

The Mitacs logo is displayed in a bold, white, sans-serif font. The letter 'i' in 'Mitacs' has a small white dot above it. The logo is set against a blue background that features abstract, overlapping geometric shapes in various shades of blue, creating a dynamic and modern feel.

*Inspiring innovation
Inspirer l'innovation*

Longitudinal Survey of the Accelerate Program Interns

Mitacs Evaluation

October 2017

Contributing Authors

Jackie Hallet, BA, Evaluation Officer, Mitacs

Véronique Dugas, PhD, MBA, Director, Evaluation, Mitacs

Contact

Questions or comments on this document or related matters may be directed to evaluation@mitacs.ca

Acknowledgements

This evaluation report is the result of voluntary feedback from a sample of Mitacs' past Accelerate interns. Mitacs is grateful to all the study participants. The perspective of our interns is valuable for understanding how experiential learning programs like Mitacs Accelerate help to transfer knowledge from our universities and build connections between industry and academia.



Executive Summary

Overview

The report summarizes the findings from a recent longitudinal survey of students who participated in internships in the Accelerate program between 2003 and 2015. Accelerate is a national internship program that provides university graduate students and postdoctoral fellows with four to six month internships with an industry partner where they can learn and apply research skills that address the employer's needs. Under the guidance of a professor the interns are to use approximately half of their time on site with the partner organization conducting a research project of mutual significance.

Accelerate Program

Accelerate projects are scalable and can range from a single four-month internship experience to multiple internships combined to accommodate longer projects. The program is based on a cost-sharing model with both the partner organization and Mitacs contributing towards the funding. Students receive a stipend of at least \$10,000 during each 4-month internship placement, with up to \$5,000 available for project expenses. Almost 13,000 students have participated in the Accelerate program since its inception in 2003.

The theory of the Accelerate program is that it helps businesses gain a competitive advantage through engagement with the emergent talent and expertise of graduate students and post-doctoral fellows. The interns work with their academic supervisors on research and development projects designed to address the needs of the business. Working on real world business problems is to improve an interns' skills and knowledge and provide relevant industry experience.

The Accelerate program is expected to achieve the following outcomes:

- Increase collaboration and knowledge transfer between academia and industry, in various sectors of the Canadian economy including the non-profit sector;
- Create job opportunities for graduate students and post-doctoral fellows in various disciplines;
- Improve employability of graduate students and post-doctoral fellows in their field;
- Increase retention of domestic and international graduate students and post-doctoral fellows in Canada after completion of studies; and
- Increase investment in research and development and innovation of participating companies.

METHODOLOGY

Approach

Former Accelerate interns received a request from Mitacs in 2016 to complete an online survey that covered a wide range of topics. These included, for example, their experience in the internship, knowledge and skills gained in the program, current work or educational activities, and suggestions for program improvement. The survey was designed by the Mitacs Evaluation Team and reviewed and tested by representatives from multiple Mitacs departments. The survey was created, managed and distributed using FluidSurveys.

The web-based survey link, along with the purpose of the survey and relevant instructions for completion, was sent by email in October 2016 to all Accelerate interns who completed the 2013 longitudinal survey,



plus those who completed an internship between 2013 and 2015. This pool of 3,225 interns to whom the survey link was directed was in fact a sample of the total number of individuals who received Accelerate internships between 2003 and 2015 (n=7,018). Many of these 7,018 interns received more than one internship (12,895 internships were awarded).

Sample

The survey link was open for five weeks, with interns receiving three reminder emails requesting they complete the survey over that period. Of the 3,225 interns contacted, 879 respondents completed the full survey, providing a completed response rate of 27%; 1,108 interns responded to at least one question, thus providing an overall response rate of 34%. (The response rate is 17% if it is based on the total number of *all interns* who received Accelerate internships between 2003 and 2015). When comparing the sample population with all Accelerate interns there is a heavier weighting in the sample of the interns who have more recently completed their internship. The two groups compare favourably, however, with regard to which province they completed their internship.

Key Results

- 71% of former interns stated that their internship '*significantly*' or '*somewhat improved*' their academic studies
- 42% of former interns stated that they included internship-related results in their graduate thesis
- 41% of former interns stated the internship provided new research directions for their graduate studies/ postdoctoral fellowship
- 75% of former interns stated the internship helped them improve their knowledge of the discipline a '*fairly great*' to a '*very great extent*'
- 74% of former interns said the internship helped them improve their critical and creative thinking a '*fairly great*' to a '*very great extent*'
- Similar high percentages were given for the former interns' ability to conduct research to address private sector problems, technical skills and expertise and know-how relevant to the private sector.
- Between 66% and 76% of former interns stated that they received the following to a '*Fairly Great*' to '*Very Great Extent*': professional experience, professional skill set, an expanded professional network, felt more employable, and had greater opportunities for professional advancement
- Just under 50% of former interns who identified their current status stated they were employed in the private sector, with another 18% employed in the academic sector
- 59% of the former interns stated they were still engaged in research and development (R&D) with another 11% stating they were involved with the management of R&D
- 79% of former interns now in an academic setting said they had collaborated, or intended to collaborate with industrial partners on a research project as part of their position within the academic sector
- The main strengths of the Accelerate program noted by former interns included: gaining real world *experience* (23% of responses) and being able to work on practical industrially relevant *problems* (5%), bridging the gap between academia and industry (17%), the ability to develop skills, critical thinking and problem solving (9%), the financial support (11%), career and professional development (8%), networking opportunities (7%), the application process (6%) and support system (4%)



DISCUSSION

The Accelerate program is expected to achieve five core outcomes:

- Increase collaboration and knowledge transfer between academia and industry, in various sectors of the Canadian economy including the non-profit sector;
- Create job opportunities for graduate students and post-doctoral fellows in various disciplines;
- Improve employability of graduate students and post-doctoral fellows in their field;
- Increase retention of domestic and international graduate students and post-doctoral fellows in Canada after completion of studies; and
- Increase investment in research and development and innovation of participating companies.

