SCORE-UBE FINAL EVALUATION REPORT

2021

Prepared by Robin T. Taylor
Principal & Senior Evaluator, RTRES Consulting
Acknowledgements

The information provided within this report is summarized according to the author’s understanding of data collected for evaluating the NSF RCN Incubator award (#1919879). The opinions, findings, conclusions, and/or recommendations expressed in this report are those of the author and do not necessarily reflect the view of the National Science Foundation.

Robin T. Taylor, PhD.
https://www.rtresconsulting.com
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<tr>
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<th>Full Form</th>
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<tr>
<td>AACU</td>
<td>Association of American Colleges and Universities</td>
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<td>ALA</td>
<td>American Library Association</td>
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<tr>
<td>AASL</td>
<td>American Association of School Librarians</td>
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<tr>
<td>ComPADRE</td>
<td>Communities for Physics and Astronomy Digital Resources in Education</td>
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<tr>
<td>DEI</td>
<td>Diversity, Equity &amp; Inclusion</td>
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<td>DiG</td>
<td>Data Incubator Group</td>
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<tr>
<td>ESA</td>
<td>Ecological Society of America</td>
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<tr>
<td>iEMBER</td>
<td>Inclusive Environments and Metrics in Biology Education and Research</td>
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<tr>
<td>ISKME</td>
<td>Institute for the Study of Knowledge Management</td>
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<tr>
<td>LC</td>
<td>Learning Community</td>
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<tr>
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<td>Multimedia Education Resource for learning and online teaching</td>
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<td>MMHub</td>
<td>Math Modeling Hub</td>
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<td>Network for Integrating Bioinformatics into Life Sciences Education</td>
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<td>National Science Digital Library</td>
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<td>Open Education Practices</td>
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<td>Open Education Resources</td>
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<td>OPLC</td>
<td>Open Pedagogy Learning Community</td>
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<tr>
<td>PI</td>
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<tr>
<td>QUBES</td>
<td>Quantitative Undergraduate Biology Education and Synthesis</td>
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<tr>
<td>SCORE</td>
<td>Sustainability Challenges for Open Resources to promote an Equitable UBE</td>
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<td>SERC</td>
<td>Science Education and Research Center</td>
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<td>SGCI</td>
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<td>SIMIODE</td>
<td>Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations</td>
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<tr>
<td>S-JEDI</td>
<td>Social Justice Equity Diversity and Inclusion</td>
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<td>Scholarly Publishing and Academic Resources Coalition</td>
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<td>STEMed Project Leaders Inclusivity Network</td>
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<tr>
<td>TIEE</td>
<td>Teaching Issues and Experiments in Ecology</td>
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<tr>
<td>UBE</td>
<td>Undergraduate Biology Education</td>
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INTRODUCTION

An NSF RCN-Incubator grant (#1919879) was awarded to Bates College in August 2019 to support a network focused on Sustainability Challenges for Open Resources to promote an Equitable Undergraduate Biology Education (SCORE-UBE). Bates College hosted the SCORE-UBE Summit from October 17th through October 19th, 2019. A group page for network members was created within QUBES Hub, providing a virtual platform for members to form a community of practice aimed to support the following objectives:

- Bring together a group of people interested in creating, developing, disseminating, and utilizing OER across disciplines and institutions.
- Build community among network members interested in OER sustainability.
- Develop a common language for sustainability and OER centered around diversity, equity, and inclusion.
- Share experiences and create collaborations within the network to foster new ideas for sustainability.
- Discuss concepts of social justice, equity, diversity, and inclusion in the context of OER and develop strategies to incorporate these ideas into OER.

The onset of the national health pandemic resulted in uncertainty for supporting additional grant activities, thus, the team requested a no-cost extension from NSF. During this time, members of the SCORE Network worked on a meeting report that has been submitted to CBE Life Science Journal, formed stronger joint collaborations, and submitted proposals to further SCORE and collaboration opportunities. In addition, two working groups convened during summer 2021 to address issues of 1) finding and tagging of inclusive teaching resources, and 2) how equity and inclusivity can be integrated into the emerging data science curricula.

EVALUATION METHODS

Dr. Robin Taylor, Principal and Senior Evaluator of RTRES Consulting, was contracted by Dr. Diaz Eaton (PI) at Bates College to conduct an evaluation and social network analysis of the SCORE-UBE Network project. All network participants who attended the SCORE Summit in 2019 were administered pre- and post-summit surveys. An initial follow-up survey was administered during February 2020. Prior survey findings were summarized for the leadership team and data summary reports are publicly available on QUBES Hub1.

