

SMALL SCALE EXPERIMENTS OPTIONS FOR EMPLOYMENT PROGRAMMING

FINAL REPORT

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1.0 Introduction

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For many years, Human Resources and Skills Development Canada (HRSDC) has supported research related to economic activity, labour market interventions, and social programming. This has typically involved qualitative analysis along with retrospective statistical and multivariate work. However, in recent years, there has been interest in increasing the portfolio of methods available to the department. In 2009, HRSDC issued a request for proposals (RFP) for economic experimental research under the title, *Will it Work? Using Small Scale Experiments to Support Policy and Program Goals* (Human Resources and Skills Development Canada, 2009a, p. 1).

The RFP posed three questions about small-scale, time-limited experiments:

- Could they be applied or modified to address policy-relevant social and labour market questions?
- Could they be used to fill knowledge gaps related to existing HRSDC policies, programs, and services?
- Could they be used to examine established theories, propositions, hypotheses, and assumptions about social and labour market policies (Service Canada, 2009a, p. 1)?

PRA proposed examining the preferences among individuals for employment programming.

1.1 Overview of the experiment

The project—referred to as the Options for Employment Programming Experiment—involves applying a conjoint analysis technique (see Section 2.0 for description) to assess preferences for employment benefits and support measures (EBSMs) typically offered to Canadians through government funding. It takes the perspective that individuals may be viewed as consumers attempting to select a package of employment-related interventions that best meet their needs.

At the federal level, funding for employment programming may be provided via the Employment Insurance Program (see the *Employment Insurance Act*, *Part II*¹) and through general revenues. In general and specifically for the funds from EI, the employment programs and job finding services offered are meant to decrease dependence on EI and, by extension, Social Assistance (SA). They do so by providing financial support for Canadians to obtain the skills training and other relief measures that would ensure long-term employment.

Service Canada. *Employment Insurance Act* – Part II – Employment Benefits and National Employment Service. Retrieved May 28, 2010, from http://www.servicecanada.gc.ca/eng/ei/legislation/ei act part2.shtml#employment



The *Employment Insurance Act*, for example, establishes a number of guidelines for the support of employment programming and services:

- 1. harmonization with existing Part II programming to avoid unnecessary program overlap
- 2. activities to reduce dependence on unemployment benefits by helping individuals keep work
- 3. co-operation between levels of government and other non-governmental organizations
- 4. flexibility to allow decision making at the community level
- 5. provision of services in both official languages where there is sufficient demand
- 6. programming that involves a commitment by clients to meet the goals of the assistance offered
- 7. a program structure that gives clients primary responsibility for identifying their own employment needs and finding the necessary services
- 8. cost sharing by clients where appropriate
- 9. a framework for evaluating the success of programming (Service Canada, 2009)

The seventh of these is of particular importance to the work at hand as it suggests the need to understand the programming demands of EI clients.

Part II of the EI Act provides a generic set of employment benefits and support measures. These include:

Employment benefits

- Targeted wage subsidies
- Self-employment
- Job creation partnerships
- Skills development
- Targeted earnings supplements

Support measures

- Employment assistance services
- Labour market partnerships
- Research and innovation (Human Resources and Skills Development Canada, 2009b)

These are altered and delivered by provinces to meet the specific labour market circumstances of each (Provincial-Territorial Labour Market Ministers, 2002, p. 3).



The importance of EI Part II funds as well as other funds and programs supported by governments should be evident in the context of a changing Canadian labour market. Specifically, skill requirements in Canada are evolving rapidly and show signs of continued change. Driving this change are such things as the adoption of new technology, frequent technology change, and the development of entirely new industries. This presents a problem for both employed and unemployed individuals whose skill levels are in need of adjustment to meet these demands.

These difficulties are even more acute for workers who are longer tenured and facing unemployment. In general, these workers include those who have worked for years without having to draw on EI benefits in their recent work history (Service Canada, 2009b). Many of these longer tenured workers will have spent years if not decades acquiring job specific skills that may no longer meet current market demand. Of these, some may also be in the latter years of their working lives, making the prospect of extensive training daunting.

Overall, the Options for Employment Programming Experiment addresses both the methodological and the policy research needs described above and attempts to evaluate:

- Whether conjoint analysis techniques may be applied to labour market programming
- How variations in the duration and level of employment benefits and support measures affect individual preferences for services; and
- What combinations may better meet EI client needs for training, retraining, job search, and other services to gain and retain employment?

Although the experiment was designed and undertaken by PRA, it includes a number of partners that supported the research work. Many of these operate under the auspices of the Manitoba Department of Entrepreneurship, Training and Trade (ETT). Departmental representatives provided access to participants and identified employment programs currently offered in the province. These programs serve as the basis for the experimental employment package development discussed below. Manitoba Family Services and Housing (FSH) also offered its support if access to participants through ETT proved infeasible.² HRSDC provided funds for the research project.

1.2 Guide to the report

The remainder of the report includes four sections. Section 2 outlines the project's research methodology, detailing many of the practical considerations for the work. Section 3 presents a synopsis of the focus groups that served to increase the salience essential for conjoint analysis. Section 4 describes the conjoint experiment and summarizes the results and findings. Section 5 reviews the lessons learned from this project.

Because of privacy restrictions, HRSDC does not have direct access to administrative files on EI clients. The plan was to use provincial data on clients who are eligible for provincial programs and services. While the province was willing to support this approach, arrangements could not be finalized within the time set for this research.



²

2.0 Methodology – overview

Conjoint analysis is often used in market research to assess the desirability of product attributes.

In general, individuals are asked to rate examples of products across which combinations of features are varied. As an example, an automobile may have three key attributes under study including fuel consumption, acceleration, and colour. Each of these may have a number of levels including high and low in the cases of fuel consumption and acceleration, as well as red and blue in the case of colour. In this example, which is formally described as a 2³ model, all possible combinations of these features would result in eight possible products. In conjoint analysis, individuals are asked to rate or assign a value to combinations of attributes and levels—termed packages—using a magnitude scale. The scale typically ranges from 1 to 10.Regression models are then developed to analyze the magnitude values as a function of the characteristics of the customer.

One of the challenges with this approach is that, as the number of attributes and levels increase, so too do the number of possible combinations and resulting products. For example, a three-attribute model with three levels in each attribute will generate 27 possible packages. Research has shown, however that at any given time, individuals are only able to critically assess and rate a relatively small number of products—normally, fewer than 10, due to respondent fatigue. To overcome this difficulty, researchers will often identify all possible attribute combinations and assign subsets of these across a sample of individuals. With a sufficient number of individuals rating each package, the research can determine the marginal effect of both the product attributes and individual characteristics on "customer" preference.

The Options for Employment Programming Experiment adopts the *potential EI client as a consumer* perspective. Under this approach, EI clients and potential program and service users are seen as consumers evaluating a complex service offering. The goal is to infer *revealed preferences* based on the stated choices in the experiment. The participants in this experiment rate a number of hypothetical employment service packages in a focus group setting. Although the attributes and levels being presented in these service packages already exist, the particular combinations being examined in this project do not represent combinations of services that are normally offered.

The type and level of attribute offered under each package will vary, just as attributes of a product would vary in a market research setting.

There are five main steps in the implementation of the analysis:

- Develop the experimental employment service packages for use during the experiment
- Recruit and enrol participants
- Procedures leading up to and wrapping up after the experiment
- Experimental design and administration of the experiment
- Analysis and reporting of the data

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The first four steps are discussed below.³ A final subsection notes ethical and privacy issues.

The remainder of this report refers to the final experiment. Details regarding the pretest (prior to refinements) focus groups and experiment can be found in Appendix D.

2.1 Development of the service packages

The service packages were developed with programming that can be funded from the EI account, as this allows for a wide variation in experimental program attributes and levels. The design of the packages is further influenced by the nature of Manitoba's offering.

In Manitoba, the employment benefits and support services are commonly referred to as provincial benefits and provincial measures (PBPMs). Provincial benefits focus on direct employment support to individuals. This may include skills development programming, wage subsidies, self-employment assistance, or employment partnership programming. Provincial measures include more general activities that indirectly support employment, including employment assistance services, labour market partnerships, and research and innovations activities.

The first step in developing the experimental services packages involved identifying and reviewing all PBPMs currently delivered by the Manitoba government. Manitoba ETT provided a full list and details; the province currently offers the following programs:

- Wage subsidies (WS)
- Skills development apprenticeship (SDA)
- Skills development (SD)
- Self-employment (SE)
- Employment assistance services (EAS)
- Employment partnerships (EP)

In addition to these, the experiment also examines an earnings supplement (ES) measure now offered as part of some provincial Part II programming.



Table 1 provides details of each of these seven benefits. As the table demonstrates, many of the programs have common attributes. These include the provision of labour market information (LMI) and employment support, on the job training, and classroom training.

Table 1: Employment programs and services table — Manitoba									
	WS	SDA	SD	SE	EAS	EP	ES		
Description Intended outcome	Temporary direct subsidies to employers to hire lower- skilled workers On the job skills development	Funded apprenticeshi p training for individuals on El including some related costs Completion of apprenticeshi p and	Funded training for skills development and some other related costs Increased skills relevant to the labour	Business advice, planning support, and financial assistance to start a small business Development of a viable business	Job preparation, search, and retention support for El clients Achievement of client employment	Employer programming for workforce expansion, labour market matching, and project-based training Increased employment or movement	Temporary wage subsidy paid to clients when taken typically lower-paying work in another field Work experience in a different		
Length	and eventual long-term employment 15 to 26	eventual employment	Up to two	Up to 39	goals	from under- employment to employment Variable	field		
	weeks	apprenticeshi p program	years, with occasional exceptions	weeks					

The common attributes were of most interest for the experimental designs. For simplicity, and to clearly demonstrate the potential of the conjoint analysis technique, the project focused on three attributes offered at three different levels. Table 2 shows these attributes and their associated levels.

Table 2: Experimental attributes and levels						
	Level 1	Level 2	Level 3			
Duration of program	Up to 6 months	Up to 12 months	Up to 24 months			
Training	Funding for classroom training leading to a credential	Funding for skills development (no credential)	No training offered, just resumé building and job search support			
Work experience	Job placement (at 75% of last wage)	25% earnings supplement (on any earnings received and paid directly to EI client)	No work placement			

Given that each of these three attributes can operate at three different levels, fully varying all of these requires 27 (3^3) different experimental services packages. As noted previously, individuals are only able to critically assess and rate a relatively small number (fewer than 10). Taking this into consideration, the 27 packages were randomized and grouped into batches of six; leading to nine sets of six—see Table 3.⁴ These batches were then distributed randomly amongst participants. Hence each participant rated six packages. With a sufficient number of individuals rating each package, the multivariate regression suggested above remains feasible.

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Since there were 27 combinations in total, the last three packages were combined with the first three to create the next set of six; hence, there are nine different batches of six.

(Package,	Duration	Training	Work experience
combination)	Duration	Iraining	work experience
(1,12)	Up to 12 months	Funding for classroom training leading to a credential	No work placement
(2,26)	Up to 24 months	No training offered, just resumé building and job search support	25% earnings supplement (on any earnings received and paid directly to EI client)
(3,25)	Up to 24 months	No training offered, just resumé building and job search support	Job placement (at 75% of last wage)
(4,14)	Up to 12 months	Funding for skills development (no credential)	25% earnings supplement (on any earnings received and paid directly to EI client)
(5,17)	Up to 12 months	No training offered, just resumé building and job search support	25% earnings supplement (on any earnings received and paid directly to EI client)
(6,9)	Up to 6 months	No training offered, just resumé building and job search support	No work placement
(7,5)	Up to 6 months	Funding for skills development (no credential)	25% earnings supplement (on any earnings received and paid directly to EI client)
(8,24)	Up to 24 months	Funding for skills development (no credential)	No work placement
(9,23)	Up to 24 months	Funding for skills development (no credential)	25% earnings supplement (on any earnings received and paid directly to EI client)
(10,11)	Up to 12 months	Funding for classroom training leading to a credential	25% earnings supplement (on any earnings received and paid directly to EI client)
(11,4)	Up to 6 months	Funding for skills development (no credential)	Job placement (at 75% of last wage)
(12,10)	Up to 12 months	Funding for classroom training leading to a credential	Job placement (at 75% of last wage)
(13,16)	Up to 12 months	No training offered, just resume building and job search support	Job placement (at 75% of last wage)
(14,20)	Up to 24 months	Funding for classroom training leading to a credential	25% earnings supplement (on any earnings received and paid directly to EI client)
(15,19)	Up to 24 months	Funding for classroom training leading to a credential	Job placement (at 75% of last wage)
(16,18)	Up to 12 months	No training offered, just resumé building and job search support	No work placement
(17,1)	Up to 6 months	Funding for classroom training leading to a credential	Job placement (at 75% of last wage)
(18,27)	Up to 24 months	No training offered, just resumé building and job search support	No work placement
(19,21)	Up to 24 months	Funding for classroom training leading to a credential	No work placement
(20,22)	Up to 24 months	Funding for skills development (no credential)	Job placement (at 75% of last wage)
(21,15)	Up to 12 months	Funding for skills development (no credential)	No work placement
(22,6)	Up to 6 months	Funding for skills development (no credential)	No work placement
(23,8)	Up to 6 months	job search support	25% earnings supplement (on any earnings received and paid directly to EI client)
(24,3)	Up to 6 months	Funding for classroom training leading to a credential	No work placement
(25,13)	Up to 12 months	Funding for skills development (no credential)	Job placement (at 75% of last wage)
(26,2)	Up to 6 months	Funding for classroom training leading to a credential	25% earnings supplement (on any earnings received and paid directly to EI client)
(27,7)	Up to 6 months	No training offered, just resumé building and job search support	Job placement (at 75% of last wage)

Since these packages are based on key attributes identified from currently offered employment programming, they should resonate with current, former, and possible future users of this programming. As discussed below, this is critical for the success of the experiment.