The findings provide evidence that the program has indeed achieved the expected outcomes over the twelve-year period (2003-2015).

Increase collaboration and knowledge transfer

The fact that just over 7,000 students have participated in an Accelerate internship is significant evidence that there has been increased collaboration between industry and the academic environment. Further evidence of knowledge transfer is presented in the tables on academic outcomes and research contribution, where 31% of former interns reported publications in peer reviewed journals, 28% reported presentations at regional and national conferences and another 28% reported international presentations.

In addition, since their internship, 54% of former interns now in a non-academic setting said they had collaborated, or intended to collaborate, with academic partners in their current position; 35% stated they planned to do so within the next three years and another 34% said they had an interest in doing so in the longer term (more than three years). Similarly, 79% of respondents (n=92) now in an academic setting said they had collaborated, or intended to collaborate with industrial partners on a research project as part of their position within the academic sector; 46% stated they planned to do so within the next three years and another 29% said they had an interest in doing so in the longer term (more than three years).

Create job opportunities for graduate students and post-doctoral fellows

From the various survey data, it appears that the internship has supported the students in obtaining employment. When asked if at any time after the completion of their Accelerate internship if they were hired by their partner organization, 21% stated they had (n=191). Of these 191 former interns, 66% took on a newly created position in the company, and 66% noted they were in a research-related position. It is difficult, however, to state that the internship directly and solely *created* jobs for the students. It is also impossible to determine if the students would have got jobs had they not been in the program. Of the fifty-four interns *not employed or in full-time studies*, 83% said they were looking for work. Seven percent said they were on temporary leave of absence from employment, with the remaining interns either enrolled in part-time studies, not looking for work or retired.



Improve employability of graduate students and post-doctoral fellows

Importantly, three quarters of all respondents felt they were more employable due to their internship experience. The respondents noted that they received significant professional and personal development due to their internship. More than 70% of respondents stated that they received the following to a *Moderate Extent, Fairly Great Extent, Great Extent* or *Very Great Extent*: professional experience, professional skill set, an expanded professional network, felt more employable, and had greater opportunities for professional advancement.

Increase retention of domestic and international graduate students and post-doctoral fellows in Canada after completion of studies

This is a difficult outcome to assess based on the longitudinal survey data. First, we do not know what the rate of retention is without the Accelerate program. Second, the data come from individuals who were interns between 2003 and 2015, and the context will be different for each cohort. Third, we do not have a strong causal connection in the survey responses of the extent to which student mobility is linked with the Accelerate program vis-à-vis other contextual realities such as family, international visa requirements, the need for employment versus ongoing research, successful or unsuccessful applications and so on.

That said, of the 375 students who stated they were not Canadian citizens at the time of their internship, 24% were already permanent residents at the time of the internship, 26% said they were *now* a permanent resident/Canadian citizen, 19% said they had applied, and 20% said they hadn't applied but intended to do so. Eleven percent said they either did not intend to apply or were not sure if they would apply. Meanwhile, 81% of foreign students agreed or strongly agreed that they would recommend to students from their country that they study in Canada, and 83% stated they would recommend to students from their country to participate in a Canadian industrial research internship program.

Increase investment in research and development and innovation of participating companies

We do not have sufficient information from the sole data source of this study – the former interns – as to the nature and extent of increased R&D investment and innovation and an associated causal connection with the Accelerate program. This is an indicator that is best addressed by the industry partner and not the intern, and we will be surveying our industrial partners again in 2018.

Strengths of the Accelerate program

The former interns were asked an open-ended question about what they considered to be the strengths of the Accelerate program. The qualitative responses (approximately 250) clustered under several main themes. The main strengths of the program noted by former interns included: gaining real world *experience* (23% of responses) and being able to work on practical industrially relevant *problems* (5%), bridging the gap between academia and industry (17%), the ability to develop skills, critical thinking and problem solving (9%), the financial support (11%), career and professional development (8%), networking opportunities (7%), the application process (6%) and support system (4%).



Program Improvement

Survey respondents were asked an open-ended question about how the Accelerate program could be improved. There were approximately one hundred and eighty responses to this question, although some had multiple comments and others were stating the program was fine the way it was. Or at least, the way it was when they were interns. The improvement responses thus cover a lengthy period – since 2003 – and over that time Mitacs has continuously revised and improved the program and its delivery.

It is important to keep this in mind when reviewing the comments received by the former interns.

There was a very diverse range of comments from the respondents to the improvement question. The most common of these tended to cluster into seven main areas: Improved oversight of the internships by Mitacs over their duration, improved administration (including the application process), better support for the students (i.e., assistance with any questions /concerns during the internship), more flexibility, better promotion and marketing of the program to students and industry, increased funding, and overall better coordination and communication among industry partners, the students and the universities.

CONCLUSION

The results clearly show that there have been numerous positive outcomes to emerge for the interns. Fundamentally, they have gained significant research and job-related experience in the 'real world'. In more depth, this is reflected in consistently high, self-perceived assessment with regard to their professional and personal development and the acquisition of knowledge and skills.

For a copy of the full report, please contact evaluation@mitacs.ca