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The SCORE Network continued to grow through additional funded initiatives and collaboration opportunities. A final follow-up survey was administered in June 2021 to all SCORE-QUBES Network members (i.e., all members of SCORE who had actively joined the group within the QUBES Hub platform either from the summit or other funded activities). Additional data used to understand the SCORE Network include participation in team meetings, QUBES users and groups data, and attendance records.

**EVALUATION RESULTS**

**SCORE Participants**

A total of 35 individuals representing more than 17 OER organizations participated in the SCORE Summit in 2019. Of those 35 members, 30 joined the SCORE Network group within the QUBES Hub platform. The growth of the SCORE-QUBES Network continued to grow through additional participation across new initiatives sponsored by additional funding grants and OER collaborations – see Appendix A for a brief summary of these additional activities. A total of 140 individuals have participated in at least one activity that has been directly or indirectly sponsored by the SCORE Network, and 72 individuals are currently members of the SCORE-QUBES group. Figure 1 provides a visual illustration for the growth of activities related to the SCORE Network and includes products SCORE members reported as a result of their participation within these activities.

Table 1 is provided to demonstrate membership across each of the associated SCORE activities. The table shows SCORE activities in the rows and columns and each cell in the table shows the number of individuals within both groups. The main diagonal shows the total number of members participating within an activity. Counts are not included within the bottom part of the matrix as these values replicate the information provided in the top part of the matrix.

The primary institution of each member indicates participants represented at least 67 different organizations/institutions – including 65 academic/higher ed institutions, non-profits focused on open education, funding agencies/foundations, consulting firms, community of practice networks, professional societies, museums, research lab, and museum. In surveys administered to SCORE Network (e.g., the pre-survey and final survey administered with new SCORE members), members have reported involvement with numerous open education communities – Figure 2. In addition, SCORE-QUBES Community members have also been involved with 386 groups/communities utilizing the QUBES platform. Figure 3 shows the involvement with 77 QUBES groups/communities in which more than 5 members were involved. Descriptions of these QUBES groups are provided in Appendix B.

Finally, SCORE-QUBES members are geographically located across 28 states and India. A geographic representation of SCORE membership across the United States is shown in Figure 4 for SCORE summit and SCORE-QUBES members.
Figure 1. Influence of SCORE Network Across Direct and Indirect Supported Activities

- NSF RCN-SCORE-UBE funded activities, ■ Hewlett-Foundation funded activities, and ■ Joint funded activities (i.e., funding from NSF and other sources). Products and outputs which emerged from project activities are indicated with →

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### Table 1. Participation numbers across associated SCORE Network activities

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**Note.** See appendix A for descriptions of additional SCORE activities supported through additional grant funding.
Figure 2. OER Communities of SCORE-QUBES Network Members

Figure 3. QUBES Groups/Communities with more than 5 SCORE-QUBES Network Members

SCORE Summit Participants (n = 30)  Current SCORE-QUBES Members (n = 72)

Figure 4. Geographical representation for SCORE Network within the United States by summit participants (n = 15 states) and SCORE-QUBES (n = 28 states). SCORE-QUBES also had 1 international participant (India).
Network Analysis

The SCORE-UBE summit aims to expand networks of persons committed to understand and find sustainability solutions to Open Education Resources (OER) as well as Diversity, Equity and Inclusion (DEI). Participants who completed surveys prior to the summit in October, 2019, during February 2020, and/or in June 2021 were asked to indicate the nature of their relationship with all participants in the network by selecting response options which also included “I have professionally collaborated with this person.” Professionally collaborated is defined as actively engaging in cooperative work with another person. Growth of the SCORE network is then assessed by examining professional collaborations across individuals in the network at each time period.

