The Impact of Literacy and Essential Skills Training Programs on the Socio-Economic Integration of Immigrants—A Cost-Benefit Analysis Model

Research Report[†]

[†] We benefited from comments and suggestions on draft versions of this report by Ather Akbari (Saint Mary's University, Halifax), Brahim Boudarbat (Université de Montréal), David Gray (University of Ottawa), Marie Thériault (Université de Montréal), the members of the Advisory Committee of this action research and participants at the Symposium on developing literacy and essential skills for immigrants at the Pathways to Prosperity national conference held in Toronto in November 2017.

Note: The masculine generic refers to both masculine and feminine genders and is used for conciseness purposes only.

Actions interculturelles
Research Report - The Impact of Literacy and Essential Skills Training Programs on the Socio-Economic Integration of Immigrants—A Cost-Benefit Analysis Model

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Executive Summary

This report outlines the orientations and findings of an action research project aimed at developing and testing a model to measure the tangible costs and benefits of literacy and essential skills (LES) training programs provided to Francophone immigrants. To the best of our knowledge, the focus and scope of this action research make it the first of its kind in Canada.

This action research was conducted between the summer of 2013 and the summer of 2017 in six provinces: Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia. Seven categories of LES training were targeted: Francization—Beginner, Francization—Intermediate, Francization—Advanced, English as a Second Language—Beginner, English as a Second Language—Intermediate, English as a Second Language—Advanced, and Computing—Beginner. To calibrate the model, 1,028 immigrants were followed over a period ranging from 1 to 12 quarters. In total, 27 training centres and 131 employers participated in the action research. The vast majority of participating immigrants were from Quebec or Ontario.

To measure the impact of LES training on the labour market performance of both unemployed and employed individuals, the participants in the action research were divided into four groups: the first group was comprised of unemployed individuals pursuing training; the second, of unemployed individuals who were not pursuing training (a control group); the third, of employed individuals who were pursuing training; and the fourth, of employed individuals who were not pursuing training (another control group).

The focus of this action research was on the measurement of the tangible costs and benefits of LES training; the measurement of the intangible costs and benefits and thus of the net social impact of this type of training is left to a future research. To measure the tangible benefits of pursuing LES training, we estimated the impact of the training on the duration of unemployment as well as on salary. For that purpose, we developed a survival model of the duration of unemployment and *Mincer* type salary equations.

According to our estimates, LES training has mixed impacts on the integration of immigrants into the labour market, and thus on the net tangible benefit of offering this type of training: there is no decrease in the duration of unemployment (except for training taken in Manitoba or in British Columbia); it does not lead to a higher salary once the trainee finds employment (except if the training is in English as a Second Language at the intermediate level); and it has no significant impact on the salary of already employed individuals. Thus, for example, we estimate that the net tangible benefit of pursuing a Francization course at the beginner level for an unemployed immigrant is -$22,212 over five years. In this case, the main reason for the negative net benefit is that we estimate that the immigrant is unemployed for a longer period of time if they pursue training than if they do not (170.2 weeks vs. 96.6 weeks), which translates into $20,667 in lost wages. However, in some cases, training may yield significant net tangible benefits. For example, we estimate that the net tangible benefit of an unemployed Manitoba or British Columbia immigrant with a graduate or postgraduate university degree pursuing an English as a Second Language course at the intermediate level is $62,381 over five years. As for immigrants who are initially employed, pursuing LES training leads to positive, yet statistically insignificant net benefits.

Therefore, in light of these findings and with some exceptions, completing LES training does not appear to be worthwhile. These results raise more questions than they answer, as they go against the consensus in the literature, according to which the key determinants of immigrant success in the labour market are the skills that this type of training is supposed to develop, such as the knowledge of the host region's language and the level of education.

At least two methodological reasons may explain why we possibly underestimate the impact of LES training on the performance of immigrants in the labour market. The first is that participants were not randomly assigned across the groups pursuing training and the control groups. Therefore, the results may be biased, because, as far as the unobservable characteristics are concerned, the participants in the control groups may have been fundamentally different from those who pursued training. For example, they may have been more motivated to find employment quickly, in which case our conclusion that LES training typically increases the duration of unemployment would be incorrect and should be instead that

immigrants who do not pursue LES training are more motivated or otherwise "work ready" to find employment. Had the participants in the control groups pursued training, they might have found employment even more quickly.

The second methodological reason that may explain why we possibly underestimate the impact of LES training on the performance of immigrants in the labour market is the short duration of the observation period of the participants in this action research. Training is an investment that may yield benefits over a period of several years. Although the observation period in this action research was somewhat long (up to 12 quarters in some cases), it was possibly not long enough to observe and capture all the tangible benefits of LES training.

Another flaw of this cost-benefit analysis, which is common to a great number of cost-benefit studies of training programs, is that it was impossible to observe and quantify the intangible benefits of pursuing LES training, such as self-confidence, co-operation, self-esteem and reliability, as well as the external impact that this type of training may have on social cohesion. Although these benefits are rarely quantified, there is a consensus in the literature that they may be substantial.

That said, it is, of course, possible that our findings are correct, and that pursuing LES training has little positive impact on the performance of immigrants in the labour market. This would suggest that policymakers should try to improve the content or the delivery of this type of training or to find other ways of facilitating the integration of immigrants into the labour market besides offering formal LES training courses. In any event, given that this study is the first of its kind; its findings must be interpreted with caution. Just as a new medication must be subjected to several test studies before being introduced in the market, this action research should be replicated or conducted with a greater scope to validate its findings.

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Chapter 1: Introduction

Canada is a nation of immigrants and will become even more so in the future. The number of immigrants coming to Canada increased significantly between 1980 and 2005 and has since stabilized to around 250,000 individuals per year, or about 0.7 percent of the Canadian population (see Figure 1.1)[1]. As a result, the proportion of the foreign-born population in Canada is currently about 21.9%. It is the sixth highest among all OECD countries (behind Luxembourg, Switzerland, Australia, Israel and New Zealand) and the highest since 1921 at around 22.3% (see Le Devoir, 2017 and United Nations, 2015). Moreover, since 2000, immigration has replaced the natural process of births and deaths as the main driver of population growth. In fact, if current trends continue, by 2031, immigration could account for almost 80% of net population growth, and the foreign-born population could represent 28% of Canada's total population (Statistics Canada 2010).

An aging population and a shortage of skilled labour has lead Canada and its provinces to make immigration a central element of their economic development policies. As a result, several immigration policies have been adopted to maximize the contribution of immigrants to the economy, which has lead to the proportion of economic immigrants (that is, immigrants selected based on their qualifications) increasing substantially: from around 50% in 1988 to almost 63% in 2015. From time to time, the selection criteria for economic immigrants have been adjusted to maximize the chances of their success in the labour market.[2] For example, between 2003 and 2017, for Quebec, the weight of the Schooling criterion rose from less than 20% of the passing score to more than 50% for unattached applicants (see

[1] On November 1, 2017, it was announced that Canada plans to increase its immigration levels to 310,000 new permanent residents in 2018, 330,000 in 2019 and 340,000 in 2020 (see Immigration, Refugees and Citizenship Canada, 2017).

