



Students Promoting Research Awareness and Knowledge (SPARK)

Final Evaluation Report

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Executive Summary

This report presents the findings of the evaluation of the *Students Promoting Awareness of Research Knowledge* (SPARK) program implemented at the Natural Sciences and Engineering Research Council in 1999. Through this program, students are recruited, trained and paid to write stories based on NSERC-supported research at their institution. Over the last six years, the program has provided three-year funding to 28 institutions. An internal evaluation was mandated to assess program rationale, outcomes, and cost-effectiveness thus far.

Methodology

Eleven (11) evaluation questions were identified in the consultations that took place during the development of the evaluation framework. Multiple lines of evidence were used to collect data for each of the evaluation questions. The methods used in the study were:

Key Informant Interviews. Interviews with program mentors and NSERC staff were structured around a set of open-ended questions focusing on program implementation, administration, and outcomes.

File Review. An in-depth review of policy and program files was conducted to develop the program's history and to identify program outputs.

Student Survey. A short survey questionnaire was sent by electronic mail to former and current students of the SPARK program, in order to collect quantitative and qualitative data on their experiences with the program and future career plans.

Comments from University Administrators. Due to the challenges associated with reaching university administrators (typically Vice-Presidents Research), an electronic letter was sent to the individual identified in the SPARK application documentation as responsible for the program at each university (or his or her successor). The letter included questions on program success and relevance.

Findings

The evaluation findings are organized into four categories: Program rationale, success, design, and cost-effectiveness. A summary of the findings for each evaluation question is provided in this section.

Program Rationale

Is there still a need for student-generated stories on university-based research in the NSE? What other mechanisms are used by universities to develop research stories?

The SPARK program appears to support NSERC's mandate of research promotion and provides the universities with a mechanism through which communications products can be developed and disseminated to a broader audience. The program is also unique in its approach to training future science writers and attracting students to a career in science journalism. However, the issue of identifying the stories written as well as the lack of use of the stories by NSERC (see section 4.2.3 for details) may indicate that the program is much more useful for participating institutions than for NSERC.

Program Success

What kind of training is provided to SPARK student participants? What are the costs and benefits of participation for students? Does the SPARK experience influence the career path chosen by student participants?

The training process currently used by mentors is largely based on the tasks required to develop a good science story. Students "learn by doing" and mentors offer background information, guidance throughout the process, and constructive feedback on their drafts. This approach seems to be effective in providing students with the knowledge and skills required to write SPARK stories. Students appear to be satisfied with their training and appreciate the time spent by their mentors in helping them craft their stories; overall, the SPARK experience is usually positive and, in some cases, has led to other jobs or careers in science writing.

How do universities disseminate the SPARK stories? How are these stories received in the reader populations targeted by the universities?

The stories are disseminated through a variety of means. Universities use the stories extensively in internal communications products, such as newsletters, university newspapers, alumni magazines, and websites. They are also disseminated to a lesser extent through external means, such as local or national newspapers and radio programs. According to program mentors and university administrators, the stories generate considerable interest in the reader populations targeted by the universities, whether internal or external. The SPARK stories have contributed to raising awareness of the research work conducted on campus, both within the university and in the broader community.

What are the benefits of the program for universities? Other sponsors (faculties, companies, local media, etc.)? NSERC?

The SPARK program has several benefits for participating institutions, students, sponsors, and NSERC. For instance, the program allows universities to build internal and external awareness of the work done by faculty members, provides new employment opportunities to students and trains student writers for their future careers. In addition to these, the program benefits the profiled researchers directly by helping them disseminate their work to new audiences and by helping them establish new partnerships with other faculty members. The program also presents advantages to the external sponsors who contribute to SPARK. Some contributing organizations hire the student participants once they graduate as science writers. Finally, the availability of the SPARK stories to NSERC for further use is another important benefit of the program.

Program Design

How does the SPARK program fit within NSERC's mandate? Should the program continue to operate from the Communications Division?

The SPARK program promotes the work of NSERC-funded recipients and helps bring complex scientific issues to the forefront of public discussion and debate through the stories that are developed by student participants. Because of its focus on writing and promotion, the program should continue to operate from the Communications Division. Communications staff members responsible for the program have unique expertise in science writing and are important resources for the mentors managing the programs on behalf of their institutions.

How does the program's design contribute to its outcomes? What improvements, if any, could be made to the program?

A majority of mentors felt that the most important outcome of the SPARK program is student training. The mentors interviewed were particularly proud of their students' learning and progress, and in some cases, that their participation in SPARK helped them choose a new career and get hired as science writers. They attributed the program's one-on-one design to these outcomes. Other important outcomes attributed to the SPARK program include increasing the volume of stories published on institutional research, awareness building across campus, and showing the public how the institution uses its funding to improve the quality of life of Canadians through research and innovation.

Several suggestions were made by mentors to improve the SPARK program. The two most common suggestions were to expand the program to include the social sciences and humanities as well as health research, and to allow institutions to reapply to the program once their three-year funding ends.

Is the current funding model (i.e., one-time only, decreasing funds over three years) suitable to the participating institutions? If not, what model would work best for them?

Many program mentors felt that the current funding model constitutes a good starting point for their institution and that in most cases, universities should be able to shoulder the long-term financial responsibility for the SPARK program. However, in several cases, the decreasing NSERC funds limited the ability of the institution to maintain and expand the program. Several mentors indicated that the institution's interest faded once the NSERC grant ended and that the need for external sponsorship introduced an element of subjectivity in some of the stories being written by SPARK students.

Program Cost-Effectiveness

Who are the other SPARK program sponsors? What are the incentives for the sponsors to contribute? What do they contribute to the program?

Although the original University of Guelph model includes funding by external sponsors, most of the sponsors contributing to the SPARK program in other universities are internal. The university sponsors are predominantly located within offices of public affairs or university relations, offices of Vice-Presidents, Research, and faculties of science and engineering. Although universities are required to submit letters annually to confirm their commitment to the program and the amount of internal sponsorship to be contributed, this information isn't always clearly outlined in the files; reporting requirements for the program should therefore be modified to include clear instructions on sponsorship reporting.

What are the resources required to administer the SPARK program in participating institutions? What administrative resources are required from NSERC?

All of the SPARK mentors are full-time employees of their respective institutions and generally spend between one-half and one day per week on their SPARK duties. The actual time spent on the program usually depends on the number of students supervised and the time of year; some mentors hire and train only during the summer, and so the requirements on their time are higher during this period and lower during the school year. Mentors did not ask for specific administrative resources in the interviews. Some did, however, mention that longer-term funding by NSERC would allow them to hire additional students to expand their existing programs.