The list of network participants for the pre-survey were based on 35 individuals identified to attend the summit in October. Of these 35 participants, 3 were unable to attend any component. Three additional participants have collaborated with network participants and were added to the mid-survey. For the final survey, all SCORE-QUBES members were added to the survey network questions, while participants who did not attend the summit and were not members of SCORE-QUBES were removed from survey network. To explore network growth, the following color scheme was used to understand at what point participants joined the SCORE Network:

- ● PI or Co-PI ○ Individual did not participate in the summit nor joined SCORE-QUBES,
- ● SCORE Summit Participants, ● Did not attend summit, but member of SCORE-QUBES

The mid-network was creating using the professional collaborations indicated at pre- and for those who completed the mid-survey. The final-network was created using both pre- and mid-collaborations, plus collaborations indicated at the final follow-up; however the follow-up resulted in asking participants to indicate professional collaborations for an additional 32 persons whose affiliations in the network were not assessed at the first two survey administrations. Additionally, another limitation to understanding the full evolution of the SCORE Network is the lower response rates within follow-up surveys – response rates were 74% at pre, 31% in February, and 26% in June. We use an undirected network model since it is assumed that professional collaborations would be mutual. The following metrics are included to examine network growth:

- **Edge density** is defined as the ratio of extant edges to the number of potential edges, and demonstrates the proportion of professional collaborations within a network across all potential collaborations.
- **Clique** indicates the number of subgroups (cliques) in a network and indicates clusters of professional collaborations among SCORE participants.
Figure 5 show the network graph based on information provided by participants prior to attending the SCORE Summit in October 2019. In addition, Figure 6 is provided to demonstrate the number of clusters present with respect to professional collaborations across SCORE Network members. The network density is .203 and 5 cliques were identified in the network – 4 clusters within professional connections and then individuals without professional collaborations.

Figure 5. Network graph showing professional collaborations across summit participants prior to SCORE Summit.

Figure 6. Network graph showing clusters for professional collaborations across summit participants prior to SCORE Summit.
Figure 7 shows the network graph based on information provided by SCORE Network participants in February 2020. In addition, Figure 8 is provided to demonstrate the number of clusters present with respect to professional collaborations across SCORE Network members. The network density is .216 and 6 cliques were identified in the network – 5 clusters within professional connections and then individuals without professional collaborations.

Figure 7. Network graph showing professional collaborations across SCORE Network members in February 2020.

Figure 8. Network graph showing clusters for professional collaborations across SCORE Network members in February 2020.
Figure 9 show the network graph based on information provided by SCORE Network participants in June 2021. A visualization of clusters for the final network graph could not be computed. The network density is .108 and 8 cliques were identified in the network – 7 clusters within professional connections and then individuals without professional collaborations.

The number of cliques in the network increased from 4 to 7 indicating an increased presence of subgroups with professional collaborations. Edge density slightly increased from pre to mid; then decreased when the additional SCORE Network members were added to the Network. However, the increased number of edges (lines connecting nodes/SCORE members) demonstrates an increase in professional collaborations even if the portion of actual connections over potential connections decreased with the addition of new members.
Survey Results

In June 2021, a final follow-up survey was sent to the 72 individuals registered as SCORE Network members on the QUBES Hub platform. A data summary report for survey findings is provided in Appendix C. Nineteen (26%) members completed the survey and feedback was highly favorable for the network influencing their work as 16 out of 19 indicated ‘yes’ and the remaining 3 indicated ‘maybe/not sure at the time’ as they had just recently joined the network.

Participants were also asked to select up to 9 ways they believed the SCORE Network may have benefited their work. All participants selected at least one response with a median of 6 responses selected as benefits. The benefits most highly selected include 1) provides access to expertise, collaborative partners, information, resources, and opportunities for turning ideas into action and/or solving problems ($n = 18$); and 2) provides relevant information that helps me understand the challenges I face at work with the sustainability, cyberinfrastructure, and/or community building ($n = 17$). Open-ended feedback included:

" The SCORE Network has provided me the opportunity to join a new community with a shared interest in promoting educational access and equity. I regularly reference the resources (including discussions) I was introduced to at meetings such as S-JEDI last summer.

" The information, feedback, and support from SCORE has provided me with tools and resources to develop OERs of my own and be an advocate at my own institution.

Findings from previous surveys of SCORE Network members are publicly available through the QUBES Hub¹.
**Products/Outputs**

Members of the SCORE Network were asked to indicate any products or publications that have resulted as a result of their participation in the network. At the time of this report, SCORE Network members have reported 5 journal articles, book chapters or other manuscripts; 38 presentations; 11 proposal submissions; 26 educational aids/curricula; 6 media products; 12 meetings/workshops; and 7 other products – see Figure 10. Appendix D provides full citations and details for products reported by SCORE Network members.

