CareerMotion

How Web-based technologies can improve the career choices of young people

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Abstract

Far too many highly educated young workers end up in jobs that require less education or fewer skills than they have. In Canada, between 20 and 30 per cent of post-secondary education (PSE) graduates work in low-skilled occupations. Why do so many graduates find themselves in a job situation that does not meet their expectations and skills? What are the best ways to help them reach their full potential on the labour market and get their career in motion?

The CareerMotion project provides reliable evidence on whether the labour market competencies of young workers could be improved by providing them with Web-based job search and career planning tools tailored to their needs. The project recruited over 500 PSE graduates residing in British Columbia who felt that they were overqualified for the work they were doing. Participants who signed up for the project were offered a 50/50 chance of receiving access to a custom-designed career development services Web site for five weeks designed to help them understand their own skills and career aspirations and linked their career objectives to relevant, high quality labour market information elsewhere on the Internet. This report is a comprehensive presentation of the impact of the CareerMotion Web-based tools on participants' confidence and ability to make informed career decisions.

Introduction

The current generation of Canadian youth has, on average, more education than any of its preceding generations. With 50 per cent of all working age Canadians holding a college diploma or university degree in 2006, Canada ranked first among all countries members of the Organization for Economic Co-operation and Development (OECD).[1] Despite large investments in post-secondary education on the part of both individuals and government, additional efforts are needed to ensure that the education and skills acquired by post-secondary education (PSE) graduates are properly utilized in their careers. Far too many highly educated young workers end up in jobs that require less education or skill than they have or do not match their field of study.

Two studies published in early 2010 suggest that between a quarter and one-third of Canadian post-secondary graduates are in such situations. Based on data from the Follow-Up of Graduates Survey — Class of 2000, Boudarbat and Chernoff (2010) find that when asked, "how closely related your job is to your certificate, degree or diploma?", one third of graduates reported that their job is not closely related to their education. Among their sample of employed recent university graduates, 23 per cent of respondents reported that their job only somewhat matched their education and 13 per cent indicated that it was not at all related. The authors find no significant gender difference in the match between respondents' education and their jobs; what matters more is the field of study, as those who studied in highly specialized fields such as health sciences or education are more likely to have a better match while those who studied art and humanities were the most likely to experience a mismatch.

Using data from the 2006 Survey of Labour and Income Dynamics, Yuen (2010) finds that 23 per cent of postsecondary graduates who had a job in 2006 considered that their job and education were not related at all. Again, the author finds no difference between men and women in this matter and corroborates Boudarbat and Chernoff's findings that graduates from the more specialized fields of education and health tend to work in jobs more closely related to their studies.[2]

From both the societal and the individual point of view, these mismatches between graduates' education and employment are costly as they represent an inefficient use of resources. Studies on the effects of job-education mismatches on earnings consistently find that overqualified workers face a financial penalty for having more skills than their position requires. The results from Yuen (2010) are striking: among university graduates with a bachelor degree or below, holding a job that is at least somewhat related to one's education boosts wages by 24 per cent for women and by 27 per cent for men. For male university graduates above a bachelor's degree, the wage return is 43 per cent higher for those with a job closely related to their studies compared to the group where there is no match at all;

1 See www42.statcan.ca/smr08/pdf/smr08_107-eng.pdf.

2 These results are in line with previous studies. Frenette (2000) reports that data from the National Graduates Survey of 1982, 1986, and 1990 suggest that between one-quarter and one-half of recent college or university graduates were overqualified for their main job. Using OECD data, de Broucker (2005) finds that about one-third of Canadian PSE graduates between the ages of 25 and 29 worked in low-skilled occupations in 2002. This rate was about the same as in the United States but twice the rates observed in the United Kingdom, Germany, or Scandinavian countries.

for women, the estimated wage return is null likely due to the fact that only 5 per cent of them are in positions where there is no match at all.[3]

Beyond the financial penalty of foregone earnings, overqualified PSE graduates tend to suffer other adverse effects such as the deterioration of acquired skills, low job satisfaction, and lower levels of productivity. Their employers also pay the price in terms of higher employee dissatisfaction and turnover. Some recent graduates may temporarily accept these penalties as a necessary process to achieving their career goals, or because they are accompanied with more favourable working conditions, job location or family-related benefits. While an entry-level lower-skilled position can be seen as a stepping stone to a better career, Frenette (2004) and others have shown that overqualification is a highly persistent state, with many recent graduates observed to still be in their overqualified positions years later.

Addressing a need

Why do so many graduates find themselves in a job situation that does not meet their expectations and skills? What are the best ways to help them reach their full potential on the labour market and get their career in motion? The CareerMotion project addresses these questions and provides rigorous evidence on whether the labour market competencies of graduates from colleges and universities can be improved by using Web-based technologies.

CareerMotion evaluates the effectiveness of providing labour market information within an online learning framework to help PSE graduates make better use of their skills in the labour market. The project recruited PSE graduates who felt that they were underemployed or overqualified for the work they were doing. Participants who signed up for the project were offered the opportunity to receive access to a custom-designed career development services Web site for five weeks which helped them understand their own skills and career aspirations. The Web tool were designed by career counsellors to aid participants in developing an understanding of their current career reality while equipping them with the information, skills and confidence that is necessary to make career-related decisions.

CareerMotion was carried out as a field experiment. Participation to the project was voluntary and people who signed up were randomly assigned to either a program group that was given access to the Web portal or a comparison group. Participants assigned to the comparison group served as a counterfactual, providing an unbiased determination of the effects of the intervention. This report is a comprehensive presentation of the impact of the CareerMotion Web-based tools on a group of Canadian PSE graduates who wanted help making better career decisions.

[3] Frenette (2004) reports similar conclusions in Sicherman (1991), Daly, Buchel, and Duncan (2000), and Verdugo and Verdugo (1989), among others.

The role of Web-based career development services tools

Canadians who wish to make the necessary changes to get their careers back on track face the challenge of navigating the wide range of information and services available to job seekers. While the Internet has opened up many new opportunities, many job seekers face the challenge of finding, navigating, prioritizing and evaluating this material effectively. The United Kingdom Commission for Employment and Skills (2010) recently noted that one role for public policy in the area of career development is "to support the growth of an educated consumer" by creating tools and resources to help job seekers increase their skills in what the report terms "digital literacy."

Web-based career resources present a number of advantages over other career guidance services. One of the largest benefits is their low marginal cost in delivering the information to large numbers of people. Additionally, they have the ability to store large amounts of information and let the user retrieve this information at their own pace and on the computer of their choice. This information can be updated relatively easily compared to paper-based resources.

In recognition that job seekers are increasingly turning to the Internet to help them make career decisions and search for job opportunities, governments across Canada and around the world are investing in Web-based career development services tools to help their citizens navigate the labour market and make better-informed career decisions. These resources are often built around a learning framework that guides users through a step-by-step process where they assess their own skills and experience, explore career options, make decisions about the types of careers they want to seek, establish goals for their job search, and put their plan into action. The Web sites usually contain a range of information on careers and job opportunities, and provide links to exercises that support the learning process for users.

A long-standing provincial Web site that has evolved extensively over the past few years is the Alberta Learning Information Service (www.alis.alberta.ca). ALIS is a Web portal that provides Albertans with information for career planning, post-secondary education and training, educational funding, job search, labour market trends, and workplace issues. ALIS hosts CareerInsight, a module-based career planning tool that leads users through a process of self-assessment, career exploration, career planning and taking action.

Manitoba recently developed its own Career Development Web site (www.manitobacareerdevelopment.ca) which provides various career development programs, services and resources that Manitobans can access to meet their needs wherever they are at in their career. This Web site follows a similar methodology to the ALIS Web site, and leads the jobseeker through a process of self-appraisal and career exploration, assisting them in making decisions and plans about their future career.

This self-directed approach is being reflected in federal government Web sites as well, most notably the Working in Canada portal (www.workingincanada.gc.ca), which provides tailored information on job descriptions, wages, skills, language training and opportunities by specific occupation and location. The portal harnesses federal government data to give users insights into suitable career alternatives by allowing them to create a report that informs them about wages, and skills requirements for current

job opportunities, but also information on trends to determine where employment demand will be in the future.

Internationally, there are a number of excellent examples of government-supported career development resources on the Web. For instance, the UK government has developed Directgov (www.direct.gov.uk), a centralized set of government resources that links together many different central Government departments' and agencies' Web sites. The portal includes extensive employment information, including resources for individuals looking to begin a career or changing their existing one. Job seekers who wish more assistance in their career decision-making can log on to the portal's Next Step program (www.nextstep.direct.gov.uk) where they can access extensive career tools and services. One novel component of the Next Step Web site is that job seekers are able to connect with advisors in-person, by email, or by telephone to get free assistance in using the Web site tools or answer questions about jobs, careers, learning or training opportunities. Job seekers can also connect with each other through moderated forums to get help or share information about career and job opportunities, or gain advice from other job seekers.

Web-based technologies present an attractive approach to help job seekers who may not otherwise receive assistance, or even to replace more costly in-person career services. However, the efficacy of such approaches has not been well documented. In fact, most evaluations of computer-assisted programs were carried out before the Internet became a part of our information environment.[4] CareerMotion represents an important contribution to this domain as it provides the first rigorous test of the effectiveness of making labour market information available within an online environment.

[4] According to Savard et al. (2005), evaluations of the effectiveness of computer-assisted interventions suggest they can have positive effects on clients' occupational decision-making. However, it should be noted that evaluations of computer-based guidance systems to date have almost always involved students and therefore may have limited applicability to graduates already in the labour market who are looking to improve their employment prospects.

Design of the study

CareerMotion ran from February to September 2010 involving over 500 residents of British Columbia. The project recruited postsecondary education (PSE) graduates who felt that they were underemployed or overqualified for the work they were doing. Participants who signed up for the project were offered a 50/50 chance of receiving access to a custom-designed career development services Web site for five weeks designed to help them understand their own skills and career aspirations and linked their career objectives to relevant, high quality labour market information elsewhere on the Internet.

Participants were randomly assigned to two research groups, the program and control groups, with only the program group receiving access to the Web-based tool. Participants assigned to the comparison group served as a counterfactual. The process of random assignment ensures that program and control group members were virtually identical in all measurable and unmeasured characteristics such that any differences in the experiences of the two groups after they receive the treatment represent true program impacts. Random assignment allows to determine what difference the program makes over and above what people would do on their own and independent of any economic or other external forces that may be operating.

Analytical framework

The design of the CareerMotion intervention began with the understanding that career decisions are among the most challenging decisions a person has to make. For one thing, choosing a career is a complex process; young people are often faced with having to evaluate many potential alternatives based on a considerable amount of information, while taking into account the many other factors and aspects to consider when making a career choice. While available labour market information (LMI) is generally reliable, job seekers must be aware that there is a possibility it can be false or inconsistent, particularly information that is available freely online. As well, there is a great deal of risk and uncertainty about the extent to which a chosen career path will fit a person's aspirations, preferences and capabilities over the years. Since it is difficult to change course once a young person finishes school and enters the workforce, career decisions can have long-lasting consequences for the individual's overall well-being, health and financial situation.

A conceptual framework that has greatly influenced the theoretical and empirical research on career development is Albert Bandura's self-efficacy construct. Bandura (1977) postulated that self-efficacy expectations, or our belief in our capability to engage successfully in a given task or behaviour, are a major mediator of both behaviour and behaviour change. Individuals who have a strong sense of self-efficacy will devote more attention and effort towards resolving a particular situation while exhibiting greater confidence and persistence in seeing a task completed.

One important application of Bandura' self-efficacy construct to career decision is Taylor and Betz's (1983) development of the career decision-making self-efficacy scale. This scale uses a series of questions (50 in the long form and 25 in the short form) to measure an individual's belief that he or she can successfully complete a task necessary to making a career decision. Taylor and Betz's conceptualization and measurement of career decision-making self-efficacy involved the integration of

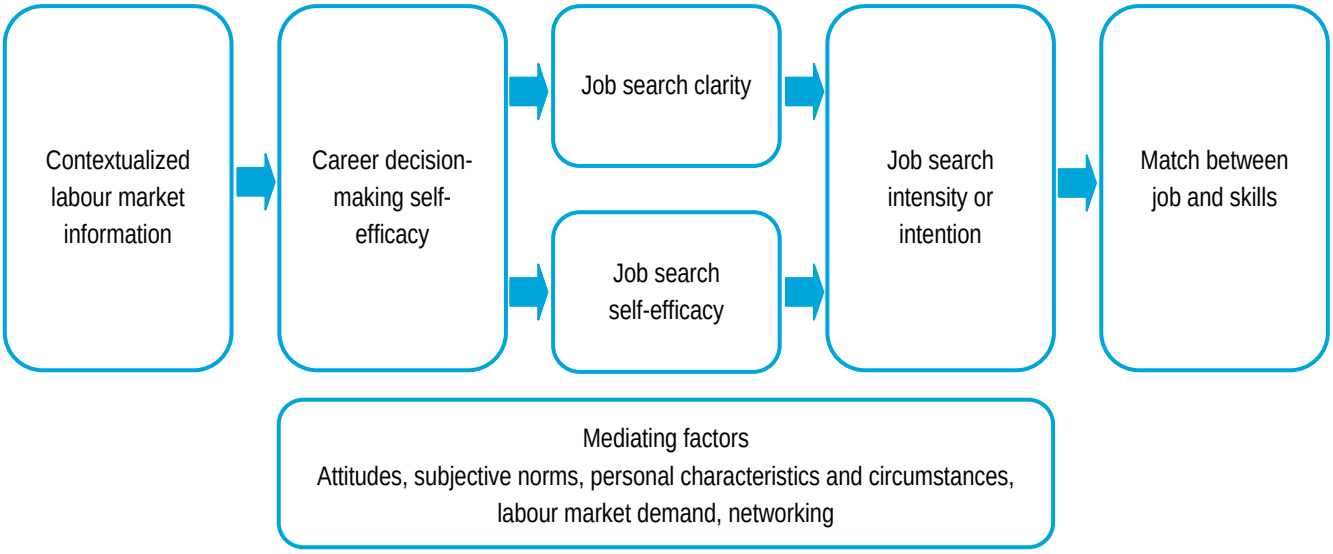
John O. Crites' theory of career maturity into the self-efficacy theory. Crites (1978) hypothesized that good career decisions are facilitated by the individual's competence in five career choice processes: (a) accurate self-appraisal; (b) gathering occupational information; (c) goal selection; (d) making plans for the future; and (e) problem solving. Taylor and Betz used these five career choice competencies to construct the career decision-making self-efficacy scale, and it has become one of the most widely used instruments of measuring career decision-making self-efficacy in both vocational research and practice.

There exists considerable evidence to support the notion that individuals with high career decision-making self-efficacy will be more certain about the type of career, work and job they want and know better how to search for and obtain that job, and that improvements in key career decision-making competencies can ultimately improve the match been participants' skills and their employment.[5] This process implies a series of steps that have been validated by prior research such as the work by Zikic and Saks (2009), who found that job search self-efficacy, attitudes, and subjective norms were positively related to job search intention and ultimately job search intensity.