2.2 Recruiting and enrolling participants



Establishing salience is important in any experimental setting. This is because experimental treatments must be relevant to participants to elicit realistic behaviour. The Options for Employment Programming Experiment attempted to establish salience in two ways. The first way, noted above, involved ensuring that all program packages include realistic interventions. The second involved recruiting a group of participants that were familiar with employment programming or for which this programming is pertinent. Participants for this project included:

- EI clients at the time of recruitment
- Individuals who had been EI clients in the past five years
- Individuals working in occupations that were at risk for layoff; and
- Long-tenured workers "individuals who have worked and paid EI premiums for a significant period of time and have previously made limited use of EI regular benefits" (HRSDC, 2009c)

To recruit these individuals, four methods were used:

- 1. Recruiting EI Part I and Manitoba PBPMs clients directly at co-located service centres in Winnipeg, through a voluntary opt-in approach. PRA prepared posters that introduced the research and invited individuals from the three groups above to call PRA to participate; each participant would receive a \$50 honorarium. The posters were displayed in four employment centres throughout Winnipeg by Manitoba ETT.⁵ These centres are commonly visited by EI clients as well as other individuals seeking work. When individuals called PRA, they were asked a number of questions to ensure their eligibility for the research.
- 2. Each month, PRA undertakes a random Omnibus survey of Manitobans. Questions asked on this survey include:
 - Are you currently collecting EI?

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- Have you collected EI at any time during the past five years?
- Occasionally, PRA conducts focus groups and online surveys. These types of research normally offer financial incentives for participating. Would you be interested in being contacted to participate in these future research studies?

Individuals who responded positively to any of these questions were re-contacted, introduced to the research, and were requested to participate in the project. They were then asked a series of questions to ensure their eligibility for the research.

- 3. Re-contacting individuals who had previously completed a survey with PRA. PRA maintains an in-house database of past survey respondents. Potential participants for this study were pulled from this database targeting those that most likely would meet one of the three criteria noted above. Once contacted, whether they met the criteria or not was confirmed, and consent for participation was obtained.
- 4. Finally, participants were also found through random digit dialling, where a random list of phone numbers was generated and then called by PRA. Once called, the respondent

Three posters were displayed at the Downtown, South, Northeast, and Southwest centres. Each poster consisted of 100 tear off cards with PRA's contact information to register for a session.

was introduced to the research and asked if they were interested in participating. If so, the individuals were asked a series of questions, to ensure their eligibility to participate.

It was important that the experiment have a reasonable statistical power of test. This is, in part, dependent on the sample size used in the analysis. The STATA command *powerreg* was used to determine this sample size, given the statistical analysis (regression structure) planned for the work. The calculation used the following assumptions:

- The R² associated with the regression model without the inclusion of treatment dummy variables is .25
- The R² associated with the regression model with the inclusion of treatment dummy variables is .30
- The model includes 27 dummy variable combinations of research interest
- The model uses 10 additional control variables
- An alpha variable of 0.01 is desired
- A power of .8 is desired⁶

Under these relatively conservative assumptions, a sample of 463 observations or packages evaluated is required.

Through the methods described above we were able to enrol 156 participants across 17 focus groups. The first 28 participants constitute the pretest group (the first three groups), leaving us with 128 participants who provided valid ratings for six separate packages, for a total of 768 experimental observations. This greatly exceeds the sample size required to establish a statistical power of .8.

2.3 Procedures

Individuals who volunteered for the experiment were invited to participate in a focus group. During these focus groups, they rated the packages described in Section 2.1. However, a number of activities preceded and followed these groups to support the research.

All focus groups took place at PRA's offices in Winnipeg. Two one-hour focus groups were conducted per evening on any given night.⁷ Individuals were asked to arrive at their group 15 minutes early. This ensured the groups proceeded in a timely fashion and also allowed time for each participant to complete a short questionnaire—as represented in Appendix B. This pre-focus group questionnaire collected basic employment and demographic information on the participant. Prior to conducting each group, the questionnaires were collected and individuals were reminded that their participation was voluntary, how the information they provided would

⁷ A more detailed account of the focus group discussions can be found in Section 3 of this report.



⁶ A statistical power of .8 refers to the odds that we will indeed observe a treatment effect, when it actually occurs. In statistical terms, power=1-type II error; as the power increases the probability of a type II error (the probability of failing to reject the null hypothesis when it is false) occurring decreases.

be used in the research, and that their session may be recorded for review at a later date. Sessions were digitally recorded and one PRA staff member took notes.

Once started, the focus group consisted of two parts. The first involved a discussion of the various employment interventions currently available to clients in their province. To make informed decisions about the experimental service packages, it was important that individuals participating in the focus groups had complete information about all available interventions. Without this information, it was likely that participants would have simply selected those packages including interventions they were already familiar with.

The second part of the focus groups involved participants rating the employment service packages (see next section). This rating information was combined with the demographic and employment information collected prior to the focus group. This combined data set was used in the analysis of preferences.

Once a focus group was completed, participants received a \$50 payment in cash. They were asked to sign a form indicating that they received the payment for their participation in the group. This was to avoid any confusion regarding participation and remuneration if questions arise at a later date.

2.4 The experimental design and administration

One of the critical aspects of the project involved the random assignment of the experimental service packages across participants. Typically, random assignment involves selecting individuals from a population into various treatment and control groups. In the simplest case this would involve dividing individuals into a single treatment group and a single control group. The random assignment process, when conducted appropriately, ensures that both groups are statistically identical. When a uniform treatment is applied to one group and not the other, in a controlled environment, the impact of the treatment may be readily inferred from the differences in outcomes between the two groups.

The Options for Employment Programming Experiment used a much more complex treatment structure with the intent of identifying the relative impacts of various treatment levels. The experimental packages—the treatments for the experiment— varied considerably as numerous combinations of services and levels were possible. In addition, individuals were asked to rate a number of packages, effectively receiving multiple treatments.⁸ This makes the typical assignment of participants into distinct groups difficult, if not impossible. As a result, the project takes a different approach.

As discussed previously, the project first identified a finite list of experimental employment packages for the experiment, resulting directly from consultations with Service Canada and the Province of Manitoba. For the purpose of the project, all participants were included in a single pool. Treatments were then randomly assigned to individuals in this pool in groups of six. For example, the first individual received six randomly determined packages to rate, from the total finite list. The next individual received six other randomly determined packages. Individuals from the pool received groups of six packages in this way until all available packages were

exhausted. The process would then begin again and was repeated until all participants had six packages to rate.

This process of random treatment assignment achieved two goals. First, it ensured all treatments were randomly assigned across the participants. Second, it ensured that all treatment characteristics were distributed evenly across the population. Once the random assignment was achieved, the focus group itself provided the environment within which individuals completed the rating of their packages. Together with each individual's demographic and employment information, the ratings provided six experimental data points for each participant.

This analysis generally involves standard statistical regressions of each individual's package ratings on measures of the package's attributes and of individual characteristics. Regressions include measuring service package attributes using a series of binary dummy variables. Each of these dummy variables represents the presence of a particular attribute at a given level. Individual characteristics are measured using continuous, scaled, or binary variables as appropriate.

The general form for these regressions will appear as follows.

(1)... $Y_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2i} + e_{it}$

Here, i and t index individuals and packages. *Y* represents the package ratings, while X_1 and X_2 represent a set of attribute and individual characteristic measures, respectively. Estimates of β_1 and β_2 provide an indication of the effect of attributes and individual characteristics on ratings. It is important to understand that in equation 1 above, X_1 will include interaction terms to estimate the impact of a number of service attribute combinations.

2.5 Ethics, privacy, and limitations

Due to the voluntary nature of participant enrolment and the full explanation of the experimental work during the focus groups, there are few ethical considerations for the project. Privacy, however, is a concern. Participants have provided PRA with personal information that could be linked back to the individual. Therefore, the use of this information is limited to this research and related work. All information is housed on PRA's secure network, accessible only by designated PRA staff. The information is destroyed at the completion of the project, in accordance with PRA's document retention and privacy policy.

More generally, PRA adheres to the regulations set out in Part 1 of Canada's *Personal Information Protection and Electronic Documents Act* (PIPEDA) and has provided training to staff on implications of this legislation. All staff involved in this research has either enhanced reliability or secret security clearance granted or approved by the Canadian and International Industrial Security Directorate (CIISD) of Public Works and Government Services Canada. PRA also holds a valid *Designated Organization Screening* (DOS), with approved Document Safeguarding at the level of Protected B.

The main limitations of the analysis result from the scope of the project. The project is geographically limited, and participant enrolment may not result in a representative sample of either the EI client population or those at risk of an EI claim. That said the work remains



exploratory and focused on demonstrating the potential of the proposed technique. If the conjoint analysis planned for the project proves successful and provides relevant results, follow-up work can address these issues.

Figure 1 below presents the overall project process.



Figure 1





Figure 2 below expands on the experimental process.

Figure 2



3.0 The focus groups

Focus groups serve two main purposes in a conjoint study:

- The discussion is intended to increase awareness of the issues being assessed. The need to raise the salience has been well established in the literature (Ding, Grewaral & Liechty, 2005)
- It creates an effective mechanism or a platform for completing and collecting completed conjoint questionnaires.

This section summarizes the results of the focus group discussions.

3.1 Structure and composition of the groups

Table 4 summarizes the dates, times, employment status, age of participants, and number of attendees for the full experiment.

Table 4: Options for Employment Experiment: The focus group sessions							
Session	Date	Time	Employment status	Age	Attendees		
1	March 2, 2010	5:30 p.m.	Currently on El	Mix	9		
2	March 2, 2010	7:30 p.m.	On EI during past 5 years	Mix	10		
3	March 3, 2010	5:30 p.m.	Mixed group*	Mix	9		
4	March 9, 2010	5:30 p.m.	Mixed group	Mix	9		
5	March 9, 2010	7:30 p.m.	On EI during past 5 years	18–39	10		
6	March 10, 2010	5:30 p.m.	Mixed group	18–39	6		
7	March 10, 2010	7:30 p.m.	Mixed group	40+	10		
8	March 11, 2010	5:30 p.m.	Currently on El	40+	7		
9	March 11, 2010	7:30 p.m.	On EI during past 5 years	40+	10		
10	March 16, 2010	5:30 p.m.	On EI during past 5 years	40+	8		
11	March 16, 2010	7:30 p.m.	Currently on El	40+	5		
12	March 17, 2010	5:30 p.m.	Mixed group	40+	9		
13	March 17, 2010	7:30 p.m.	Mixed group	18–39	7		
14**	March 18, 2010	5:30 p.m.	On EI during past 5 years	18–39	11		
15**	March 18, 2010	7:30 p.m.	Currently on El	18–39	13		
16**	March 24, 2010	5:30 p.m.	Mixed group	18–39	11		
17	March 24, 2010	7:30 p.m.	Mixed group	40+	12		
			Total number of	participants	156		
Note: Cassiana 1 to	2 constitute the protoc	4					

Note: Sessions 1 to 3 constitute the pretest.

* The mixed group includes those individuals who face a possible layoff.

** Not all participants met the exact criteria of the group as defined above.

To facilitate discussion, information gathered during the recruitment process was used to



compose groups with certain homogeneous characteristics. Some groups were, in totality or at least majority, currently receiving EI Part I benefits, while other groups were composed of people who had previously been, but were no longer, receiving EI Part I benefits, regardless of their current state of employment. Some groups included participants, though currently employed, who were at risk of unemployment due to current labour conditions in their field.

Similarly, the majority of participants in a given focus group were of similar age, within a wider or more specific range as constrained by recruitment. By ensuring these two aspects of homogeneity within a group—age and EI history—individuals with common issues and concerns were brought together with the intent to share their similar experiences with a receptive audience and/or to discuss differing experiences and perspectives on a common subject. Such an environment promoted the exchange of ideas and directed the focus of discussion onto subjects relevant to the experiment.

Beyond these two controlled characteristics, client types varied significantly within each group, in terms of field, education, income, and personal background. Many participants had graduated from college or university, many others had completed some post-secondary courses, and a few had a high school diploma or less. All participants were residing in the Winnipeg area, but may have lived in Manitoba throughout their lives, moved to Winnipeg from elsewhere in Canada, or immigrated from other countries at any point. Participants provided a vast range of past and current employments, including (but not limited to) manual labourers, skilled trades people, engineers, health care professionals and caregivers, administrators, or workers in government, contracting, sales and purchasing, education, media, finance and accounting.

No screening was done on the basis of the above characteristics, or with respect to marital status, children, or other information collected during the recruitment process. Therefore, there is no guarantee that the focus group participants are representative of the population as a whole. Instead, we can be sure that a varied range of perspectives and experiences were included in the discussions and experiment.

