are you of Spanish, Hispanic, or Latino descent?

	Percentage of Respondents
Yes	2%
No	98%

N = 129

12. What is the highest degree you have earned?

	Percentage of Respondents
High school graduate or less	1%
Some college or technical	5%
Associates/2-year	2%
College/4-year	17%
Master's	32%
Ph.D./Professional	43%

N = 139

Q5 What did you learn about the Science Makers model, programming, or materials that can be helpful to you in your work related to STEM research or policy?

A variety of materials are now available for use with children and teens -- even in out-of-school programs

Amy Billingsley

Appreciation for all of the efforts so far, and a willingness to help support future effort

As a school for public policy, we would love to use the science makers materials

Combining personal history (narrative) science history, US history, into a stimulating program

Critical for future

Delivery of content will influence approach to policy making; sharing with others

Development of computer technology and its impact on science

Expanding the use beyond STEM specific programming

From history makers

History and current available resources

History of the effects

How it works

How STEM affects almost everything we do

How to connect to scientists who want to communicate to the public

How to package the scientist personal, business and scientific lives

How to use oral history to inspire and inform the next generation

I am a retired scientist at this time

I believe the materials will allow me to provide role models to the students I teach

I can share this with youth

I do not work

I knew it before

I learned about my grandpa

I stage STEM events for minority students and will include this with the other resources

I will use the website with teachers & students in my school

I'm limited in my exposure to STEM policy, but I'd appreciate now having science makers as a resource

Influence young scientists to enter STEM related programs (e.g. college, post - graduate)

Invitation to this event

It made me aware of the importance of being aware of global warming and the affects it has on the earth

John Sonnu had it on his computer in the white(?house)

oral histories are important

overall program awareness

provide excellent info for future reference

Referred by Amy Billingsley

Researches available from the website

Scientists start out w/ordinary life experiences

Searchability of materials

Sharing information about this science maker will be instrumental in what I share with students. In addition, it increased my understand of how policy affects us

Talk more with boy and girl about stem

Talking face to face counts!

That materials exist that inform and inspire all of us involved in STEM work and progress

That there are so many pioneers we don't hear about everyday. I will check out the website and hope to be on HistoryMakers myself in the future!

The need to increase general knowledge about African Americans in science

The resources available on th website will be a valuable tool for students & teachers at the charter school where I work

The web materials

This speaker's work relates directly to my work at NASA (ICESatII; study of ice sheets). Also website will be helpful when doing outreach speaking engagements.

Types of programs available

Washington’s contribution

Web archive will be useful in preparing presentation

Will pass them along to our university. I started STEM outreach programs

Working to integrate African American studies

Goodman Research Group, Inc.

929 Massachusetts Avenue, Suite 2A
Cambridge, Massachusetts 02139

Tel: (617) 491-7033
Fax: (617) 864-2399

info@grginc.com
www.grginc.com