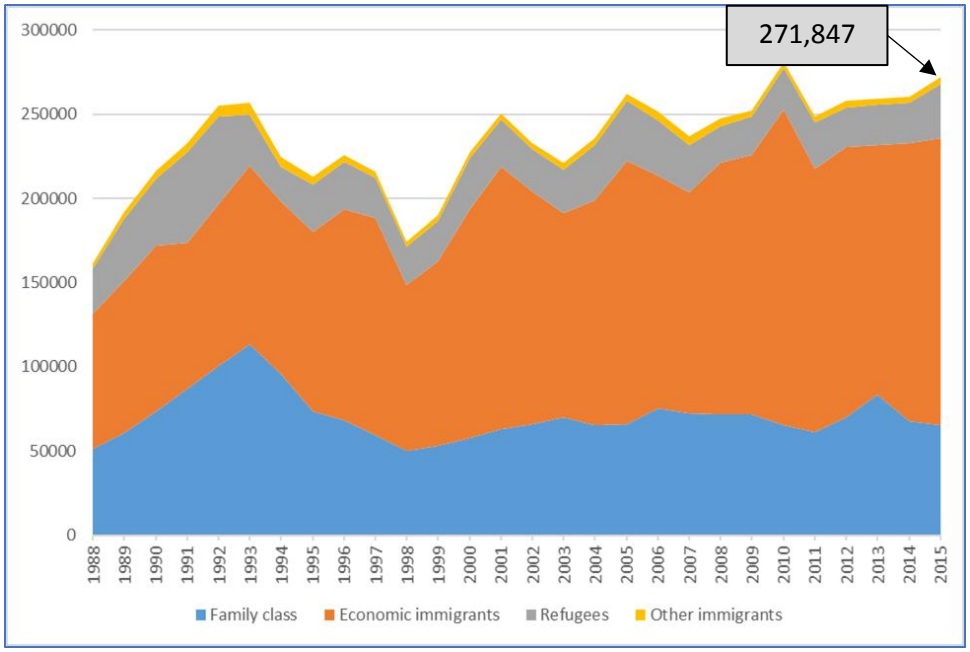
[2] Recently, Federal and provincial governments have made significant efforts to improve the integration of immigrants into the Canadian labour market. Recent changes to the selection criteria for the Federal Skilled Worker Program are:

- introducing a minimum threshold and increasing points for official languages proficiency, making language the most important factor in the selection process;
- more emphasis on young immigrants;
- improvement of the assessment of credentials in education, so that points awarded for education awarded reflect the true value in Canada of credentials acquired abroad;
- more points for spousal language skills and Canadian work experience.

See Citizenship and Immigration Canada (2012b) for more details.

Table 1.1), reflecting the importance of the level and field of education as determinants of immigrant success in the labour market.[3]

Figure 1.1: Permanent Residents by Category (Canada)



Source : *Citoyenneté et immigration Canada (2012a, 2017a).*

Another key determinant of labour market success for immigrants is the knowledge of English and/or French. For example, Bégin, Goyette and Riddell (2010) find that economic immigrants who have a good understanding of one of the two languages earn up to 39 percent more than economic immigrants who are not familiar with either of the two languages. Bastien, Bélanger and Ledent (2010) find that fluency in English or French increases the probability of finding a skilled job by 50 percent for immigrants outside of Quebec, while fluency in English doubles the chances of finding a skilled job in Quebec. There are also studies showing that fluency in English or French increases the likelihood of foreign credential recognition for immigrants (see Torres 2010, Houle and Yssad 2010). The importance of knowledge of the language of work factor is also reflected in the weight placed on that criteria in the

[3] For example, Bégin, Goyette, and Riddell (2010) find that immigrants with a master's or doctorate degree earn 17 percent more than immigrants who have 13 years of schooling or less. Similarly, Bastien, Bélanger and Ledent (2010) report that the probability of obtaining a skilled job is 30 percent higher if the immigrant holds a master's degree or a doctorate.

selection of economic immigrants, accounting for about 40 percent of the passing score for Canada and Quebec (see Table 1.1). It should be noted that for Canada outside Quebec, the weight given to the knowledge of English increased by 50 percent between 2003 and 2017, while it remained the same in Quebec.

Table 1.1: Selection Grid for Skilled Workers (Maximum Number of Points)

	2003[a]		2017[b]	
	Canada	**Québec**	**Canada**	**Québec**
Schooling	25	11	25	26
Assured Employment	15	15	10	10
Work Experience	21	10	15	8
Adaptability[c]			10	
Age	10	10	12	16
Knowledge of English (French) for Canada (Quebec)	16	18	24	16
Knowledge of French (English) for Canada (Quebec)	8	6	4	6
Spouse's Schooling	5	5		17
Family or friend in Canada (Quebec)	5			8
Children				8
Financial autonomy				1
Total (without a spouse/ with a spouse)	105	75	100	99/116
Pass score (without a spouse/ with a spouse)	75	58	67	50/59

[a]Source: DeVoretz et Pivninko (2008).
[b]Source: Citizenship and Immigration Canada (2010) and Immigration et communautés culturelles Québec (2017).

Although the selection criteria for economic immigrants have strengthened over the years, differences in the labour market performance of recent immigrants and native-born Canadians have increased considerably in recent decades (see, for example, Bloom, Grenier and Gunderson 1995, Aydemir and Skuterud 2005 and Boudarbat and Boulet 2007). Many researchers argue that the deterioration in the labour market performance of immigrants since the 1960s is caused by lower levels of proficiency in both of Canada's official languages and a decrease in the quality of diplomas and acquired work experience abroad due to a shift in home countries for Europe to Asia and Africa (see, for example, Chiswick and Miller 2001 and Coulombe, Grenier and Nadeau 2014).

While overall, immigrants are highly educated (for example, according to the 2011 Census, 29.4 percent of immigrants had a university degree at a bachelor's level or higher, compared to 17.9

percent of natives), a significant number of them have low levels of education and do not speak either English or French: according to the 2011 Census, more than 1,230,000 immigrants have not completed high school and almost 440,000 immigrants do not speak English or French (see Actions Interculturelles 2017, Tables C1, C10 and C16).

Of the 271,847 immigrants who came to Canada in 2015, 32,115 were refugees. Refugees constitute a special category of immigrants because they often have had to leave their countries of origin in a hurry and, on average, have very low levels of schooling. In fact, many of these people can be considered illiterate because they have not been prepared to live in a complex knowledge-based and productivity-focussed society.

The successful socio-economic integration of immigrants requires the skills to live, learn and work. These essential skills are the foundation for learning all other skills that allow people to evolve with their jobs and adapt to changing work environments. To enable immigrants (particularly refugees) to make a significant contribution to Canada's economic prosperity, they must be given the opportunity to maximize their skills. The federal and provincial governments make significant investments to facilitate the integration of immigrants into Canadian society, particularly in literacy and essential skills (LES) training. For example, the Department of Citizenship and Immigration Canada will invest $1.2 billion in newcomer settlement and integration in 2017-18 (Citizenship and Immigration Canada, 2017b), about 30 percent of which in the *Language Instruction for Newcomers to Canada* (LINC) program.[4]

All types of public spending involve choosing among various options: for example, a government may have to choose between increasing spending on education rather than on health care or reducing taxes. Likewise, any public investment expenditure requires cutting current consumption in order to increase future production or revenue. A cost-benefit analysis is a method for assessing these

[4] The goal of the LINC program is to improve the language skills of newcomers in Canada. The figure of 30 percent is a conservative estimate based on 2008-09 fiscal year figures (see Citizenship and Immigration 2010) and excludes compensation paid to Quebec and amounts allocated to Manitoba and British Columbia under arrangements made with these provinces.

future social benefits in light of the costs to be incurred in the present to make it possible for public decision makers to compare the various options before choosing.