3.2 Findings of the focus groups

3.2.1 Awareness of Employment Programming

An important finding was that awareness of provincial employment programming and services varied widely. In some groups, it appeared that no one knew of these training and service options. In other cases, participants had good familiarity with the programs. Since these benefits formed the focus of the study, the moderator needed to explain these programs. Among those that reported not being aware of these benefits and support measures, many expressed surprise and a degree of resentment that no one had informed them.

This may reflect the emphasis by the program on EI Part I benefits and the focus on job search to maintain eligibility. It also may reflect a need for EI counsellors to be more proactive in advancing these options, especially for clients who may experience prolonged periods of joblessness.



3.2.2 Strategies in the job search

The majority of participants were actively searching for new job opportunities. This included several of those already employed, who felt that they were at risk of layoff due to downsizing or firm closure, or were dissatisfied with their positions and wanted to find a more interesting or lucrative job. Several common resources for job opportunities were suggested throughout the groups:

- Newspaper listings, though some felt they had become obsolete
- Job banks, either physical (EI) or online (Workopolis, Monster)
- Independent corporate websites
- Service Canada and related government services

However, personal networking was consistently presented by participants as the most important and effective strategy for finding employment. Family, friends, former co-workers, or other acquaintances through any organization (e.g., associations, church groups) all potentially have information on job openings that are not or not yet advertised, and participants had been successful and continued to be optimistic about finding employment through "a friend of a friend of a friend" or word of mouth. Several participants quoted the common wisdom that "85% of jobs don't get advertised" (or similar high percentages) and held that this was because personal networks filled most positions faster than normal recruiting.

This related to participants' views on contacts within prospective employers' organizations. They felt personal networks were more reliable because employers were more trusting and willing to accept an applicant who had been recommended by a friend, but in a reversed circumstance, they also felt that employers often ignored superior or equally experienced and qualified applicants in favour of those who already had an inside contact. Similarly, while some approved of the job security provided by unions, others felt that an established union made successful application much harder.

When competing for jobs without contacts, participants emphasized the importance of singling themselves out in any way possible, observing that with online applications becoming common, anyone who put in effort to make face-to-face or telephone contact, in addition to submitting a standard application, could emphasize their interest and improve their chances of success. Some participants described conducting previous job searches simply by cold-calling every relevant firm in the phone book to inquire about openings, or "dropping in" on employers. Conversely, some participants felt that the low success with cold-calling was more likely to lead to discouragement and make it difficult to present themselves confidently to other employers.



3.2.3 Barriers to employment

When asked about the availability of information, most participants stated that they felt all the necessary information to find jobs was accessible, but they were not always made aware of the resources available to them. Groups commonly held that Internet access was vital and generally available, although some had to use public libraries, and many wanted Internet access available at EI offices. Information *about* information was usually their more pressing concern; participants who had experienced prolonged periods of employment or unemployment said jobsearch practices had changed significantly, and they did not know where to find information or how to apply, even when the resources were freely available. Many participants were irritated by the lack of feedback from employers, stating that it was difficult to improve their applications or relevant qualifications when they had no information on why they had been rejected.

Some partially-employed participants, such as those working for the educational system or on seasonal work, described their problem in finding employers who were willing to schedule their work around their original job. Others felt their training was too specialized and openings in their field were rare, yet they were considered overqualified for many other jobs.

Participants in various groups sometimes felt they were being held back by factors they had little control over, including background, race, and age:

- Participants who had recently moved to Manitoba, from other provinces or countries, often indicated that their lack of local connections and work history was the most significant barrier in their search for employment. They could not access a personal network to find jobs, and felt that potential employers were reluctant to verify their work references with distant or foreign businesses.
- A few participants believed that affirmative action programs within their fields were so prevalent that their Caucasian ethnicity was an impediment.
- Many older participants quickly identified age discrimination as a common problem; a few described prospective employers explicitly stating that they would not find a job in their field with any firm in the city.

In a few groups, participants stated that there were always jobs and anyone could be hired immediately if they were sufficiently flexible. The problem, in their view, was that most jobs lack opportunities for progression and many unemployed people are "looking for a career, not a job." Similarly, few available jobs pay well enough to cover people's existing commitments, especially to support families, and people are aware that taking "stopgap" employment will severely restrict their opportunities to find a better job.

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3.2.4 Changing fields: experience and credentials

Those who had recently changed fields or entered the job market for the first time often felt that their education, training, and credentials were undervalued without experience to prove their ability. Many others who had secured and held a position for years or decades without formal qualifications said that employers often rejected their applications immediately because they lacked a necessary credential. A few participants cited previous jobs for which recruitment processes had changed during their employment, and they had either been required to complete training that was retroactively required for their job, or were "grandfathered" into their jobs, while new co-workers were required to hold a given credential.

Participants who had held recruitment positions in previous jobs often said that although they did not hire solely on the basis of a credential, they did often filter applications based on formal qualifications before considering other skills and experience. Other participants felt this matched their application experiences. Some were skeptical about the value of credentials overall, stating they had found better paying and more satisfying jobs in areas where they had no qualifications than those where they held formal training or degrees.

When asked about their thoughts on acquiring experience in a completely different field from their current or previous work, the majority of the groups responded immediately and positively. Participants spoke favourably of expanding their skills and knowledge, learning about other options for employment, and their suitability for a different working environment. Some felt openness to change had become necessary and that insisting on a single line of work would only be harmful, often stating that they had already changed fields.

A few disagreed, stating they had no interest at all in expanding their skills further; they felt they had already acquired varied experience and/or multiple credentials and they were equipped to progress in a profession. In their view, while varied experience could be beneficial to finding employment, it could equally be a distraction, a waste of time with no effect on their employability, and have no further inherent value. Some were very reluctant to ignore their seniority in their current field, and didn't like the idea of starting fresh in a job with low wages and little authority. This was a common concern among older participants, who felt they could not make meaningful progress in a new field before retirement.

Many participants, whether or not they favoured a change in profession, agreed that it is always important to have a plan when making a significant career change. They expressed their desire to direct their experiences and training toward the demands of the job market, not only now but as far into the future as feasible. They were skeptical that the current high-demand areas would still be employing by the time they had completed a necessary two-year course of education and training.



3.2.5 Training: cost, time, and completion

When asked about the length of time they would be willing to put toward new training, a skill, or courses to earn a credential, participants had several common responses:

- Six months: some participants were only interested in acquiring the minimum necessary skills to return to work in a similar or slightly better job, while others were certain they could not afford to be out of work for a prolonged period of time.
- Two years: participants who were interested in a significant career shift often felt oneyear programs (or less) could not cover enough material or have sufficiently broad scope to adequately prepare them for the change. Several participants expressed related concern about "crash courses" that attempt to fit too much material into a short period of time.
- As long as I can cover my bills": some participants were willing to commit to training and education for any length of time, as long as they felt their lifestyle was secure. Some participants said this because they felt further training was always valuable, whereas others, as above, simply felt their ability to support their needs and those of their family was the most important factor.

Participants were generally much more willing to take on training if it was directly associated with employment or included hands-on experience. Several spoke favourably about co-operative programs that were divided between standard coursework and job placement, especially if they could earn income during training. Participants with trade experience were often critical of the apprenticeship system, stating that while it was sometimes very effective, employers did not have sufficient incentive to invest in apprentices in the long term or even through the necessary first year, leading to high turnover and wasted time and money.

Many participants felt that entry to courses was overly restricted. This delayed reimbursement of training fees was unhelpful for people who could not afford the initial enrolment, and the range of subsidized training programs was too narrow to effect a meaningful career change.

Participants were presented with a hypothetical scenario: while progressing through a training program, they receive an offer, either for their old job or for a similar position with another employer. Participants were divided in their responses. Some stated they would always continue with training, not wishing to abandon their investment; others felt the entire purpose of training was to find employment, and they would always take the job immediately. A few said they would seek advice from employment services personnel on whether the training was likely to be more valuable. Participants frequently indicated that their decision would be influenced by their immediate financial needs and the circumstances of the specific job, such as their relationship with the employer.

Many gave conditional or alternative responses: they would have to consider their satisfaction and working environment in the old job versus a passion for their new field, or they would try to schedule temporary work with the employer without affecting their training. Several said it would depend entirely on their job security and income in their old work versus their expectations once training was complete, or whether their progress in the course would stay valid



if they left and returned later.

3.2.6 Employment service opportunities

Most participants were immediately ready to identify the improvements or alternative services they wanted to see from employment services. Almost every group discussed their difficulties in collecting information from multiple contact persons across different departments, sometimes contradictory, or investigating their options while receiving EI benefits.

Participants described the role of a single contact person who would gather relevant information from inside the organization and present it to new receivers of EI. They wanted a clear explanation of all training and funding programs they could qualify for, newly available services, and recommended contacts for job seeking. Participants did not insist that this information be personalized as long as it was presented to them completely. One person said, "We shouldn't have to be the ones that are constantly asking all the questions." Many participants described their experiences in discovering they were eligible for programs that had not been communicated to them by EI personnel.

Similarly, the majority of groups wanted a job bank that would centralize the information from other job sites, to avoid gaps in listings and to allow for a standardized application process. Many participants felt online applications were inconsistent and overly complicated, and issues as simple as incompatible resumé formatting could greatly slow their efforts. They hoped a centralized, standardized job bank would fix these issues.

Some participants were unfamiliar with wage subsidies, but groups that had participated in the program believed it could be greatly beneficial. Subsidies allow employers to hire qualified or near-qualified people at reduced cost, while participants said they were able to acquire useful experience and form contacts within organizations that helped them secure employment. Some participants made similar comments about standard-of-living subsidies for low-wage jobs, and paid internships.

Many participants wanted stronger connections between training and employers, such as co-op or work placement programs to support their new credential with basic experience and professional contacts. Similarly, some favoured formal agreements with employers to hire individuals upon successful completion of a training program. Many wanted longer projections of the job market so that they could prepare according to future demand for skills, stating their belief that jobs currently in demand were likely to be filled before they could complete the necessary training. In general, participants wanted to avoid training that would not reliably lead to employment, viewing it as a waste of their time and the government's funding.

A few participants had experience with personal-networking groups, citing the Horizon program specifically. They reported that it had been very effective in connecting them to "hidden" parts of the job market. Others wanted to see EI offices adopt skill and personality profiling in the style of online employment resources, to suggest alternative career paths they might be well suited to. Several felt their search efforts would be greatly improved with basic courses in computer and Internet use; resumé design tailored toward specific jobs; and business etiquette that would improve their communication in approaching professional organizations.



Many participants felt that access to funds for training was overly restrictive and needed to expand, even if the total funding for an individual remained the same. For example, multiple groups expressed irritation that funding was available for a range of one-year training programs, but it was very difficult to access the more useful two-year programs. They observed that some people would be able to cover the second year themselves if EI would fund the first half. One participant who was close to finishing a university degree was told there was no available funding for university courses, but felt that completing the last half-year of university and receiving the degree would be significantly more valuable than any of the programs for which they could receive funding.

3.3 Summary of focus group findings

Overall, participants felt that employment programs and services were equipped and able to help them find employment, but were frustrated with the organisation and inaccessibility of information. They held a strong preference for directly-applicable training and flexibility in funding, even if the total amount was unchanged. Many felt online resources could be greatly improved in user-friendliness. Their consistent top concern was to find and hold long-term employment that would meet their needs and those of their dependents, at minimum loss to themselves and the government. By sharing experiences and concerns, each group had the opportunity to identify significant common issues, to consider wider implications, and to consider the potential of hypothetical offers and situations in the subsequent experiment.



4.0 The experiment

The experiment consisted of two parts-the pretest or trial run, and the actual experiment.

4.1 The pretest

All aspects of the focus group process were tested during the three pretest groups. This included the initial service packages resulting from the full factorial design, the intervention discussion, and the rating process.⁹ Feedback was solicited from participants after these groups to ensure that all of these features are well understood. Any necessary changes were then implemented prior to conducting the actual experiment.

The following challenges came to light as a result of the pretest:

- Participants were not as familiar with the employment programs and options available to them as initially thought. As discussed in Section 3, many discovered their eligibility for programs through means other than EI Part I and Manitoba provincial employment services.
- Participants asked many questions during completion of the written exercises. This led to the conclusion that the initial discussion was imprecise and the initial attributes resulted in packages that could contain illogical combinations of program elements.
- Attributes and levels failed to isolate the earnings supplement sufficiently. The introduction of socio-economic and demographic variables seemed to indicate that it is these variables that drive the model and not the attributes as defined.
- ➤ Although the indicator for long-tenured workers had a negative impact on the rating score, it is inconclusive as to whether this is indeed the case or due to both imprecise definition and imprecise identification of these clients through the enrolment process.

This resulted in a re-specification of the packages and a redesign of the conjoint exercise.





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4.2 Refinements

As a result of the pretest focus groups, several changes were implemented to the experimental process.