Figure 10. Count of products and publications resulted from participation in the SCORE Network
EVALUATION FINDINGS

The SCORE Network was created through initial NSF funding, and the summit provided a platform for members to tackle shared issues in sustaining OER and OEP. The growth of the network continued to grow through continued collaborations across SCORE members, the pursuit and receipt of initially funded initiatives, offerings of two working groups to tackle aims of the NSF RCN-SCORE-UBE project, and multiple learning opportunities created through additional funding and helped grow the SCORE Network community. Overall findings for the NSF RCN-SCORE-UBE Network are grouped by project objectives.

**Objective 1.** Bring together a group of people interested in creating, developing, disseminating, and utilizing OER across disciplines and institutions.

The NSF RCN-SCORE-UBE Summit was hosted by Bates College on October 17th through 19th. The summit provided a space for participants with various OE affiliations to network, learn and address issues related to sustainability of open education and centering values of social justice, equity, diversity, and inclusion within OE.

**Objective 2.** Build community among network members interested in OER sustainability.

The SCORE-QUBES group page was created to facilitate community building among SCORE network members. Additional funding through the William & Flora Hewlett Foundation provided opportunities to expand the network and offer additional SCORE activities committed to sustainability of open education and social justice, diversity, equity, and inclusion. Multiple opportunities were provided for members to learn and engage with different OE organizations across the network (e.g., Partners@QUBES, and mini-grant celebrations).

**Objective 3.** Develop a common language for sustainability and OER centered around diversity, equity, and inclusion.

“Sustainability and Justice: Challenges and Opportunities for an Open STEM Education” has been accepted and is currently being revised for publication in the CBE Life Science Education journal. The paper addresses findings from the SCORE Summit and outlines frameworks of digital sustainability and social justice within STEM educational reform.

During the second year of the NSF grant, members of a Tagging Ontologies working group were supported to address issues in findability of inclusive teaching resources, especially through the lens for how these resources are tagged by authors.
**Objective 4.** Share experiences and create collaborations within the network to foster new ideas for sustainability.

A key outcome of the SCORE Network are the collaborations of CourseSource (an open-access peer-reviewed journal) and SIMIODE (open community of practice aimed to support instruction and learning of modeling within differential equations) to migrate the content of their OER into the QUBES Hub platform. These collaborative opportunities have allowed the groups to combine resources and reduce overall financial costs for sustaining the OE communities.

**Objective 5.** Discuss concepts of social justice, equity, diversity, and inclusion in the context of OER and develop strategies to incorporate these ideas into OER.

The summit allowed members of the SCORE Network to discuss S-JEDI within the context of open pedagogy, and during year 2, an additional working group met to explore emerging issues of S-JEDI within the rapidly growing field of data science. Additional grant funding also supported discussions of S-JEDI within new learning communities such as SPLINE, S-JEDI LC, OPLC, STEM Inclusive Teaching Practices Webinar Series and QUBES FMNs.
APPENDIX A: SCORE ASSOCIATED ACTIVITIES

Hewlett-Foundation Supported SCORE Activities

QUBES Infrastructure. The QUBES leadership team continued to develop collaborations to support the sustainability of the QUBES Hub infrastructure and support partner organizations and research projects. A Partners@QUBES summit was held in December 2020 and allowed partnership projects to present lightning talks and share posters of their work. Funding from the Hewlett award supported 1) QUBES infrastructure, 2) mini-grants to four partnerships, 3) the STEMed Project Leaders Inclusivity Network (SPLINE) program, and 4) a learning community focused on examining social justice, equity, diversity, and inclusion within OER (S-JEDI LC).

Mini-grants. The mini-grants program was used to catalyze collaboration within the SCORE Network as members share common interests for supporting OER, OEP, social justice, and equity. Four mini-grants were awarded funding to support partnership efforts. A description of the remaining four mini-grants follow:

*Piloting an Evaluation Framework for Accessible STEM OER.* The Institute for the Study of Knowledge Management (ISKME) partnered with the Science Education Resource Center (SERC) at Carleton College to pilot test an evaluation framework previously developed by ISKME and the Center for Applied Special Technologies (CAST) to help determine the accessibility of multimedia OER based on varying learner needs.

*SIMIODE to QUBES: Gaining Efficiency and Expanding Visibility.* The Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations (SIMIODE) collaborated with QUBES Hub to integrate the SIMIODE platform within the QUBES infrastructure.

*Creation of a Sustainable Platform that Benefits CourseSource and QUBES Hub.* CourseSource, an open-access journal of peer-reviewed teaching resources for undergraduate biological sciences collaborated with QUBES to begin integration of the CourseSource journal within the QUBES hub platform.