In this context, *Actions Interculturelles* received funding from *Employment and Social Development Canada's Office of Literacy and Essential Skills* for an action research to develop and test a model to measure the tangible benefits of LES training for Francophone immigrants (the measurement of the intangible costs and benefits and thus of the net social impact of this training is left to a future research).[5] This report outlines the orientations and findings of that action research project. To the best of our knowledge, the focus and scope of this action research make it the first of its kind in Canada.

This action research was conducted between the summer of 2013 and the summer of 2017 in six provinces: Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia. Seven categories of LES training were targeted: Francization—Beginner, Francization—Intermediate, Francization—Advanced, English as a Second Language—Beginner, English as a Second Language—Intermediate, English as a Second Language—Advanced, and Computing—Beginner.

This report is organized as follows. The next chapter presents a literature review of models used to measure the costs and benefits of LES training programs. We first examine the theory supporting cost-benefit analysis models and issues associated with the measurement of costs and benefits are examined. We then review cost-benefit analyses of LES programs reported in the literature, emphasizing Canadian studies. Finally, we conclude this chapter with recommendations based on lessons learned from these studies.

The third chapter proposes a methodology to estimate the costs and benefits of taking LES training as well as the results of the action research. To estimate the benefits, a survival model (see Greene 2011) of the duration of unemployment and *Mincer* type salary equations (see Mincer 1974) are proposed to measure the impact of training on employment and salaries. This chapter also discusses issues related to estimating costs such as the cost of delivering training and the costs incurred by participants

[5] For this action research, a Francophone immigrant is defined as an immigrant whose main language of use is French or who is pursuing training in French.

attending training (such as child care costs and loss of leisure). Finally, a template is presented to measure the costs and benefits of training.

The fourth chapter discusses the data. To calibrate our model, 1,028 immigrants were followed over a period ranging from 1 to 12 quarters. In total, 27 training centres and 131 employers participated in the action research. The vast majority of participating immigrants were from Quebec or Ontario. In order to measure the impact of LES training on the labour market performance of both unemployed and employed individuals, the immigrant participating in the action research were divided into four groups: the first group was comprised of unemployed individuals who were pursuing training; the second, of unemployed individuals who were not pursuing training (a control group); the third, of employed individuals who were pursuing training; and the fourth, of employed individuals who were not pursuing training (another control group). Descriptive statistics on these various groups are presented.

The fifth chapter presents our estimates of the benefits and costs of taking LES training. Our results are mixed, as in some cases these results are positive, while in other cases they are negative, depending on the immigrant's province of residence, level of education, and training. We provide methodological explanations for these results.

The sixth and final chapter concludes by suggesting that our results should be interpreted with caution and identifies areas of research that we believe should be pursued.

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Chapter 2: Literature Review

2.1 Introduction

« To govern is to choose »

Pierre Mendès France

All forms of public spending involve choosing between a number of options: for example, a government may have to choose between increasing spending on education rather than on health care or lowering taxes. Similarly, any public investment expenditure requires lowering current consumption in order to benefit from higher levels of output or income in the future. A cost-benefit analysis is one way to compare the future benefits of an action with its costs and thus allows policy-makers to compare and choose between various policy options. The purpose of a cost-benefit analysis is to provide to policy makers a measure of the expected return on public investment to efficiently allocate resources between programs and projects. This issue is like the one faced by managers in the private sector, who are considering investing in machinery and who must assess the likely profitability of their investments. It is therefore not surprising that techniques that are useful for business people are also useful for governments to evaluate their investment decisions.

One of the major criticisms of implementing a cost-benefit analysis for training programs comes from the fact that a cost-benefit analysis is a tool designed by economists primarily to provide an economic assessment of an investment opportunity, while in the case of these programs, several of the benefits are non-economic in nature. As a matter of fact, it is now widely recognized that the social, political and cultural consequences of training are potentially as important to a society as the economic benefits of such programs. For example, sociologists such as Coleman (1988) have introduced the concept of social capital, which accounts for social relationships and networks as well as trust and co-operation, which are all fostered by education and training. Social capital is now seen as a key determinant of economic growth and the well-being of a nation (see, for example, OCDE 2001).

There are scholars who argue that cost-benefit analyses are not applicable to training because of the multiplicity of educational objectives and the importance of the non-economic benefits of training,. However, once it is recognized that investing in training generates significant economic spin-offs, the need to analyze the nature and magnitude of these costs and benefits is unavoidable in a world where resources are scarce and where investment choices must be made. A cost-benefit analysis then becomes an element of decision-making, but not the only element; non-economic factors must also be considered in the decision-making process, but in a subjective way.[6]

The purpose of this literature review is to lay out the foundation for the development of a Kirpatrick-Phillips type cost-benefit analysis model (see Kirkpatrick 1998 and Phillips 2003) to evaluate literacy and essential skill (LES) training programs targeting immigrants.[7] In the first step, we examine the theory underlying cost-benefit analysis models and cost-benefit and discounting measurement considerations. Next, we review cost-benefit evaluation results of basic training programs, with an emphasis on Canadian studies. Finally, we conclude by making recommendations based on the lessons learned from these studies.

2.2 Estimating costs[8]

Opportunity cost

In everyday language, the cost of a training program is often only associated with the monetary expenses incurred to provide and participate in the program. However, in the context of a cost-benefit analysis, it is necessary to define the costs in terms of the opportunity cost of the program, that is, in terms

[6] Cost-effectiveness analyses may be required when non-economic factors are very important. The main difference between a cost-benefit analysis and a cost-effectiveness analysis is that the latter deals with how to achieve at lower costs goals that are quantified in physical units rather than in monetary units. In the context of evaluating education and training programs, the goal, for example, could be set in terms of the number of individuals who have found employment or left social assistance. See Boardman et al. (2006) for further discussion of the differences between a cost-benefit analysis and a cost-effectiveness analysis.

[7] The nine essential skills identified by Employment and Social Development Canada (ESDC) are: reading, document use, writing, numeracy, oral communication, thinking, digital technology, working with others and continuous learning (ESDC 2017).

[8] This section draws heavily from Woodhall (2004) and Myers et al. (2014).

of all the resources forgone (in order to provide or to attend the program) that cannot be used for other purposes. These costs can be significantly different from monetary expenditures. For example, monetary expenditures (such as the wages of training instructors and expenditures on rent and equipment) should be included in the costs only if the resources consumed could have been used for other purposes. For example, if the training instructors were to be unemployed in the absence of the training program, then their wages are not costs, they are transfers—what the taxpayers lose, the training instructors earn it. While there are monetary expenses that may not be costs, there are non-monetary expenses that can be costs. The most obvious example of this is the time of the participants, who deprive the labour market of their services by choosing to participate in a program. This represents a loss of productive capacity and therefore a loss of production in the economy, as well as a loss of wages for the individuals.

Social and private costs

If the purpose of the cost-benefit analysis is to evaluate a training program as a form of social investment, the concept of *cost* that is relevant is the total cost of resources devoted to that program that cannot be used for other purposes (social opportunity costs). This includes the time value of training instructor, books, equipment and other goods and services, the value of the use of premises and equipment, and the value of the time of the participants, measured in terms of alternative uses.

Wage expenditure is the simplest way to measure the value of the time of the training instructor. If, for whatever reasons, however, training instructors are paid differently than the current market rate for their services, one must find a way to gauge the true cost of renouncing their time. For example, if for some reason the individual would otherwise be unemployed, their opportunity cost is the value they attach to their time of leisure (or the minimum wage they would accept to work at a job).