- 1. Slight modifications were made to the pre-focus group survey to better capture the distinction between regular EI users and long-time employed workers who are now claiming EI for the first time.¹⁰ Doing so will allow the project to more accurately distinguish between these two groups and their package preferences.
- 2. The discussion preceding the rating exercise became more defined and informative, in hopes to ensure all participants had the same information and insight to programs and services prior to completing the exercise.
- 3. The nature of the hypothetical packages offered to participants was altered to reflect more realistic options. The attributes of interest became the program's duration, educational opportunities offered, and on-the-job training possibilities—each with three levels.¹¹ These changes will allow the experiment to better model an earnings supplement option or another targeted earnings supplement activity.



¹⁰ Upon preliminary analysis of the data collected during the experiment, discrepancies were found between responses given during the participant recruitment and the pre-focus group survey. Participants were thus re-contacted for clarification. At the same time it gave PRA the opportunity to ask more direct questions related to long-tenured employment. This new information was then combined with the existing data for the final analysis. The final pre-focus group questionnaire can found in Appendix B, and the call-back questionnaire can be found in Appendix C.

¹¹ See Section 2.1 for the development of the final service packages.

4.3 The analysis

As described in Section 2.1, the final experiment involved each individual rating a set of six packages comprised of varying levels of the three attributes of interest (duration of the program, the training involved, and the work experience). A final count of 128 participants provided valid ratings for six separate packages, for a total of 768 experimental observations.

Data collected from the rating exercise were used in conjunction with the pre-focus group data in a series of simple linear regression analyses.

The rating itself from a value of 1 (*not at all interesting/useful*) to a value of 10 (*very interesting/useful*) is the dependent variable, and for our initial basic model; the independent variables become a series of dummy variables representing each level of the attribute, as shown in Table 5.

Table 5: Dummy variables representing the attributes for use in the regression analysis					
	dað	=0	Not (up to 12 months)		
Duration of	uaz	=1	Up to 12 months		
program	dað	=0	Not (up to 24 months)		
	uas	=1	Up to 24 months		
	I				
		=0	No funding for classroom training		
	db1	=1	Funding for classroom training leading to a		
Training			credential		
	db2	=0	No funding for skills development		
		=1	Funding for skills development (no credential)		
	I				
	dc1	=0	No job placement (at 75% of last wage)		
Work	uci	=1	Job placement (at 75% of last wage)		
experience		=0	No 25% earnings supplement		
experience	dc2	=1	25% earnings supplement (on any earnings received		
			and paid directly to El client)		
Note: As each attribute has three levels, each requires a set of two dummy variables to capture the various options					
presented. The absence of the two dummy variables (e.g., da2=0 and da3=0) indicates the presence of the missing					
base case (e.g., duration of up to 6 months – as this was the only other option). The base cases for each attribute					
are duration of program – up to 6 months; training – no training offered, just resumé building and job search					
support; work experience – no work placement.					

In addition, interaction terms among the different levels of each attribute are introduced, as well as other covariates such as socio-economic and demographic variables. As well, a dummy variable to capture whether an individual is a "long-tenured worker" was introduced to the model. Further details on each model and the results obtained are discussed below.



4.4 The results

The results of the basic model are discussed below, followed by a summary of findings of interest resulting from additional analyses.

The basic model

Table 6 shows that the experimental design maintained good balance in terms of stable conjoint variables. The mean rating of all packages was 5.7 (on a scale of 1 to 10), with a standard deviation of 2.9. This shows that participants did not rate their set of six packages similarly, but understood the exercise and displayed clear preferences by providing variation in their ratings.

Since the packages were evenly distributed amongst the participants, it is expected that each level of attribute will be equally represented amongst all observations. This is the case, as mean values for each of the three levels of attribute hover around .33 (one-third). This illustrates that the factorial design and the actual implementation produced a balanced design.

Table 6: Descriptive statistics – basic model (n=768 observations, 128 individuals)						
	Mean	Standard Deviation	Ν			
Overall rating	5.686	2.904	763			
Dummy independent variables						
Duration of program: Up to 6 month (da2=0 and da3=0)	.332	.471	768			
Duration of program: Up to 12 months (da2=1)	.335	.472	768			
Duration of program: Up to 24 months (da3=1)	.333	.472	768			
Training: Funding for classroom training leading to credential (db1=1)	.332	.471	768			
Training: Funding for skills development (no credential) (db2=1)	.335	.472	768			
Training: No training offered, just resumé building and job search support (db1=0 and db2=0)	.333	.472	768			
Work experience: Job placement (at 75% of last wage) (dc1=1)	.332	.471	768			
Work experience: 25% earnings supplement (on any earnings received and paid directly to El client) (dc2=1)	.336	.473	768			
Work experience: No work placement (dc1=0 and dc2=0)	.332	.471	768			



The overall results of the regression run on the basic (main effects) model (without covariates) are shown below. All components are highly significant statistically, supporting the fact that a majority of the participants were very positive about expanding their skills and knowledge. The adjusted R^2 value (.266) is normally considered a good overall model fit.

Table 7: Conjoint results – basic (main effects) model (n=768 observations, 128 individuals)						
Variable	В	t-value	p-value			
Constant	2.504	10.494	.000			
Duration of program: up to 12 months (da2=1)	.588	2.664	.008			
Duration of program: up to 24 months (da3=1)	1.115	5.049	.000			
Training: Funding for classroom training leading to a credential (db1=1)	2.764	12.513	.000			
Training: Funding for skills development (no credential) (db2=1)	1.376	6.241	.000			
Work experience: Job placement (at 75% of last wage) (dc1=1)	2.132	9.642	.000			
Work experience: 25% earnings supplement (on any earnings received and paid directly to EI client) (dc2=1)	1.567	7.108	.000			
Adjusted R ² : .266 F (p-value): 46.945 (.000)						

The expected rating for the base-level package (up to 6 months duration; no training offered, just resumé building and job search support; and no work placement) is 2.5. By offering funding for classroom training that would lead to a credential, the package rating increases to 5.3 (2.504 + 2.764). Adding to this job placement (at 75% of last wage), the rating increased to 7.4 (2.504 + 2.764 + 2.132). Finally, by offering the program up to 24 months instead of six, the rating increased another 1.1 points to 8.5 out of 10. Based on just the main effects, this is the maximum rating that any of the packages would have received. The two more valued attributes of employment benefits and support measures are funding to obtain a credential and funded work experience.

It is important to note that the above analysis just looks at the separate main effects, and not the combined effect of the attributes when considered together. It is possible that one of the attributes had more appeal to an individual and hence their rating was based entirely on that attribute, but the participants were asked to rate the package as a whole and hence all three attributes should have been considered simultaneously. To explore this further, the two-way and three-way interaction terms were introduced to the model.



Attributes - the interaction terms

The interaction terms for the model were simply created by multiplying the dummy variables of interest. Hence, to capture the effect of the interaction between the duration of the program being up to 12 months and the work experience gain being 25% earnings supplement, the following was created: da2dc2 = da2*dc2. Similarly, da2db2dc2=da2*db2*dc2 was created to capture the three-way interaction effect of the package representing up to 12 months, funding for skills development, and 25% earning supplement.

The regression was then run with the main effects and the two- and three-way interaction terms as the independent variables. The results are summarized in Table 8, showing the three interactions that were significant (10% level or better).

Table 8: Conjoint results – with interaction terms (n=768 observations, 128 individuals)							
Variable	В	t-value	p-value				
Constant	2.637	5.729	.000				
Training: Funding for classroom training leading to a credential (db1=1)	2.863	4.360	.000				
Work experience: Job placement (at 75% of last wage) (dc1=1)	2.853	4.345	.000				
Work experience: 25% earnings supplement (on any earnings received and paid directly to EI client) (dc2=1)	1.852	2.821	.005				
Interaction: I In to 12 months and job placement at 75% (da2*dc1)							
	-1.643	-1.761	.079				
Interaction: Funding for classroom training and job placement at 75% (db1*dc1)	-1.525	-1.635	.102				
Interaction: Up to 12 months and funding for classroom training and job placement at 75% (da2*db1*dc1)	3.137	2.384	.017				
Adjusted R ² · 276							
F (p-value): 12.198 (.000)							
Note: Only the statistically significant (at p=.10) terms are shown above.							

The adjusted R^2 value (.276) is slightly better than the model with only the main effects. Amongst the main effects, it is the option of receiving work experience (either job placement or 25% earnings supplement) and funding for classroom training that most positively impacts the rating score.

By considering the interaction terms, we see the true effects of these attributes when considered as a package. For example consider the package offering up to 6 months of the program, funding for classroom training leading to a credential and job placement at 75% of last wage. The main effects would indicate that the rating increases from the baseline of 2.6 to 8.4 (2.637 + 2.863 + 2.853), the actual rating is about 6.8 (subtract 1.525 for the interaction).

It is interesting to note that the majority of the interaction terms do not impact the overall fit of the model. Even the effect of the significant three-way interaction of up to 12 months, funding for classroom training, and job placement at 75% (3.137), is cancelled by the two two-way interaction terms found in the above table (-1.643 and -1.525). This seems to indicate that perhaps a particular attribute (or level of attribute) dominates an individual's rating score of the



package (i.e., the rating score an individual gives a package is based mainly on an attribute rather than the package as a whole).¹²

Demographic and economic variables

In addition to the attributes of interest and their interaction terms, socio-economic and demographic information collected during the pre-focus group survey were included in the analysis as covariates. The list of covariates included: whether the participant was currently collecting EI benefits and whether they were currently employed at the time of the group; the number of dependents; their highest level of education; total family income; and gender. A variable to capture whether the individual was a long-tenured worker was also created and added as a covariate.¹³ A complete list of all covariate variables and their summary statistics can be found in Appendix E.

Table 9: Conjoint results – with covariates (n=768 observations, 128 individuals)					
Variable	В	t-value	p-value		
Constant	3.330	4.381	.000		
Training: Funding for classroom training leading to a credential (db1=1)	2.758	4.194	.000		
Work experience: Job placement (at 75% of last wage) (dc1=1)	2.789	4.229	.000		
Work experience: 25% earnings supplement (on any earnings received and paid directly to EI client) (dc2=1)	1.746	2.655	.008		
Interaction: Up to 12 months and job placement at 75% (da2*dc1)	-1.510	-1.615	.107		
Interaction: Up to 12 months and funding for classroom training and job placement at 75% (da2*db1*dc1)	2.928	2.218	.027		
How many EI applications have you ever made? (pfg2)	083	-2.824	.005		
Number of years worked (yrswk)?	.022	2.167	.031		
Are you currently employed? (pfg6; yes=1/no=0)	530	-2.326	.020		
Do you rent or own your home? (pfg14; rent=1/own=0)	548	-2.046	.041		
Long-tenured worker? (d_ltw3; yes=1/no=0)	869	-3.955	.000		
Occupation: Sales and Service (docc6; yes=1/no=0)	.716	2.206	.028		
Adjusted R ² : .328 F (p-value): 9.084 (.000)					
Note: Only the statistically significant (at p=.10) terms are shown above.					



¹² Though the combinations of the varying levels of the three attributes were distributed randomly but evenly, the attributes were presented in the same order—duration of program, training, and work experience. It is unknown whether randomizing the order of presentation of the attributes would affect the results—i.e., does the visual presentation affect how individuals may rate the same package? This is a consideration for future experimentation.

¹³ See the next subsection for details on creating the long-tenured variable.

The introduction of the covariates does not significantly alter the impact of the program attributes—they all retain their general magnitude, sign, and statistical significance. This indicates that the results of the model are quite robust.

Of the statistically significant covariates:

- Both the number of EI applications ever made, and the number of years the individual has worked over his/her lifespan have a negligible effect on rating.
- If the individual was employed at the time of the focus group, their rating of any package was generally half a point less than those not working at that time. Perhaps this indicates that those unemployed were more open to the options and getting back to work, compared with those who were employed and were willing to wait for more appealing options.
- Similarly, people who were renting their place of residence tended to rate their packages half a point less than those who owned their home. This emphasizes that individuals are concerned with the end result and that individuals want a job that will support their lifestyle and provide shelter and other necessities.
- Those in the sales and service occupations were slightly more positive (.716) than their counterparts in other occupations. This supports the discussion prior to the rating exercise, where some individuals felt prospective employers found them overqualified for positions not related to their area of specialty, and hence these individuals were less positive about the whole EI and return to work processes.
- Those who were defined as a long-tenured worker on average rated their packages almost 1 point less (-.869) than those not defined as long-tenured workers. This result was highly significant and is explored in more detail in the following subsection.



Long-tenured workers

Long-tenured workers are an important policy group for government. This group is formally defined as individuals who have "contributed at least 30% of the annual maximum EI premiums for at least seven out of ten calendar years prior to the start of their claim; and have received no more than 35 weeks of regular EI benefits in the five years prior to the start of their claim."¹⁴

Ideally, it would have been preferable to have selected these individuals from the administrative data, which would support precisely identifying this group. Since this was not possible, participants were re-contacted and asked a series of questions to determine their eligibility for inclusion in this group.¹⁵ This presented two problems—the eligibility relied totally on the participant's recollection of their EI history; and the project was unable to contact all participants for the call-back. For those that the project was unable to re-contact (21 participants), their classification was based on question 2 (*During the last five years, how many of your EI applications, if any, were accepted?*) and question 4 (*How old were you when you got your very first job?*) from the pre-focus group survey.¹⁶ Our final definition consisted of 35 long-tenured workers, and 93 non-long-tenured workers.