The theory underlying the career decision-making self-efficacy and job search self-efficacy constructs forms an integral part of the design and evaluation of CareerMotion. The model shown in Figure 1 illustrates how it is hypothesized that providing labour market information that is contextualized should lead to increases in participants' career decision making self-efficacy and job search self-efficacy, which will then lead to better job search clarity and more effective job search activities, and ultimately to a better match between their job and their skills. While the model suggests a linear relationship, it is understood that some processes may occur simultaneously or in a different order than what is hypothesized here. In general, the literature finds evidence that these relationships are robust and provide realistic expectations of how the social cognitive process can link an intervention such as CareerMotion to actual behavioural change.

[5] See the SRDC working paper, Improving Career Decision Making of Young Workers: Design of a Randomized Experiment, for a detailed review of the theory informing the design of CareerMotion (www.srdc.org/uploads/CareerMotion_design_rpt.pdf).

Figure 1 CareerMotion theoretical model



This model integrates various elements from the social cognitive and vocational behavioural literature, hypothesizing that individuals' beliefs and behaviours about their career choices are influenced by other factors, including their personal attributes (e.g., attitudes) and circumstances (e.g., family composition, employment constraints, literacy level) as well as environmental factors (e.g., support from others to engage in job search). While these factors will not be directly influenced by CareerMotion, they may alter the effects of the intervention on participant outcomes.

CareerMotion Web tools

The CareerMotion Web tools built on the designs and lessons learned from early online career development tools. The Web site designers created a tool that would provide self-directed, tailored career assistance to underemployed PSE graduates in British Columbia. The tools are designed around a standard learning model that is similar in design to the career decision making model used by the career Web sites offered by the Alberta, Manitoba and UK governments. To a varying extent, each of these programs are organized around self-directed learning models, and each links to a range of high-quality self-assessment tools and career planning resources that individuals can access according to their own needs. Users are led through a series of modules or steps that allow them first to gain an understanding of their own interests and ambitions before they are given further information and resources to guide them through the career exploration and job search process.

The design of the CareerMotion career assistance package was undertaken by Training Innovations Inc. (Tii), an organization composed of career development professionals in Burnaby, BC. The designers took into account the lessons learned from the career development literature as well as their own extensive experience in delivering in person as well as online career development services to create a self-directed program that helped participants develop their career competencies and link them to high-quality labour market information resources. The tools provided participants with opportunities

to individually address their career needs, construct a greater understanding of their career situations, and increase their career decision-making and job search competencies. Ultimately, the CareerMotion Web tools were designed to create a space for participants to use their increased knowledge and job search skills to make personally meaningful, realistic decisions that will ultimately lead to more effective job searching in the real world.

The design of CareerMotion was based on the following key principles:

- Online resources need to be highly navigable and logically constructed to encourage participants to engage with the range of content and activities that can aid them in addressing their career challenges.
- An initial activity needs to be available to help clients self-assess their overall career choice and job search needs and assist them in defining an optimal use of all the resources.
- The Web site needs to offer value to the participant, beyond the simple presentation of information, by providing a structure that incites purposeful engagement and organization of learning, reflections, decisions and job search materials.
- Although designed in a logical structure, the Web site must effectively accommodate participants who move sporadically through the program and accommodate short-sitting times with bite-sized learning and development opportunities.

Using these design principles and the theoretical framework for the project, the Web site designers developed the portal around five e-learning modules that were linked directly to the key career decision-making competencies identified in the project's design.

1. Self-Appraisal

   In this module, participants built an accurate perception of their personal, environmental and career preferences that will improve their job search intensity. The module included information, activities, and resources for participants to clarify their job search objectives and career options, and help them define a personal profile. Concepts that participants tackled include personal values, choices and capabilities, defining career satisfaction, and how personal commitments and constraints can factor into career decisions.

2. Occupations and Opportunities

   This module exposed participants to a range of occupational resources. It provided them with information and introduces up-to-date tools and technologies to generate ideas based on their interests, current trends, and occupational profiles. Concepts include identifying growth industries, finding jobs that are in demand, learning strategies for achieving one's desired wage and work environment, and identifying what training and credentials are necessary for particular careers.

3. Goal Selection

   This module assisted participants in evaluating their occupational and job search options against their personal preferences and up-to-date economic factors. This process enabled participants to gain a better understanding of themselves and their career options in order to set realistic career goals that will lead to clearer job search intentions.

4. Future Plans

   This module supported participants in developing their short- and long-range career and job search plans. The module's information, activities, and resources helped participants outline their personal approach to their career path and strategies for achieving their career goals, and included such concepts as knowing what to do in order to achieve clear goals, including identifying where to start, staying organized, and establishing benchmarks for determining whether they are on the right path.

5. Problem Solving

   The module helped participants identify strategies for improving their job search efficacy, including developing plans to help them maintain momentum in their job search efforts and throughout their career path. The materials and activities help them build their confidence to enter the labour market in a way that will be well received by employers and is in line with their career goals. Concepts include projecting the right attitudes to prospective employers, understanding employer expectations, preparing resumes, and identifying suitable references.

Each module of learning incorporated the same layout, look, feel and pedagogical approach, and each included three standard components:

Guided content: A manageable amount of information allowed participants to develop an understanding of its relevance to their career situation and intended learning outcomes. By providing information in small and focused amounts, participants were able to quickly engage with the material and complete portions of the intervention in short sittings. The content was written in such a way to meet the needs of participants regardless of their background or competency with the topic.

LMI resources: Links to various high quality LMI Web sites provided seamless movement between the resources provided within CareerMotion and external resources. Participants had the choice of either leaving the Web site to follow the link or bookmarking it to access at a later time. Each resource was carefully selected based on rigorous criteria, including the requirement that they presented information that was accurate, up-to-date and appropriate to the needs of participants; that they were easy to navigate; and that they were maintained by a reputable authority. Resources were provided within each module to assist participants in addressing the specific learning goals within the module. As well, all LMI sites that are referenced in the intervention were organized and accessible through a global resource library.

Self-Application Exercises: A set of exercises gave participants the opportunity to personally apply the concepts as they learned them. These exercises were self-reflective in nature and supported participants' ability to self-direct and to make personal meaning of the data and resources they have accessed throughout the module. The goal of the exercises was to empower participants to utilize their new learning and apply it to their personal situations as a step towards achieving their career goals. For instance, the "My Goals" module included an exercise where participants reflected on how the careers they were considering match their values and interests as well as trends in the local labour market, giving participants an opportunity to conduct a realistic assessment of the suitability and viability of each career option.

To ensure that participants were comfortable with the technology, the Web site required each new participant to begin their learning process with a *Getting Started* module that provided step-by-step directions for using the site and navigating the intervention. As well, new participants were also asked to complete a *Career Needs Questionnaire* when first logging into the Web site. This questionnaire was designed to engage and motivate users, help them consider their challenges and strengths, and point them to the modules that would be most suitable for their current needs. Once Web site users completed the questionnaire, the Web site would highlight modules that would be most helpful to meet their needs. While these guides were designed to point users to the most appropriate sections of the Web site, participants were free to use any module in any order they wished in the five-week period that the Web site was available to them.[6]

Evaluation framework

The CareerMotion project tested two main research hypotheses:

Can the provision of labour market information through Web-based technologies improve participants' level of confidence and competency with regards to career and employment decision-making?

Can the provision of labour market information through Web-based technologies increase participants' job search and improve labour market outcomes?

The evaluation framework used multiple lines of evidence including statistical analyses of participant surveys, Web site usage data and focus groups with participants. The impact analysis relies on data collected through the baseline and two follow-up surveys as well as the administrative registration Web site. The baseline and follow-up surveys were designed to be delivered over the Internet. As such, they needed to be self-explanatory and of a suitable length for participants to complete in one sitting (although respondents were able to save their results and complete the survey at a later time). Participation in the surveys and focus groups was voluntary and participants were compensated for completing each instrument.

Baseline survey

The baseline survey collected detailed information on participants' personal characteristics and their employment situation. They were asked about their household structure, language, country of birth, activity limitations, educational history, employment status, financial situation, current job, and expectations for compensation from future employment. In addition to giving an assessment of the type of individual a program like CareerMotion might attract and the employment situation of participants prior to taking part in the study, this information was also used to assess whether or not the sample is representative of the target population and to account for any differences that might exist between the program and control groups through happenstance or differential response rates.

The design of CareerMotion is based on the theory that helping people develop greater confidence in their career decision-making while giving them more effective job search information and tools will

[6] More details on the content and delivery of the CareerMotion Web tolls are available upon request.

lead to better matches between their qualifications and employment. Foundational to this approach are the constructs of career decision-making self-efficacy, job search clarity and job search self-efficacy. The baseline survey included a series of scales to provide a pre-program assessment of the research study's primary outcomes of interest. The scales were based on instruments used and validated in prior studies, and in some cases required minor adaptation to be suitable for CareerMotion participants. The main scales included in the CareerMotion baseline survey are:

- Career Decision Making Self-Efficacy (CDMSE): the most widely used instrument of assessing individuals' abilities and competencies in making well-informed career decisions. The CDMSE assesses beliefs about being able to successfully complete the tasks necessary to make career decisions, such as self-appraisal, gathering of occupational information, goal selection, making plans for the future, and problem solving;
- Job Search Clarity: measures the extent to which job seekers have clear job search objectives and a clear idea of the type of career, work, or job they desire;
- Job Search Self-Efficacy: assesses individuals' beliefs that they can perform various job search tasks effectively;
- Job Search Intensity and Job Search Intention: assesses the extent to which individuals have engaged/intend to engage in a number of job search activities (e.g., sending out resume to potential employers, using the Internet or other services to locate job openings, talking to friends or relatives to get their ideas about possible job leads) over the past/next two months;
- Career Exploration: assesses the extent to which individuals engage in the gathering of information about their own interests, values and experience, and about the various career options relevant to the progress of their career;
- Career Planning: assesses individuals' dedication to their career as evidenced by outlining future career plans and setting and pursuing career goals.

The baseline survey also collected information on a number of "control variables" that have been identified in the literature as factors that either mediate or moderate the relationships between participants' job search competencies and the primary outcomes of interest– as discussed in the analytical framework discussion above. They include a series of multi-item scales that captured participants' attitudes and norms towards their life and work, their overqualification status, their comfort with networking among friends and colleagues to find job leads, and any employment constraints they may be facing. Respondents were also asked about their underemployment status, employment characteristics, and satisfaction with working conditions as well as about their knowledge and use of LMI resources, both off- and online, and history using specific government Web sites.[7]

[7] Another important mediating factor is participants' level of literacy. Originally, participants were asked to complete the online Canadian Literacy Evaluation (CLE) for additional compensation, with the expectation that we would be able to identify any links between literacy competencies and program effects. However, when it became clear that a large proportion of participants would not be completing the CLE due to the fact that it was too burdensome, thus minimizing its analytical contribution, a decision was made to remove it from the study early in the implementation phase of the project.

Follow-up surveys

Five weeks after initial enrolment in the study, all participants were asked to complete the first follow-up survey. This five-week follow-up survey was similar in design to the baseline survey, with questions added to collect information on program group members' satisfaction with the CareerMotion Web tools. Approximately one year later, all participants were contacted again and asked to complete a second follow-up survey. The second follow-up survey retained much of the content of the first two surveys to provide a longer-term assessment of the key outcome measures. However, several scales were modified for this survey, including job search intensity, career exploration, and usage of labour market information, to reflect the fact that it was administered one year later. For each of these scales, respondents were asked to self-assess any changes in their behaviour since enrolling in the project.

The second follow-up survey also asked participants about changes in their labour market status since signing up for CareerMotion to more accurately determine any employment changes that may have occurred as a result of the intervention. These employment questions were augmented by a series of questions to gauge program group members' perceptions of the impact that CareerMotion had on their career development over the past year. For each of the surveys, all questions were reviewed and tested by internal experts before the survey was programmed on CareerMotion's online survey software.[8]

Focus groups

Coincident with the second follow-up survey, a series of focus groups were conducted with a cross-section of project participants to gain a better understanding of the role that CareerMotion played in participants' career search, what aspects of the program they appreciated the most, and their overall satisfaction with participating in the study. SRDC used a purposive sampling approach to recruit focus group participants from the CareerMotion sample. Focus groups were held in Vancouver and Burnaby where the largest proportion of participants was located.[9]

In this qualitative component of the follow-up study, focus group participants considered and answered the following question areas in a two-hour discussion period:

- What was the experience of participants with CareerMotion?
- What role did CareerMotion play in participants' career planning and job search efforts?
- What suggestions do participants have on how CareerMotion could be made more effective?

[8] Descriptions of all the psychometrics scales included in the baseline and follow-up surveys are available upon request.

[9] Each focus group was attended by two SRDC researchers. One researcher facilitated the discussion, while the other recorded notes. In addition, all focus groups were audio-recorded and transcribed. Detailed notes and focus groups transcripts were reviewed and analyzed using NVivo7 software. Discussions following the focus groups helped to identify common themes that had emerged and were used as the coding framework. This framework was used for coding. As themes emerged, the coding framework was revised as needed.

In addition to exploring the above questions, the discussions also focused on gaining more insights into the challenges post-secondary graduates face when planning their career and seeking employment, and how these can be addressed with resources, supports and/or tools.

A total of six focus groups were conducted in June and July 2011. There were four focus groups with program group members and two focus groups with control group members. One focus group with program group participants was held in Burnaby and the other five groups were held in Vancouver. Twenty-five individuals took part in the four focus groups with program group members (18 female and 7 male) and 18 individuals took part in the two focus groups with control group members (17 female and 1 male).

The focus groups with program group participants were selected on the basis of age and high or low users of the Web resource. The average age of focus group participants was 32 (ranging from 23 to 39) and there was a mix of individuals who were employed, self-employed, unemployed, or currently in school. About half of the focus groups indicated that they were satisfied or somewhat satisfied with their current employment situation, although not all were working in their ideal position or desired profession. Several expressed that they were dissatisfied with their current position and did not feel they were in a position that sufficiently matched their area of study or experience.

Since the focus groups were held one year after the intervention, there was an expectation that participants would be challenged in fully recalling their reactions and experiences with CareerMotion. Therefore, several screen shots of the CareerMotion Web site were used to remind participants about the resources and the information it contained. While the screen shots helped participants to remember their experience and the resource, many participants indicated that they still had difficulty in recalling specific actions and use of individual modules and activities on the Web site.