The value of the supplies for operating the program (e.g. books, writing materials) can also be measured in terms of money spent.

In general, it is fairly easy to estimate the expenditures on the wages of training instructors and the purchase of supplies. However, it is often more difficult to estimate the use-value of land and capital

goods. If land and equipment are rented, then the annual rent can be used to measure the use-value of these resources. However, if these resources are not rented, then the rent must be imputed. The simplest method of imputing rent is to calculate the amortization of land and capital equipment over their expected lives and to add interest charges to reflect the cost of financing these resources.

Finally, the value of the program participants' time must be measured in terms of wages lost due to participating in the program rather than participating in the labour market. These lost wages represent the real cost for these individuals and are an indirect measure of the loss in production incurred by society. It is very difficult to measure the value of the participants' time because it is necessary, among other things, to account for the possibility of unemployment. In fact, the value of the program participants' time may be very low or non-existent if they were to be unemployed otherwise.

The loss of leisure caused by participating in a training program or being subsequently employed can also be imputed and treated as a cost. The value of leisure is estimated to be about 40 percent of wages (Greenberg 1992, 1997, HRDC 1999). In practice, however, the value of the loss of leisure for participants in a training program is usually ignored because this value is generally not considered to be significant in the case of individuals who would most likely be unemployed otherwise.

2.3 Considerations in estimating benefits

Wages and employment rates as measures of tangible benefits

Tangible benefits are benefits that can be measured using an appropriate accounting system. From a social point of view, the tangible contribution of training is in terms of employment and labour productivity: all other things being equal, the more skilled a workforce, the more likely it is to be employed and productive (and the more it contributes to the economic well-being of a society). In a cost-benefit analysis, the impact of training on labour productivity is invariably measured using wages. The reason for this is that according to economic theory, in a competitive economy, wages reflect the social value of a worker's output.

Ideally, the measures used to represent wages should be pre-tax and include employee benefits to reflect what employers are willing to pay for and therefore the value they place on labour productivity (see Compolieti and Gunderson 2009).

Intangible benefits

Intangible benefits are benefits that cannot be quantified using a dollar amount. Usually these benefits are not formally included in the cost-benefit analysis of training programs. They are often obtained from focus groups, interviews with key informants, case studies and surveys. Intangible benefits include factors such as trust, cooperation, self-esteem and reliability. While these benefits may be considered as ends in themselves for some programs, they are most often seen as intermediate benefits that lead to improved outcomes in terms of wages and employability. In such cases, the intermediate results can be linked to final results using results published in the literature. For example, if a program reduces absenteeism by *x* days per year, then this result can be converted to dollars simply by multiplying *x* by the average daily wage (assuming that a day of absenteeism has no value for the worker). For intangible benefits that cannot be converted into a monetary value (e.g., self-esteem), any change in these benefits would simply be reported as an intangible result. Although most often impossible to measure, Oreopoulos and Salvanes (2011) argue that intangible personal benefits related to education may be higher than tangible economic benefits.

External benefits

In addition to the tangible and intangible benefits from participating in the training programs, there are also public non-economic benefits, which are generally referred to as indirect benefits, externalities or positive spillovers since they benefit other members of society.[9] Examples of externalities include:

[9] It should be noted that these externalities are mostly documented in the field of post-secondary education and are rarely examined in cost-benefit analyses of training programs for the labour market or for essential skills training (see Myers et al. 2014). One reason is that training programs for the labour market are more focused on private returns such as getting a job, while general education programs are more conducive to generating externalities (Compolieti and Gunderson, 2009).

- Improving private and public health. It is increasingly recognized that an increase in education will have a net positive effect (beyond the benefit of a higher income) on health, which is reflected, among other things, in a reduction of infant mortality and an increase in longevity. According to Cutler and Lleras-Muney (2006), higher education changes the way individuals think and their decision-making process. According to them, the monetary return on health from investing in education is significant: about half of the effect of an increase in education on income.
- Increased social cohesion. One of the few studies that attempt to quantify the impact of literacy and essential skills training on social cohesion is Gyamarti (2013), who estimates that including these externalities increases the net social benefit by around 50 percent.
- Educated mothers have fewer children who have better academic success. This contributes to an increase in per capita income and to break the cycle of poverty across generations (Chevalier et al., 2010).
- A decrease in the crime rate. An improvement in secondary school attendance rates is strongly correlated with a decrease in the crime rate (Lochner and Moretti, 2004).
- Improving the quality of the environment. Education can improve the quality of the environment through, inter alia, slower population growth and the diffusion of new technologies for the preservation of the environment (World Bank, 1998).
- Reducing poverty and inequality. This is not only a private benefit for poor families but also a social benefit insofar as it eases pressure on the social safety net and the justice system.
- Democratization, human rights and political stability. There is, however, a considerable time lag between investment in training and the realization of these benefits (McMahon 2000).

It is very difficult to accurately measure these benefits, however. In some cases, researchers have simply identified these benefits or calculated the correlations between education indicators and, for example, health and family size levels in order to demonstrate the indirect benefits of education on health

or fertility. Other studies have gone further and tried to measure the indirect social benefits in dollars, such as by using for example the cost of purchasing these benefits through alternative means (see for example, McMahon 2000). Although the techniques for measuring these benefits are still being developed, researchers like McMahon (2000) and Haveman and Wolfe (1984) argue that the external benefits of education are important, perhaps even more important than the direct effects of education on employment and income.

The impact on fiscal transfers

When a training program increases the employment rate of the participants, the savings that come from reducing transfer payments such as social assistance or employment insurance are often seen as a benefit to governments or taxpayers. If these savings are an explicit goal of the program, then it is appropriate to include them. However, as a rule, they should not result in a net increase in benefits because what the taxpayers gain is lost by the former beneficiaries. In other words, they should not be added to other tangible benefits such as higher wages and employment, which translate into a net increase in the economic well-being of society.

The same principle applies to the benefits that may accrue to one level of government to the detriment of another. In these cases, they are not social benefits in the real sense because what one party wins, the other loses.

Multiplier effects

Often, to favourably represent the benefits of a training program, they are multiplied by a certain coefficient to account for the fact that the extra income earned by program participants in turn generates additional jobs, which in turn generates extra income, and so on. The inclusion of these multiplier effects is often inappropriate because it assumes that the funds used to finance the programs would not have had other uses, which could have generated multiplier effects as well. In reality, however, the expenditure or investment lost elsewhere, or the tax reduction if the funds had not been used for other programs would also have had multiplier effects. It is only when significant resources are underutilized in

a community (such as high unemployment) that we should include multiplier effects (see discussion in Boardman et al., 2006, pp. 124- 125).

2.4 Methods for estimating tangible benefits

It is difficult to estimate the impact of a training program on employment or wages because it is impossible to know with certainty what would have happened if the participants had not participated in the program. For example, if 80 percent of the participants in a training program get a job, this does not necessarily mean that the program has a positive impact on employment because it is possible that 80 percent of the participants would have found a job regardless of participating in the program or not. In fact, it is even possible that if they had not participated in the program at all, they could have found a job more quickly and their incomes might be even higher!

