



ScienceMakers: African Americans and Scientific Innovation

Summative Evaluation: Executive Summary

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EXECUTIVE SUMMARY

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* allowed for interviews with 180 of the nation's top African American scientists and facilitated dissemination of the information. The overall goal was to increase awareness in the general public of the contributions of African American scientists, and ultimately leading to increased participation in science, technology, engineering, and math (STEM).

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 in partnership with eight science centers and community organizations, an interactive website, a three-volume toolkit, an Advisory Board, and external program evaluation. In addition, *ScienceMakers* partnered with Carnegie Mellon University's Entertainment & Technology Center and created a comprehensive, interactive digital video archive of all of the interviews with *ScienceMakers*. The digital archive, considered by the project team as the most significant resource developed as a result of the grant, is central to the project as it complements and is complemented by all other materials.

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. 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 among the general public and students:

- Increased awareness of, and interest in learning more about, the **achievements and contributions** of minority scientists.
- Increased awareness of, and interest in learning more about, **different STEM-related careers**.
- 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.

METHODS

GRG designed and conducted multiple evaluation activities to examine the project's success in meeting stated goals. GRG conducted secondary data analysis of public programs data that had been collected by the project's formative evaluator. GRG designed and programmed an online survey of the *ScienceMakers* website and digital video archive; conducted surveys and phone interviews with toolkit recipients; attended and surveyed participants at the special public program, *A Night with Warren Washington*, and conducted narrative analysis of a sample of *ScienceMakers* interviews.

Overall, summative evaluation findings indicate that the project has effectively met its short-term outcomes. This document highlights key findings and recommendations from the full evaluation report.

KEY FINDINGS

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 resources are well-positioned to complement one another, particularly when members of the intended audiences know about all of them and how to access them. 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 a comprehensive list of scientists and their background information in the toolkits
- 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. This was true even with reports of some knowledge in this area prior to program participation; after exposure to ScienceMakers, students and adults were interested to learn more.
- Students, in particular, were struck by the degrees and awards the scientists achieved, that men and women both overcame challenges and achieved success, and that they helped society in some way with their work and their discoveries.
- 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.
- After attendance at public programs, review of the toolkits, website, and digital archive, parents and educators were motivated to review additional ScienceMakers materials and felt more confident to teach students and encourage their interest in STEM careers.
 - 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 felt more equipped to communicate with youth about scientists, the kinds of work they do, and/or career opportunities in science.
 - Website visitors envisioned using the digital video archive as a resource for class assignments including research, presentations, and extra credit; to build student interest in science; and to make

- connections across topics. They felt that including the interviews of some of the featured scientists would “*enhance any science curriculum.*”
- Toolkit users considered the toolkit, with such a large number of featured scientists, a comprehensive resource with which to enhance current projects and activities and to add to their existing educational tools.
 - Users of ScienceMakers materials were satisfied with the resources they experienced and suggested ways to increase use among a wider audience.
 - Students who attended public programs enjoyed meeting and learning about the ScienceMakers, and their lives and experiences, and doing activities with the scientists. They appreciated how engaging the scientists were and that they took time out of their day to speak with them.
 - Attendees of the evening programs particularly enjoyed the scientist presentations and they found the scientists’ life stories and experiences personally relevant.
 - Website visitors considered the ScienceMakers Interviews and ScienceMakers Digital Archive relatively most useful among the site’s components. 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.

KEY 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.

- Tailor outreach activities to specific audiences to increase likelihood of sustained interest in learning more about African American scientists and personal STEM-related career opportunities.
- In promoting the ScienceMakers resources nationally, emphasize the existing local community connections that are easy to find and build upon. Highlight 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. Following are resource-specific recommendations:

Digital Archive

- Supplement 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.
- Increase accessibility of the website overall, and streamline 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 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.

Toolkit

- In its electronic version on the ScienceMakers website, break the three volumes of the toolkit into smaller units by theme, such as 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 order to encourage and enhance use of both.

GRG makes the following recommendations for further follow-up evaluation to address mid- and long-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 were likely to visit the site again to view more of the stories in the digital archive and to engage students with the resource.
 - 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.

Evaluation would be designed to assess specifically the mid-term and long-term outcomes expressed in the ScienceMakers logic model.

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