The NSERC Communications staff member who manages the SPARK program also generally spends, on average, between one-half and one day per week on her SPARK duties. The actual time spent on the program depends on the time of year; competitions, workshops, and progress and annual reports all generate a substantial increase in the amount of correspondence and the number of phone calls made and received (internally

and externally). Additional clerical help during peak workload times would allow her to spend more time advising mentors and strategizing to optimize – for both NSERC and the participating institutions – the use of the stories written by the SPARK students.

What are the incentives for individuals to take on the role of mentor? What kind of support do they require from NSERC?

Most former and current mentors were assigned responsibility for the SPARK program at their institution. Only a few mentors actually initiated the application or were involved in its development. Therefore, in most cases, the primary incentive for taking on program mentorship was that they were best placed to guide students through the writing process and to edit the stories once written. The opportunity to work with students is also a major incentive for most mentors, who felt that their previous experiences in working with students as well as their current responsibilities have prepared them adequately for this new role. The support provided by NSERC, such as the SPARK handbook and the workshops held at the University of Guelph were found to be helpful, especially to new mentors with limited knowledge of the program.

What best practices can be derived from past experiences?

The SPARK program mentors have found interesting ways to maximize the funding received from NSERC and from internal sponsors and to turn it into useful stories and publications. Some best practices include sharing the cost of each story with a publisher, sponsoring university-wide student science writing competitions, and providing an elective course credit for SPARK stories written under the guidance of the mentor.

Conclusion

The primary outcome of the SPARK program is student training in science writing. There is general agreement among participating institutions and at NSERC that this is a worthwhile goal that should continue to be supported. The researchers profiled by SPARK stories are generally pleased with the program, and have benefited from their participation. Mentors enjoy the opportunity to work with students in this capacity, and most would like to continue doing so given the appropriate resources. Although the SPARK program usually represents additional responsibilities for them, mentors have managed to make the time required to provide training and feedback to student writers, which shows their commitment to the program and its goals. At an institutional level, the program provides added value to university communications groups through the additional resources that it funds in the form of student writers.

The dissemination of stories, however, appears to be somewhat limited: universities use the stories for internal communications mechanisms, and very few stories are disseminated through public mechanisms. Given the quality of the stories written by

SPARK students, it would be of great benefit to participating institutions and to NSERC to see these stories distributed to broader audiences. The fact that this has not been done adequately in the past should be at the heart of any decisions made on the future of the program by NSERC. If the program continues, both the program and administrative resources allocated to SPARK should be reviewed and action should be taken to increase the time and funds available to mentors and to program administrators. In addition to this, further program marketing may be necessary to make non-participating institutions aware of the existence of SPARK and to garner support for the program within those universities. These actions will help ensure that the program delivers on its promise to promote the work of NSERC-funded researchers. Although the program currently offers great benefits to participating institutions and to students, NSERC should carefully consider whether the program truly offers value for money in terms of the use of the stories produced by the students.

Recommendations

If the program continues, some improvements could be made to capitalize on the strengths of the SPARK program and to provide some solutions to common problems encountered by many participating institutions. Key recommendations derived from the evaluation findings are summarized below:

- NSERC should ensure that the SPARK Web site is kept up to date and systematically review new stories to assess their potential for further use and dissemination as Web features, news releases or success stories.
- NSERC should provide mentors with information and training on external dissemination.
- Some thought should be given to changing the program timelines and extending funding beyond the first three years, even if the additional resources provided are small.
- NSERC should work towards raising the awareness of higher university officials about the program in order to increase or enhance their commitment to implementing it on a permanent basis.
- Further program marketing should be undertaken to encourage applications from institutions that have never participated in the program.
- The resources allocated to program administration at NSERC should be higher to allow communications staff to provide support to the mentors as needed; if no additional resources can be allocated to the program, alternative delivery mechanisms should be explored for the future.
- The mentors should be made aware of the existing support and resources provided by NSERC and its partners, such as the mentor LISTSERV.

- Reporting templates should be developed to increase the quality of the data received from mentors and to ensure uniformity and clarity in their reporting.

1.0 Introduction

This report presents the findings of the evaluation of the Students Promoting Awareness of Research Knowledge (SPARK) program implemented at the Natural Sciences and Engineering Research Council in 1999. Through this program, students are recruited, trained and paid to write stories based on the NSERC-supported research at their institution. Over the last six years, the program has provided three-year funding to 28 institutions. An internal evaluation was mandated to assess program rationale, outcomes, and cost-effectiveness thus far.

The report is divided into four main sections:

- a program profile;
- a description of the methods used in the evaluation study;
- a detailed presentation of the findings of the study; and,
- recommendations for the future.

2.0 Program Profile

This section provides an overview of the SPARK program, including its history, rationale, objectives, and procedures.

2.1 Program History

The SPARK program was initially implemented by the University of Guelph in 1989. It received the gold award for Best New Idea from the Canadian Council for the Advancement of Education in 1994. NSERC management learned of this success and approached the University of Guelph to express its interest in sponsoring a national SPARK program. A pilot study was undertaken in 1994 with Université Laval, the University of Saskatchewan, Memorial University of Newfoundland, McGill University, Lakehead University, and the University of Western Ontario. NSERC contributed \$7,000 to the pilot, taken from the Equipment Grants budget. Later documentation found in program files shows that this contribution was deemed insufficient to get the national program underway.

A new project plan was drafted in 1998 to restart the SPARK program. An informal review of the 1994 pilot was conducted in order to learn from previous efforts and to apply these lessons to the design of the new program. A second program pilot was undertaken in 1999 and included 10 universities. According to program files, this second pilot was expanded into the full-fledged program, to which 28 Canadian institutions have participated thus far.

An expansion of the program was considered at different times over the past six years; program correspondence shows that SSHRC and CIHR both showed interest in the SPARK program in 2001, and that SSHRC provided an additional \$1,000 to universities funded by the program that year to generate stories based on the work of researchers in the social sciences and humanities. This, however, was not repeated in subsequent years. CIHR decided not to pursue the SPARK program, and therefore no further attempts were made to expand the program beyond the natural sciences and engineering disciplines. Other government organizations, such as Health Canada and Indian and Northern Affairs Canada also expressed interest in implementing similar programs in their own departments in 2003, but no further information could be found on these programs or on whether they were even implemented in these departments. In 2004, one of the Networks of Centres of Excellence (NCE) funded by all three granting councils submitted a proposal to NSERC to expand the objectives of the SPARK program; under this proposal, SPARK would be used to communicate research results from the network, and a tripartite arrangement (NSERC, NCE Secretariat, and University of Guelph) would be set up to coordinate, promote and mentor other SPARK programs at existing SPARK-funded universities or to help initiate SPARK programs where they do not exist.