Several statistical methods have been developed to address the problem of estimating the impact of training programs on employment and wages. This section summarizes three of the most recognized methods: random assignment, the regression method, and the matching method.[10]

Random assignment

This method consists of assigning the participants to the program in a perfectly random manner (for example, by flipping heads or tails). Under these conditions, the sample of program participants (the *experimental group*) and the sample of non-participants (the *control group*) are two representative samples of the population. Thus, the difference between the means of the program participants sample and the means of the non-program participants samples gives us the impact of the program. For example, the difference between the mean value of wages of those who participated in the program and the mean value of wages of those who did not participate in the program gives us an estimated value of the impact of the program on wages.

[10] See, for example, Warburton and Warburton (2002a, b) and Hui and Smith (2003) for more details on the statistical approaches used to estimate the impact of education and training programs on employment and wages.

From a statistical point of view, random assignment is the preferred method for estimating the impact of a program because if the method is applied well, the difference between the means is an unbiased estimator of the impact of the program. However, there are disadvantages to this method. One of them is that random assignments can be expensive and take a long time to conduct. In addition, they may be perceived as unfair because some individuals who would be eligible to participate in the program and would benefit from their participation would not be chosen (this is obviously not a problem in cases where there are many more people eligible for the program than the available space and that the assignment is truly random).

Another disadvantage of random assignment is that the impact of a program measured using this method cannot be used to predict the impact this program would have if the participants were not to be randomly assigned. For example, if administrators can identify and select the people who would be most likely to benefit from the program, then it is more efficient for participants to not be randomly assigned, and so evaluation studies of this program based on random assignments will underestimate the impact of the program. Similarly, random assignment is often unpopular with program administrators because it interferes with their participant selection process, the goal of which is usually to maximize program success. The participant selection process may even be considered by administrators as an important component of the program.

Finally, from a practical point of view, it is important to note that the meta-analysis of incidence studies of education and training programs done by Card, Kluve and Weber (2010) suggest that the results of evaluations based on non-random assignments are not significantly biased compared to the results of evaluations based on random assignments. In other words, this suggests that in practice, the gains from using random assignments may not be very high.

Alternatives to random assignment—observational studies

A study that does not use random assignment is called an observational study. In this type of study, program administrators and the program's target audience determine who participates in the program.

Program evaluators should choose as a point of comparison the group of non-participants who most closely resemble the group of participants and use statistical techniques to control any pre-existing differences (before the program *treatment*) between the two groups. The difference in outcomes between the group of participants and the group of non-participants, after controlling for as many pre-existing differences as possible, gives us an estimate of the impact of the program.

The major difficulty with observational studies is that there are often pre-existing differences between participants and non-participants that are not observed and will affect participation in the program and ultimately the program's impact. If we fail to properly account for these differences when we estimate the impact of the program, the estimates we obtain will be biased since the training indicator will substitute for the missing variables that determine both training and outcomes. A typical example of a pre-existing difference that is not commonly observed is motivation. Motivation is likely to have a positive effect on both wages and participation in training, implying a positive bias in the estimated impact of training if this variable really plays a role and is not accounted for. In such cases, this would be known as a *selection bias*.

This section presents the two methods most frequently used in observational studies of the impact of training programs. These methods are *regression analysis* and *matching*. At the risk of being repetitive, these methods are usually flawed because they cannot account for unobserved factors. The only way to avoid selection bias is to use the random assignment method discussed above.[11]

Regression analysis

Regression analysis is a statistical technique for measuring differences between the experimental group and the control group. In a regression analysis, one must first postulate a mathematical relationship (what

[11] Econometric methods have been developed to correct selection bias in the case of observational studies. Roughly speaking, these methods involve the use of variables (so-called instrumental variables) that influence selection but not the impact of the program. Detailed information on these methods can be found, for example, in Heckman, LaLonde and Smith (1999) and Hui and Smith (2003). These methods are not discussed in this literature review because they have very mixed results in practice and due of the difficulty in identifying good instrumental variables (see discussion in Warburton and Warburton 2002a).

is usually called a functional form) between the variable that is thought to be influenced by the program and its various determinants (the so-called explanatory variables). For example, one could argue that

$$Wage = a_0 + a_1 \cdot age + a_2 \cdot education + a_3 \cdot program\ participation + random\ error, \quad (1)$$

where the program participation variable is a binary variable that takes the value of one if the individual participated in the training program and zero otherwise, the random error term has mean of zero and is uncorrelated with the explanatory variables of wages included in the equation and where a_0, a_1, a_2 and a_3 are coefficients to be estimated (usually by the least squares method). Thus, if there no selection bias, and the functional form is specified correctly, then the estimated value of the average impact of the program on wages will be a_3.

Matching

Matching is another technique used for measuring the impact of a training program when the assignment is not random. Rather than postulating a functional form to measure an outcome (e.g., wages) as in regression analysis, the matching method directly compares the average score obtained by the group of participants with the average score obtained by a group of non-participants with similar characteristics (synthetic control group). The construction of the synthetic control group is critical. Although several approaches have been suggested to construct a synthetic control group (see, for example, Dickinson, Johnson, and West 1986), the method most commonly used is the propensity score matching method proposed by Rosenbaum and Rubin (1983). This method consists of selecting the members of the synthetic control group by comparing the probability of participating in the program (or *propensity score*) of the non-participants with that of the participants, with this probability being estimated as a function of the observed characteristics (see, for example, Dhejia and Whaba 2002, Hui and Smith 2003 and Murray et al., 2009). The propensity score matching method itself has several variants (see Todd 2008 for a review of these different variants). The simplest of these, the nearest neighbor propensity score matching method, browses through the propensity scores of the participants one by one and includes in the synthetic control group the non-participants with the estimated propensity score nearest in absolute value.

Other methods match more than a close neighbor to each participant: the kernel matching method and the linear local matching method, for example, use more than one non-participant for each participant to build the synthetic control group. In these cases, the observations are weighted according to their propensity score. A control group constructed using these methods has been shown to provide convergent estimates of the impact of a program.[12] However, the kernel matching method and the linear local matching method give more accurate estimates because they use more information.

The major advantage of the matching technique is that it is a more robust method for estimating specification errors than regression analysis. In matching, it is not necessary to assume a functional form for the outcome equation in order to estimate the impact of the program. In regression analysis, even when the appropriate variables are used, biased estimates can be obtained if an incorrect functional form is used. Another source of the robustness of the matching method is that unlike the regression method, matching does not require that the error term be uncorrelated with the conditioning variables or that the mean of the error term equals zero to obtain asymptotically unbiased estimates. In fact, matching requires only that the expected error term be the same for both participants and non-participants (given the conditioning variables) (Hui and Smith 2003).

2.5 Discounting future costs and benefits

The costs and benefits should be converted into constant dollars to adjust for inflation. The future costs and benefits must also be discounted at an appropriate social discount rate to account for the time value of money. Once the expected benefits and costs and of a project have been discounted, the information needs to be summarized so that the benefits and costs of alternative programs can be compared. There are essentially three ways to represent this information: through a benefit-cost ratio, by calculating the net present value of the project or by calculating the internal rate of return of the project.

[12] An estimate is called convergent if it gives the same result as the sample size increases arbitrarily

The benefit-cost ratio

As the name suggests, a benefit-cost ratio measures the ratio of discounted future benefits to discounted costs, based on a social discount rate. According to this approach, when comparing different projects, the one with the highest benefit-cost ratio should be chosen. Boardman et al. (2006) are very critical of this approach. They note, among other things, that it can confuse the selection process when some projects have costs that are significantly higher than others.

Net present value

The net present value of a project is the value of the discounted benefits less the discounted costs given a social discount rate. The decision rule is to choose the project with the largest net present value (positive).