*Math Modeling Writer’s Workshop.* The Mathematical Modeling Hub (MMHub) aims to facilitate integration of mathematical modeling into classroom teaching and collaborated with CourseSource to adapt their writing workshop model to support submission of OER content.

*SPLINE.* The STEM education Project Leaders Inclusivity Network (SPLINE) program was a faculty mentoring network (FMN) to support instructors, curricular developers, and other OER stakeholders with assimilating the Universal Design for Learning (UDL) framework, inclusivity teaching practices, and OER within their projects. SPLINE was facilitated by Dr. Jeremy Wojdak, Professor of Biology at Radford University and QUBES Professional Development Director. Meetings were led by six mentors with personal experience...
and professional expertise in or UDL, DEI, and OER. An evaluation report with findings from the SPLINE program is publicly available on QUBES Hub.

**S-JEDI Learning Community.** Participants from the SCORE Network participated in weekly readings, discussions, and reflections to increase awareness of issues in social justice, equity, diversity, and inclusion (S-JEDI) within teaching methods, research, programs, and organizations. The QUBES Community platform for SCORE was used as a forum for posting weekly assignments and allowed for continual communication across group members. The learning communities were facilitated by Dr. Pat Marsteller and Jasmine Roberts. An evaluation report with findings for the S-JEDI learning community is publicly available on QUBES Hub.

**Open Practices Learning Community (OPLC).** Dr. Karen Cangialosi facilitated a six-week learning community from April 07, 2021 through May 12, 2021. The OPLC explored different components of open-practices A total of 23 SCORE Network members participated in the learning community. An evaluation report with findings for the OPLC is publicly available on QUBES Hub.

**RIOS Institute.** The Hewlett-Foundation provided a second grant award to Bates College and members of the SCORE Network to establish the Institute for a Racially Just, Inclusive, and Open STEM Education.

**SGCI - RIOS/SCORE Focus Week.** RIOS collaborated with SGCI to offer a virtual two-week workshop, *Building Just and Sustainable OER*, for open education organizations and project leaders. The workshop was an adaptation of SGCI's sustainability focus week program aimed to center values of social justice, equity, and inclusion as teams engaged in exploring sustainability solutions for their projects.

**Calling Bull Study.** A study to understand students' perceptions towards OER, efficacy, and achievement and how these relationships held across different student characteristics. Study findings are available on QUBES Hub.
Additional activities of SCORE Network members include:

**STEM Inclusive Teaching Practices Webinar Series.** A webinar series entitled “Inclusive Teaching Practices in STEM Education” has been sponsored by SCORE-UBE, EDSIN, B(ui)LDS, BLUE, iDigBio, QUBES, and BioQUEST Curriculum Consortium. The webinar series was intended to initiate discussion on topics related to inclusive teaching practices and to build community among a diversity of STEM disciplines interested in catalyzing more inclusive learning environments for undergraduate students.

**QUBES Faculty Mentoring Networks.** Faculty Mentoring Networks (FMNs) are community-based professional development opportunities for faculty. The following FMNs were created after participation within the S-JEDI LC:

*Making Teaching Materials Anti-Racist.*  
A FMN aimed to 1) make educational materials for biology courses anti-racist, and 2) implementing new materials for your course.

*Science Spotlights & Data Nuggets.*  
A FMN aimed to 1) feature diverse scientists and their data, and 2) create new course materials which feature diverse scientists.

*Social Justice and Community Change.*  
A FMN with the goals to 1) develop course-based undergraduate research experiences (CUREs) that increase students’ understanding of Environmental Justice/Social Justice issues using data driven learning and authentic research experiences; 2) use case studies to introduce progressive CUREs for environmental science, biology and other STEM courses; and 3) examine how social and economic factors have created disparities in environmental condition of urban communities.
## Appendix B: Table of Score - QUBES Membership Across QUBES

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APPENDIX C: SCORE-UBE FINAL SURVEY FINDINGS

All SCORE Network members who attended the Summit as well as members who joined the network through the QUBES platform were administered a final follow-up survey to understand their experience with SCORE. A total of 19 out of 72 participants completed the final survey. The findings from their responses are provided.

16 out of 19 Respondents indicated the SCORE Network had influenced their work.

3 out of 19 Respondents indicated uncertainty at the time of the survey for the SCORE Network influencing their work.