A dummy variable indicating long-tenured status was added as a covariate to the above analysis and was found to be highly significant. The next step involved running the analysis separately for long-tenured versus non-long tenured. The results are presented below.

¹⁶ In these cases, a long-tenured worker was defined as an individual who had EI applications accepted at a rate of at most 1 per 10 years of working. Hence, an individual who has had two claims accepted over 24 years of working was classified as a long-tenured worker, whereas one who had three claims accepted over 15 years was not defined as a long-tenured worker.



¹⁴ Service Canada, Accessed from http://www.servicecanada.gc.ca/eng/goc/ltw/index.shtml

¹⁵ Questions 3 through to 6 of the call-back survey—see Appendix C—were specifically asked to classify participants as a long-tenured worker or not. If they answered positively to *Thinking about the most recent claim, in the five years prior to the start of this claim, were you receiving <u>regular</u> EI benefits for a total of 35 weeks or less?, as well as to And regarding your contributions to the EI program while working, did you contribute to the program for at least seven of the ten years prior to the start of that same claim?* and If yes, do you recall whether you made at least \$13,000 in employment earning, excluding self-employment earnings, for those seven out of ten years?, the individual was classified as a long-tenured worker.

Table 10: Conjoint results – with covariates (n=768 observations, 128 individuals)							
Variables	Long-tenured workers (n=210, 35 participants)		Not long-tenured workers (n=558, 93 participants)				
	В	p-value	В	p-value			
Constant	6.310	.002	2.544	.004			
Training: Funding for classroom training leading to a credential (db1=1)	-	-	3.492	.000			
Work experience: Job placement (at 75% of last wage) (dc1=1)	-	-	3.092	.000			
Work experience: 25% earnings supplement (on any earnings received and paid directly to El client) (dc2=1)	2.366	.108	1.693	.026			
Interaction: Up to 12 months and funding for classroom training (da2*db1)	5.138	.007	-	-			
Interaction: Up to 12 months and job placement at 75% (da2*dc1)	-	-	-2.281	.043			
Interaction: Funding for classroom training and job placement at 75% (db1*dc1)	-	-	-2.391	.029			
Interaction: Up to 12 months and funding for classroom training and job placement at 75% (da2*db1*dc1)	-	-	4.757	.002			
Interaction: Up to 12 months and funding for classroom training and 25% earnings supplement (da2*db1*dc2)	-5.028	.073	2.596	.092			
Interaction: Up to 24 months and funding for classroom training and job placement at 75% (da3*db1*dc1)	-4.728	.076	-	-			
Are you currently collecting EI benefits? (pfg1; yes=1/no=0)	-	-	.418	.098			
How many EI applications have you ever made? (pfg2)	-	-	136	.007			
Number of years worked (yrswk)?	-	-	.026	.030			
How many different jobs have you ever had? (pfg5)	032	.083	-	-			
Are you currently employed? (pfg6; yes=1/no=0)	-	-	675	.016			
Do you rent or own your home? (pfg14; rent=1/own=0)	-2.109	.006	-	-			
Total family income (incm)?	-	-	.284	.066			
Gender (dgen; male=1/female=0)	1.143	.109	-	-			
Occupation: Sales and Service (docc6; yes=1/no=0)	-	-	.749	.045			
Occupation: Trade, Transport and Equipment	-2 150	025	693	071			
Operators (docc7; yes=1/no=0)	2.100						
Adjusted R ²	.349		.326				
F (p-value)	3.366 (.000)	etietieelk: -!!f	7.006 (.000)	mated by a ""			

Note: Only the statistically significant (at p=.10) terms are shown above. Non-statistically significant terms are denoted by a "-"; hence, although gender was found to have a statistically significant impact on the rating given by long-tenured workers, it did not have such an impact for workers that were not long-tenured.



Though the overall model fit (adjusted R^2 value of .349 and .326) is fairly similar, the results differ drastically between the two groups. Keeping all factors equal at their base level, long-tenured workers were generally more positive than their non-long tenure counterparts. They provided an average rating of 6.3 compared to 2.5. Some of the more interesting findings amongst the long-tenured workers:

- ➤ Though borderline in terms of statistical significance, it would seem the only attribute that long-tenured workers considered important when rating the packages was work experience. Rating scores increased by more than two points (2.366) when the option of a 25% earning supplement was offered. This may be a result of these individuals placing importance on their seniority in their field and refusing to settle for lower wages or a demotion, hence the appeal of the 25% top-off on top of their wage.
- On the other hand, when work experience was coupled with the other two attributes (duration of program and training offered), the results had a negative effect on the rating, indicating that these individuals are not interested in taking additional training, or restarting their career. Recall, they may have already acquired a wide-range of skills and experience through their several years of employment at one or two jobs.
- Again renters tended to score the packages two points below owners. This echoes the concerns of long-tenured workers to be able to support for their families immediately.
- Men scored their options one point higher than their female counterparts. Among our participants, the women seemed to be quite secure: more women were currently working compared to the men; of those women who were married, more had spouses who were also currently working compared to the men; and more women owned their home, whereas more of the male participants rented.¹⁷ Further investigation is needed to determine why women rated their packages lower than men, as there are likely a number of factors at play.
- Long-tenured workers in the trade, transport, and equipment field were less optimistic about finding employment despite the options offered. They tended to rate the packages, on average, two points less than their counterparts in other fields.

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See Appendix E for a detailed breakdown of the participant characteristics by gender.

4.5 Summary

The above exercise attempted to use a simple conjoint design to examine the preferences among individuals for EI Part II programming. The goal of the research was to understand the programming demands of employment programs and services clients.

The exercise began with group sessions with current, past, and potential EI clients, in which their experiences with the EI and employment programs and services system and finding employment were discussed. This was followed by a rating exercise to determine their importance rating on certain programming attributes.

The rating exercise confirmed the finding from the previous discussion. In particular:

- ► It is the individual attributes themselves (and not the combination of the attributes) that drives an individual's preference. In particular, the training/funding offered and work experience seemed to drive the model. Preference seemed to be given to funding for classroom training leading to a credential and job placement (at 75% of last wage).
- Most socio-economic and demographic covariates had little impact on the outcome. The exceptions were:
 - Whether the individual rented or owned their home. Renting had a negative impact on rating, and can be interpreted as a measure of the urgency of these individuals to support their families and provide shelter and other necessities.
 - Their occupation field. The field of sales and service represents a more flexible (or less specialized) field of service and illustrates the adaptability of individuals in this field to other areas. Individuals in this field rated their packages more positively.
 - Whether they were long-tenured workers. Long-tenured workers rated the packages more negatively than their counterparts
- ▶ Upon further investigation amongst long-tenured workers, it was found these individuals were only interested in work experience being offered—in particular, the wage subsidy or the 25% earnings supplement.
- An important confirmation of the validity of the exercise is that conjoint experiment aligns with the findings of the focus groups.



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4.6 Caveats and limitations

Bearing in mind that this study reflects an experiment to prove the value of small scale experiments to policy design, there are several important qualifications for this experiment:

- 1. As with the pretest, from the discussion preceding the rating exercise, it was clear that not all participants were familiar with the EI programs and options available to them. In particular, not all were familiar with the wage subsidy programs. Though efforts were made to explain the program and how it worked, it is unclear whether individuals preferred the job placement (at 75% of last wage) over the 25% earnings supplement due to "true" preference or due to a lack of understanding.
- 2. Tenure was determined from respondent recall, and approximated from the number of accepted EI applications over the years worked. Although the results did not present contradictory outcomes, it is unadvisable to make any concluding statements from them. To avoid any imprecision in classifying individuals, it is highly recommended to access the administrative data, which would allow one to select individuals that fit this definition according to HRSDC. This would support precisely identifying this group. In general, enrolment using administrative data is always much preferred to relying on recall of potential participants.



5.0 Lessons Learned

The Options for Employment Programming Experiment had three main objectives:

- Experimenting with small-scale experiments
- Investigating a new research method for understanding preferences in social programming
- Conducting a live test in the field of employment programs and services

Traditionally, Canada has used a mix of quantitative methods and qualitative analysis to support policy and evaluation research. This usually involves a retrospective look at data with a considerable cost attached. Recently, there has been an interest in exploring lab/field experiments as an alternative to examining economic policies, with the intent that current real-time data be studied and at a lower cost.

Though conjoint analysis is a common technique used in the market research field to assess the desirability of product attributes, its application to social and labour market policies, though limited, has been growing. The project adopts the view that participants are indeed consumers attempting to choose among various combinations of EI interventions that best suit their own personal needs.

This section examines the strengths of the experiment, the challenges encountered, and suggestions for future work.

5.1 The strengths

- One of the advantages of conjoint analysis techniques is the ability to examine how current programs and services are being received by individuals, using real-time data as compared to retrospective data. This is particularly important in an area where skill requirements and technology are continuously changing.
- Once the details of the design of the experiment, including the decision of which attributes are to be tested and the design of the packages, are finalized, the actual implementation and analysis of a conjoint experiment is straightforward.
- How the results of the analysis support previously established findings is a good indication of how well a conjoint experiment has performed.

5.2 Challenges

• One major challenge of applying conjoint techniques to a field experiment is the fact that as the number of attributes and their corresponding level of interest increase, so do the possible combinations and resulting products. The project involved three attributes at three levels, each resulting in 27 combinations to be reviewed. With four attributes at three levels, this exponentially increases to 81 combinations or packages to be rated, not



to mention an increase in the number of interaction terms to consider. Keeping in mind that individuals will comfortably rate fewer than 10 packages, the increment in the number of combinations will require an increase in the number of participants. An alternative to the full factorial design of 81 combinations would be to consider a fractional factorial.¹⁸

- The other main challenge is establishing salience. As was acknowledged during the pretest, and echoed during the focus group discussions of the formal experiment, not all participants were familiar with the employment programs and services available to them. Though an effort was made during the focus groups to ensure that all individuals had the same information regarding the programs and services of interest, it is unclear whether all individuals were able to grasp this information. Hence, it is inconclusive whether their decisions were based on true preference or a lack of understanding of the program/service. Ensuring salience is a key factor to the success of such an experiment.
- An analysis of the recruitment process during the pretest phase indicated a poor showing from the voluntary opt-in process.¹⁹ The project relied heavily on PRA's monthly omnibus, in-house database, and simple random digit dialling to find participants. It is important to explore other methods of finding these individuals.
- In addition, it is difficult to conclude whether participants of this project are representative of the population of current and past EI clients, or those that are working in occupations with high risk of layoffs. The fact that these individuals agreed to participate in the project alone differentiates them from those that did not. To generalize any results, basic characteristics of these individuals must be compared to the population

¹⁹ Roughly 10% of participants were recruited through the service centres, with the majority being recruited through PRA's omnibus and in-house database.



¹⁸ Please see Appendix F for more detail on fractional factorial designs.

5.3 Suggestions for future work

- As suggested above, the validity of the experiment rests greatly on the individuals' understanding and familiarity with the employment programs and services of interest. Though efforts were made to ensure that the attributes being evaluated were relevant to individuals and that the individuals recruited had some familiarity with EI programming, as revealed in the discussions preceding the rating exercise, not all participants were aware of these programs and services, some expressing surprise and resentment that they were not made aware. Many participants also suggested that they be able to contact a single source who would gather and present them with information regarding employment programs and services, rather than the onus being left on them to make the necessary enquiries and to the correct persons. This is an area that should be explored.
- ➤ To validate the soundness of the analysis, it is important that information on EI history be retrieved from administrative data, and depend less on an individual's recall of events and details. In addition, any other basic demographic information should also be verified with administrative records. This will present its own set of challenges, which would include obtaining consent from participants to do so.
- Although the current experiment explored a limited number of attributes and levels, expansion would allow a similar experiment to test the desirability of a wider range of service attributes.
- As noted above, as the number of attributes examined increases, so too do the number of packages available for rating. Future work may benefit from examining a specific employment service with a more detailed list of attributes associated with this one service, which could be varied during the experiment. This would provide greater resolution with regard to program design.
- Although the sample used in the experiment allowed for some subgroup analysis, expanding the number of experimental participants would allow detailed examination of additional subgroup preferences.
- The current experiment took place in Manitoba, and the service packages developed were largely based on the programming delivered in that province. Expansion of the experiment beyond a single province would provide results that could be more readily generalized to the rest of Canada.



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APPENDIX A

Participant Screener



Employment Insurance Experiment – Screener questionnaire

- 1. To make sure you are eligible for the Employment Insurance focus groups, I need to ask you a few questions. First of all, are you currently collecting Employment Insurance benefits? (Prompt: These are the EI benefits you get when you become unemployed, not social assistance benefits or Employment and Income Assistance benefits.)
 - a. Yes
 - b. No

(If Yes, go to question 5; if No, go to question 2)

- 2. Have you collected Employment Insurance benefits at any time during the last five years? (Prompt: These are the EI benefits you get when you become unemployed, not social assistance benefits or Employment and Income Assistance benefits.)
 - a. Yes
 - b. No

(If Yes, go to question 5; if No, go to question 3)

- 3. Are you working in a job where you are facing a high possibility of layoffs in the next year?
 - a. Yes
 - b. No

(If Yes, go to question 5; if No, go to question 4)

4. Unfortunately, you don't qualify for the Employment Insurance focus groups. We are only looking for people who have recent experience with Employment Insurance or who are facing a higher than normal prospect of receiving benefits in the future. However, thank you very much for calling us and for your interest in the research.