Internal rate of return

The internal rate of return of a project is the discount rate at which the net present value of the project equals zero. The decision rule is to choose the project with the highest internal rate of return, as long as this rate is higher than the appropriate social discount rate. Boardman et al. (2006) also criticize this approach. Among other things, they note that the internal rate of return of a project may not be unique (in the sense that there may be more than one discount rate that will give a net present value of zero). Nevertheless, the internal rate of return method is the method most commonly used in cost-benefit analyses of training programs (Woodhall 2004).

Choosing a social discount rate

Choosing an appropriate social discount rate is essential because it will determine whether a program has a positive or a negative net present value and, therefore, whether a project should be undertaken or not. However, there is considerable debate about the appropriate social discount rate to be used (see discussion in Chapter 10 of Boardman et al., 2006). A discount rate of 8 percent is currently recommended by the Treasury Board of Canada Secretariat along with sensitivity rates of 3 percent and 10 percent (Treasury

Board Secretariat 2007). Boardman et al. (2008) suggest that a social discount rate between 2 percent and 5 percent should be used.

2.6 Issues in allocating costs and benefits

Government policies, programs and projects generally affect individuals differently. In the case of labour market training, programs often target disadvantaged groups. Thus, the benefits of these programs go mainly to low-income groups, while the costs are borne by taxpayers who generally have higher incomes. It is therefore often appropriate to analyze the costs and benefits of a training program separately for different groups with different income levels. If one of the objectives of the training program is to reduce income inequality, then it is conceivable that a project could be accepted even if the net social benefit is negative, as long as the net benefit of the program is positive for the poor.

One way to more formally integrate distributional issues into cost-benefit analyses is by weighing the benefits more heavily for the most disadvantaged groups. Weights can be constructed, for example, based on (progressive) tax rates that implicitly reveal that society values more a dollar in the pocket of a low-income person than a dollar in the pocket of a high-income person (Campolieti and Gunderson 2009). The weighing of benefits is, however, uncommon in practice. Given the enormous difficulties in defining weights that are justifiable, Boardman et al. (2006: 298) advise to refrain from weighing benefits unless income redistribution is a central goal of the program.

2.7 Presentation template

Many of the issues discussed so far are illustrated in Table 2.1. This table is based on the stylized presentation of the benefits and costs of the training programs suggested in Boardman et al. (2006) and Campolieti and Gunderson (2009). A plus sign indicates a benefit while a minus sign indicates a cost. The net benefit to society is simply the sum of the benefits and costs for the participants and the rest of society. As a result, the chart indicates that if a program reduces transfer payments to participants (for example, a reduction in employment insurance or social assistance), then this should be considered a saving or benefit to non-participating taxpayers, a cost to program participants (although these are offset

by increased revenues), and thus neither a benefit nor a cost to society as a whole, but simply an income transfer from one segment of the population to another.

Table 2.1: Stylized Presentation of the Benefits and Costs of a Training Program

Benefits and costs	**Program participants (A)**	**Rest of society (B)**	**Total social (C=A+B)**
Benefits of increasing economic output			
Output during the program	0	+	+
Gross wages	+	0	+
Employee benefits	+	0	+
Other advantages			
Crime reduction	0	+	+
Improving private health	+	0	+
Improving public health	0	+	+
Employment expenses of the participants			
Taxes	–	+	0
Others (babysitting, transportation, etc.)	–	0	–
Transfer programs used by the participants			
Social assistance	–	+	0
Other transfers	–	+	0
Cost of managing transfer payments	0	+	+
Program costs			
Participants' losses of income	–	0	–
Cost of training instructors	0	–	–
Cost of premises and equipment (depreciated)	0	–	–
Other operational costs	0	–	–
Allowances paid to participants	+	–	0

The approach followed in Table 2.1 is consistent with what is generally done in a cost-benefit analysis: "One dollar is one dollar", no matter who it goes to. Thus, one dollar earned or lost by a participant in the program is treated identically as one dollar earned or lost by a non-participant. As a general rule, however, as we saw in the previous section, participants in the labour market training program generally have significantly lower incomes, on average, than non-participants. In these circumstances, it may be appropriate to weigh more heavily the benefits accruing to the participants.

Intangible benefits and costs which are rarely, if ever, estimated in labour market training program evaluations are not shown in Table 2.1.

2.8 Examples of Canadian analyses

There are very few Canadian cost-benefit analyses of LES training programs whose objectives are similar to our action research and that are publicly available. In fact, the only study we know of is that of Gray and Morin (2013).[13] In this study, the authors attempt to assess the impact of a basic training program for unemployed individuals in British Columbia. Unfortunately, the authors conclude very little in their study. Among other things, the study is observational (which for them represents a major problem), the attrition rate of the program is very high and the follow-up data of program participants is incomplete. The only impact they measure is the participants' score on the basic workplace skill test (the TOEWS test) before and after participating in the program. Even then, the authors are extremely concerned about their conclusions. However, they make several useful recommendations regarding the collection of data necessary for a rigorous evaluation of the benefits of basic training programs (we adapt many of their recommendations in our conclusion).

There are, however, a few cost-benefit analyses of basic training in the workplace that have been done. For example, based on the national surveys of employers, the Canadian Apprenticeship Forum estimated a median return of $3.08 per dollar invested in basic workplace training (Canadian Apprenticeship Forum 2013).

The most rigorous Canadian cost-benefit study of the impact of basic training is probably that of Gyamarti et al. (2014). Although it focuses on workplace training and therefore differs to a certain extent from our action research (which focuses on the basic training provided by training centres), it is beneficial to examine it in detail because of its methodological rigour and its results. This particular study randomly assigns participants to the groups in training and the control groups to measure the impact of basic training provided in the accommodation sector of the tourism industry in eight provinces. More than 100 companies and nearly 1500 workers participated in the project. The study concludes that the nature of the impacts varies across firms and workers, but that on average, from the point of view of society, even

[13] We are not the first to notice this lack of research (see, for example, Gray and Morin 2013 and Myers et al. 2011).

ignoring the intangible benefits of training, the rate of return on investment in basic training in this sector is very high: about 72 percent.

Another Canadian study is that of Murray et al. (2009). This study, however, does not evaluate a specific basic training program—it analyzes the net social gains of increasing the literacy rate of all Canadians to level 3. In this study, the authors measure the tangible benefits on employment and wages using the propensity score matching method. The source of the data is the *International Survey of Reading Skills*. The authors estimate that increasing the literacy rate of all Canadians to a level 3 would have an internal rate of return of possibly 251 percent.[14]

Although it is not an analysis of a particular program, or even a cost-benefit analysis, we want to mention the study by Green and Riddell (2003), which is probably the most cited Canadian study of the impact of literacy on wages. In this study, the authors use data from the *International Adult Literacy Survey* and estimate that literacy has a significant impact on wages. They also conclude that schooling is a critical determinant of literacy, but that work experience counts for very little.

Finally, the last Canadian study we would like to highlight is that of Emery and Ferrer (2010). This study assesses the benefits and the costs of a fund that aims to provide foreign-trained immigrants with micro-loans to help finance their training, skills development, and professional accreditation expenses. The program is called the *Immigrant Access Fund Small Loan Program*. It is an observational type study and the calculation of the benefits is based on a Mincer type functional form (Mincer 1974), similar to Equation (1), linking wages to age and education. The coefficients of the functional form are estimated using linear regression and data from the 2001 Census public-use micro-data file for Alberta. The estimation process does not distinguish between immigrants and Canadian-born citizens, but somewhat arbitrary corrections are made.[15] The authors also hypothesize that if accreditation is not obtained, immigrants would be paid as if they had a high school diploma. As s result, they estimate that

[14] When using another methodology, Murray et al. (2009) estimates a smaller but still impressive internal rate of return: about 36 percent over five years and 83 percent over 25 years.