Open-ended Feedback: YES, SCORE Network has influenced their work

- Definitely! I was not necessarily thinking of CourseSource as an OER prior to our involvement in the SCORE Network. It has also opened up so many possibilities for partnership and collaboration with others in the SCORE network.
- SCORE has particularly influenced the way we approach sustainability and DEI in our organization’s efforts. Some of our programming has been developed in direct collaboration with SCORE members, including a writers workshop that was partially funded by a mini-grant from the Hewlett Foundation.
- Connecting with new colleagues has been great. Allowed me to make many valuable connections
- CourseSource now collaborates with QUBES Hub. We got one NSF grant and it looks like we might get a second.
- Participation helped me develop ideas that I am not extending to FMNs for Social Justice and to my work with ASCN
- The SCORE Network has provided me the opportunity to join a new community with a shared interest in promoting educational access and equity. I regularly reference the resources (including discussions) I was introduced to at meetings such as S-JEDI last summer.
- Working with the network on intersections in STEM, OER, and DEI, including accessibility and UDL, across disciplines has strengthened our work.
- I am now more active in OER and vocal about it. I enjoyed meeting with the group and learning about different practices and resources.
- It was helped me consider more systemic ideas pertaining to educational materials
- The information, feedback, and support from SCORE has provided me with tools and resources to develop OERs of my own and be an advocate at my own institution.
- I felt being a part of the SCORE Network was transformative for my teaching.
- I have definitely formed new collaborations and learned more about OER.
- I have made amazing new collaborations that have lead to impactful work.
- Just knowing that other people are using open resources Empowers me to do more.
- It has connected me with expertise that I did not have access to before. :: It brought me back into touch with the OER Commons community and informed the development of QUBES.
Open-ended Feedback: Maybe/Not sure at this time for SCORE Network influenced their work

"I am just getting started with the OER and the SCORE network."

"I have attended a couple of the learning communities. That said, I’m not sure that I understand what SCORE is."

"I have not used it as much as had planned due to stresses teaching during COVID and providing PD to other educators but I plan to in the future."

Figure 11. Frequency of responses for indicating how the SCORE Network has benefited or supported members’ work. 100% of survey respondents indicated at least one benefit while the median number of benefits selected was 6.
Open-ended Feedback: Most useful aspect of SCORE Network:

"Getting to work and collaborate with QUBES! It is because of this network that we are now partners and will be moving the CS website to QUBES.

"Access to expertise from far afield - library, OER experts, etc. that I wouldn’t ordinarily interact with

"Getting to know what other groups are tackling similar problems and how bringing leaders together from each group can bring synergy to the collective tackling of important OER-related issues.

"The expertise within the community was very valuable.

"Discussions around resources, tools, and practices.

"The Open Pedagogy PMN was especially valuable to me.

"The open pedagogy learning community was amazing.

"Most of all, SCORE has served as a venue for conversations and idea/resource-sharing on issues related to sustainable OER and open pedagogy. I now feel like I have a deeper understanding of these issues as well as a team of collaborators to facilitate implementation of forward-thinking practices.

"Colleagues and learning

"Collaborating with STEM experts around OER practices and processes and how they might be effectively integrated into current workflows and how they might be improved to become more inclusive.

"The best aspect is the community of fellow faculty and their honest evaluation of various OER sites and sources.

"The introduction and admittance into a new community of folks with a shared interested in promoting educational access and equity. While I’m still learning a lot, I greatly appreciate the efforts of the leaders within the Network to provide many opportunities to meet and discuss important topics.

"The network and learning ideas from each other.

"Making valuable connections with colleagues to work on projects together :: Connecting to colleagues and working on projects together

"Collaboration

"The community from the meetings was fantastic.

"Meeting people outside of my field and learning about various topics outside of my discipline!
Figure 13. Types of collaborative opportunities SCORE participants indicated interest
APPENDIX D: SCORE-UBE PRODUCT CITATIONS

Journal articles, book chapters or other manuscripts


Presentations


SCORE/Hewlett Mini-Grant Celebration (Feb 02, 2021) – video

Partners@QUBES Leadership Summit (Dec 14, 2020)