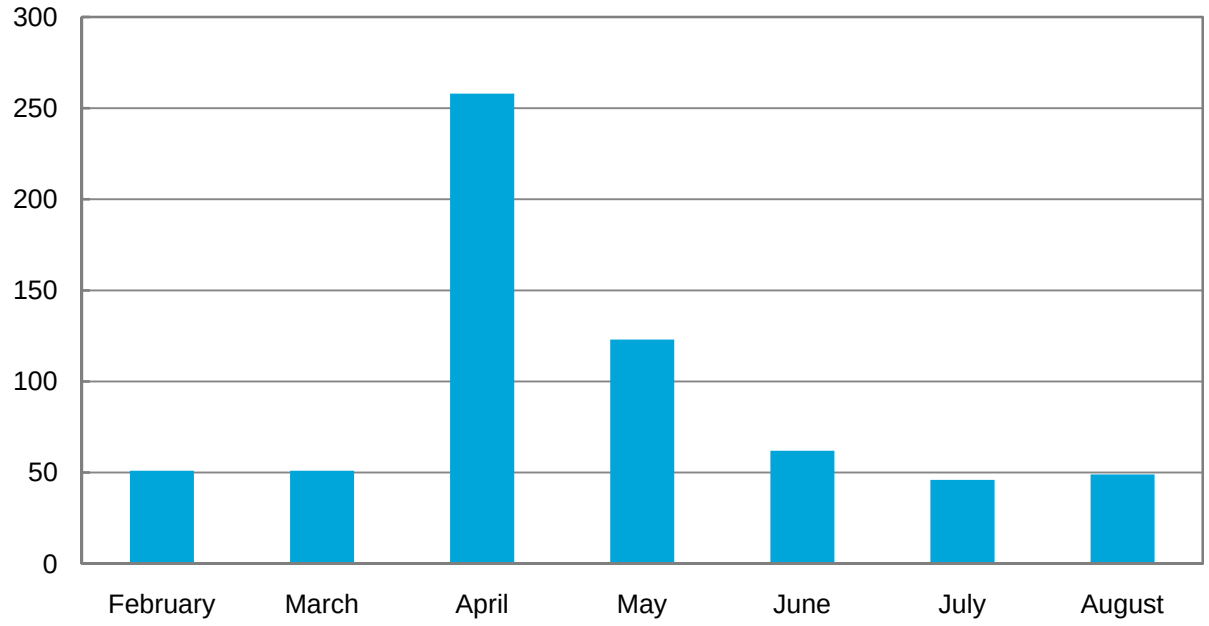
CareerMotion participants

CareerMotion provides evidence that a Web-based approach to providing career information is appealing to people of all ages who have different educational backgrounds, and who are experiencing a variety of employment situations. The project succeeded in attracting a diverse group of participants who were seeking career assistance for a variety of reasons.

Recruitment campaign

The project's recruitment efforts led to 641 people in BC registering to take part in the program from February to August 2010. Of these, 510 participants ended up completing the baseline survey and being randomly assigned to either the program or control group.[10] While some participants indicated in the focus groups that they were motivated to join the project due to the financial incentive, most participants were motivated to take part in CareerMotion due to their uncertainty with their career path.

Figure 2 CareerMotion registrations per month (2010)



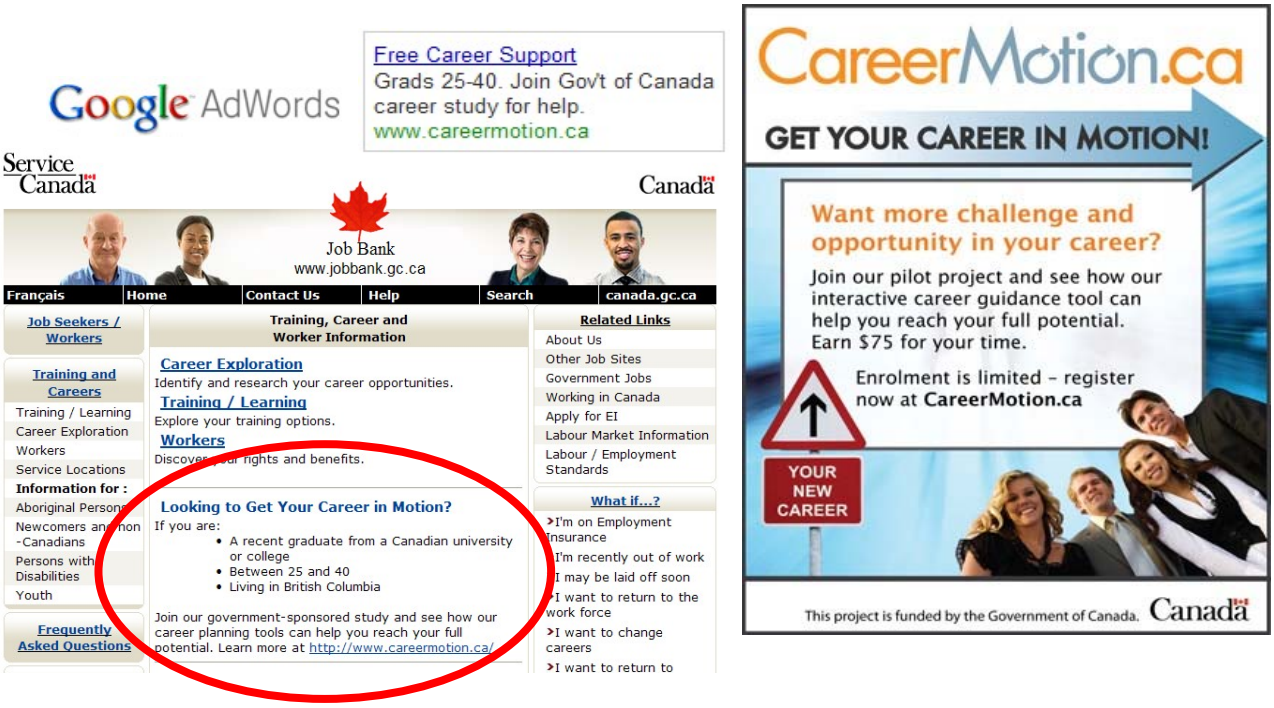
Source: CareerMotion administrative data.

[10] The final research sample included 497 participants. After the completion of the first follow-up survey, a data quality check led to 13 observations being omitted from the research sample due to concerns about cross-contamination (same address as another participant in a different research group) or respondents' survey data consisting of mostly missing or suspect information.

The recruitment campaign was designed to attract participants who would potentially be users of a government-based career development services Web site. As such, it did not recruit from existing government databases, such as Employment Insurance (EI) clients, but used both online and traditional media outlets to attract visitors to the site. Over the course of the campaign, Google Adwords, Facebook and job search Web sites were used to drive traffic to the Web site. One important source of traffic was an advertisement placed on Service Canada's Web site, www.jobbank.gc.ca.

Finding ways to promote the Web site to attract visitors proved to be quite challenging. Given the newness of the Web site and the plethora of career assistance resources already available online, the profile of the CareerMotion.ca Web site needed to be established, distinguishing it from other, more established Web sites and career resources. Due to limited response at the beginning of the campaign, the recruitment period was prolonged, minor adjustment to the eligibility criteria were made and recruitment efforts were intensified by placing advertisements in transit stations, local newspapers and career development publications. Flyers and promotional materials were also sent to career development agencies across the province.

Figure 3 Samples of online advertisements used to recruit



Registration process

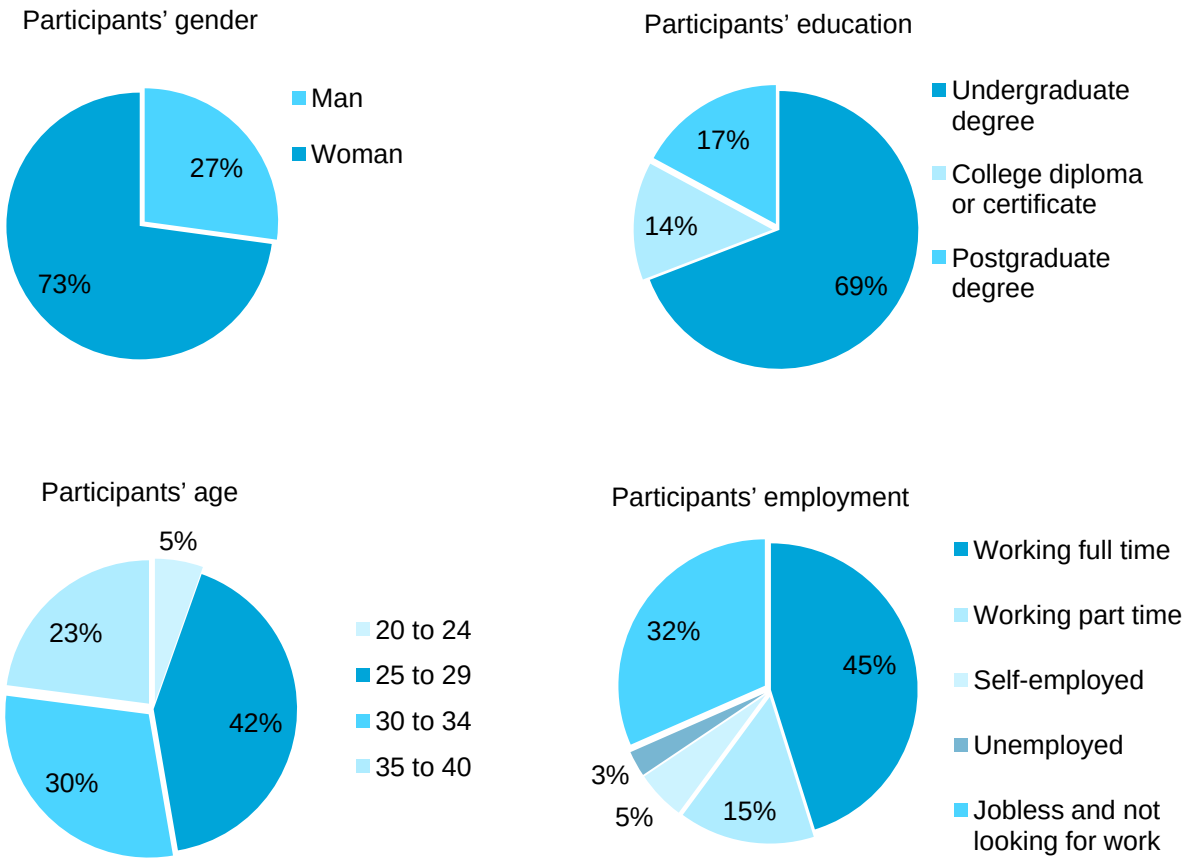
Potential participants who visited the CareerMotion Web site were immediately informed about the nature and purpose of the project, the eligibility criteria as well as the financial compensation they would receive for completing each stage of the research project: $25 for completing the baseline survey and $50 for the first follow-up survey, and $25 for the second follow-up survey. Visitors who wished to sign up for the project then completed a short questionnaire which asked them for their age, gender, employment status, educational history and residency. Participants were informed that in order to be eligible for the study, they had to be resident of British Columbia, be between the ages of 18 and 40, not currently a student, and they had to have diploma or degree from a Canadian college or university. Those who's highest level of education was a registered apprenticeship or trades certificate or diploma were not eligible.

Once their eligibility was determined, participants were directed to read and agree to the informed consent and complete the baseline questionnaire. The electronic system then randomly assigned each participant to either the program and control group, with program group members given immediate access to the Web-based career intervention and informed that this access would be granted for only five weeks. Access to the Web site was password protected to ensure that only program group members accessed the intervention. Participants were informed that they had to submit proof of their residency either electronically or by mail to maintain their eligibility in the program.

Profile of participants

As shown in Figure 4 below, the overwhelming majority of participants were employed, university-educated women. Most of them were 30 years and older and therefore likely to have been out of school for a while. Nearly 70 per cent of the sample's highest level of education was an undergraduate university degree and only 14 per cent had college-level certificate or diploma. These percentage contrast with statistics from the Labour Force Survey which suggest that among all PSE graduates in BC, only about 35 per cent held a bachelor's degree and about 50 per cent have a college-level certificate or diploma in 2009.

Figure 4 Profiles of CareerMotion participants at baseline



Source: CareerMotion administrative data.

What Figure 4 illustrates is that the CareerMotion sample of participants is not representative of PSE graduates in BC but rather could be seen as representative of PSE graduates in BC who consider themselves underemployed and are looking for online career assistance. The CareerMotion sample is reflective of the fact that Canadians who feel overqualified in their positions are more likely to be highly educated. It is also reflective of the growing use of the Internet by women. While much of the research is at the preliminary stage, researchers are observing that women have begun overtaking men in certain types of Internet applications in recent years, particularly in areas involving social networking and sharing of information.[11]

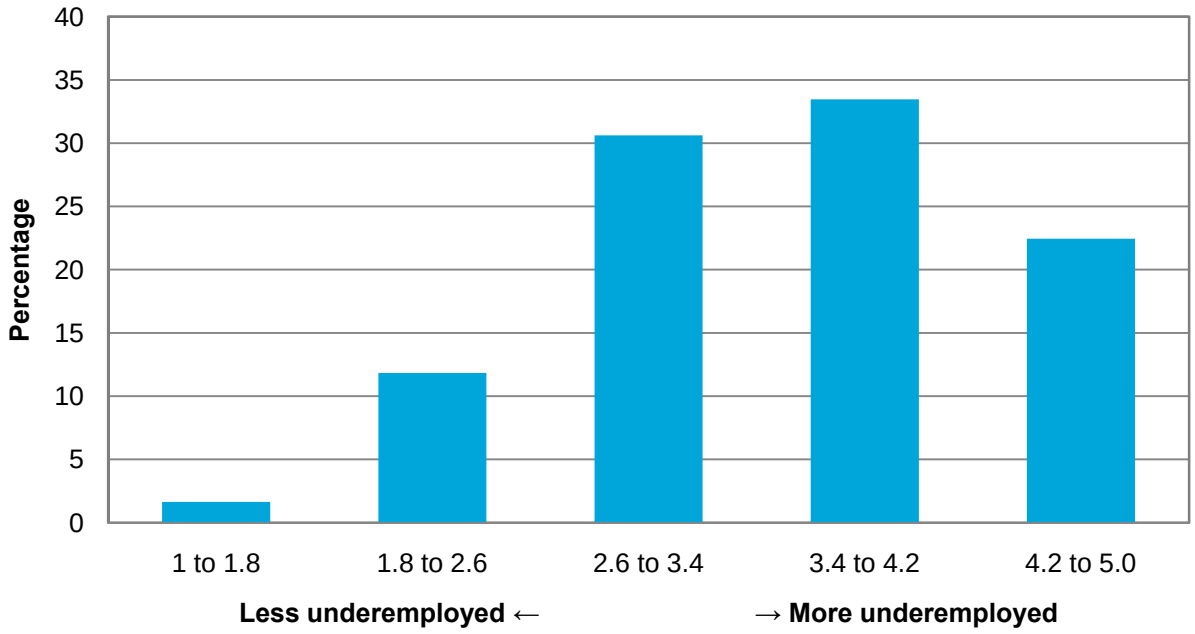
Since CareerMotion participants were recruited on the basis of a self-identified need to find a better career fit, a reasonable assumption can be made that most participants would consider themselves to be underemployed or overqualified in their current line of work at registration. The baseline questionnaire included a nine-item scale developed by Maynard, Joseph, and Maynard (2006) that

[11] See www.pewinternet.org/Media-Mentions/2009/Women-Outnumber-Men-on-Social-Networking-Sites.aspx

provides a more objective determination of the mismatch between skills and employment. Respondents were asked to agree or disagree – on a scale ranging from strongly disagree (1) to strongly agree (5) – with statements about whether their job requires less education than they have and whether their skills were fully utilized on the job. Participants were then given a mean score of their answers to determine their underemployment status, which is summarized in the chart below.

As shown in Figure 5 below, on the whole, the CareerMotion sample could be considered underemployed, with the majority of participants tending to agree with statements that their job does not reflect their skills and experience. However, the chart also shows that there was a small but significant group in the sample who may self-identify as being underemployed yet would not be considered as such when more stringent criteria are applied.