[15] For example, to reflect the fact that work experience acquired outside Canada is generally less recognized in the labour market than the experience gained in Canada, the authors assume that immigrants have seven fewer years of experience than a Canadian native of the same age.

program to have an internal rate of return varying between 18 percent and 47 percent depending on the field of study, the probability of obtaining accreditation and the age of obtaining accreditation.

2.9 Conclusion: An Ideal Empirical Framework to Estimate the Impact of LES Training Programs on Employment and Wages

In conclusion, we adopt the recommendations made by Gray and Morin (2013), which are themselves based on Warburton and Warburton (2002b) and Hollenbeck and Timmeney (2009), in developing the ideal empirical framework for estimating the impact of LES training programs on employment and wages. Thus,

- Program participants should be assigned randomly, which is possible if there are more registrations than places in the program so that the control group has the same characteristics as the intervention group.
- The frequency of the observations should be quarterly at least.
- The explanatory variables in the functional forms should include marital status, the number and age of the children, visible minority status, previous work experience (number of consecutive quarters in which the individual was employed, for example), a salary history of the individual, family income, geographical area (rural or urban), time since completing, number of years of schooling obtained in Canada and abroad, and the characteristics of the job held if applicable (for example, full-time or part-time, seasonal or not, firm size, and type of industry). To this we would add the results on the TOEWS type tests at entry (the test should probably be taken twice so that the results reflect abilities rather than the novelty of these tests for the participants).
- Outcome variables should include average hours worked; employment status (person has a job or is unemployed); employment insurance income; social assistance income; participation in other adult education or training programs; and educational attainment. These variables should be observed over a period of time to distinguish between short-term and long-term effects.

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Chapter 3: Methodology

3.1 Introduction

This chapter describes the methodology used to assess the benefits and the costs of providing LES training. The second section of this chapter proposes a methodology to estimate the advantages. To estimate the advantages, we propose a survival model of the duration of unemployment to assess the impact of training on the duration of unemployment and Mincer type salary equations to assess the impact of training on salaries.

The third section of this chapter discusses issues related to estimating the costs associated with the delivery of training programs, as well as the costs to participants, such as childcare expenses and the loss of leisure time. Section 4 brings together all these issues and presents a template to measure the costs and benefits of training.

3.2 Methodology to estimate benefits

From a society's point of view, the tangible contribution of training comes from increased employment and increased labour productivity; all else being equal, the more qualified a worker is, the more likely she is to find a job, the more productive she is, and the more she contributes to society's economic welfare. In cost-benefit analyses, the impact of training on labour productivity is invariably measured from its impact on salaries.

The tangible benefits of pursuing training vary depending on whether the participants are employed or unemployed.

3.2.1 Tangible benefits for initially employed participants

After completing training, employed participants may receive greater salary increases than they would have without training. To measure this effect, a Mincer type salary equation is used to model the salary of an employed participant (EP) *i* (see Mincer 1994),[16] that is

$$w_i^{EP} = \alpha^{EP} + \sum_{j=1}^{k} \beta_j^{EP} X_{ij}^{EP,w} + \varepsilon_i^{EP} \quad (3.1)$$

where *w* denotes salary; the variables $X_{ij}^{EP,w}$ denote the characteristics of the employed participant *i* that may influence salary such as age, level of education, etc.; α and β are coefficients to be estimated; and ε^{PE} is a normally distributed random error term with mean zero that is uncorrelated with the variables *X*. Given observations on the salary and characteristics of the individuals in the sample, we can estimate α and β using the least squares method.[17] Therefore, if we suppose that $X_{i1}^{EP,w}$ is a dichotomous variable that takes a value of one if individual *i* has pursued training, and of zero otherwise, then for that individual, the expected benefit of pursuing training is

$$A_i^{EP} = \hat{\beta}_1^{EP} \quad (3.2)$$

where $\hat{\beta}_1^{EP}$ is the estimated value of β_1^{EP}.

3.2.2 Tangible benefits for initially unemployed participants

For unemployed participants, the tangible benefits of pursuing training is a possibly shorter unemployment period and a higher salary.

[16] Unlike the typical Mincer salary equations that have the logarithm of salary as the dependent variable, our salary equation has the level of salary as the dependent variable, because, to calibrate our cost-benefit model, we need to measure the impact of taking training on the level of salary, not on the percentage change in salary.

[17] The careful reader will note that in developing our model, we assume that the participants are randomly assigned between the groups that pursue training and the control groups. However, as will be discussed in Section 4.4, this is not how we proceeded in the action research. At this point, we simply want to point out this important assumption. In Section 4.4 we will further examine the reasons why we could not randomly assign participants between groups, as well as the ensuing statistical consequences.

Duration of unemployment

To measure the impact of pursuing training on the expected duration of unemployment, we use a *survival model* (see Greene,< 2011).[18] Let T_i denote the length of time necessary for individual i to find employment and X_{1i}, X_{2i}, X_{3i} … X_{ki} denote the k characteristics that we believe determine T_i . Thus, for example, X_{1i} could denote the variable "took LES training" (that is, $X_{1i} = 1$ if individual i took LES training and $X_{1i} = 0$ otherwise), and we could expect that T_i decreases with X_{1i}.

In this research, we assume that T_i is a random variable distributed as a Weibull with parameter p.[19] Therefore, if we let λ_i denote the function

$$\lambda_i = \exp(\alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \cdots + \beta_k X_{ki}) \qquad (3.3)$$

where p, α and β are coefficients estimated using statistical methods, then we can demonstrate that the necessary expected time to find employment for individual i with the characteristics $(X_{1i}, X_{2i}, X_{3i} \ldots X_{ki})$ is

$$E(T_i | X_{1i}, X_{21}, X_{3i} \ldots X_{ki}) = \lambda_i^{-1/p} \Gamma\left(1 + \frac{1}{p}\right) \quad (3.4)$$

where Γ is the function

$$\Gamma(y) = \int_0^\infty u^{y-1} e^{-u} du.$$

In addition, we can demonstrate using algebra that if X_1 denotes the characteristic "having completed training", then having completed training reduces the expected value of T_i by

$$100 \times \left[1 - \exp\left(-\frac{\beta_1}{p}\right)\right] \quad (3.5)$$

percent.

[18] Another approach would be to use a linear model to estimate the duration of unemployment, but this would mean discarding the observations where the participants dropped from the sample before they found employment, which would greatly bias the estimation results.

[19] A characteristic of the Weibull distribution is that it enables the probability of finding employment at time t given that the duration of the unemployment period is t decreases with t; this seems appropriate within the context of our research. Another different assumption we could have made is that the random variable T follows an exponential distribution. However, this would have supposed that the probability of finding employment at time t given that the duration of the unemployment period is t is a constant. It should be noted that exponential distribution is a special case of the Weibull distribution when $p=1$. If we calculate that $p>1$, it means the probability of finding employment at time t given that the duration of the unemployment period is t increases with t; if we calculate that $p<1$, it means that this probability decreases with t.