Partners@QUBES Leadership Summit: Lightning Talks
- Molecular CaseNet - presented by Shuchismita Dutta
- HHMI BioInteractive and Data Explorer - presented by Kaitlin Bonner
- Dmitry Kondroshov (University of Chicago)
- Math Modeling Hub - presented by Jason Douma
- Math Modeling Hub - presented by Ben Galluzzo
- SENCER - presented by Eliza Reilly
- EREN-NEON - presented by Laurie Anderson
- ISKME - presented by Amee Godwin and Cynthia Jimes
- Genome Solver - presented by Anne Rosenwald

Partners@QUBES Leadership Summit: Posters


Naithani, K., Jones, M. A., & Grayson, K. (2020, December). NEON Data in the Classroom: Using the QUBES Platform and Faculty Mentoring Networks to Build, Adapt, and Publish Data-Driven Teaching Resources. *Poster presented at Partners@QUBES Leadership Summit*. doi:10.25334/W83X-S558


**STEM Inclusive Webinar Series.** (9 recorded videos)


Proposal submissions/Grants awarded

Grants Awarded

Hewlett Foundation Award to Bates College: Support Open Education Practices of SCORE and QUBES. (PIs:

Hewlett Foundation Award to Bates College: Launching The Institute for Racially Just, Inclusive, and Open STEM Education. (PIs:

Collaborative Pilot Projects through Hewlett-Foundation award to Bates College:

- Piloting an Evaluation Framework for Accessible STEM OER. (ISKME & SERC)
- SIMIODE to QUBES: Gaining Efficiency and Expanding Visibility (SIMIODE & QUBES Hub)
- Creation of a Sustainable Platform that Benefits CourseSource and QUBES Hub (CourseSource & QUBES Hub)
- Math Modeling Writer's Workshop (MMHub & CourseSource)

NSF IUSE Award #2044189: Building Adaptability for Teaching Online through Peer-Reviewed, Active-Learning Resources and Professional Development. (PI: Smith, M; Vinson, E.; Prescott, S., & Jenkins, K.)

NSF IUSE Award #2126110: Collaborative research: From Community to Practice: Evaluating How Open Educational Resources Facilitate Implementation of Vision and Change Principles Across Diverse Institutions. (PI: Smith, M.)

Proposals Submitted but not funded.

IUSE SPLINE. Submitted 2021. (PIs: Dewsbury, B., Donovan, S., Jenkins, K.)


Proposals in process/Under review

Collaborative Research: Racial Equity: Re-engineering the STEM OER landscape for racial justice. Submitted #Oct2021. (PIs: )
Educational aid/curricula

Scientists Spotlights & Data Nuggets.

Yang, S., Negrete, Jr., B. (2021). Data on Dead Zones and a Scientist Spotlight Featuring Benjamin Negrete, Jr. Scientists Spotlights and Data Nuggets, QUBES Educational Resources. doi:10.25334/7BCE-ED43


Social Justice and Community Change.


Media coverage
Newsletter: Score News Spring 2021
Newsletter: Score News January 2021
Newsletter: Score News November 2020
Newsletter: Score News October 2020
Newsletter: Score News September 2020
Blog: Welcoming CourseSource to the QUBES Platform!

Meetings/Workshops
- Open Practices Learning Community
- STEM Inclusive Webinar Series
- SPLINE
- S-JEDI Learning Community
- SGCI-RIOS/SCORE Focus Week
- MMHub Writers' Workshops Fall 2020.
- Calling Bull QUBES group
- CourseSource Faculty Mentoring Networks
- BIOME workshop/working group, July 2021/fall 2021
- QUBES FMN: Making Teaching Materials Anti-Racist
- QUBES FMN: Science Spotlight & Data Nuggets
- QUBES FMN: Social Justice & Community Change

Other products
- CourseSource on QUBES Hub:
- SIMIODE on QUBES Hub:
- Two courses built on open resources
- Changes to instructional assignments
- Online lab course materials
- Leading group at home institution for the upcoming AAC&U Institute on OER.
- Alternative assessments
APPENDIX D: ICON ATTRIBUTION

**BUSINESS**
Created by Gregor Cresnar from Noun Project

**EDUCATION RESEARCHERS**
Created by Chanut is Industries from Noun Project

**FOUNDATIONS**
Created by Nithinan Tatah from Noun Project

**FUNDING AGENCIES**
Created by Luis Prado from Noun Project

**HUBS**
Created by Adrien Coquet from Noun Project

**LIBRARIES**
Created by Creative Stall from Noun Project

**PROFESSIONAL SOCIETIES**
Created by Krish from Noun Project

**PUBLISHERS**
Created by Aneeque Ahmed from Noun Project