Figure 5 Participants' underemployment at baseline



Source: CareerMotion baseline survey.

One of the central measures of the effectiveness of CareerMotion is the career decision-making self-efficacy scale. We use the short form version of the scale, which contains 25 questions, with 5 questions on each of the five competencies: (a) accurate self-appraisal, (b) gathering occupational information, (c) goal selection, (d) making plans for the future, and (e) problem solving. Responses rate items on a five-point Likert-type scale ranging from no confidence at all (1) to complete confidence (5). A total score is computed by summing scores for all the items; higher scores indicate greater levels of career decision-making self-efficacy.

Job search self-efficacy is complementary to career decision-making self-efficacy. Previous studies have established relationships between job search self-efficacy and job search outcomes such as search status, duration, and the number offers received. Both measures of self-efficacy provide important

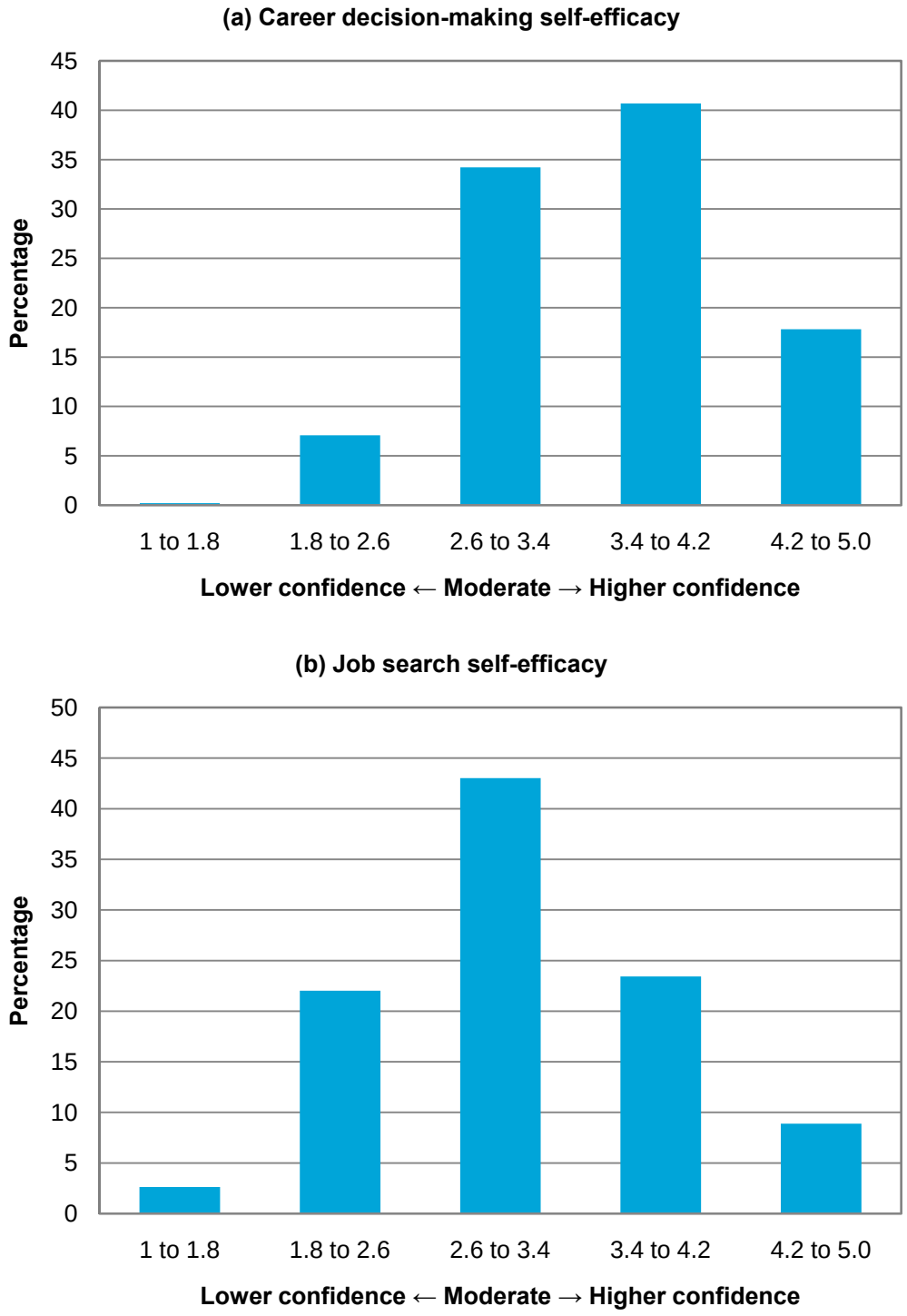
insights into the state of CareerMotion participants' mindset about making decisions about the type of career they want and performing the search for employment that better matches their qualifications.

The charts in Figure 6 illustrate how participants ranked on both scales at baseline. On average, participants were assessed as being moderately confident in making career decisions, with nearly one-fifth scoring at nearly complete confidence levels. Participants' confidence at undertaking the tasks necessary for a job search were more muted, however, and responses were more evenly distributed around the moderate confidence level. These results show that participants who were recruited for the project may be confident about making a career change — a confidence which may have in fact led them to seek out and register for the program in the first place — but they were less certain about taking the next steps in their career progression.

Participants' moderate levels of confidence in undertaking a job search are reflected in the number of job search activities they reported undertaking in the month prior. As shown in Figure 7, overall, nearly one-quarter of participants had undertaken at most one job search activity in the past four weeks while another quarter had only undertaken one to two activities. Even fewer participants had accessed off- or online LMI resources over the same period: only one-third had accessed at most one resource, and very few had accessed on average more than one resource a week over that period.

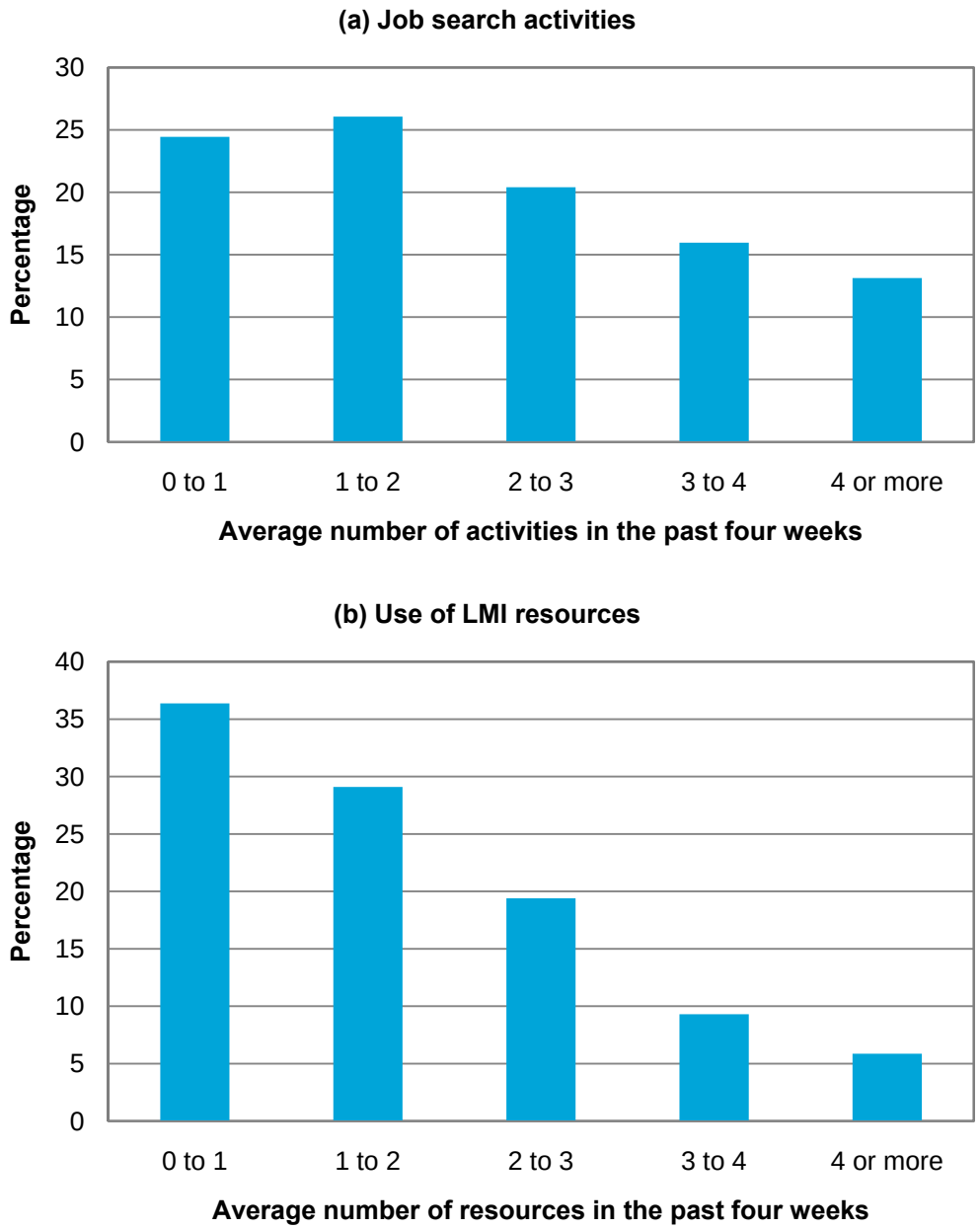
These findings are in line with insights from focus groups discussions. Participants in focus groups confirmed that they faced challenges and obstacles in planning their careers at the time of recruitment. Not one participant said their career planning experience had been easy and all had encountered challenges at one point or another. Many who had completed a university or college program that included a co-op or internship felt they had been better prepared for entering the labour market. Those who did not have this component in their educational program felt there was little support or preparation given to them during their studies to prepare them for starting their career and entering the labour market when they finished.

Figure 6 Career decision-making self-efficacy and job search self-efficacy at baseline



Source: CareerMotion baseline survey.

Figure 7 Job search activities and use of LMI resources at baseline



Source: CareerMotion baseline survey.

CareerMotion's impacts

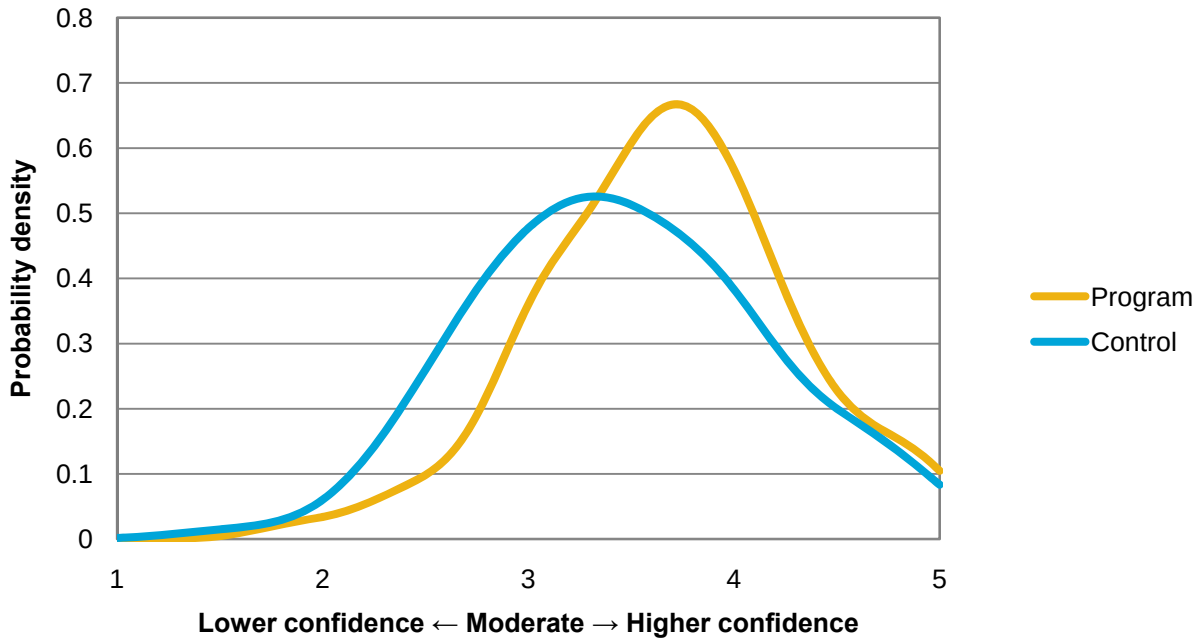
Does providing online labour market information (LMI) help postsecondary graduates achieve a better match between their skills and employment? The methodological approach we used to answer this question enables us to disentangle each step of this process, opening up the "black box" to examine the program's effect on intermediate, cognitive factors that have been shown in prior studies to be linked to intended behavioural outcomes. Using a rigorous, multi-methods approach, we identify what effects the program had on participants' career decision-making and whether these changes led to observable improvements in participants' behaviours.

Participant impacts immediately after the intervention

The first follow-up survey gives an assessment of the program's effects on program group members' competency in making career decisions immediately after they have completed the intervention. Approximately three-quarter of 510 participants who completed the baseline survey completed the first follow-up survey. In total, the first follow-up sample included 382 respondents— 174 in the program group, 208 in the control group.

Figure 8 shows the distribution of both the program and comparison groups' scores on the career decision-making self-efficacy scale immediately after the intervention. It shows that CareerMotion has led to a notable improvement in program group members' confidence in making career decisions. While control group members have remained relatively the same in terms of their self-confidence, with an average score of 3.45 (on a five-point scale), program group members were much more likely to indicate that they are more empowered to make career decisions after the five-week intervention since, on average, their score reached 3.67. The differences between the two groups are statistically significant at the 1-per cent level.

Figure 8 CareerMotion's impact on career decision-making self-efficacy at the first follow-up survey

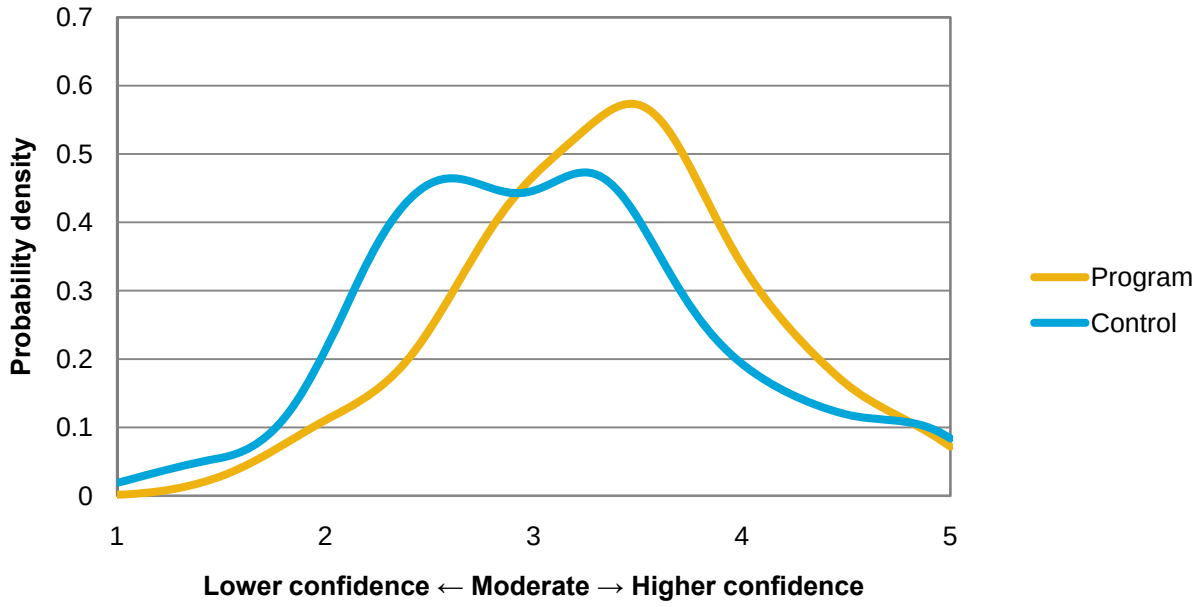


Source: CareerMotion first follow-up survey.

