SUMMARY OF YEAR ONE EVALUATION FINDINGS

At the end of three years, the key VELI-STEM project outcomes will be that a cohort of librarians from 25 rural and small libraries will have:

1. Received advanced STEM training, mentoring, learning tools (such as picture books), hands-on learning methods and materials and other STEM resources;
2. Been trained to recognize opportunities to incorporate STEM learning experiences for children and families throughout their library practice, including story hours, after-school programming, collection development, displays, "Discovery Science Centers," newsletters and bibliographies;
3. Been given ample opportunity to access and contribute to an online STEM Clearinghouse of Resources developed throughout and after the project; and
4. Transferred their newly acquired STEM knowledge and skills to community childcare providers through outreach and training programs so that providers will, in turn, introduce STEM learning experiences to the young children in their care.

Already, tremendous progress has been made in achieving these project-end outcomes. Based on a careful analysis of the rich data and anecdotes generated through the evaluation of the VELI-STEM project in Year One, some particularly noteworthy areas of initial progress include:

❖ **Librarian recognition of STEM opportunities –** Librarians reported that they are now better able to recognize opportunities to incorporate ongoing STEM learning experiences for 3-7-year-old children and their families throughout their library services and in community-based practices, based on an average librarian self-rating of 4.7 on a scale of 1-5 (with 1 being not at all proficient in recognizing opportunities and 5 being fully proficient) after the April 2016 training and as manifested by their observed and reported proficiency in incorporating STEM content throughout library programming in Year One.

❖ **Librarian use of STEM resources –** Librarians have made good use of the STEM trainings and materials they received, incorporating STEM content in innovative and diverse ways throughout their programming and in their interactions with children, parents and child care providers, as evidenced by high participation levels in STEM programming (over 3,700 total attendance of children, family members, child care providers and others among all libraries combined) and high levels of participant engagement (see below).

❖ **High levels of child and family engagement in STEM learning –** According to family member feedback (and corroborated by on-site observations):
- 82% of 3-7-year-old children were reported as being "very" engaged in the STEM programs that the librarians provided, with 70% of the children reported as "very much" receiving a grounding in STEM knowledge and skills.
- 73% of family members were "very" engaged in the STEM programs their child(ren) attended, with 78% of family members indicating that the STEM program made them feel "very much" able to encourage the child(ren)'s interest in STEM.

❖ **Librarian innovation in delivering STEM programs –** Librarians utilized a nice diversity of settings in the provision of STEM programming, trainings and outreach, with the most

frequently cited settings including library-based settings (86%), school-based settings (9.5%), broader community-based settings (4.5%, such as a tractor pull at a community park), and other settings (e.g., take-home kits).

❖ **Librarian transfer of STEM knowledge and skills to others –** Despite facing several challenges with this component of the project during the initial year, the group of librarians as a whole seemed to achieve considerable success in transferring their acquired STEM knowledge and skills to child care providers, with 89% of child care provider survey respondents indicating that the STEM training provided by their local librarian "very much" helped them to develop a better understanding of what STEM means to children ages 3-7 years old.[21] In turn, 100% of those child care provider survey respondents introduced STEM learning experiences to the 3-7-year-old children in their care.

❖ **Shared development, utilization and population of the STEM Clearinghouse –** The online STEM Clearinghouse of Resources was developed and used effectively in Year One, with librarians contributing ideas and activities. Librarians were introduced to the STEM Clearinghouse and other STEM content on the Weebly site at their April 2016 training and have been encouraged to visit the site regularly to find STEM activities that they can use in their own libraries. Also, librarians have been asked to complete Program Templates on their STEM activities so that the information can be posted on the VELI-STEM website to make program ideas widely accessible to other librarians. In addition, librarian feedback gathered at the April 2016 training was compiled and posted on the VELI-STEM Weebly website as "Elements of a Good Program."

❖ **Librarian engagement of community STEM "resource people" –** While a number of librarians reported that they struggled during the project's inaugural year with engaging key community stakeholders, a notable amount of STEM outreach among a wide range of types of stakeholders was conducted collectively by the librarians, such as engaging library trustees, town officials, local businesses and other key change agents. Over 570 stakeholders were engaged among the 22 libraries that submitted data, with a range of 4 to 157 stakeholders and an average of 25 stakeholders per library.

Looking ahead, a number of course corrections will be instituted to improve the efficacy of trainings and materials, to foster a more user-friendly evaluation process and to make more strategic use of librarian supports and resources. Already, the 25 participating libraries have begun infusing STEM content throughout their library practices to provide their community's young children and families with opportunities to explore a wide range of STEM topics, practice inquiry, express their curiosity and experience the excitement of problem-solving and genuine discovery – in short, the VELI-STEM libraries are helping to create life-long learners, which will better position the State of Vermont to build the requisite intellectual capital to thrive in the 21st Century global economy.

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[21] As noted earlier in the report, only 18 child care providers completed a survey on the training they received and, among those respondents, only nine of the 25 libraries were represented.