(Terminate)

5. You are eligible for the Employment Insurance focus groups. Over the next few weeks, we will be scheduling the groups. Most will take place in March. If there are many people who want to participate, not everyone will be assigned to a group. However, we will contact you whether you are assigned to a group or not. To help us keep in touch and assign you to a group, I would like to get some basic information. This information will only be used for research purposes.

(Continue)

6. What is your first name?(PROMPT: Could you spell that please?)





- 7. What is your last name? (PROMPT: Could you spell that please?) (This is their family name.)
 a. _____
- 8. In what year were you born?
 - a. _____
- 9. Are you Aboriginal or of Aboriginal ancestry? (*This could include First Nations, Inuit, Métis, and Status and Non-Status Indian.*)
 - a. Yes
 - b. No
- 10. Do you live in Winnipeg?
 - a. Yes
 - b. No
- 11. Gender?

(Take down gender—do not ask)

- a. Male
- b. Female
- 12. What is your current address?
 (Take down their mailing address if it is different from their residential address.)
 a. _____
- 13. What is your current postal code?
 - a. _____
- 14. What is your current phone number?(PROMPT: Is this the best number at which to reach you?)a. _____
- 15. Do you have an email address that you check regularly?
 - a. Yes
 - b. No

(If Yes, go to question 16)

- 16. What is your email address?(PROMPT: Could you spell that please?)a. _____
- 17. Those are all the questions I have. Thank you very much for calling and for your interest in the research.

(Terminate)



APPENDIX B

Pre-Focus Group Survey



Employment Insurance Project – Pre-Focus Group Survey

Before you start your focus group, we would like to get some information about you. This information will help us analyse the results of focus groups and compare people in different groups. For example, we may want to compare current EI users to people who received EI benefits a number of years ago.

Please answer all of the questions to the best of your ability. Your answers will not be shown to anyone outside of the research team. However, if you are uncomfortable answering any of the questions, you may skip to the next one.

1. Are you currently collecting EI benefits? Please circle your answer. Yes No 2. In total, how many EI applications have you *ever* made? (If you are currently collecting EI, please include your current claim in this count. Please provide a number.) 3. And of these EI applications, how many (if any), were: a. Accepted? ______ (If you are currently collecting EI, please include your current claim in this count. Please provide a number.) b. *Rejected*? _____ (Please provide a number.) How old were you when you got your very first job? 4. And, in total, how many different jobs have you *ever* held? 5. Are you currently employed? Please circle your answer. Yes 6. No 7. If you are currently working: a. How much do you make annually from all of your jobs? b. On average, how many hours do you work each week? If you are working, are you currently facing the possibility of layoffs in the next 12 months? 8. (Please circle your answer.) Yes No Are you currently married? Please circle your answer. (This could include common-law.) 9. Yes No And does your spouse currently work? Please circle your answer. Yes 10. No 11. If your spouse is currently working: a. How much do they make annually from all of their jobs? b. On average, how many hours do they work each week? 12. How many children or dependents do you currently have? In total, how many people currently live with you in your household? (Do not include 13. yourself.) 14. Do you rent your home or do you own it? Please circle your answer. Rent Own 15. How old are you now? What is your highest level of education? 16.

Thank you.



APPENDIX C

Call-back Survey



Call-back form to collect additional information

*** PREVIOUS PARTICIPANTS - Ask for respondent by name

INTRO1.

I'm calling from Prairie Research Associates, an independent research firm based in Winnipeg. In the month of March, you attended one of our group meetings for Human Resources and Skills Development Canada. The topic was on training and other EI programs you think may help you gain and maintain good-quality jobs.

A. Do you recall attending?

Yes	1	GO TO INTRO2
No	0	

The group was held at 363 Broadway on March ___, and involved about 8 to 10 individuals. During the group, we discussed current EI Part II programs and services and the positive and negative aspects of these services. After the discussion, you were asked to rate potential EI packages.

B. Do you recall participating in this group?

Yes 1 **GO TO INTRO2** No 0

Well, thank you for your time.

INTRO2.

First of all, thank you for your participation in the group. Your involvement provided valuable insight into how EI services and programs can be improved. If you have time, we have a few additional questions that will help us further our understanding of how EI services and programming impact individuals, if at all.

C. Do you have a few minutes now?

Yes	1	GO TO Q1
No	0	

D. Is there a more convenient time that we can call you?

[SCHEDULE CALL-BACK]

1



Q1. Great. To begin with, can we confirm which age group you fall into? Please stop me when I reach your category. Are you [**READ LIST**]?

Under 20 0
21-25 1
26-30
31-39
40-45
46-54 5
55-65 6
Over 65 7
No response9

Q2. And again, what is your highest level of education? Please listen to the complete list before responding. **[READ LIST.]**

Less than high school	1
High school graduate	3
Some college	4
College graduate	5
Some university	6
University graduate	.8
Postgraduate studies	9
Other	.66

[MUST HAVE MENTIONED THAT THEY WERE CURRENTLY COLLECTING EI OR HAVE DONE SO IN PAST 5 YEARS]

Q3. Thank you. Now, the next set of questions is with respect to your previous and current use of Employment Insurance regular benefits. Regular benefits are provided to individuals who lose their jobs through no fault of their own—for example, due to shortage of work, seasonal or mass layoffs—and are available for and able to work, but can't find a job. Maternity or parental benefits are not considered regular benefits.

Now, you had mentioned that you are currently collecting or had collected Employment Insurance benefits at some point during the last five years. Is this correct?

Yes	1	
No	0	
Do not recall	8	[DO NOT READ]



Q4. Thinking about the most recent claim, in the five years prior to the start of this claim, were you receiving regular EI benefits for a total of 35 weeks or less?

Yes 1 No 0 Do not recall 8 [DO NOT READ]

- **Q5.** And, regarding your contributions to the EI program while working, did you contribute to the program for at least seven of the ten years prior to the start of that same claim?
 - Yes1No0GO TO Q7Do not recall8[DO NOT READ]
- **Q6.** If yes, do you recall whether you made at least \$13,000 in employment earning, excluding self-employment earnings, for those seven out of ten years? That would be at least \$500 biweekly.

Yes	1	
No	0	
Do not recall	8	[DO NOT READ]

[ALL RESPONDENTS]

Q7. Thinking of when you attended the session, were you employed at that time? How many years have/had you been working at that job/the job previous? _____

[MUST HAVE MENTIONED THEY ARE FACING A POSSIBLE LAYOFF IN NEXT 12 MONTHS – CURRENTLY WORKING]

Q8. You had mentioned that you may be facing the possibility of a layoff within the next year. Do you expect this to be a permanent layoff, or is there the possibility of recall?

Permanent – do not expect to be recalled	1
Temporary – possibility of a recall	0
Temporary – in education field	7
Don't know	8

Those are all the follow-up questions we have. Thank you again for your participation in this research. Your responses are a valuable source of information. Have a good day.



APPENDIX D

Pretest



While 17 groups in total were conducted for the experiment, the first three comprised the pretest group. The pretest was used to ensure that the conjoint structure reflected attributes and levels that could be rated by the participants, and that these descriptions aligned with the provincial program and services.

The development of the service packages

As mentioned in the body of the report, the EI Part II attributes to be tested emerged in consultation with staff from Service Canada and the Province of Manitoba. The attributes and their levels for the pretest were:

Table 11: Experimental attributes and levels (pretest)				
	Level 1	Level 2	Level 3	
Duration of program	8 weeks	12 months	24 months	
End qualification achieved by the program	Credential in chosen field (no work experience)	Skills development (no credential)	Labour market information	
Nature of program	Classroom and work experience	Work experience only	Counselling and job search support only	

This resulted in 27 distinct packages that were randomized and divided into sets of six, as represented in Table 2.

Table 12: Package development and randomization (pretest)				
(package, combination)*	Duration	End qualification	Nature of program	
(1,12)	12 months	Credential in chosen field (no work experience)	Counselling and job search support only	
(2,26)	24 months	Labour market information	Work experience only	
(3,25)	24 months	Labour market information	Classroom and work experience	
(4,14)	12 months	Skills development (no credential)	Work experience only	
(5,17)	12 months	Labour market information	Work experience only	
(6,9)	8 weeks	Labour market information	Counselling and job search support only	
(7,5)	8 weeks	eks Skills development (no Work experience or credential)		
(8,24)	24 months	Skills development (no credential)	Counselling and job search support only	
(9,23)	24 months	Skills development (no credential)	Work experience only	
(10,11)	12 months	Credential in chosen field (no work experience)	Work experience only	
(11,4)	8 weeks	Skills development (no credential)	Classroom and work experience	
(12,10)	12 months	s Credential in chosen field (no Classroom and work ex work experience)		
(40.40)	10 m o m th -	Lobour monket information		
(13,16)	12 months	Labour market information	Classroom and work experience	
(14,20)	24 months	Credential in chosen field (no work experience)	Work experience only	



Table 12: Package development and randomization (pretest)					
(package, combination)*	Duration	End qualification	Nature of program		
(15,19)	24 months	Credential in chosen field (no work experience)	Classroom and work experience		
(16,18)	12 months	Labour market information	Counselling and job search support only		
(17,1)	8 weeks	Credential in chosen field (no work experience)	Classroom and work experience		
(18,27)	24 months	Labour market information	Counselling and job search support only		
(19,21)	24 months	Credential in chosen field (no work experience)	Counselling and job search support only		
(20,22)	24 months	Skills development (no credential)	Classroom and work experience		
(21,15)	12 months	Skills development (no credential)	Counselling and job search support only		
(22,6)	8 weeks	Skills development (no credential)	Counselling and job search support only		
(23,8)	8 weeks	Labour market information	Work experience only		
(24,3)	8 weeks	Credential in chosen field (no work experience)	Counselling and job search support only		
(25,13)	12 months	credential)	Classroom and work experience		
(26,2)	8 weeks	Credential in chosen field (no work experience)	Work experience only		
(27,7)	8 weeks	Labour market information	Classroom and work experience		
Note: * The (packa 27 combinations in	ge, combination) v total, the last thre	vere randomized and then distribute e were combined with the first three	d in groups of six. Because there were to create the next set of six: hence.		

there are nine different batches of six.

The enrolment

Individuals were initially enrolled through PRA's Omnibus and the voluntary opt-in process. Though the Omnibus proved very successful in finding participants, the opt-in process was less so. Therefore, the remainder of the individuals were secured through PRA's in-house database (re-contacting individuals who had previously completed a survey with PRA). A total of 28 people were enrolled for the three pretest groups.

Table 13: Focus group session enrolment (pretest)					
Session	Date	Time	Employment status	Age	Attendees
1	March 2, 2010	5:30 p.m.	Currently on El	Mix	9
2	March 2, 2010	7:30 p.m.	On EI during past 5 years	Mix	10
3	March 3, 2010	5:30 p.m.	Mixed group*	Mix	9
* The mixed group includes those individuals who faced a possible layoff.					

Procedures leading into and wrapping up

The procedures leading into the actual experiment exercise and wrapping up afterwards, for the most part, remained the same from the pretest to the actual sessions (see main report).



The design/administration of the experiment

During the focus group session, participants were asked to rate a set of six packages (as depicted in Table 2 above), on a scale of 1 to 10 where "1" is *not at all interesting or useful* and "10" is *very interesting or useful*. The forms were carefully distributed amongst the participants to ensure that each set of six forms was given out. This was to ensure that each package would be completed the same number of times. Since participants completed six forms, and since they were randomized, each package is an independent observation, giving us 168 independent observations.

The analysis and reporting

The data collected from the rating exercise was used in conjunction with the pre-focus group data in a simple linear regression analysis.

The rating itself from 1 (*not at all interesting/useful*) to 10 (*very interesting/useful*) is the dependent variable, and the independent variables become a series of dummy variables representing each level of the attribute, as shown in Table 14.

Table 14: Independent variables for use in the regression analysis					
423	=0	Not 12 months			
Duration of	uaz	=1	12 months		
program	da?	=0	Not 24 months		
	uas	=1	24 months		
	db1	=0	No credential in chosen field		
End	UDT	=1	Credential in chosen field (no work experience)		
qualification	qualification	=0	No skills development		
db2	=1	Skills development (no credential)			
	dat		No classroom and work experience		
Nature of	uci	=1	Classroom and work experience		
program	deC	=0	Not work experience only		
	uc2		Work experience only		
Note: As each attribute has three levels, each require a set of two dummy variables to capture the various options					
recented. The abare of the two dummu visibles (e.g. dec. 0 and dec. 0) indicate the presence of the missing					
presented. The absence of the two durning variables (e.g., daz=0 and da3=0) indicate the presence of the missing					
base case (e.g., duration of 8 weeks—as this was the only other option). The 'base' cases for each attribute are:					
duration of program – 8 weeks; end qualification – labour market information; nature of program – counselling and					

job search support only.



The table below shows the results for the conjoint analysis with just the above mentioned variables. The overall regression fit is .195.