CareerMotion's improvements in career decision-making self-efficacy also led to participants being more confident in undertaking a job search. As can be seen from Figure 9, program group members were significantly more likely to report being more confident of their job search after the intervention, with an average score of 3.37 (on a five-point scale) compared to an average score of 3.09 for the control group. This difference was also significant at the 1-per cent level.

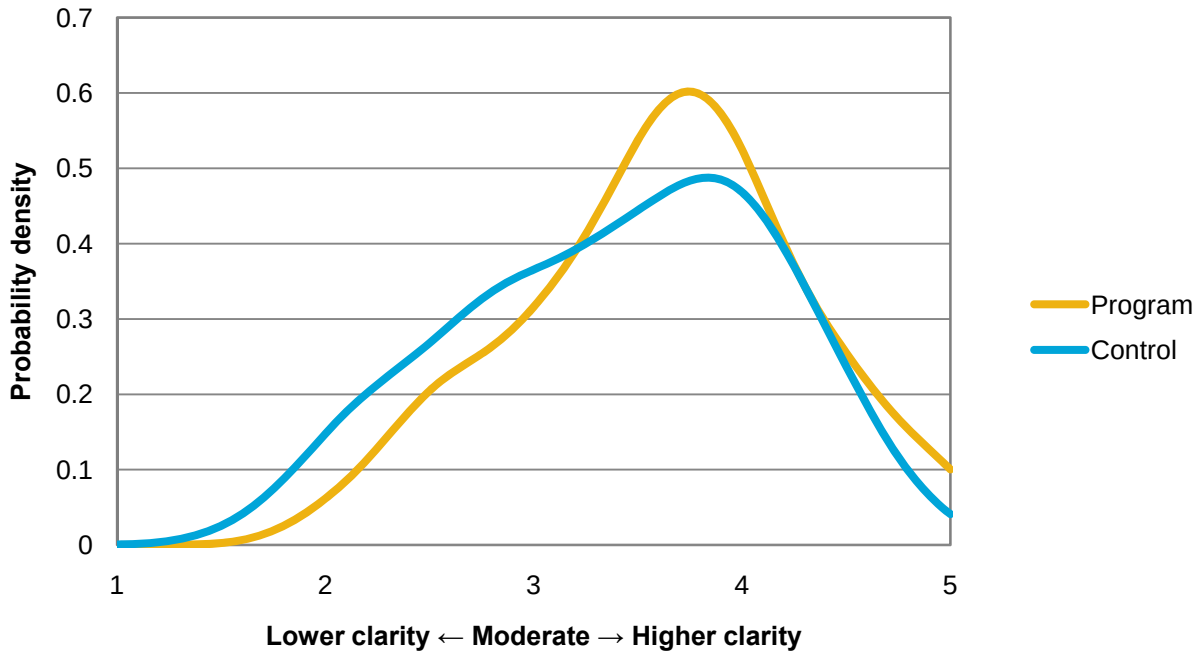
Program group members were also more likely to be clearer about their job search goals. As shown in Figure 10, program group members reported an average score of 3.6 on the job search clarity scale, compared to 3.4 among control group members. Again, this difference was significant at the 1-per cent level.

Figure 9 CareerMotion's impact on job search self-efficacy at the first follow-up survey



Source: CareerMotion first follow-up survey.

Figure 10 CareerMotion's impact on job search clarity at the first follow-up survey



Source: CareerMotion first follow-up survey.

CareerMotion's impacts can also be presented in terms of effect sizes for each of the outcomes of interest. Due to differences in scales, effect sizes must be standardized to be able to make comparisons of the impacts of the CareerMotion intervention on different outcomes of interest. Standardized effects are also necessary to examine how these results compare to other studies that have examined the efficacy of different career development approaches.

We standardize effect sizes using Cohen's *d*, a common method in the psychological literature where the observed effect is divided by the standard deviation of our population's mean at baseline. Calculated this way, effect sizes are expressed in terms of the number of standard deviations from the sample's mean at baseline. For example, an impact of 0.50 means that, following the intervention, participants achieved an average score that was half a standard deviation above the mean score achieved at baseline.

In calculating standardized effect sizes, we also rely on difference-in-difference techniques to provide a more accurate estimate of the size of impact. This approach calculates the impact as the difference in any changes between the program and control group from the baseline to the follow-up survey. This technique serves two purposes: it mitigates any differences that may exist between the two groups at baseline (first difference) and allows for any differential change in both groups from baseline to follow-up (second difference). The validity of this estimation method stems from the premise that once we eliminate the estimated counterfactual change from the comparison group, all that remains is the change resulting from the intervention itself.

The following table presents standardized effect sizes for key outcomes of interest immediately after participants had completed the intervention.[12] The negative numbers shown in the second column are explained by the difference-in-difference calculations and reflect slight declines, on average, in outcomes of interest over the five-week period among control group participants.

As shown in Table 1, CareerMotion had large and significant impacts on important cognitive factors, including career decision-making self-efficacy, job search self-efficacy and job-search clarity. It also had an impact on factors that are often considered to be important precursors to making a career change. While control group members had experienced a decrease in career exploration activities over the five-week period, program group members, on average had increased the extent to which they were seeking out career options for themselves. Program group members also reported being more comfortable in approaching their network for assistance in their job search; however, they had not begun to undertake additional efforts to reach out to their network at the five-week mark when compared to the control group.

[12] See the appendix for the full set of impacts.

Table 1 CareerMotion's impact on key outcomes of interest at the five-week mark

	Program	Control	Impact
Career decision-making self-efficacy	0.48	-0.24	0.72***
Job search self-efficacy	0.59	-0.04	0.63***
Job search clarity	0.51	0.16	0.35***
Career exploration	0.13	-0.18	0.30***
Career planning	0.43	0.21	0.22**
Networking comfort	0.19	-0.06	0.25**
Networking intensity	0.03	-0.02	0.05
Job search intensity	0.02	-0.03	0.04
Job search intention	-0.03	-0.06	0.03
LMI usage	0.15	-0.05	0.20***
LMI ease of reach	0.32	0.08	0.24***
Job satisfaction	0.15	0.07	0.08
Life satisfaction	0.08	0.00	0.07**

Source: CareerMotion baseline, first, and second follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 208 and 174, respectively. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.

Were the CareerMotion impacts sustained over a one-year period?

Data from the second follow-up survey allows us to determine whether the improvements in participants' confidence in making career-related decisions immediately after they had completed the intervention have either been sustained or have changed over the longer term. As is to be expected, there was a substantial reduction in the number of participants that completed the second follow-up survey one year later, with a final sample of 259 respondents — 123 in the program group and 136 in the control group. The second follow-up survey sample represents 52 per cent of the 497 participants

in the original research sample participant sample and 68 per cent of the 382 participants in the first follow-up survey sample.[13]

The significant reduction in sample size of the second survey speaks to the challenges of timing a follow-up survey to capture long-term effects. If the survey is conducted too soon after the intervention, program group members may not have had an adequate amount of time to re-evaluate their career situation and conduct a job search. If it is conducted too late, the effects of the intervention may have diminished, and other factors may confound the results. As well, with every passing month, participants are more difficult to trace, and it becomes challenging, and costly, to recruit sufficient respondents to maintain a representative sample of sufficient size.

Table 2 below presents the impact of CareerMotion one year after the program came to an end. For comparison purposes, standardized effect sizes for the impact of the program at the five-week mark using the research sample of 259 respondents who completed both surveys are shown in the first three columns.

[13] The characteristics of second follow-up survey respondents were compared to that of survey non-respondents who had completed the first follow-up survey. We found that the research sample of the second follow-up survey was not substantially different from that of the first follow-up. The research sample was also checked for any systematic differences in observable characteristics between the program and control group to gauge any potential bias to the impact estimates, and no systematic differences were observed between the two groups in terms of their basic demographics or employment status at baseline.

Table 2 CareerMotion's impact on key outcomes of interest at the five-week and the one-year marks

	Five-week mark			One-year mark		
	Program	Control	Impact	Program	Control	Impact
Career decision-making self-efficacy	0.38	-0.15	0.53***	0.44	0.03	0.41***
Job search self-efficacy	0.45	-0.02	0.47***	0.49	0.09	0.40***
Job search clarity	0.36	0.16	0.20*	0.45	0.26	0.19*
Career exploration	0.04	-0.09	0.13	0.40	0.26	0.13
Career planning	0.44	0.18	0.26**	0.53	0.22	0.31**
Networking comfort	0.13	-0.06	0.19**	0.21	-0.06	0.26**
Networking intensity	0.02	-0.01	0.03	-0.19	-0.27	0.08
Job search intensity	0.00	-0.04	0.05	0.44	0.22	0.22*
Job search intention	-0.06	-0.14	0.08	-0.38	-0.63	0.25*
LMI usage	0.25	-0.05	0.30***	-0.09	-0.41	0.32**
LMI ease of reach	0.29	0.08	0.21*	0.54	0.14	0.41***
Job satisfaction	0.14	0.08	0.06	0.38	0.31	0.07
Life satisfaction	0.09	-0.02	0.10	0.30	0.20	0.10

Source: CareerMotion baseline, first, and second follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 127 and 113, respectively for the first follow-up survey, 136 and 123 for the second follow-up survey. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.

The results presented in the first three column of Table 2 are slightly different from those presented in Table 1, which were based on the research sample of all 382 respondents who completed the first survey. Compared with the five-week results presented in Table 1, the effect sizes of the five-week impacts using a smaller sample are generally smaller and some differences that are significant only at the 5- or 10-per cent levels with the smaller sample were significant at the 1-per cent level with a larger sample. This serves to show that the smaller sample size of the second follow-up survey limits the power of the analysis to detect significant effects: it can be argued that had the sample been larger, more significant impacts — for instance on some employment outcomes discussed in the following section — could have been detected.

The important effects that CareerMotion had at the five-week mark on program group members' confidence and clarity about their career goals, as well as their level of planning to achieve their career goals, were sustained one year after the program came to an end. As shown in Table 2, for each of these measures, the changes experienced by the program group over the 12-month period were significantly greater than those experienced by the control group.

While the extent to which CareerMotion impacted upon program group members' career decision-making self-efficacy has declined somewhat since the first follow-up, program group members continue to experience a greater difference in their self-efficacy scores by nearly half a standard deviation — an effect that continues to be statistically significant at the one per cent level. Similarly, program group members remain significantly more confident in their ability to undertake a job search and clearer about the job they are searching for.

The positive effect of CareerMotion on program group members' level of comfort in approaching members of their social network for assistance also persisted over time. However, they did not demonstrate higher usage of their network when compared to the control group, neither at the five-week mark nor at the time of the second follow-up survey. This is potentially one area where job seekers may require additional assistance beyond what CareerMotion provided; while the tools and resources provided by the online career tool increased the level of comfort among program group members to approach their network, they may require some form of personal support to enable them to increase the number of connections they make with people who can assist them in finding a better job or career.

When asked whether their career exploration activities had increased since they completed the baseline survey, both program and control group members alike reported that their activities had increased. While program group members were somewhat more likely to report they had engaged in more exploration over the one-year period, the difference between the two groups was not statistically significant.

Recall that at the five-week mark, there was no significant difference in job search activities between the two groups. At the one-year mark, both program and control group members reported that their job search activities increased on average, with the increase in job search activities for the program group nearly double that of the control group, representing a gain of 0.22 standard deviation. Program group members were also more likely to report that they intended to undertake further job search activities in the month following the survey. These longer-term effects on job search activities suggest an important behavioural change on the part of program group members that can be linked back to their participation in CareerMotion.

Related to increased job search behaviour, program group members' continue to find labour market information (LMI) within easier reach over time, with the impact on the ease of reach of LMI increasing from 21 per cent of a standard deviation at the first follow-up survey to 41 per cent of a standard deviation at the second. This improved perception of the availability of LMI has translated into program group members being more likely to report that they were making greater use of LMI since the baseline survey. While the average trend for both research groups was a general decline in LMI usage over the one-year period, the decrease was greater among control group members, indicating that program group members still continued to rely on LMI resources to a greater extent than their control group

counterparts. LMI resources represent an important tool for job seekers, and program group members indicating that they are not only finding LMI easier to access but also making greater use of those resources supports the finding that they have been more actively engaged in job search activities since CareerMotion came to an end.

Did CareerMotion's impacts translate into better employment?

As was to be expected from a relatively short and low-intensity intervention, CareerMotion had no immediate effect on program members' employment status, work schedule or earnings at the five-week mark. They also did not exhibit any significant differences in the extent to which they were underemployed. Beyond the lack of changes in employment status, program group members had neither actually undertaken more job search activities in the period during which they had access to the intervention nor were they more likely to indicate that they intended to begin their job search in the very near future. Therefore, program group members had yet to translate any knowledge and skills they acquired through the intervention into behavioural change.

The lack of observed employment effects at the five-week mark could be attributable to the nature of the CareerMotion intervention or more likely to the fact that the first follow-up survey was timed too soon to observe participants begin taking the next steps for changing their career. The timing of the second follow-up survey allows sufficient time to observe participants' employment behaviour, either in terms of achieving a better career fit, or transitioning onto a new path that would enable them to achieve the career to which they aspire.

The long-term employment outcomes for CareerMotion participants are presented in Table 3, including their employment status at the time of the second follow-up survey, any changes in their employment since the baseline survey, and the current match between their skills and the jobs they presently hold. Our analysis here focuses on presenting overall trends in effect sizes, noting any significant effects where they do exist.

We found no statistical significant differences in the overall employment situation between program and control group members at the one-year mark. However, respondents in the program group are slightly more likely to be employed than control group respondents at the time of the second follow-up survey with a larger proportion employed full-time as opposed to part-time or self-employed positions.

We found no evidence that CareerMotion induced program group members to change jobs as a result of participating in the intervention. One year later, approximately 26 per cent of both the program and control group participants left the job they had at the time when they signed up for the project. Also, 37 per cent of program group participants and 36 per cent of control group participants stayed with the same employer between baseline and the second follow-up survey, with most working at the same position over that period of time. One change that CareerMotion might have encouraged some program group members to make is to take on a different position with the same employer. As can be seen from the table, four per cent of program group members reported in the one-year follow-up survey that they held a different position that was at the same level and with the same employer they had at baseline, compared to less than one per cent of control group members. This effect, significant at the 10 per cent level, suggests that a small group of program group members may have sought out a better match for their skills within their existing employment situation.