At the time, NSERC chose to wait until the evaluation of the program was completed and until discussions could be held between NSERC and the NCE secretariat.

Other similar programs were also identified in the program files: CIHR funds Science Writer Scholarships and the American Physical Society sponsors a Mass Media Fellowship Program. Neither program has been evaluated in the past. American universities, such as Kansas State University and the University of Arizona, have expressed interest in starting their own SPARK programs and have recently visited the University of Guelph to learn about program management and administration from an institutional point of view.

2.2 Program Rationale and Objectives

The SPARK program was created to enhance the communication of research activities and results both to a university-based audience and to a broader public. The main objective of the SPARK program is to recruit, train and pay students to write stories based on NSERC-supported research at their institution. By sharpening their communication and writing skills and learning about research, it is anticipated that students will acquire marketable skills that will help them in their future careers.

2.3 Program Procedures

Application for Funding

NSERC SPARK competitions are held in April. NSERC's Director of Communications sends a letter in February to university vice-presidents, research (with a c.c. to the Directors of Communications) at those institutions eligible for NSERC SPARK funding, inviting them to apply for a SPARK grant. The resulting applications are reviewed in April and up to four institutions are selected to participate. The criteria used by the review committee are as follows:

- evidence of institutional commitment;
- evidence the mentor has experience writing, mentoring students, and disseminating research information outside the university/research community;
- evidence of a plan for obtaining funds from other sources, internal and/or external; and,
- evidence of a plan for publishing SPARK stories, internally and externally.

Successful applicants receive a grant of \$4,000 the first year, and are eligible for grants of \$2,000 the second year and \$1,000 the third year if they continue to meet the program's requirements. Once the program is up and running and a number of stories have been published, participants are expected to actively recruit sponsors to contribute financially so that the program can become self-sustaining by the end of the third year. To receive

the second and third NSERC instalments, participating institutions must provide evidence they have received sponsorship funding for those years of \$2,000 and \$3,000 respectively.

Program Administration

The SPARK program at each institution is managed by an in-house communications specialist who acts as a mentor to the student participants. Depending on the institution, this individual is normally part of the Office of Research Services, Communications or Public Relations. The mentors assign articles and provide students with practical training in interviewing, writing and editing skills as well as media communications and publishing. Students work on a part-time basis and receive payment for their work; typically, they work approximately ten hours per week and are paid \$8-\$10 per hour.

Recipients of SPARK grants must submit two Progress Reports (due September 1 and December 1) and an Annual Report (due March 31). The progress reports include copies of all articles on NSERC-related research produced by SPARK writers as well as details on where they were published and the name of the SPARK student writer. The annual report must contain a list of articles produced during the year, indicating where the articles were published and the name of the student writer. In addition to this, the annual report must include: a letter from one or more sponsors indicating a willingness to provide funds for the coming year, a statement from the mentor indicating that he or she agrees to continue in this role the following year, and a statement from the university administration indicating continued support for the program and the mentor.

3.0 Study Methodology

3.1 Evaluation Questions

Eleven (11) evaluation questions were identified in the consultations that took place during the development of the evaluation framework. The evaluation framework contains a logic model for the program as well as in-depth performance measurement and evaluation strategies. This document is available from the Policy and International Relations Division or from the Communications Division.

3.2 Evaluation Methods

Multiple lines of evidence were used to collect data for each of the evaluation questions. The methods used in the study were:

Key Informant Interviews. Interviews with two sets of stakeholders were structured around a set of open-ended questions used to guide the interview and to provide consistency in the information collected. Interview protocols were based on a number of questions/issues developed from the evaluation questions. The interviews included:

Semi-structured interviews with mentors: Former and current mentors were asked specific questions on their experience with the program, student recruitment and training, and on the resources required to manage the program at their institution. All former and current mentors were contacted; details on responses obtained are included in Table 1 below. The instrument used in the mentor interviews is included in **Appendix A** of this report. The mentor interviews also included a slightly modified interview with the program's founder. Additional questions asked during this interview focused on the history of the program and other operational issues.

Table 1: Interview Respondents

Respondent Category	Number
Total Number of Mentors	27
Attrition (moved, retired, etc.)	6
No response to multiple requests	6
Completed interviews	15

Semi-structured interviews with NSERC staff: Individuals involved with program design and administration were interviewed on issues related to program delivery and management. Two individuals from the Communications Division were interviewed. The interview protocol used with NSERC staff is also included in **Appendix A** of this report.

File Review. An in-depth review of policy and program files was conducted to develop the program's history and to identify program outputs and outcomes. Twenty-seven program files were reviewed in total, with particular attention given to the progress and final reports submitted by mentors periodically.

The file review exercise revealed that although the progress and annual reports submitted by mentors are critical in collecting quality performance data on the program and allow for better monitoring of the individual grants, these varied greatly in quality. Some reports were found to be thorough and presented the required information in a clear and organized manner, whereas others lacked important details or were simply missing from the file altogether. Therefore, although the findings of the file review provide a general sense of some of the performance measures associated with the SPARK program, the inconsistencies found in the reports provided by the universities lend little confidence in the quantitative data collected in these reports. The files cannot be used as a complete record of SPARK activities and the data collected should be interpreted as estimates rather than absolute numbers. The data collection instrument used to review the program files is included in **Appendix B** of this report.

Student Survey. A short survey was sent by electronic mail to former and current students of the SPARK program, in order to collect quantitative and qualitative data on their experiences with the program and future career plans. Contact information for the students was obtained through the mentors and from the program files. Nineteen (19) students were contacted in total; five (5) e-mails bounced back unread, and eleven (11) completed surveys were returned. Three (3) recipients did not reply to two different requests for assistance. Because of the small number of respondents, the survey results were analyzed qualitatively. The survey instrument is included in **Appendix C** of this report.

Comments from University Administrators. Due to the challenges associated with reaching university administrators (typically Vice-Presidents, Research), an electronic letter was sent to the individual identified in the SPARK application documentation as responsible for the program at each university (or his or her successor). Although few responses were received (8 of 27 e-mails sent) a content analysis was conducted on the information received and was found to be useful given the context of the evaluation. A copy of the letter sent to university administrators is included in **Appendix D** of this report.

4.0 Findings

The findings for each of the four evaluation issues are detailed in this section.