Table 15: Conjoint results – without covariates (n=128 observations, 28 individuals)									
Variable	В	t-value	p-value						
Constant	4.613	9.624	.000						
Duration of program: 12 months (da2=1)	117	262	.794						
Duration of program: 24 months (da3=1)	050	111	.912						
End qualification: Credential in chosen field (no work experience)	2.217	4.985	.000						
(db1=1)									
End qualification: Skills development (no credential) (db2=1)	.199	.448	.654						
Nature of program: Classroom and work experience (dc1=1)	1.765	3.935	.000						
Nature of program: Work experience only (dc2=1)	.501	1.128	.261						
Adjusted R ² : .195 F (p-value): 7.704 (.000)									

The expected rating for the base level package (8 weeks duration; end results offered being labour market information only; and offering counselling and job support) is 4.6. By involving classroom and work experience instead of just offering counselling and job support, the average rating increases to 6.4 (4.613 + 1.765). As well, if the program resulted in obtaining credential in the chosen field instead of just providing labour market information, the rating jumps up to 8.6 (4.613 + 1.765 + 2.217). Only these two options seemed to have some appeal to the participants, no others were found to impact an individual's rating score of the packages.

In addition to the above regression run, another run was done introducing an indicator of whether the participant is a long-tenured worker, is currently receiving EI, whether they are currently employed, the number of dependents they have, the participant's current age, the participant's highest level of education, the total family income, and the participant's gender as covariates.²⁰ The results are shown below.



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Please see the body of the report for definitions of these covariates.

Table 16: Conjoint results – with covariates (n=128 observations, 28 individuals)									
Variable B t-value									
Constant	9.950	7.691	.000						
Duration of program: 12 months (da2=1)	088	205	.838						
Duration of program: 24 months (da3=1)	.066	.154	.878						
End qualification: Credential in chosen field (no work experience)	1.948	4.603	.000						
(db1=1)									
End qualification: Skills development (no credential) (db2=1)	.367	.877	.382						
Nature of program: Classroom and work experience (dc1=1)	1.478	3.433	.001						
Nature of program: Work experience only (dc2=1)	.672	1.581	.116						
Are you currently collecting EI benefits? (pfg1=1)	453	897	.371						
Are you currently employed? (pfg5=1)	-1.418	-3.126	.002						
Number of dependents	.032	.184	.854						
How old are you right now? (pfg17)	056	-3.252	.001						
What is your highest level of education? (pfg18)	468	-3.881	.000						
Total family income. (incm)	.782	3.406	.001						
Gender: Male (dgen=1)	743	-1.717	.088						
Long-tenured worker (d_ltw=1)	-1.375	-2.554	.012						
Adjusted R ² : .327 E (p-value): 6.561 (.000)									

The introduction of the covariates seems to have improved the overall model fit (adjusted $R^2 = .327$); however, it is interesting to note that almost all of the covariates were found to be significant (at p=.10). This seems to indicate that the model is being driven by the socio-economic and demographic variables more so than the attributes themselves.

Based on our definition²¹, the model above indicates that long-tenured status has a negative impact on rating scores.

²¹ We defined long-tenured status based on question 2 (*During the last five years, how many of your EI applications, if any, were accepted?*) and question 4 (*How old were you when you got your very first job?*) from the pre-focus group survey. A long-tenured worker was defined as an individual who has had EI applications accepted at a rate of at most 1 per 10 years of working. Hence, an individual who has had 2 claims accepted over 24 years of working was classified as a long-tenured worker, whereas one who has had 3 claims accepted over 15 years was not defined as a long-tenured worker. It is important to note that based on this definition, 82% of our pretest sample was classified as such.



APPENDIX E

Summary of Conjoint Covariates



PFG1. Are you currently collecting El benefits?

	Tenureship		Gender		Age		
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
Na	81	21	60	38	43	36	43
INO	63%	60%	65%	59%	67%	67%	60%
Voc	46	14	32	25	21	17	29
165	36%	40%	34%	39%	33%	31%	40%
	1		1	1		1	
no response	1%		1%	2%		2%	
Total	128	35	93	64	64	54	72

PFG2. In total, how many El applications have you ever made?

		Tenur	eship	Ger	nder	A	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
	1		1	1		1	
None	1%		1%	2%		2%	
	24	3	21	14	10	18	6
One	19%	9%	23%	22%	16%	33%	8%
Ture	36	11	25	15	21	22	14
TWO	28%	31%	27%	23%	33%	41%	19%
Three	26	6	20	9	17	6	20
	20%	17%	22%	14%	27%	11%	28%
Four	20	6	14	12	8	2	16
Four	16%	17%	15%	19%	13%	4%	22%
Five to Nine	13	4	9	9	4	3	10
	10%	11%	10%	14%	6%	6%	14%
Ten or more	7	5	2	4	3	1	6
	5%	14%	2%	6%	5%	2%	8%
No rosponso	1		1		1	1	
	1%		1%		2%	2%	
Total	128	35	93	64	64	54	72
Mean	3.48	4.89	2.95	3.80	3.16	2.17	4.43
Median	3.00	3.00	2.00	3.00	3.00	2.00	3.00
Min	0	1	0	0	1	0	1
Max	30	30	20	30	20	10	30
Valid n	127	35	92	64	63	53	72



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		Tenureship		Gender		Age	
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
Less than 15 years	15	3	12	8	7	14	1
	12%	9%	13%	13%	11%	26%	1%
15 to 19 years	23	5	18	9	14	23	
	18%	14%	19%	14%	22%	43%	
20 to 29 years	37	12	25	18	19	17	20
	29%	34%	27%	28%	30%	31%	28%
30 to 39 years	30	7	23	16	14		30
	23%	20%	25%	25%	22%		42%
40 years or more	20	7	13	12	8		20
	16%	20%	14%	19%	13%		28%
No response	3	1	2	1	2		1
	2%	3%	2%	2%	3%		1%
Total	128	35	93	64	64	54	72
Mean	27.20	28.71	26.64	28.02	26.37	17.39	34.66
Median	27.00	29.00	26.00	28.00	27.00	18.00	35.00
Min	2	12	2	2	12	6	2
Max	54	48	54	54	53	28	54
Valid n	125	34	91	63	62	54	71



Number of years worked is calculated by subtracting question 4 of the pre-focus group survey (*How old were you when you got your very first job?*) from question 15 of the survey (*How old are you right now?*).

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	lioione jo	Tenur	eship	Ger	der	A	ae
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
	16	4	12	10	6	7	9
Less man 5 jobs	13%	11%	13%	16%	9%	13%	13%
E or 6 icho	16	2	14	8	8	11	4
	13%	6%	15%	13%	13%	20%	6%
Z or 9 john	33	11	22	15	18	13	20
	26%	31%	24%	23%	28%	24%	28%
0 or 10 john	24	7	17	8	16	12	11
9 or 10 jobs	19%	20%	18%	13%	25%	22%	15%
11 to 10 jobs	18	4	14	9	9	8	10
	14%	11%	15%	14%	14%	15%	14%
20 jobs or more	16	5	11	11	5	3	13
	13%	14%	12%	17%	8%	6%	18%
No rooponoo	5	2	3	3	2		5
no response	4%	6%	3%	5%	3%		7%
Total	128	35	93	64	64	54	72
Mean	10.99	13.33	10.13	11.92	10.08	9.19	12.54
Median	8.00	8.00	8.00	8.00	8.00	8.00	9.00
Min	2	2	2	2	2	2	2
Max	100	100	50	100	50	50	100
Valid n	123	33	90	61	62	54	67

PFG6. Are you currently employed?

		Tenur	eship	Ger	nder	A	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
No	46	15	31	26	20	18	28
NO	36%	43%	33%	41%	31%	33%	39%
Yee	81	20	61	37	44	36	43
165	63%	57%	66%	58%	69%	67%	60%
No response	1		1	1			1
	1%		1%	2%			1%
Total	128	35	93	64	64	54	72



PFG9. Are you currently married	?						
		Tenur	eship	Ger	der	A	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
No	64	16	48	33	31	23	39
NO	50%	46%	52%	52%	48%	43%	54%
Vec	63	18	45	30	33	31	32
165	49%	51%	48%	47%	52%	57%	44%
No rosponso	1	1		1			1
No response	1%	3%		2%			1%
Total	128	35	93	64	64	54	72

Number of dependents (DDEP)²³

		Tenur	eship	Ger	nder	Age		
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over	
	75	22	53	40	35	26	47	
None	59%	63%	57%	63%	55%	48%	65%	
	30	8	22	15	15	15	15	
One	23%	23%	24%	23%	23%	28%	21%	
T	17	4	13	7	10	9	8	
IWO	13%	11%	14%	11%	16%	17%	11%	
T here a	2	1	1	2		1	1	
Inree	2%	3%	1%	3%		2%	1%	
E	2		2		2	1	1	
Four	2%		2%		3%	2%	1%	
- Fire	2		2		2	2		
Five	2%		2%		3%	4%		
Total	128	35	93	64	64	54	72	
Mean	.69	.54	.74	.55	.83	.93	.53	
Median	.00	.00	.00	.00	.00	1.00	.00	
Min	0	0	0	0	0	0	0	
Мах	5	3	5	3	5	5	4	
Valid n	128	35	93	64	64	54	72	

²³ The number of dependents is calculated based on the number of children under 18 in the household (gathered during the recruitment process) and whether the participant had an unemployed spouse to support (question 11 of the pre-focus group survey). Question 14 of the pre-focus group survey (How many children or dependents do you currently have?) had been interpreted differently by individuals. In some cases, individuals included grown children who no longer live with them, while others may or may not have included unemployed spouses as dependents.



		Tenur	eship	Gen	Gender		ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
Dent	42	13	29	25	17	19	22
Rent	33%	37%	31%	39%	27%	35%	31%
Own	82	20	62	37	45	33	48
	64%	57%	67%	58%	70%	61%	67%
No response	4	2	2	2	2	2	2
	3%	6%	2%	3%	3%	4%	3%
Total	128	35	93	64	64	54	72

PFG16. What is your highest level of education?

		Tenur	eship	Gen	Gender		Age	
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over	
Grade 10 or less	3	1	2	2	1	1	2	
	2%	3%	2%	3%	2%	2%	3%	
Grade 11	3		3	1	2	1	2	
	2%		3%	2%	3%	2%	3%	
Grade 12 / high school	18	7	11	11	7	6	12	
	14%	20%	12%	17%	11%	11%	17%	
Some college	18	6	12	7	11	6	11	
	14%	17%	13%	11%	17%	11%	15%	
College graduate	24	7	17	14	10	10	13	
	19%	20%	18%	22%	16%	19%	18%	
Some university	17	3	14	7	10	7	10	
	13%	9%	15%	11%	16%	13%	14%	
Some university/college	2	1	1	1	1		2	
	2%	3%	1%	2%	2%		3%	
University graduate/university	31	7	24	13	18	17	14	
	24%	20%	26%	20%	28%	31%	19%	
Postgraduate degree (Master's)	8	2	6	4	4	4	4	
	6%	6%	6%	6%	6%	7%	6%	
Other	4	1	3	4		2	2	
	3%	3%	3%	6%		4%	3%	
Total	128	35	93	64	64	54	72	



INCM. Your total family income? ²⁴									
		Tenur	eship	Ger	der	A	ge		
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over		
Linder \$25,000	50	13	37	31	19	16	33		
Under \$55,000	39%	37%	40%	48%	30%	30%	46%		
	23	9	14	13	10	11	11		
\$33,000-\$30,000	18%	26%	15%	20%	16%	20%	15%		
¢50,000, ¢75,000	27	8	19	10	17	11	16		
\$50,000-\$75,000	21%	23%	20%	16%	27%	20%	22%		
Over \$75,000	26	4	22	9	17	15	11		
Over \$75,000	20%	11%	24%	14%	27%	28%	15%		
No response	2	1	1	1	1	1	1		
	2%	3%	1%	2%	2%	2%	1%		
Total	128	35	93	64	64	54	72		

Occupation: Management (DOCC0)²⁵

· · · · · · · · · · · · · · · · · · ·	Tenureship		Gender		Age		
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
No	118	34	84	58	60	48	69
NO	92%	97%	90%	91%	94%	89%	96%
Vac	10	1	9	6	4	6	3
Yes	8%	3%	10%	9%	6%	11%	4%
Total	128	35	93	64	64	54	72

Occupation: Business, Finance and Administrative - Clerical (DOCC15)

		Tenur	eship	Ger	nder	A	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
No	102	26	76	59	43	43	57
	80%	74%	82%	92%	67%	80%	79%
Yac	26	9	17	5	21	11	15
165	20%	26%	18%	8%	33%	20%	21%
Total	128	35	93	64	64	54	72



²⁴ Data on total family income was collected during the recruitment process.

²⁵ Information on occupation was collected during the recruitment process.