Table 3 CareerMotion's impact on employment outcomes at the one-year mark

	Program	Control	Impact
Percentage unemployed or out of the labour force at the one-year mark	12.2	13.2	-1.0
Percentage employed or self-employed at the one-year mark:	87.8	86.8	1.0
▪ Full-time	69.1	64.7	4.4
▪ Part-time	13.8	16.2	-2.4
▪ Self-employed	4.9	5.9	-1.0
Percentage working for same employer at baseline and at the one-year mark:	37.2	35.8	1.3
▪ Same position	25.4	27.5	-2.1
▪ Different position, higher level	6.1	5.8	0.3
▪ Different position, same level	4.4	0.8	3.6*
▪ Different position, lower level	0.9	0.8	0.0
Percentage not working for the same employer at baseline and at the one-year mark	25.7	25.8	-0.2
Percentage who felt that employment at the one-year mark was a better match than that at baseline	34.8	27.3	7.6
Percentage who were more satisfied with employment at the one-year mark than at baseline	38.5	31.3	7.2
Average hourly wage in employment at the one-year mark (in $)	23.7	22.6	1.1
Average job tenure in employment at the one-year mark (months)	27.3	22.6	4.7

Source: CareerMotion baseline and second follow-up surveys.

Notes: Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.

Table 3 also illustrates that program group members consistently reported improvements in their employment situation, which provides a strong indication of the positive role that CareerMotion played in helping participants achieve a better career fit. The results suggest that CareerMotion enabled some program group members to find employment that was a better match with their skills, and that program group members in general were more satisfied with their employment one year after the program came to an end. Among participants who were employed at both the baseline and second follow-up survey, program group participants were more likely to report a better match between their

job and skills. The program led to a similar increase in the proportion reporting satisfaction with their current employment. The program also appears to have led to increases in the average wages and job tenure of program group members. While the magnitude of these effects is fairly substantial, they are not significant at the 10 per cent level, likely due to the relatively small size of the survey sample at the one-year follow-up.[14]

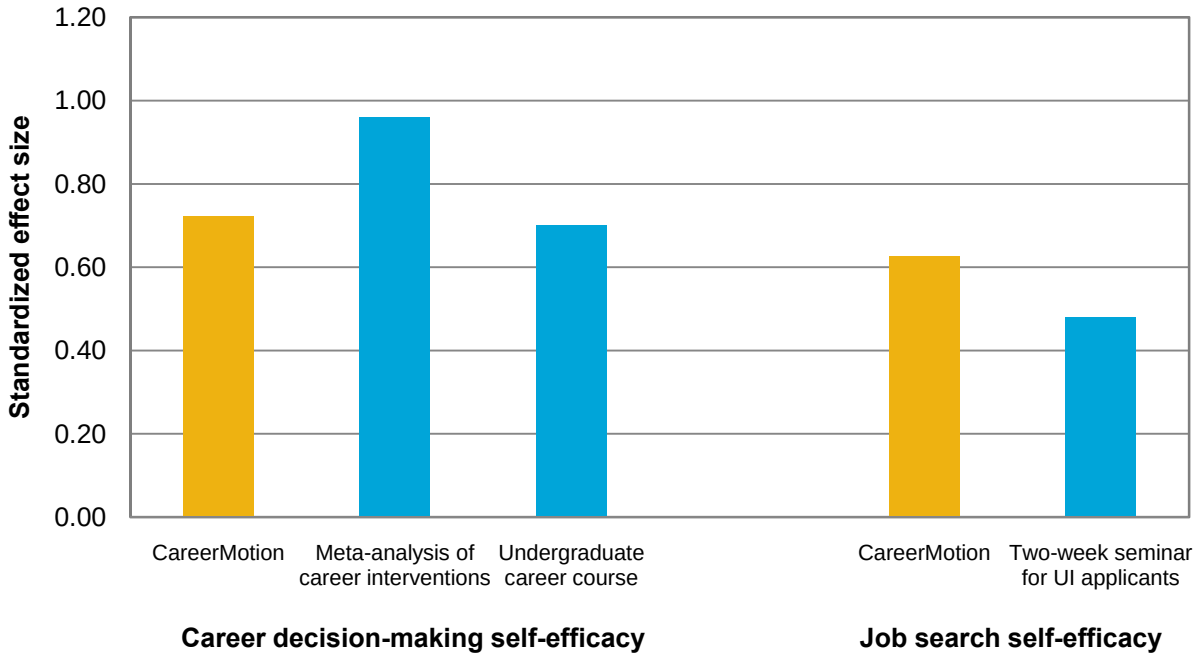
The focus group discussions confirmed the finding that for most participants, their employment status did not change as a direct result of participating in CareerMotion. Only two focus group participants changed positions since the start of the project, and these new jobs were not necessarily a better match with their skills and education. Program group members in the focus groups were much more likely to speak of CareerMotion's impact on their approach to career planning and job search. For some, the career planning information and activities from CareerMotion helped put them back on track after either being unemployed for a period, out of the work force for a length of time, or working in a position that was unrelated to their education and interests. It also helped some program group members gain a better perspective on their career development, by viewing their job search as being more than just getting a job, but helping them take the next step in their career.

Putting the CareerMotion impacts in perspective

How does CareerMotion compare to other types of interventions, particularly more expensive in-person services targeting similar populations? Figure 11 provides a comparison of two of CareerMotion's primary outcomes, career decision-making self-efficacy and job search self-efficacy, to previous evaluations of career assistance programs. Most evaluations of career interventions are based on pre-post approaches, with no comparison group to provide a counterfactual.

[14] Since one alternative for participants is to enroll in an education or training program, the second follow-up survey asked respondents to detail any education or training programs they had recently participated in. While there are no statistical differences in the effects that are observed, there is some indication that program group members may have actually reduced their education and training activities over the follow-up period. The results are presented in the appendix to this report.

Figure 11 CareerMotion's effects in comparison to other evaluations



Sources: CareerMotion baseline and first follow-up surveys, Whiston, Sexton, and Lasoff (1998), Van Ryn and Vinokor (1992), and Grier-Reed, Skaar, and Conkel-Ziebell (2009).

The figure demonstrates that CareerMotion's experimental results are well in-line with prior studies. CareerMotion's effects on career decision-making self-efficacy and job search self-efficacy are in fact larger than two studies that examine the effects of a semester-long, in-classroom course and a two-week, in-person seminar.[15] That CareerMotion's effect sizes compare well to each of these often more intensive interventions provides some indication of the relative effectiveness of offering Web-based interventions to help individuals develop the competencies necessary to make changes in their career trajectories.

15 The career-intervention studies included in the comparison are typically in-person, classroom-based interventions, with some involving students while others were targeted at unemployed workers. Whiston, Sexton, and Lasoff (1998) undertook a meta-analysis of 47 studies conducted between 1983 and 1995 evaluating a variety of career development approaches, including individual and group-based counselling as well as computer-assisted and other self-administered approaches, and estimated an average effect of nearly one standard deviation on clients' career decision-making self-efficacy. Van Ryn and Vinokor (1992) conducted a randomized field experiment where over 900 unemployed people were given eight three-hour reemployment assistance seminars over two weeks. Two post-tests at one and four months after treatment demonstrated that the intervention had "a major effect" on self-efficacy in the order of nearly one-half of a standard deviation. Grier-Reed, Skaar & Conkel-Ziebell (2009) evaluated a career course based on a sample of seventy-five undergraduate students at a large Midwestern university in the United States. The students participated in a weekly two-hour career course that met for a full semester.

Participants' experience with the Web tools

The two follow-up surveys asked participants a series of questions about their satisfaction with CareerMotion and the effect they believe it had on their subsequent career progress. Specifically, the first follow-up survey asked program group members about their participation and usage of the CareerMotion package as well as their opinion and satisfaction with the program. The second follow-up survey asked program group members to assess whether and how CareerMotion helped them in their career decision-making and job search. This data provides insights into the features of a Web-based career development program that may be most appealing to Canadian job seekers.

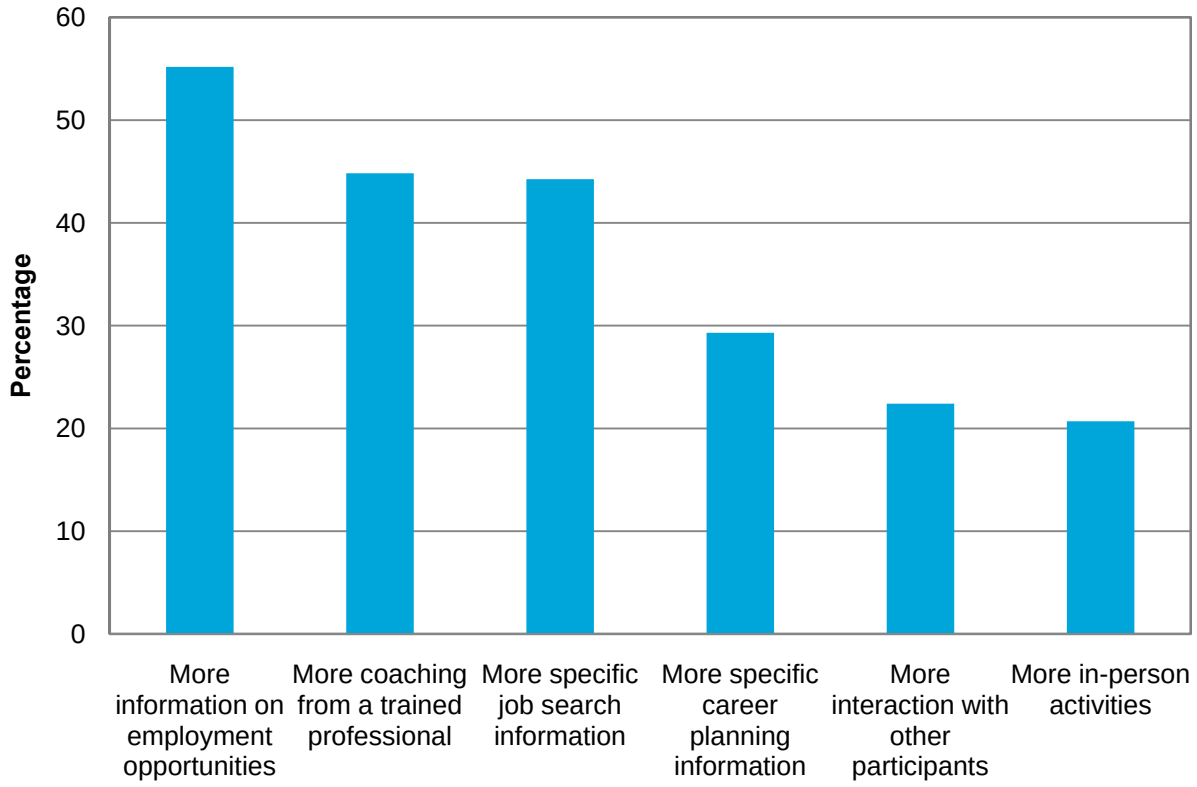
Overall, program group members indicated in the first follow-up survey that they were satisfied in their experience with CareerMotion, reporting an average score of 5.1 on a seven-point satisfaction scale, where a score of 7 is "Completely Satisfied." Among all program group members, 40 per cent reported that CareerMotion helped them achieve greater clarity in their career goals while almost 60 per cent said they remained the same. Although the Web site logs show that the first module was used the most, respondents reported that they like the second module, "Occupations and Opportunities" the best, followed by "My Goals" and "Who Am I."[16]

As shown in Figure 12, when given a selection of options for improving CareerMotion, the top three choices in order of importance were: "More information on employment opportunities," "More coaching from a trained professional," and "More specific job search information." Few participants indicated that they would like more in-person activities, suggesting that overall, most users were comfortable with their experience of engaging in an exclusively online career services program.

By far the most common suggestion for improvement from focus group participants was the addition of personal supports in using the resources. Participants felt that it would benefit users to have personal contact and support in addition to the online resources to assist them in interpreting results they get from the activities and help to tailor generic career information to their career interests. They also felt that a missing component was support and instruction on how to move forward once they completed the modules, helping them put into action what they learned at each stage of the process.

[16] It should be noted that users accessed the last three modules fewer times than the first two; therefore, the lack of interest in these modules may to some degree reflect users' lack of exposure to them.

Figure 12 Participants' suggestions for improving CareerMotion



Source: CareerMotion first follow-up survey.

The second follow-up survey confirms that program group members remained quite satisfied with their participation in CareerMotion one year after the program came to an end. As shown in Table 4, over half of all program group members (56 per cent) reported that CareerMotion helped them achieve greater clarity in their career goals. Over 40 per cent of them reported that CareerMotion helped them to a limited extent find a job, plan a career, and get additional resources for job hunting and career planning. However, few agreed that CareerMotion had everything they needed to develop their career plan and find good job match without getting further help. Overall, program group members continued to report that they were satisfied in their experience with CareerMotion, reporting an average score of 4.6 on a seven-point satisfaction scale in the second follow-up survey, thus slightly lower than the score of 5.1 at the five-week mark. These results suggest that while CareerMotion provided important tools and resources to help graduates find a better career fit, many participants believed they would require some other form of assistance to help them achieve their career goals.

Table 4 Participants' assessment of CareerMotion at the one-year mark

	Proportion of program group
Self-assessed career goals compared to the time before CareerMotion (%)	
CareerMotion helped me better define my career goals	56.1
CareerMotion did not help me better define my career goals	43.9
Self-assessed efficacy of CareerMotion (proportion in agreement)	
Something in CareerMotion has helped me to find a job I wanted.	45.7
CareerMotion provided me with the knowledge to start planning my career.	41.7
I found additional help to develop my career plan because of CareerMotion.	45.3
I found additional job search assistance because of CareerMotion.	40.5
I completed my career plan based SOLELY on resources provided by CareerMotion.	5.1
I found a job matching my skills and abilities through online leads provided by CareerMotion.	6.2
I have bookmarked the Web sites referred by CareerMotion.	46.2
CareerMotion gave me a better idea of what labour market information is available online.	49.1
I used labour market information more effectively because of CareerMotion.	30.8
After going through materials provided by CareerMotion, I felt that my job at the time was indeed a good match with my skills and abilities.	24.6
With the help of CareerMotion, I developed and carried out my career plan successfully.	24.8

Source: CareerMotion baseline and second follow-up surveys.

Note: Sample sizes vary for individual measures because of missing values.

The focus group discussions reinforce the program satisfaction results from the two follow-up surveys. Overall, focus group participants spoke very positively about the CareerMotion tools and resources and their experience in participating in the program. While some admitted to not using the CareerMotion Web site as much as they had first anticipated, they still noted that it was a useful tool and could be of use to others as well.

A number of participants noted that career planning and job search is not simple and is full of challenges, and that they had difficulty in making sense of labour market information or knowing where to find current and relevant information. Many focus group participants talked about how they are inundated with information on the Internet and are sometimes uncertain to what sites to use, and which ones are credible and reliable. They appreciated that CareerMotion brought together a selection

of sites that were specifically chosen to be relevant and reliable. Participants also liked that CareerMotion covered the whole spectrum of career planning.