4.1 Program Rationale

One evaluation question focused on the program's rationale and the perceived needs that prompted its development. The lines of evidence used to answer these questions include interview data from mentors and NSERC staff, and e-mail statements from university administrators.

4.1.1 *Is there still a need for student-generated stories on university-based research in the NSE? What other mechanisms are used by universities to develop research stories?*

The production of stories on university-based research in the NSE is perceived by both NSERC staff and university mentors as a continuing, worthwhile goal that justifies the need for the SPARK program. This goal is well supported by the *Natural Sciences and Engineering Research Council Act*, which states that "The functions of the Council are to *promote* and assist research in the natural sciences and engineering" (italics added for emphasis)¹. NSERC's mandate to assist Canadian researchers and to promote discovery and innovation therefore clearly supports such an initiative, and the stories themselves are perceived as important and useful by the participating institutions.

Universities typically use a number of communications mechanisms to promote the research of their faculty members. For instance, many institutions develop news releases and internal communications products such as their Web site, university newspaper, and electronic newsletters. The SPARK program feeds into these communications mechanisms by providing content and ideas that can be used directly or developed further if needed.

In many cases, mentors stated that without the student-generated stories, their institutions would not be publishing stories on the work of individual researchers, focusing instead on larger research initiatives garnering more public attention. For the universities, the SPARK program therefore meets a specific need not otherwise met through other communications mechanisms. In addition to this, some mentors mentioned that the SPARK process allows their researchers to learn to respond to media questions in a safe, positive environment. Researchers are typically provided with a draft of the story and asked to make clarifications and revisions to the draft before it is finalized. This process allows them to see how their work is perceived and their

¹ Office Codification, Chapter N-21, Section 4 (1) (a).

comments are interpreted by non-experts before the story goes to press and generally results in a high level of satisfaction for both researchers and writers.

The need for trained science writers was also identified by NSERC as a continuing need supported by the SPARK program. Of those program files reporting the number of students hired as SPARK writers, the average number was 3.56 students per university, with a range of 1 to 22 students. Most students participate in the program between one and three semesters. Unfortunately, the average number of stories written per student could not be calculated due to the reporting format used by most institutions. Some stories were published in several media and an accurate assessment of the total number of stories written was not available in the files. The recommendations section of this report outlines some steps that should be taken in order to ensure more consistent monitoring of key performance indicators.

In summary, the SPARK program appears to support NSERC's mandate of research promotion and provides the universities with a mechanism through which communications products can be developed and disseminated to a broader audience. The program is also unique in its approach to training future science writers and attracting students to a career in science journalism. However, the issue of identifying the stories written as well as the lack of use of the stories by NSERC (see section 4.2.3 for details) may indicate that the program is much more useful for participating institutions than for NSERC.

4.2 Program Success

Three evaluation questions pertain to the outcomes of the SPARK program and its success. The questions below were answered primarily using interview data with mentors and NSERC personnel, as well as the student survey, e-mail statements from university administrators and the review of program files.

4.2.1. What kind of training is provided to SPARK student participants? What are the costs and benefits of participation for students? Does the SPARK experience influence the career path chosen by student participants?

Several processes are used by mentors in the recruiting and training of student writers. Several mentors stated that they hired students with journalism backgrounds or other writing skills in the hope that student training would focus mainly on teaching them about science writing and working with researchers. For the most part, SPARK participants "learn by doing": the mentor discusses the goals of the program and what research writing involves, provides resources on writing science-based stories, provides training on interviewing skills, helps the student contact researchers and facilitates a first meeting, then lets the student develop his or her story. Mentors then meet with student writers to review their text and provide additional training on writing skills

based on the student's specific needs. Some mentors also provide examples of stories written by other students, or ask the student writers to research publications that would be suitable targets for their stories and analyze the stories already published in these media. Others also discuss the academic culture with the student writers, who may be unfamiliar with the university's processes for gaining access to and working with researchers.

Overall, students are very satisfied with this type of one-on-one training. Most survey respondents felt that their mentor taught them what they needed to know to do their job well; they also appreciated receiving reading material on journalistic or science writing but expressed some dissatisfaction with formal presentations or seminars offered by the university on this topic. The program has some clear benefits for student participants in terms of improving their writing skills, raising their awareness of the importance of university research to society, and facilitating their entry into a new career in science writing. In fact, most students surveyed stated that they are considering or have taken a job in science writing as a result of their participation in the SPARK program, and a number of survey respondents said that they would like to pursue science writing as a career.

The training process currently used by mentors therefore seems to be effective in providing students with the knowledge and skills required to write SPARK stories. Students appear to be satisfied with their training and appreciate the time spent by their mentors in helping them craft their stories; overall, the SPARK experience is usually positive and, in some cases, has led to other jobs or careers in science writing.

4.2.2. How do universities disseminate the SPARK stories? How are these stories received in the reader populations targeted by the universities?

Most SPARK stories are published in internal communications products, such as university newspapers, Web sites, newsletters, research publications, and alumni magazines. External publications include the NSERC SPARK Web site, local or community newspapers, and press releases. The stories are sometimes used to attract the attention of other media, such as national newspapers, radio, television, and science magazines. A few universities have found creative ways to disseminate their SPARK stories, such as publishing them in a magazine distributed to high school guidance counsellors and prospective students, or including them in the university's annual report. Some universities also send their SPARK stories to provincial research associations for inclusion in their success stories publications. One university has been particularly strategic in placing its stories: before a story is even written, the editor of a science magazine or journal is contacted and asked if he or she is interested in the story. If there is interest, the publication is asked to split the cost of the student writer's salary with the university for that story. This ensures that the story will be published in the

magazine or journal, and provides the university with the external funding that it needs in order to run the SPARK program.

Overall, the stories generate considerable interest in the reader populations targeted by the universities, whether internal or external. The SPARK stories have contributed to raising awareness of the research work conducted on campus, both within the university and in the broader community. For instance, mentors have reported that faculty members enjoy reading about the work of their colleagues, and that the stories have given them the opportunity to build bridges across laboratories or faculties.

4.2.3. *What are the benefits of the program for universities? Other sponsors (faculties, companies, local media, etc.)? NSERC?*

According to mentors and university administrators, the SPARK program offers unique benefits to participating institutions. For instance, the program allows universities to build internal and external awareness of the work done by faculty members, provides new employment opportunities to students and helps student writers develop their careers. In addition to these, the program benefits the profiled researchers directly by helping them disseminate their work to new audiences and by helping them establish new partnerships with other faculty members. In fact, several mentors have reported that researchers now approach them with requests to be profiled in a SPARK story, given the positive outcomes of the program for fellow faculty members.