Occupation: Sales and Service (DOCC6)								
	-	Tenur	eship	Ger	Gender		Age	
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over	
No	109	29	80	55	54	46	61	
INO	85%	83%	86%	86%	84%	85%	85%	
Vec	19	6	13	9	10	8	11	
165	15%	17%	14%	14%	16%	15%	15%	
Total	128	35	93	64	64	54	72	

Occupation: Teachers, TAs, college/vocational instructors (DOCC65)

		Tenur	eship	Ger	nder	Α	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
Na	114	30	84	59	55	49	64
INO	89%	86%	90%	92%	86%	91%	89%
No.	14	5	9	5	9	5	8
res	11%	14%	10%	8%	14%	9%	11%
Total	128	35	93	64	64	54	72

Occupation: Trade, Transport and Equipment Operators and Related (DOCC7)

		Tenur	eship	Ger	nder	Α	ge
	Overall	Long- tenured worker	Not long- tenured worker	Male	Female	18 to 39	40 and over
No	106	28	78	42	64	45	59
	83%	80%	84%	66%	100%	83%	82%
Yaa	22	7	15	22		9	13
165	17%	20%	16%	34%		17%	18%
Total	128	35	93	64	64	54	72



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Gender (DGEN)

		Tenureship		Age	
	Overall	Long-tenured worker	Not long- tenured worker	18 to 39	40 and over
Mala	64	19	45	23	41
Male	50%	54%	48%	43%	57%
Formela	64	16	48	31	31
remaie	50%	46%	52%	57%	43%
Total	128	35	93	54	72

PFG15. How old are you right now?²⁶

		Tenur	eship	Ger	der
	Overall	Long-tenured worker	Not long- tenured worker	Male	Female
18 to 20 years old	11	4	7	6	5
	9%	11%	8%	9%	8%
20 to 20 years old	43	8	35	17	26
So to se years ou	34%	23%	38%	27%	41%
10 to 10 years old	35	13	22	20	15
	27%	37%	24%	31%	23%
	29	7	22	16	13
	23%	20%	24%	25%	20%
	8	3	5	5	3
bo years old or over	6%	9%	5%	8%	5%
N	2		2		2
No response	2%		2%		3%
Total	128	35	93	64	64
Mean	43.01	43.74	42.73	44.05	41.94
Median	43.00	43.00	43.00	44.00	39.50
Min	22	28	22	22	27
Мах	69	64	69	68	69
Valid n	126	35	91	64	62

²⁶ During analysis, it was found that the number of years worked was highly correlated to the age of the individual; therefore, age was dropped from the analysis.



Appendix F

Fractional Factorial Designs



The Options for Employment Programming Experiment involved a full factorial design, in particular a 3^3 factorial design. In a full factorial design all possible combinations (in this case 3^3 or 27) of the attributes at their various levels are investigated, including the main effects as well as all possible interactions. The possible combinations for three attributes with three levels each are shown in Table 1, where combination 25 represents attributes A and B at level three, and attribute C at level 1.

Table 17: Full factorial design (3 ³)							
Combination							
1	A1	B1	C1				
2	A1	B1	C2				
3	A1	B1	C3				
4	A1	B2	C1				
5	A1	B2	C2				
6	A1	B2	C3				
7	A1	B3	C1				
8	A1	B3	C2				
9	A1	B3	C3				
10	A2	B1	C1				
11	A2	B1	C2				
12	A2	B1	C3				
13	A2	B2	C1				
14	A2	B2	C2				
15	A2	B2	C3				
16	A2	B3	C1				
17	A2	B3	C2				
18	A2	B3	C3				
19	A3	B1	C1				
20	A3	B1	C2				
21	A3	B1	C3				
22	A3	B2	C1				
23	A3	B2	C2				
24	A3	B2	C3				
25	A3	B3	C1				
26	A3	B3	C2				
27	A3	B3	C3				

Investigating all 27 combinations is reasonable, but consider four attributes instead of three, with three levels each. This would require us to test 3^4 or 81 combinations. The number of combinations exponentially (and quickly) increases as the number of attributes and/or the number of levels increase. The ability to implement an experiment with such a large number of possibilities is not logically feasible in a social setting. One option is to consider testing a subset or fraction of these combinations.

One of the key assumptions behind a fractional factorial design is that high-order interactions are negligible compared to the main effects or the low-order interactions, otherwise known as the "sparsity of effect" principle. In a well-defined design, the main and low-order effects are confounded with high-order interactions (i.e., the main and low-order effects cannot be estimated independently of the high-order interactions). Hence, we cannot separate the effect of the main or low-order from that of the high-order interactions. However, under the sparsity of effect

1



principle, we can infer that the effect is primarily due to the main and low-order interactions.

Consider the 3^4 factorial design. Under a full design, we would run 81 trials. By opting for a fractional design of one-third (3^{4-1}), only 27 trials need to be run with only a small loss of information on high-order terms. In this fractional design, the main effects are confounded with the three-factor and four-factor interaction terms. Using the sparsity of effect principle, we can assume that effects are actually due to the main (instead of three or four factor interactions) and two-factor interactions. However, caution must be taken when interpreting the results with respect to two-factor interactions as some two-factor interactions will be confounded with other two-way interactions.

Table 18: Fractional factorial design (3^{+1}) – confounded terms							
Combination	First third	Second third	Third third				
1	ABCD	$A^2B^3C^2D^2$	$A^{3}B^{2}C^{3}D^{3}$				
2	ABC ² D	$A^2B^3C^3D^2$	A ³ B ² CD ³				
3	ABC ³ D	A ² B ³ CD ²	$A^{3}B^{2}C^{2}D^{3}$				
4	AB ² CD	A ² BC ² D ²	$A^{3}B^{3}C^{3}D^{3}$				
5	AB ² C ² D	A ² BC ³ D ²	A ³ B ³ CD ³				
6	AB ² C ³ D	A ² BCD ²	$A^{3}B^{3}C^{2}D^{3}$				
7	AB ³ CD	A ² B ² C ² D ²	A ³ BC ³ D ³				
8	AB ³ C ² D	$A^2B^2C^3D^2$	A ³ BCD ³				
9	AB ³ C ³ D	A ² B ² CD ²	A ³ BC ² D ³				
10	A ² BCD	$A^3B^3C^2D^2$	$AB^2C^3D^3$				
11	A ² BC ² D	$A^{3}B^{3}C^{3}D^{2}$	AB ² CD ³				
12	A ² BC ³ D	A ³ B ³ CD ²	AB ² C ² D ³				
13	A ² B ² CD	A ³ BC ² D ²	AB ³ C ³ D ³				
14	A ² B ² C ² D	A ³ BC ³ D ²	AB ³ CD ³				
15	A ² B ² C ³ D	A ³ BCD ²	AB ³ C ² D ³				
16	A ² B ³ CD	$A^3B^2C^2D^2$	ABC ³ D ³				
17	A ² B ³ C ² D	$A^3B^2C^3D^2$	ABCD ³				
18	A ² B ³ C ³ D	A ³ B ² CD ²	ABC ² D ³				
19	A ³ BCD	AB ³ C ² D ²	$A^2B^2C^3D^3$				
20	A ³ BC ² D	AB ³ C ³ D ²	A ² B ² CD ³				
21	A ³ BC ³ D	AB ³ CD ²	$A^2B^2C^2D^3$				
22	A ³ B ² CD	ABC ² D ²	$A^2B^3C^3D^3$				
23	A ³ B ² C ² D	ABC ³ D ²	A ² B ³ CD ³				
24	A ³ B ² C ³ D	ABCD ²	A ² B ³ C2D ³				
25	A ³ B ³ CD	AB ² C ² D ²	A ² BC ³ D ³				
26	A ³ B ³ C ² D	$AB^2C^3D^2$	A ² BCD ³				
27	A ³ B ³ C ³ D	AB ² CD ²	A ² BC ² D ³				
Note: Here combination 25, which represents attributes A and B at level 3 and attribute C and D at level 1, will							

Table 2 summarizes which effects will be confounded to each other in a 3^{4-1} factorial design.

Note: Here combination 25, which represents attributes A and B at level 3 and attribute C and D at level 1, will be confounded with attribute A at level 1 and attributes B, C, and D at level 2, as well as with attribute A at level 2, attribute B at level 1, and attributes C and D at level 3.

Fractional factorial designs with additional experimentation may also be projected into stronger and larger designs in a subset of significant factors, or may be used as a sequential experimentation technique, where two or more separate fractional runs may be combined into a larger design. Hence, on a more practical basis, fractional factorial designs allow for efficiency, savings, and a more manageable number of runs to obtain preliminary information.



Appendix G

Glossary



Adjusted \mathbb{R}^2 – A version of the \mathbb{R}^2 (see below) that is adjusted for the number of variables included in a model.

Affirmative action programs – Programs with the main goal of improving the representation of specific minority or underrepresented groups. Examples include a variety of equal opportunity employment programs for visible minorities and women.

Alpha variable – A variable that denotes the probability of a Type I error occurring during statistical testing. This is the probability of falsely rejecting a null hypothesis. Often this involves identifying a statistical difference when there is none.

Baseline – This refers to an initial point of reference or base measurement that is mainly used for comparison purposes.

Binary dummy variable / dummy variable – This is a variable that takes on one of two values, either 1 or 0. A value of 1 denotes a particular characteristic, while 0 denotes its absence. For example, males can be assigned a value of 1 and females assigned a value of 0.

Conjoint analysis – A statistical technique used primarily in market research to determine how individuals value different features that make up a product or service.

Covariate – An independent variable that possibly co-varies with a dependent variable understudy, and is, by extension, potentially predictive of the dependent variable.

Dependent variable – This is the main variable under study that is modeled as a function of independent variables to test the possible influence of these independent variables on the dependent. It is variably referred to as a response variable, explained variable, or an outcome variable.

Earnings supplement – This refers to a top up of wages offered to EI users who accept employment at an income less than their previous job.

Employment benefits and support measures (EBSMs) – This refer to a generic set of service packages created by HRSDC as a component of the EI part II development process.

Fractional factorial design – This is an alternative to a full factorial design when the number of combinations is too high to be logistically feasible. In a fractional factorial design, a subset or fraction of all possible combinations is explored under the assumption that high-order interaction effects are subsumed to the main or the low-order interaction effects.

Full factorial design – This refers to an experimental design that includes at least two factors, each with discrete possible values or levels, and takes into account all possible combinations of these levels across all factors during the implementation and analysis stage. Such an experiment allows the examination of the effect of each factor on the dependent variable, as well as the effects of interactions between factors on the response variable.

F-statistic – This is a statistic that, in the context of regression analysis, identifies if variation in



the dependent variable can be attributed to some or all of the independent variables in the regression model.

Independent variable – This is an exogenous variable that is assumed and then tested to have an effect on a dependent variable. It is also known as a predictor variable, a regressor, or an explanatory variable.

Intervention – This refers to a treatment or program.

Interaction term – This is a term in a regression model that is a non-linear function of two or more independent variables.

Linear regression analysis - see regression analysis

Long-tenured workers – These are individuals who have "contributed at least 30% of the annual maximum EI premiums for at least seven out of ten calendar years prior to the start of their claim; and have received no more than 35 weeks of regular EI benefits in the five years prior to the start of their claim."²⁷

Multivariate regression analysis - see regression analysis

Marginal effect/benefit – This is the effect/benefit arising from a unit increase.

Null hypothesis – This refers to the statement that is being tested.

p-value – This is a value often reported in conjunction with a test statistic (t-statistic or F-statistic), and refers to the probability of obtaining a value for the test statistic as extreme or more extreme than that computed from the sample, assuming the null hypothesis is true. Hence, the lower the probability (or p-value) the less likely the null hypothesis is true.

Power of test / statistical power of test – This refers to the odds that we will observe a treatment effect, when it actually occurs. In statistical terms, power = 1-type II error; as the power increases the probability of a type II error (the probability of failing to reject the null hypothesis when it is false) decreases.

Qualitative analysis – This is an analytical approach that employs interpretive research in an effort to understand perceptions, practices, and ideas in relation to the subject matter. Although interpretive in its approach, qualitative research is guided by a diverse range of methodological and theoretical frameworks. Some examples of qualitative techniques include focus groups, case studies, and interviews. Rather than attempting to measure causal relationships between variables (as is done in a quantitative analysis), a qualitative approach would seek to understand and interpret these causal relationships in the context of social and/or cultural perceptions.

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Service Canada. Accessed from http://www.servicecanada.gc.ca/eng/goc/ltw/index.shtml

 \mathbf{R}^2 – This is also known as the coefficient of determination and is a measure of the proportion of variability of the model that is accounted for by the variables in the model. It ranges in value from 0 to 1. In some instances, the \mathbf{R}^2 value will continue to increase as the number of variables introduced to the model increase. To compensate, the **adjusted** \mathbf{R}^2 is considered; this adjusts the statistic as extra variables are included in the model.

Regression analysis – This is a technique used to examine how the variable of interest (the dependent variable) is affected when one or more explanatory variables (independent variables) is varied, holding the other explanatory variables fixed.

Linear regression analysis is a technique in which the model depends linearly on the unknown parameters to be estimated from the data.

Multivariate regression analysis involves regression analysis involving more than one independent variable at a time.

Salience – In an experimental context, this refers to the relevance of the treatment and it results to the participants. An experiment must ensure salience to elicit realistic participant behaviour.

Stopgap employment – This refers to employment that provides some income to offset severe financial pressures, though the job does not match the person's field, skills, qualifications, long-term goals, financial plans, conflicts with other responsibilities, or, is in some other way not preferable.

Standard deviation – This is a simple measure of dispersion.

Type II error – This is the error of failing to observe a difference when there is one.

T-value/t-statistic – This is the result of a **t-test** that tests the unique variance that an independent variable accounts for. It assumes the sampling distribution follows a t-distribution.