Many spoke of using other online resources and found that CareerMotion had a lot to offer and was useful to them. Having an assortment of resources and tools in one place made it a "one stop shop" for participants doing career planning and job search. They noted that they appreciated that someone else had already reviewed the labour market information and organized it for them, making them feel more confident about the information they read and resources they used. The fact that CareerMotion was a government-sponsored Web resource lent credibility to the Web site, and some participants felt that by participating in the study they would be able to contribute their voice to future government programming and decisions.

For some, CareerMotion was the first step in their career planning process and helped them think more about their goals, strengths, and interests, ending with tips on how to move forward. For others who had already started thinking of their career and working towards finding work, CareerMotion was still a useful and relevant resource as it helped them put their plan into focus and better equip them to find work.

The most common change participants indicated as a result of participating in CareerMotion was an increase in their confidence in their career planning and job search. Many participants said that through CareerMotion, they learned how to identify their goals and what they needed to reach those goals, as well as identifying what skills they already have that can help achieve their goals. Some found that after completing the CareerMotion activities, the results were pointing them in a direction they had not really considered before.

Through the project, participants were able to find information that was more specific to their fields of interest and helped them with their career planning efforts. It is not surprising, then, that the CareerMotion component that was most frequently identified as being the most useful was the Web site's Resource Library which linked participants to numerous external sites where they could get further information and help with their career planning and job search. This section of the Web site was well-liked by participants, many of whom said that in the final days of the project they printed off all the listed resources so they could go back and use them in the future.

Finally, some focus group participants reported feeling reassured about decisions they had made following some of the activities they completed and information they had read. Many focus group participants noted that CareerMotion helped increase their confidence when looking for work. Participants talked about feeling more confident in applying for positions as a result of their experiences in the project. They were also reminded of strengths they have that they can bring to a new job, and how their skills can be applied in different positions and settings.

Outcomes according to intensity of usage

To give a better understanding of how a self-directed program such as CareerMotion may be used by Canadians, we used the Web site usage data to analyze the extent to which program group members accessed the intervention, including the modules they used and the time they spent on the Web site. The Web site logs provide information on how much time program group members spent on each

module and on the Web site as a whole. They also capture the path that program group members took through the Web site, allowing us to see what modules were accessed the most and in what order. The logs captured information on the time and date of each visit as well as the activities undertaken.

The Web site usage data shows that 88 per cent of program group members accessed the career development Web site at least once during the five weeks they had access to it.[17] This group of users spent on average 96 minutes on the site over the five-week period. Users spent the most time on the first module, "Who I Am," and less time on each subsequent module. Although the total amount of time spent on the Web site can be tracked, users were regularly directed to external resources throughout the intervention; therefore, many users may have spent much more time on career-related Web sites over the course of their participation than the above figures suggest. Among program group members who said they did not use the Web-based tools, most indicated in the first follow-up survey that they did not do so for time-related reasons. Nearly half of non-users (44 per cent) claimed they were too busy, while another quarter (27 per cent) said the Web site was too time-consuming.

CareerMotion is an evaluation of an offer of online tools and resources. Project participants were free to make as much — or as little — use of the Web site as they wished. It is therefore worth examining whether program group members who made greater use of the Web site seemed to benefit more from it. To undertake this analysis, we categorized a group of high usage participants as those who accessed the Web site three or more times over the eligibility period, representing approximately 60 per cent of all Web site users.

The following table compares the effect sizes between high- and low-users of the Web site tools based on their responses to the five-week follow-up survey. It should be noted that an analysis of this type is not experimental, since different sub-groups of program group members are being compared against each other. Another consideration is that program group members who have greater motivation to use the Web site would also be more receptive to learning and applying the new skills and information they acquire. Therefore, the following results should only be interpreted as indicative of the type of incremental effect that greater program exposure might induce. We found that for many of the key outcomes, CareerMotion had larger effects on those who accessed it the most. For instance, high-usage program group members experienced four times the shift in career decision-making self-efficacy when compared to their low-usage counterparts. The effects on job search self-efficacy and clarity as well as career exploration and planning were also significantly larger.

[17] While participants were given immediate access to the Web site after registration, it was not a requirement for their continued participation in the project. As such, the intervention should be considered to be the offer of Web-based assistance, which most closely matches a real world policy application where a program such as the CareerMotion Web site is offered to a particular target population. The take-up of CareerMotion provides some insight into why some participants may not make use of a program or service, even when they have expressed a need for such assistance. When asked why they did not access the Web site, non-users were most likely to report that they were too busy, followed closely by the Web site was too time consuming.

Table 5 Comparison of CareerMotion's results by intensity of usage

	High users	Low users	Difference
Effect size at the five-week mark			
Career decision-making self-efficacy	0.82	0.21	0.61***
Job search self-efficacy	0.87	0.37	0.49***
Job search clarity	0.70	0.36	0.35*
Career exploration	0.31	-0.01	0.32*
Career planning	0.18	0.20	-0.02
Networking comfort	0.50	0.19	0.30**
Networking intensity	0.73	0.20	0.53***
Job search intensity	0.50	0.42	0.08
Job search intention	0.26	0.07	0.19*
LMI usage	0.15	-0.05	0.20***
Life satisfaction	0.08	0.00	0.07**
Self-assessed efficacy of CareerMotion (proportion in agreement)			
Something in CareerMotion has helped me to find a job I wanted.	57.7	38.9	18.8*
CareerMotion provided me with the knowledge to start planning my career.	55.8	28.3	27.5***
I found additional help to develop my career plan because of CareerMotion.	61.5	30.9	30.6***
Reason(s) of signing up (percentage in agreement)			
To find a career that better suits skills	73.7	44.9	28.8**
To find a better job	48.7	37.8	10.9

Source: CareerMotion baseline and first follow-up surveys.

Notes: Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.

These pronounced differences in key outcomes translated into "high users" being much more likely to report getting more out of the program. When asked for their assessment of CareerMotion in the second follow-up survey, only high users reported that they were able to complete their career plan based solely on the resources provided by CareerMotion. They were also twice as likely to report that CareerMotion provided them with the knowledge (56 per cent vs. 28 per cent) and additional help (62 per cent vs. 31 per cent) to start planning and developing their career.

The relative size of these effects may reflect a difference in disposition between the two types of users. In fact, at the time they signed up for the study, high users were much more motivated to change careers (74 per cent) or find a better job (49 per cent) when compared to "low users." Nevertheless, these results provide some support to the conjecture that the effectiveness of CareerMotion increased with greater exposure to the program.

Conclusion

Finding career-specific support and resources is not always easy. While there are many generic resources that give general career planning advice, it is often difficult to apply them to an individual's specific situation. It may be more difficult for people who have been either out of the workforce for several years, have been in one position for several years, or are in the process of changing careers after many years. These challenges are compounded by the fact that changing careers can be an intimidating process, often involving the financial cost of either undertaking additional training or accepting lower earnings, which can present a major barrier for those who have limited financial resources or large financial commitments.

CareerMotion was designed to address the needs of Canadian post-secondary graduates who are dissatisfied with their employment situation. The project provides reliable evidence on whether the labour market competencies of recent college and university graduates could be improved by providing them with Web-based job search and career planning tools tailored to their needs.

The results on the effectiveness of the career development tools offered through the CareerMotion portal speak for themselves. Our rigorous evaluation shows that they significantly helped participants improve their confidence and their ability to make informed career decisions. After only five weeks of use, CareerMotion had a positive impact on participants' ability to make career decisions and their job search skills. What's more, the effectiveness of CareerMotion tools compares favourably with that of career development services that are delivered in person, and therefore much more costly.

One year after their participation, the majority of participants who had access to the website reported that the CareerMotion Web tools continued to help them better define their career goals. After participating in the project, they were considerably more actively engaged in job search activities than their counterparts who did not have access to the website and were more likely to report that they intended to undertake further job search activities in the medium term. Along with this major change in behaviour, those with access to the program found labour market information (LMI) within easier reach and were more likely to report that they were making greater use of LMI since the time of their enrolment in the study.

Participants' overall satisfaction with CareerMotion and its impact on their competencies and confidence in making career-related decisions suggests that young working Canadian post-secondary graduates who need help to achieve their career objectives may be very receptive to online services. Furthermore, the finding that the program had a greater effect on the most frequent users of the website leads us to believe that it is important to examine ways to encourage greater usage of such tools and thereby increase their effectiveness. The popular suggestion among participants to supplement the Web tools with coaching from a trained professional or advisor is certainly worth considering.

New Web-based technologies will offer ways of delivering specialized career support services that are less costly than more traditional methods by leveraging means of communication such as email, text chat, and videoconference technologies. Social networking tools may be incorporated to facilitate mentoring and peer interaction to provide greater support to job seekers as they undertake the

challenging and often emotionally difficult process of finding a better career fit. For instance, the U.K. government has introduced tools on its career development website that enable users to connect with advisors in person, by email, or by telephone and even connect with other users via online discussion groups.

As governments are increasingly turning to Web-based technologies to make various tools and resources available to as many people as possible, the CareerMotion project is making a unique contribution to a better understanding of the role online job search and career planning services can play in ensuring that the training and skills of Canadian graduates are fully utilized.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, p. 191–215.

Boudarbat, B. and Chernoff, V. (2010). The Determinants of Education–Job Match Among Canadian University Graduates. *Scientific series paper No. 2010s-14.* Montreal: CIRANO.

Crites, J. O. (1978). *The Career Maturity Inventory: Administration and use Manual* (2nd ed.). Monterey, California: McGraw Hill.

Daly, M. C., Buchel, F., and Duncan, G. J. (2000). Premiums and penalties for surplus and deficit education: evidence from the United States and Germany. *Economics of Education Review*, 19(2), p. 169–178.

de Broucker, P. (2005). *Without a Paddle: What to do About Canada's Young Drop-Outs*" Ottawa: Canadian Policy Research Network.

Frenette, M. (2000). "Overqualified? Recent graduates and the needs of their employers." *Education Quarterly Review*, 7(2), Statistics Canada Catalogue No. 81-003-XIE, p. 7–21.

Frenette, M. (2004). "The overqualified Canadian graduate: the role of the academic program in the incidence, persistence, and economic returns to overqualification." *Economics of Education Review*, 23, p. 29–45.

Gainor, K. A. (2006). Twenty-Five Years of Self-Efficacy in Career Assessment and Practice, *Journal of Career Assessment*, 14, p. 161–178.

Gati, I., Saka, N., and Krausz, M. (2001). Should I use a computer-assisted career guidance system? It depends on where your career decision-making difficulties lie. *British Journal of Guidance and Counseling*, 29(3), p. 301–321.

Grier-Reed, T. L., Skaar, N. R., and Conkel-Ziebell, J. L. (2009). Constructivist career development as a paradigm of empowerment for at-risk culturally diverse college students. *Journal of Career Development*, 35, p. 290–305.

Harris-Bowlsbey, J. (2002). Models of Use of the Internet in Career Planning Services. In J. Harris-Bowlsbey, M. R. Dikel, & J. Sampson, *The Internet: A Tool For Career Planning.* (2nd ed.) (p. 57–80). Tulsa, Oklahoma: National Career Development Association.

Li, C., Gervais, G., and Duval, A. (2006). *Analysis in Brief: The Dynamics of Overqualification: Canada's Underemployed University Graduates*, Statistics Canada.

Savard, R. and Michaud, G. (2005). *The Impact of LMI on the Career Decision-Making Process: Literature Review*. Forum of Labour Market Ministers Labour Market Information Group.

Sicherman, N. (1991). Overeducation in the labor market. *Journal of Labor Economics*, 9(2), p. 101–122.

Taylor, K. M. and Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, p. 63–81.

United Kingdom Commission for Employment and Skills. (2010). "*Careering Through the Web: The Potential of Web 2.0 and 3.0 Technologies for Career development and Career Support Services*."

van Ryn, M. and Vinokur, A. (1992). How Did It Work? An Examination of the Mechanisms Through Which an Intervention for the Unemployed Promoted Job-Search Behavior. *American Journal of Community Psychology*, 20:5, p. 577–597.

Verdugo, R. and Verdugo, N. (1989). The impact of surplus schooling on earnings: some additional findings. *Journal of Human Resources*, 24(4), p. 629–643.

Whiston, S., Sexton, T., and Lasoff, D. (1998). "Career-Intervention Outcome: A Replication and Extension of Oliver and Spokane." *Journal of Counseling Psychology*, 45:2, p. 150–165.

Yuen, J. (2010). "*Job–education match and mismatch: Wage differentials.*" Catalogue No. 75-001-X. Ottawa: Statistics Canada.

Zikic, J. and Saks, A. (2009). Job search and social cognitive theory: The role of career-relevant activities, *Journal of Vocational Behavior*, 74, p. 117–127.

Appendix

Table A.1 Characteristics of CareerMotion participants at baseline

	All		Program		Control	
	(#)	(%)	(#)	(%)	(#)	(%)
Number of participants	497	100	249	50.1	248	49.9
Gender						
Men	135	27.2	68	27.3	67	27.0
Women	362	72.8	181	72.7	181	73.0
Age						
20 to 24	27	5.4	13	5.2	14	5.6
25 to 29	208	41.9	105	42.2	103	41.5
30 to 34	148	29.8	78	31.3	70	28.2
35 to 40	114	22.9	53	21.3	61	24.6
Average age	30.53		30.55		30.51	
Educational attainment						
Undergrad degree	343	69.2	167	67.3	176	71.0
Diploma or certificate	68	13.7	39	15.7	29	11.7
Graduate degree	85	17.1	42	16.9	43	17.3
Family structure						
Single without children living with parents	82	16.5	42	16.9	40	16.1
Single without children not living with parents	198	39.9	102	41.1	96	38.7
Married but no children	116	23.4	52	21.0	64	25.8
Single parent	15	3.0	10	4.0	5	2.0
Married with children	85	17.1	42	16.9	43	17.3

Table A.1 Characteristics of CareerMotion participants at baseline

	All		Program		Control	
	(#)	(%)	(#)	(%)	(#)	(%)
Immigrant status						
Native born	371	74.8	187	75.4	184	74.2
Immigrant	125	25.2	61	24.6	64	25.8
Home language						
English	414	83.5	208	83.9	206	83.1
Others (not English)	82	16.5	40	16.1	42	16.9
Employment status						
Employed	324	65.6	161	65.2	163	66.0
Working full-time	223	45.1	113	45.7	110	44.5
Working part-time	74	15.0	32	13.0	42	17.0
Self-employed	27	5.5	16	6.5	11	4.5
Unemployed	14	2.8	10	4.0	4	1.6
Jobless but not looking	156	31.6	76	30.8	80	32.4
Unemployment duration						
0 to 3 months	81	16.3	36	14.5	45	18.1
4 to 6 months	41	8.2	23	9.2	18	7.3
7 to 12 months	28	5.6	15	6.0	13	5.2
Over a year	20	4.0	12	4.8	8	3.2
Household income						
Less than $20,000	112	23.7	55	23.2	57	24.3
$20,000 to $39,999	129	27.3	63	26.6	66	28.1
$40,000 to $49,999	85	18.0	48	20.3	37	15.7
$50,000 to $69,000	55	11.7	32	13.5	23	9.8
$70,000 or more	91	19.3	39	16.5	52	22.1

Table A.1 Characteristics of CareerMotion participants at baseline

	All		Program		Control	
	(#)	(%)	(#)	(%)	(#)	(%)
Salary ($/hour)						
Current hourly wage	19.0		20.0		18.0	
Expected future hourly wage	20.2		20.3		20.0	

Source: CareerMotion baseline survey and administrative data.