The SPARK program requires that all student-generated stories be forwarded to NSERC along with the appropriate release forms once they are ready for publication or have been published. A clear benefit of the program for NSERC, therefore, is obtaining complete stories that can be used to identify content for promotional material, or that can be published in their entirety on the NSERC Web site as a vehicle for promoting the work of NSERC-funded researchers. To date, NSERC has not used the stories to their full potential; some universities have not been consistent in sending their stories to NSERC, and the SPARK section of the NSERC Web site is not updated on a regular basis. This raises a key issue in terms of the value of the program for NSERC: although the aims and objectives of the program fit within NSERC's mandate as demonstrated in section 4.1.1, the lack of use of the stories may indicate that NSERC does not benefit directly from the SPARK program. In this sense, it may be appropriate to revisit the value for money of the SPARK program for NSERC and determine whether it assists it in promoting research in the natural sciences and engineering.

Finally, the program also has benefits for the external sponsors who contribute to SPARK. Some contributing organizations such as trade publications hire the student writers once they graduate. Mentors have been told that the SPARK students are well-trained for these types of jobs and require little additional training or supervision once they are hired. Therefore, by contributing to the SPARK program, these sponsors ensure

that their future employees are properly trained and have work experience that is directly applicable to their new careers.

4.3 Program Design

Many of the evaluation questions focused on the design and delivery of the SPARK program. After several years, it was felt that the program's operational requirements and funding model should be reviewed. The findings for this section were mainly obtained through interviews with mentors and NSERC personnel.

4.3.1. How does the SPARK program fit within NSERC's mandate? Should the program continue to operate from the Communications Division?

As described in section 4.1.1, the SPARK program promotes the work of NSERC-funded recipients and helps bring complex scientific issues to the forefront of public discussion and debate through the stories that are developed by student participants. Because of its focus on writing and promotion, the program should continue to operate from the Communications Division. Communications staff members responsible for the program have unique expertise in science writing and are important resources for the mentors managing the program on behalf of their institution. Having said this, however, a continued lack of resources to administer the program has resulted in less time spent interacting with mentors, motivating them to hire and train students, and getting them to report on program outcomes on a regular basis. The program would benefit from increased resources; ideally, one-half to one full day a week should be spent on program administration, with more time spent during the competition period or when mentor workshops are planned.

If the required administrative resources cannot be found to manage the program, a new delivery model may have to be considered by NSERC management, such as the addition of clerical support or a change to an open competition model like that of the Collaborative Research and Development (CRD) grants program. In this model, applications are received and reviewed on an ongoing-basis, with no specific application deadline. This may ease the burden placed on the program administrator by spreading out the time required for the competition over the course of twelve months. Finally, another model that could be considered is the use of the NSERC Regional Offices in the competition process and daily program administration, leaving communications-related tasks to the Communications Division. The Regional Offices could be responsible for organizing local workshops with former and current mentors on a more frequent basis than the national workshop.

4.3.2. *How does the program's design contribute to its outcomes? What improvements, if any, could be made to the program?*

A majority of interview respondents stated that the most important outcome of the SPARK program is student training. The mentors interviewed were particularly proud of their students' learning and progress, and in some cases, that the students' participation in SPARK helped them choose a new career and get hired as science writers. All felt that this would not have occurred in the absence of the program. Other important outcomes attributed to the SPARK program include increasing the volume of stories published on institutional research, awareness building across campus, and showing the public how the institution uses its funding to improve the quality of life of Canadians through research and innovation.

Key program outcomes for students include learning about communicating with the media and writing about science, getting to know researchers at their institution, and job or career linkages. The students attribute all of these outcomes to their participation in the program.

Several suggestions were made by mentors to improve the SPARK program. The two most common suggestions were to expand the program to include the social sciences and humanities as well as health research, and to allow institutions to reapply to the program once their three-year funding ends. Many institutions reported that institutional sponsors already fund stories on disciplines other than the natural sciences and engineering, and that a tri-council initiative would help them increase the volume of stories in all three areas and result in positive outcomes for their organization as a whole. Several mentors also discussed difficulties in maintaining the program once the NSERC funding ended, and expressed a desire for the opportunity to apply for renewed funding. Although the original program design requires the SPARK program to become self-sustaining after three years, this may not be possible for some institutions.

Other suggestions included providing additional funds to universities to allow them to hire staff to properly train and mentor students and to continue to organize mentor workshops once a year. It was also suggested that the workshops be moved to a more accessible location than the University of Guelph, such as Ottawa or Toronto. Operational recommendations made by mentors based on their own experience included ensuring that space is available for students at the university and to make the student hiring process as formal as possible to ensure that the students hired are suitable for the job. Finally, a few mentors felt that it would be important to raise the awareness of higher officials within the university community about the program in order to increase or enhance their commitment to implementing it on a permanent basis. This suggestion is further supported by the low response rate obtained from the e-mail sent to university administrators at participating institutions.

Some students suggested that their experience could have been more positive if their mentors had more time to support them, and if they had the opportunity to meet other SPARK students, either in person or through an electronic forum. Others also stated that they were unaware that the SPARK program was a national initiative until a few months after being hired and a few had some negative experiences with researchers who were unfamiliar with the program and not receptive to the idea of being interviewed by a student. Finally, one student suggested that the SPARK program should be linked to the Canadian Science Writers' Association as a means to obtain more exposure for the stories and to improve student training.

4.3.3. *Is the current funding model (i.e., one-time only, decreasing funds over three years) suitable to the participating institutions? If not, what model would work best for them?*

Many program mentors felt that the current funding model constitutes a good starting point for their institution and that in most cases, universities should be able to shoulder the long-term financial responsibility for the SPARK program. However, in several cases, the decreasing NSERC funds limited the ability of the institution to expand or continue the program. In addition to this, some mentors stated that once the NSERC grant period ended, the student writers in their institutions were used for work other than writing stories, and left the program because they felt their skills were not used to their full potential. Several mentors indicated that the institution's interest faded once the NSERC grant ended. Once again, this speaks to the issue of usefulness of the program for both NSERC and the universities. Mentors also stated that the need for external sponsorship introduced an element of subjectivity in some of the stories being written by SPARK students. Some mentors suggested that the program funding should be renewable based on performance even if the actual amount of funding provided by NSERC after the initial three years is relatively small.

4.4 Program Cost-Effectiveness

In order to be successful, the SPARK program must also demonstrate that it is cost-effective. The four evaluation questions pertaining to cost-effectiveness were answered using interview data from mentors and NSERC personnel, the student survey results, e-mail statements from university administrators, and a review of program files.