Table A.2 Attitudes and beliefs of CareerMotion participants at baseline

	Program	Control	Difference	Standard error
Career decision self-efficacy:				
▪ Self-appraisal	3.56	3.66	-0.11	(0.06)
▪ Gathering occupational information	3.63	3.73	-0.10	(0.07)
▪ Goal selection	3.40	3.50	-0.10	(0.07)
▪ Making plans	3.46	3.58	-0.11	(0.07)
▪ Problem solving	3.28	3.45	-0.17**	(0.07)
▪ Overall	3.46	3.58	-0.12**	(0.06)
Job search clarity	3.29	3.33	-0.04	(0.07)
Job search self-efficacy	3.05	3.11	-0.06	(0.07)
Job search intensity:				
▪ Preparatory	2.70	2.81	-0.12	(0.16)
▪ Active	1.25	1.39	-0.14	(0.13)
▪ Overall	2.17	2.30	-0.13	(0.14)
Job search intentions:				
▪ Preparatory	4.51	4.72	-0.21	(0.27)
▪ Active	3.18	3.58	-0.40	(0.28)
▪ Overall	4.02	4.35	-0.33	(0.26)
Job satisfaction – average	3.85	3.82	0.03	(0.10)
Job satisfaction – overall	3.57	3.54	0.03	(0.14)
Career exploration:				
▪ Self-exploration	3.12	3.35	-0.23**	(0.10)
▪ Environment exploration	2.23	2.41	-0.18**	(0.08)
▪ Overall	2.63	2.83	-0.20***	(0.08)
Career planning	2.98	3.02	-0.04	(0.08)
Underemployment	3.44	3.56	-0.12*	(0.07)
Networking comfort	3.36	3.47	-0.11*	(0.07)
Networking intensity	1.49	1.58	-0.09	(0.13)

Table A.2 Attitudes and beliefs of CareerMotion participants at baseline

	Program	Control	Difference	Standard error
Subjective norm:				
▪ Partner	3.55	3.62	-0.07	(0.16)
▪ Others	3.44	3.38	0.06	(0.13)
▪ Overall	3.51	3.48	0.04	(0.13)
Job search attitude	3.67	3.64	0.02	(0.07)
Employment constraints	2.20	2.26	-0.06	(0.07)
Life satisfaction	5.97	6.22	-0.25	(0.19)
LMI ease of reach	2.95	3.03	-0.08	(0.08)
LMI usage	1.67	1.75	-0.09	(0.11)
Awareness of Web sites	2.35	2.19	0.16	(0.15)
Usage of Web sites	1.01	0.96	0.05	(0.11)

Source: CareerMotion baseline survey.

Notes: Overall sample sizes for the control and program groups are 248 and 249, respectively. Sample sizes vary for individual measures because of missing values. Two-tailed t-tests were applied to differences in characteristics between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent. Rounding may cause slight discrepancies in sums and differences.

Table A.3 CareerMotion's impact at the five-week mark

	Program	Control	Impact	Standard error
Key outcomes (change since baseline)				
Career decision-making self-efficacy [a+#]:				
▪ Self-appraisal	0.41	-0.22	0.63***	(0.12)
▪ Gathering occupational information	0.35	-0.20	0.55***	(0.11)
▪ Goal selection	0.37	-0.13	0.50***	(0.11)
▪ Making plans	0.33	-0.17	0.50***	(0.11)
▪ Problem solving	0.37	-0.18	0.55***	(0.12)
▪ Overall	0.48	-0.24	0.72***	(0.12)
Job search self-efficacy [a+#]	0.59	-0.04	0.63***	(0.11)
Job search clarity [a+#]	0.51	0.16	0.35***	(0.11)
Job search intention [b+]:				
▪ Preparatory	-0.03	-0.04	0.01	(0.03)
▪ Active	-0.01	-0.06	0.05*	(0.03)
▪ Overall	-0.03	-0.06	0.03	(0.03)
Job search attitude [a+#]	-0.06	-0.03	-0.02	(0.11)
Job search intensity [d+]:				
▪ Preparatory	-0.01	-0.04	0.03	(0.05)
▪ Active	0.07	0.00	0.06	(0.06)
▪ Overall	0.02	-0.03	0.04	(0.05)
Career exploration [a+]:				
▪ Self-exploration	0.04	-0.10	0.14	(0.09)
▪ Environment exploration	0.16	-0.16	0.31***	(0.10)
▪ Overall	0.13	-0.18	0.30***	(0.11)
Career planning [a+#]	0.43	0.21	0.22**	(0.10)
Underemployment [a-#]	-0.24	-0.11	-0.13	(0.10)
Job satisfaction – average	0.15	0.07	0.08	(0.06)
Job satisfaction – overall [b+$]	0.13	0.06	0.07	(0.05)

Table A.3 CareerMotion's impact at the five-week mark

	Program	Control	Impact	Standard error
Networking comfort	0.19	-0.06	0.25**	(0.10)
Networking intensity	0.03	-0.02	0.05	(0.05)
Subjective norm:				
▪ Partner	-0.04	0.00	-0.04	(0.07)
▪ Others	-0.08	-0.03	-0.05	(0.07)
▪ Overall	-0.07	-0.02	-0.05	(0.06)
Employment constraints	0.27	0.10	0.18	(0.19)
Life satisfaction [c+]	0.08	0.00	0.07**	(0.04)
LMI ease of reach [a+]	0.32	0.08	0.24***	(0.09)
LMI usage [d+]	0.15	-0.05	0.20***	(0.06)
Awareness of Web sites [e+]	0.45	0.26	0.20***	(0.06)
Usage of Web sites [f+]	0.20	0.06	0.14*	(0.07)
Employment outcomes (%)				
Employed or self-employed:	75.3	70.1	5.2	(4.6)
▪ Working full-time	52.3	49.3	3.0	(5.2)
▪ Working part-time	16.7	16.4	0.2	(3.8)
▪ Self-employed	6.3	4.4	2.0	(2.3)
Unemployed	2.3	1.9	0.4	(1.5)
Out of the labour force	22.4	28.0	-5.6	(4.5)
Out of work duration (%):				
▪ Less than 3 months	5.8	13.0	-7.2**	(3.0)
▪ 3 to 6 months	9.2	9.6	-0.4	(3.0)
▪ 6 to 12 months	5.2	3.4	1.8	(2.1)
▪ Over a year	4.6	3.9	0.8	(2.1)

Table A.3 CareerMotion's impact at the five-week mark

	Program	Control	Impact	Standard error
Salary ($/hour):				
▪ Current hourly wage	27.0	26.6	0.4	(1.6)
▪ Expected future hourly wage	22.7	21.2	1.6	(1.0)

Source: CareerMotion baseline and first follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 208 and 174, respectively. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.
(a) Five-point scale. (b) Seven-point scale. (c) Ten-point scale. (d) Number of activities in the past four weeks. (e) Number of Web sites. (f) Number of activities in the past two months. (+) The higher the better. (-) The lower the better. (#) 3 is neutral. ($) 4 is neutral.

Table A.4 CareerMotion's impact at the five-week and the one-year marks

	Five-week mark				One-year mark			
	Program	Control	Impact	S.E.	Program	Control	Impact	S.E.
Career decision-making self-efficacy:								
▪ Self-appraisal	0.36	-0.13	0.50***	(0.11)	0.29	0.02	0.28**	(0.13)
▪ Gathering occupational info	0.33	-0.20	0.52***	(0.11)	0.41	-0.01	0.42***	(0.11)
▪ Goal selection	0.33	-0.05	0.37***	(0.10)	0.38	0.07	0.31**	(0.13)
▪ Making plans	0.27	-0.16	0.43***	(0.11)	0.35	0.07	0.28**	(0.13)
▪ Problem solving	0.36	-0.11	0.46***	(0.11)	0.39	-0.04	0.43***	(0.14)
▪ Overall	0.38	-0.15	0.53***	(0.10)	0.44	0.03	0.41***	(0.13)
Job search self-efficacy	0.45	-0.02	0.47***	(0.10)	0.49	0.09	0.40***	(0.12)
Job search clarity	0.36	0.16	0.20*	(0.10)	0.45	0.26	0.19*	(0.11)
Job search attitude	-0.12	0.04	-0.16	(0.11)	-0.20	-0.03	-0.17	(0.14)
Career exploration (†):								
▪ Self-exploration	0.00	-0.04	0.04	(0.13)	0.66	0.56	0.10	(0.13)
▪ Environment exploration	0.07	-0.13	0.20*	(0.12)	0.11	-0.07	0.18	(0.13)
▪ Overall	0.04	-0.09	0.13	(0.12)	0.40	0.26	0.13	(0.13)
Career planning	0.44	0.18	0.26**	(0.10)	0.53	0.22	0.31**	(0.12)
Networking comfort	0.13	-0.06	0.19**	(0.09)	0.21	-0.06	0.26**	(0.11)
Networking intensity	0.02	-0.01	0.03	(0.09)	-0.19	-0.27	0.08	(0.13)
Job search intensity (†):								
▪ Preparatory	-0.02	-0.07	0.05	(0.10)	0.53	0.32	0.20	(0.12)
▪ Active	0.05	0.01	0.04	(0.10)	0.26	0.04	0.22*	(0.13)
▪ Overall	0.00	-0.04	0.05	(0.09)	0.44	0.22	0.22*	(0.12)
Job search intention:								
▪ Preparatory	-0.06	-0.09	0.03	(0.11)	-0.41	-0.58	0.17	(0.14)
▪ Active	-0.05	-0.17	0.12	(0.09)	-0.32	-0.59	0.27**	(0.13)
▪ Overall	-0.06	-0.14	0.08	(0.10)	-0.38	-0.63	0.25*	(0.13)
LMI usage (†)	0.25	-0.05	0.30***	(0.11)	-0.09	-0.41	0.32**	(0.13)

Table A.4 CareerMotion's impact at the five-week and the one-year marks

	Five-week mark				One-year mark			
	Program	Control	Impact	S.E.	Program	Control	Impact	S.E.
LMI ease of reach	0.29	0.08	0.21*	(0.11)	0.54	0.14	0.41***	(0.12)
Job satisfaction – average	0.14	0.08	0.06	(0.10)	0.38	0.31	0.07	(0.14)
Job satisfaction – overall	0.22	0.07	0.15	(0.10)	0.48	0.37	0.11	(0.15)
Life satisfaction	0.09	-0.02	0.10	(0.09)	0.30	0.20	0.10	(0.11)

Source: Calculations based on data from CareerMotion's baseline, first, and second follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 136 and 123, respectively. The estimations of the impacts at the first follow-up survey were based on 127 control group and 113 program group observations. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent. (†) Figures for the first follow-up questions were calculated as the changes of scales from the baseline. The questions were revised to ask for self-assessed changes.

Table A.5 CareerMotion's impact on employment outcomes at the one-year mark

	Program	Control	Impact	Standard error
Percentage unemployed or out of the labour force at the one-year mark	12.2	13.2	-1.0	(4.2)
Percentage employed or self-employed at the one-year mark:	87.8	86.8	1.0	(4.2)
▪ Full-time	69.1	64.7	4.4	(5.9)
▪ Part-time	13.8	16.2	-2.4	(4.5)
▪ Self-employed	4.9	5.9	-1.0	(2.8)
Percentage working for same employer at baseline and at the one-year mark:	37.2	35.8	1.3	(6.3)
▪ Same position	25.4	27.5	-2.1	(5.8)
▪ Higher level	6.1	5.8	0.3	(3.1)
▪ Same level (different position)	4.4	0.8	3.6*	(2.1)
▪ Lower level	0.9	0.8	0.0	(1.2)
Percentage not working for the same employer at baseline and at the one-year mark	25.7	25.8	-0.2	(5.8)
Percentage who felt that employment at the one-year mark was a better match than that at baseline	34.8	27.3	7.6	(8.1)
Percentage who were more satisfied with employment at the one-year mark than at baseline	38.5	31.3	7.2	(8.4)
Average hourly wage in employment at the one-year mark ($)	23.7	22.6	1.1	(1.2)
Average job tenure in employment at the one-year mark (months)	27.3	22.6	4.7	(4.0)

Source: CareerMotion baseline and second follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 136 and 123, respectively. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the program and control groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.

Table A.6 Comparison of CareerMotion's effect sizes by intensity of usage at the five-week mark

	High users	Low users	Differences	S.E.
Career decision self-efficacy:				
▪ Self-appraisal	0.73	0.16	0.57***	(0.19)
▪ Gathering occupational info	0.57	0.19	0.38**	(0.19)
▪ Goal selection	0.68	0.13	0.55***	(0.18)
▪ Making plans	0.58	0.13	0.45**	(0.18)
▪ Problem solving	0.63	0.17	0.46**	(0.19)
▪ Overall	0.82	0.21	0.61***	(0.21)
Job search self-efficacy	0.87	0.37	0.49***	(0.17)
Job search clarity	0.70	0.36	0.35*	(0.19)
Job search intention:				
▪ Preparatory	-0.03	-0.03	0.01	(0.04)
▪ Active	-0.02	-0.01	-0.01	(0.04)
▪ Overall	-0.03	-0.03	0.00	(0.04)
Job search attitude	0.00	-0.10	0.10	(0.16)
Job search intensity:				
▪ Preparatory	0.04	-0.04	0.09	(0.07)
▪ Active	0.08	0.05	0.03	(0.08)
▪ Overall	0.06	-0.02	0.08	(0.08)
Career exploration:				
▪ Self-exploration	0.18	-0.07	0.25	(0.14)
▪ Environment exploration	0.29	0.06	0.23	(0.15)
▪ Overall	0.31	-0.01	0.32	(0.17)
Career planning	0.73	0.20	0.53	(0.15)
Job satisfaction – average	0.13	0.16	-0.02	(0.10)
Job satisfaction – overall	0.18	0.09	0.09	(0.07)
Networking comfort	0.18	0.20	-0.02	(0.16)
Networking intensity	-0.01	0.06	-0.07	(0.07)

Table A.6 Comparison of CareerMotion's effect sizes by intensity of usage at the five-week mark

	High users	Low users	Differences	S.E.
Life satisfaction	0.09	0.07	0.02	(0.06)
LMI ease of reach	0.50	0.19	0.30	(0.14)
LMI usage	0.26	0.07	0.19	(0.10)

Source: CareerMotion baseline and first follow-up surveys.

Notes: Overall sample sizes for the control and program groups are 208 and 174, respectively. Sample sizes vary for individual measures because of missing values. All effects were measured by the number of standard deviations of the scales. Two-tailed t-tests were applied to differences in changes of scales between the groups. Statistical significance levels are indicated as * = 10 per cent; ** = 5 per cent; *** = 1 per cent.