4.4.1. *Who are the other SPARK program sponsors? What are the incentives for the sponsors to contribute? What do they contribute to the program?*

Although the original University of Guelph model includes funding by external sponsors, most of the sponsors contributing to the SPARK program in other universities are internal. The university sponsors are predominantly located within offices of public affairs or university relations, offices of Vice-Presidents, Research, and faculties of

science and engineering. This speaks to the commitment of the universities to the program and the value that they see in it. Most universities depend on this internal funding to keep the program afloat, because in most cases, mentors have stated that seeking out external funders would be too difficult to do, given the broad range of topics covered by their researchers and also because of the lack of proximity to industry, especially in smaller communities. Other mentors felt that the use of external funds would place them under the influence of the sponsor, and that the stories would not necessarily be as objective as they are now. One mentor was forbidden from asking for external sponsorship by the university's alumni affairs office because it was deemed a fundraising activity which would cut out potential sources of funding to the university.

Information on the specific amounts contributed by the sponsors, whether internal or external, is difficult to trace in the program files. Data provided by mentors is inconsistent from one university to the next, even though the release of the next installment of the SPARK grant depends on whether or not the university has been able to secure sponsor contributions. In some cases, letters of support are sent by sponsors, with no concrete amount disclosed for their contribution.

In summary, most SPARK programs are sponsored internally by their own institutions, rather than by external contributors. The universities continue to fund the SPARK program because of its perceived benefits to the institution, its researchers, and its students. No clear data are currently available on the specific amounts contributed by the internal sponsors; reporting requirements for the program should be modified to include clear instructions on sponsorship reporting.

4.4.2. What are the resources required to administer the SPARK program in participating institutions? What administrative resources are required from NSERC?

All of the SPARK mentors are full-time employees of their respective institutions and generally spend between one-half and one day per week on their SPARK duties. The actual time spent on the program usually depends on the number of students supervised and the time of year; some mentors hire and train only during the summer, and so the requirements on their time is higher during this period and lower during the school year.

Mentors did not ask for specific administrative resources in the interviews. Some did, however, mention that longer-term funding by NSERC would allow them to expand their SPARK programs and hire additional students to strengthen their existing programs. Given that the program budget for SPARK grants has been between \$12,000 and \$28,000 annually (depending on the competition moratorium and cancellation of previously-held grants), a limited number of additional dollars may in fact provide considerable assistance to those institutions in need of administrative support.

4.4.3. *What are the incentives for individuals to take on the role of mentor? What kind of support do they require from NSERC?*

Most former and current mentors were assigned responsibility for the SPARK program at their institution. Only a few mentors actually initiated the application or were involved in its development. Therefore, in most cases, the primary incentive for taking on program mentorship was that they were best-placed to guide students through the writing process and to edit the stories once written. The opportunity to work with students is also a major incentive for most mentors: some interview respondents stated that they had experience in teaching and were interested in working with students again in this capacity; others said that the program offered a good training opportunity for students and wanted to contribute to the future of science writing. Operational requirements also motivated mentors to participate in the program: some mentors stated that the program provided their unit with additional writing resources in the form of students and that in this sense, the program offered administrative incentives. Finally, others felt that their participation as mentors would contribute to the visibility of their institution in the broader community and that this was a worthwhile reason to take on this role.

Most mentors felt that their previous experience in working with students and their current position have prepared them adequately for their new role as mentors. The support provided by NSERC, such as the SPARK handbook and the workshops held at the University of Guelph were found to be helpful, especially to new mentors with limited knowledge of the program. Suggestions for additional training and support identified by mentors include more specific training on mentoring, teaching material such as books on grammar and style, training on where to market SPARK stories, and providing student participants with examples of other SPARK stories written elsewhere. Other mentors also suggested that NSERC should provide university administrators such as Vice-Presidents, Research with more information about the SPARK program, in order to build awareness and increase the program's visibility at higher levels of the participating institutions.

4.4.4. *What best practices can be derived from past experiences?*

The SPARK program mentors have found interesting ways to maximize the funding received from NSERC and from internal sponsors and to turn it into useful stories and publications. For example, Université Laval partnered with science journals and magazines to share the student writers' salaries; this has resulted in cost-savings for the institution and in the dissemination of the SPARK stories to a broad audience. Ryerson University also demonstrated innovative thinking by using some of their internal sponsor contributions to fund a graduate student writing competition, in which students wrote about their own research accomplishments in science and engineering. Winning articles were used in various Ryerson print and electronic communications materials.

The University of Guelph has also found a way to connect SPARK and academia: one of the faculties (the veterinary college) gives credit as an elective for SPARK stories written under the guidance of the SPARK mentor. The students who obtain a course credit in this way are not paid by the SPARK program, yet they produce high-quality stories and obtain the same kind of training as paid participants.

At a more administrative level, some of the institutions produced excellent progress and final reports. For example, the reports produced by Brock University early in the granting period and by Saint Mary's University could be used to develop templates to be used by all SPARK grantees. In addition to this, some of the university SPARK Web sites were extremely well done. In particular, the McGill University SPARK Web site is interesting and well designed.

Several noteworthy initiatives have also been undertaken to support mentors in their roles. The workshops offered to new and returning mentors has been an important source of support to mentors, allowing them to share best practices and lessons learned amongst one another. A LISTSERV has also been developed for former and current mentors to allow this type of sharing online, but it has been underutilized.

5.0 Conclusion

The primary outcome of the SPARK program is student training in science writing. There is general agreement among participating institutions and at NSERC that this is a worthwhile goal that should continue to be supported. The researchers profiled by SPARK stories are generally pleased with the program, and have benefited from their participation. Mentors enjoy the opportunity to work with students in this capacity, and most would like to continue doing so given the appropriate resources. Although the SPARK program usually represents additional responsibilities for them, mentors have managed to make the time required to provide training and feedback to student writers, which shows their commitment to the program and its goals. At an institutional level, the program provides value-added to university communications groups through the additional human resources that it supports in the form of student writers.

The dissemination of stories, however, appears to be somewhat limited: universities use the stories for internal communications mechanisms, and very few stories are disseminated to the public. Given the quality of the stories written by SPARK students, it would be of great benefit to participating institutions and to NSERC to see these stories distributed to broader audiences. This would raise the profile of NSERC-funded researchers, their universities, and NSERC itself. The fact that this has not been done adequately in the past should be at the heart of any decisions made on the future of the program by NSERC. If the program continues, both the program and administrative resources allocated to SPARK should be reviewed and action should be taken to increase the time and funds available to mentors and to program administrators. In addition to this, further program marketing may be necessary to make non-participating institutions aware of the existence of SPARK and to garner support for the program within those universities. These actions will help ensure that the program delivers on its promise to promote the work of NSERC-funded researchers. Although the program currently offers great benefits to participating institutions and to students, NSERC should carefully consider whether the program truly offers value for money in terms of the use of the stories produced by the students.

More specific recommendations are offered in the next section to capitalize on the program's strengths and to provide some solutions to common problems encountered by many participating institutions.

6.0 Recommendations

The recommendations below are provided as potential improvements to the program but are not prescriptive in any way.

Use of Stories

Student-generated SPARK stories are mainly used in university communications, such as newsletters and Web sites. In order to broaden the reach of the program and to meet its ultimate objective of raising public awareness of Canadian research and innovation in the natural sciences and engineering, the stories must be disseminated externally as well as internally. NSERC must demonstrate leadership in this area by ensuring that the SPARK Web site is kept up to date, and by systematically reviewing new stories and assessing their potential for further use as Web features, news releases or success stories.

It is therefore recommended that the use of the SPARK stories be increased through an external distribution of the stories both by the participating institutions and by NSERC itself. NSERC staff may need to support mentors in these activities by providing them with information and training on external dissemination and by linking the institutions with relevant contacts in scientific or other publications.

Program Resources

A significant problem encountered in a majority of participating institutions is the maintenance and expansion of the program once the three-year NSERC funding period ends. The contributions of external sponsors such as those highlighted in the University of Guelph model are difficult to secure by most institutions and should not be a central component of the national SPARK model. Instead, some thought should be given to a longer-term model that includes continued NSERC funding. For instance, the current three-year model could be extended to five years, with an additional \$1,000 provided to institutions in the 4th and 5th years of the program based on their performance in the first three years. Along with contributions from internal sponsors, the additional funds would help mentors further reinforce the program's position within the university and build on the implementation phase which often lasts two or three years.

A review of program resources should also be considered within the context of program coverage. Out of 70 eligible institutions, only 28 have participated in the SPARK program so far. Some non-participating institutions have applied for program funding but did not receive it due to a lack of proper mentorship or institutional support. Many others, however, have never applied to the program. Although their specific reasons for not applying are not currently known, it is conceivable that a lack of awareness of the program may be responsible and can easily be remedied. It is therefore recommended that additional program resources be allocated to the SPARK program in an effort to

increase the number of participating institutions. Along the same lines, it is also recommended that NSERC work towards raising the awareness of higher officials within the university community about the program in order to increase or enhance their commitment to implementing it on a permanent basis with university resources.

Other Disciplines

Many universities use the contributions from internal sponsors to develop profiles of researchers not working in the natural sciences or engineering disciplines and not receiving NSERC funding. NSERC recognizes the institutional need for stories spanning all research disciplines and has no objection to this practice, as long as NSERC funds are spent profiling NSERC-funded researchers only. The stories written about NSERC researchers should also clearly identify the NSERC SPARK program, as is indicated in the program documentation.

At this point, it is not recommended that the SPARK program be expanded into a formal tri-council initiative, due to the fact that both SSHRC and CIHR demonstrated little interest in this possibility in 2003 and because the institutions have found ways to make the program work for all three research fields without governmental intervention. In addition to this, the administrative resources required to manage the program are already insufficient and a tri-council initiative would only increase the time and budget required to administer the program adequately.

Program Administration

Although the administrative burden of the program on NSERC staff is relatively modest, more effective program management would likely result from an increase in administrative resources. Additional resources would allow the officer responsible for the SPARK program to communicate with mentors more frequently and would result in more timely and accurate reporting as well as an increased submission rate of SPARK stories.

If no additional resources can be found to alleviate the workload associated with program administration, other steps could be taken to manage the program in a more cost-effective manner. For instance, the introduction of an open competition process would result in fewer intensive work periods for the program officer. Alternately, devolving some administrative responsibilities to NSERC Regional Offices would allow the communications officer to help mentors with issues related to science writing or research promotion while leaving some program responsibilities to other staff members. For example, the regional offices could provide assistance in organizing local workshops for mentors and for screening applications before they are submitted for review.

It is also recommended that existing tools and resources such as the SPARK LISTSERV be formally presented to mentors and that they be strongly encouraged by NSERC to use them. The LISTSERV could be used as a primary communications mechanism between NSERC and the mentors on administrative matters, or between mentors who could use it to share information about lessons learned along the way.

Finally, the development of reporting templates to be completed by mentors is strongly recommended to improve program administration and performance measurement. Currently, program reporting requirements are provided in a general manner, leaving the choice of presentation format to the mentors. As noted elsewhere in this report, this has resulted in little useable program data and incomplete progress reports. A standardized annual progress report would help clarify NSERC's expectations and ensure high-quality data used for both program-level decision making and grant administration. Such a report template would replace the current progress and annual reports and could be designed to collect both quantitative output data and to capture more qualitative descriptions of individual SPARK programs.

Appendix A

Interview Protocols

SPARK Program Evaluation

Interview Protocol: Mentors

Thank you very much for agreeing to participate in this interview. We are interested in gathering information about various aspects of the SPARK program in order to systematically evaluate its impacts. This interview is part of the multiple lines of evidence that we will use to evaluate the program. The information that we receive from you will be treated as confidential and your comments will not be linked to your name in the evaluation report. If at any time you are not comfortable with answering one of our questions, just let us know and we will move on.

The interview should take about 30 minutes.

First, I'd like to ask you about how your role as a mentor and the resources required to manage the program at your institution.

1. How did you become a SPARK mentor? Was this role assigned to you, or did you initiate the application of your institution to NSERC for SPARK funding?
2. What incentives are there for you to act as SPARK mentor?
3. What kind of support do you require from NSERC in order to fulfill your role of mentor? Are you currently getting this support?
4. Are you a full-time employee of the university? What proportion of your time is spent on the SPARK program (i.e., on training, managing, liaising, reporting)?
5. Do you receive funding from your institution to manage the SPARK program, or does the program depend entirely upon NSERC and sponsor funding?
6. Is the current funding model (i.e., one-time only, decreasing funds over three years) suitable to your institution? What changes would you recommend to this model?

Next I'd like to ask you a few questions about the activities that you do as a SPARK mentor.

7. Can you describe the training process that you use when you hire a new student participant? *(prompt: What kind of activities do you typically conduct with a new student?)*
8. What do you do with the stories once they are written? Who do you send them to? How are the stories used?
9. Is there anyone I can contact about the use of stories? *(get name and contact info)*

Next I'd like to talk about the impact of the program and how we can improve it.

10. Has SPARK helped your institution discover and use new ways of communicating research results to a broader audience? If so, what are they?
11. In your opinion, what are the main outcomes of this program? *(prompt: Is it student training? Generating stories? Getting more publicity for the research conducted at your university?)*
12. What are you particularly proud of, in terms of things that you might have done well in managing the SPARK program?
13. Do you have any suggestions for improving the program?
14. Do you have any final comments to make on the SPARK program?

Thank you very much for participating in the interview. Your input will be very helpful in evaluating the program.

SPARK Program Evaluation

Interview Protocol: NSERC Communications Staff

Thank you very much for agreeing to participate in this interview. We are interested in gathering information about various aspects of the SPARK program in order to systematically evaluate its impacts. This interview is part of the multiple lines of evidence that we will use to evaluate the program. The information that we receive from you will be treated as confidential and your comments will not be linked to your name in the evaluation report. If at any time you are not comfortable with answering one of our questions, just let us know and we will move on.

The interview should take about 20 minutes.

15. In your opinion, is there still a need for student-generated stories on university-based research in the NSE? Why/Why not?
16. How does the SPARK program fit within NSERC's mandate? What are the benefits of the program for NSERC? *(prompt: Why should NSERC continue to fund this program?)*
17. What administrative and budgetary resources are required to manage the SPARK program? *(prompt: How many FTEs does the program require? What proportion of NSERC's budget is spent on SPARK?)*
18. In your opinion, what are the program's most important outcomes? Why? How does the program design contribute to these outcomes?
19. What would you change about the SPARK program? On what grounds are these changes based?
20. What best practices have you seen emerge in terms of managing the SPARK program, either at NSERC or in the participating institutions?
21. Finally, how do you feel about the positioning of the SPARK program at NSERC? *(prompt: Should the program continue to be managed by Communications staff? Is the program visible to other NSERC staff?)*

Thank you very much for participating in the interview. Your input will be very helpful in evaluating the program.

Appendix B

File Review Instrument

Appendix C

Student Survey Questionnaire

Dear former or current SPARK participant,

The Natural Sciences and Engineering Research Council (NSERC) regularly conducts evaluations of its programs to ensure that they meet the needs of Canadian researchers and students. This message is to request your assistance in the evaluation of the SPARK program (Students Promoting Awareness of Research Knowledge), through which you were recruited and trained to write stories based on research conducted at your university.

One of the ways in which we are carrying out this study is by means of a short email survey of former and current student SPARK participants. We would very much appreciate your response to this survey; it shouldn't take longer than 5 minutes to complete.

To complete the survey, please fill out the attached form and return it by replying to this message. Make sure that you attach your completed survey to the reply - otherwise, your responses will not be recorded.

Thanks in advance for your help. If you have any questions about the survey or the evaluation of the SPARK program, please contact me at the number below. I would appreciate receiving your responses by October 28th, 2005.

Sincerely,

Isabelle Bourgeois
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SPARK Program Evaluation Student Survey

Thank you for agreeing to complete this survey. Please note that your responses to this survey are confidential and protected under the *Privacy Act*. No identifying information will be linked to your responses in the analysis and reporting documentation.

1. How long did you participate in the SPARK program? *Identify your selection by placing an X beside the box that best reflects your answer.*

- less than one semester
- between one and three semesters
- more than three semesters

2. We're interested in the training that you received when you were first hired to write research stories. Using the list below, please indicate which approaches were part of your training and how satisfied you were with these approaches. Please rate your degree of satisfaction on a scale of 1 to 7, where 1 means very dissatisfied, 4 means somewhat satisfied, and 7 means very satisfied.

		Very dissatisfied		Somewhat satisfied			Very satisfied	
		1	2	3	4	5	6	7
Used in my training								
<input type="checkbox"/>	I received some reading material on journalistic or science writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	I attended a presentation or seminar on journalistic or science writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	I received one-on-one coaching from the SPARK mentor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Other (Please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Other (Please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. How many stories did you produce as a SPARK participant?

- none
- between 1 and 5
- between 6 and 10
- 11 or more

4. Please rate the following statements on a scale of 1 to 7, where 1 means that you strongly disagree, the mid-point 4 means that you neither agree nor disagree, and 7 means that you strongly agree. *Place an X in the box corresponding to the number that best reflects your opinion on each statement.*

	Strongly Disagree			Neither agree nor disagree			Strongly Agree
	1	2	3	4	5	6	7
My writing skills have improved as a result of my participation in the SPARK program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The SPARK program has helped me become aware of the importance of university research to society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My mentor taught me what I needed to know in order to do my job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am considering (or have taken) a job in science writing as a result of my participation in the SPARK program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would like to pursue science writing as a career.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. What did you like **most** about the SPARK program?
6. What did you like **least** about the SPARK program?
7. Do you have any other comments about the SPARK program?
8. Finally, NSERC would like to conduct some phone interviews with former or current student participants of the SPARK program. If you wish to participate in these interviews, please provide your name and contact information below.

Please attach this form to your reply to record your responses. Have a nice day!

Appendix D

Letter to University Administrators

Dear _____,

The Natural Sciences and Engineering Research Council (NSERC) is currently conducting an evaluation of the SPARK (Students Promoting Awareness of Research Knowledge) program. The main objective of the SPARK program is to recruit, train, and pay students to write stories based on NSERC-supported research at their institution. The issues examined by the evaluation will include the program rationale, success, design, and cost-effectiveness.

The evaluation will be based on multiple lines of evidence, such as interviews with the mentors and a survey of student participants. In addition to these, we are interested in your opinion as the program lead for your institution in terms of program impacts and outcomes. We would therefore appreciate a brief response to the following questions before **November 18th, 2005**.

1. What specific needs does the SPARK program meet in your institution?
2. Other than SPARK stories, what other mechanisms are used by your institution to generate research stories or publicity for your researchers?
3. In your opinion, are the researchers featured in SPARK stories satisfied with the work done by the student writers? What kind of feedback have you received from them?
4. What are the main benefits of the SPARK program for your institution?

Thank you for your help in this matter. Please respond to the questions above by replying to this email. If you have any questions about the evaluation or wish to discuss your responses by telephone, please do not hesitate to contact me at the coordinates below.

Sincerely,

Isabelle Bourgeois
Program Evaluation Officer
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613-992-3461
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