Expected salary after completing training

We also use a Mincer salary equation to estimate the salary that an initially unemployed participant (superscript UP) may expect to earn after completing training (and having found a job). Therefore, we model w_i^{UP} as follows:

$$w_i^{UP} = \alpha^{UP} + \sum_{j=1}^{k} \beta_j^{UP} X_{ij}^{UP,w} + \varepsilon_i^{UP} \quad (3.6)$$

where the variables are denoted in a similar way to the variables in equation (3.1). As in equation (3.1), the α and β coefficients in the equation (3.6) can be estimated using the least squares method. Therefore, if we suppose that $X_{i1}^{UP,w}$ is a binary variable that takes a value of one if the initially unemployed participant *i* has completed training and zero if not, then for that individual, the expected salary benefits of completing training is

$$A_i^{UP} = \hat{\beta}_1^{UP} \quad (3.7)$$

where $\hat{\beta}_1^{UP}$ is the estimated value of β_1^{UP}.

3.2.3 Other benefits

The chapter on the literature review lists several other benefits of training that are generally ignored in cost-benefit analyses. These benefits are summarized below.

- Intangible benefits. These are benefits that cannot be measured in dollars, such as self-confidence, collaboration, self-esteem, and reliability. These benefits are generally not formally included in cost-benefit analyses of training programs, as they are not *per-se* considered among the objectives of the programs being examined, but rather are identified as intermediate benefits that eventually lead to improvements in salary, employability and social integration.
- External benefits. In addition to the tangible and intangible benefits that mostly benefit participants pursuing training, there are also non-economic public benefits, which are generally qualified as externalities as they spill over onto other members of society. Our literature review provides several examples of these benefits, such as improvements in private and public health, and a reduction in the crime rate. However, the benefits are usually ignored in cost-analyses of

training programs designed to improve integration in the labour market, as they are very hard to measure accurately, and because training programs are generally focused on private returns such as finding employment and salary increases (Compolieti and Gunderson 2009).

- Impact on fiscal transfers. It may be tempting to include in the benefits the savings resulting from the reduction of transfer payments, such as social assistance or employment insurance when a training program increases a participant's employment rate. However, in general, these savings should not be included as they do not result in a net increase in the economic well-being of society as a whole: what is gained by taxpayers is lost by previous recipients.

3.3 Methodology to estimate costs

Within the context of the cost-benefit analysis of a training program, the costs must be defined in terms of the total opportunity cost of the program, that is, all of the resources used (to deliver the program as well as to pursue the program) that cannot be used for other purposes. Two categories of costs must be considered in our analysis: the costs incurred by the training centres and the costs incurred by the participants.

3.3.1 Costs incurred by training centres

The costs incurred by the training centres include the value of the time of training instructors, the cost of books, supplies, and other goods and services, and the expenditures for using the premises and equipment.

As discussed in the literature review, the value of the training instructors' time is measured by the difference between their salaries and what they would earn doing something else. However, if for any reason, they would otherwise have been unemployed, their opportunity cost is the value they attribute to their leisure (or the minimum salary they would accept for a job).

It is generally fairly easy to estimate the expenses for books and supplies. However, it is often harder to estimate the cost of using the premises and equipment. If they are rented, the annual rent can be used to represent the use of these resources. However, if these resources are not rented, the rent must be allocated. The simplest method to do so is to calculate the depreciation of the premises, equipment and

goods over their expected useful lives and to add interest expenses (to account for the cost of financing these resources). Table 3.1 lists the information about costs collected from the training centres participating in our action research.

Table 3.1: Questionnaire Completed by Training Centres

Elements Comprising the Costs of Providing Training	
Hourly wage of instructors	
Calculations of the costs of premises	
Premises	**Costs**
Total annual cost of renting the premises used by your centre	
Total annual electricity cost of the premises used by your centre	
Total annual cost of heating the premises used by your centre (if using heating sources other than electricity)	
Total annual maintenance cost of the premises used by your centre	
Annual cost of municipal taxes	
Approximate number of square metres of all the premises used by your centre	
Approximate number of square metres of the premises used for training purposes	
Information to calculate other costs	**Answers**
Approximate total cost of the supplies used by your training centre (e.g., books)	
Total cost of using computers (spread the cost of purchasing computers over six years)	
Approximate total administrative costs of your centre (managers, receptionist, secretary, telephone, etc.)	
Total number of training hours delivered by your centre on average per year	
Average class size	
Cost of promoting training sessions	
Costs related to the registration and assessment of participants	
***Note: Try to be as accurate as possible when providing this information, but absolute accuracy is not necessary.**	

3.3.2 Costs incurred by participants

The costs incurred by participants in training include all extra expenses necessary to pursue the training, such as transportation and child care. Depending on the time at which the participants would have found employment had they not been pursuing training, we must include in these costs the wages lost between the time they completed the training and the time they found employment. Because the latter element includes a "leisure" component, it is allocated a value of 60 percent of the salary they would have earned otherwise (see Greenberg 1992, 1997; and HRDC 1999).

3.4 Putting it all together: A template to measure the costs and benefits of training

At this juncture, we have all the elements required to complete the model. As a summary of our cost-benefit model, two calculation forms are provided: one for unemployed immigrants (see Table 3.2), and one for employed immigrants (see Table 3.3). Although the participants were followed for nearly eight quarters on average, in this study, the costs and benefits have been measured over five years (that is, 260 weeks) to account for the anticipated duration of unemployment for the vast majority of participants and thus to ensure that future predictions are not too far off from the observed reality. Given the short assessment period of the costs and the benefits, the various situational circumstances of participants pursuing training, the training programs themselves, the currently low inflation, as well as the significant debates surrounding an appropriate social discount rate, we will not discount neither the benefits nor the costs.

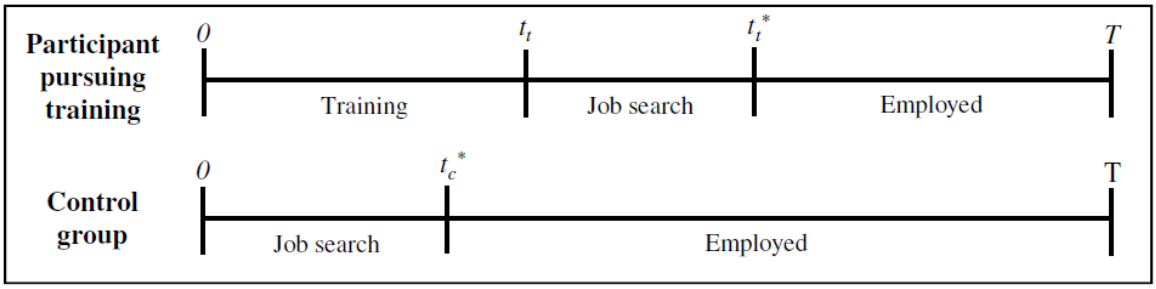
Finally, it must be noted that one of the key variables for calculating the benefits and the costs of training for unemployed individuals is the expected duration of unemployment of an individual who is not pursuing training, but has the same characteristics as an individual who is pursuing training (referred to as the *reference individual* in the control group). Figure 3.1 shows the timelines for three possible scenarios: the expected duration of unemployment for the reference individual in the control group (denoted t_T^*) is shorter than the duration of the training pursued by the individual (denoted t_F); longer than the duration of the training, but shorter than the duration of the training added to the expected duration of the job search of the individual pursuing training (denoted t_F^*) ; or, longer than the duration of the training added to the expected duration of the job search of the individual pursuing training.

Table 3.2: Costs and Benefits of Pursuing Training for Unemployed Immigrants

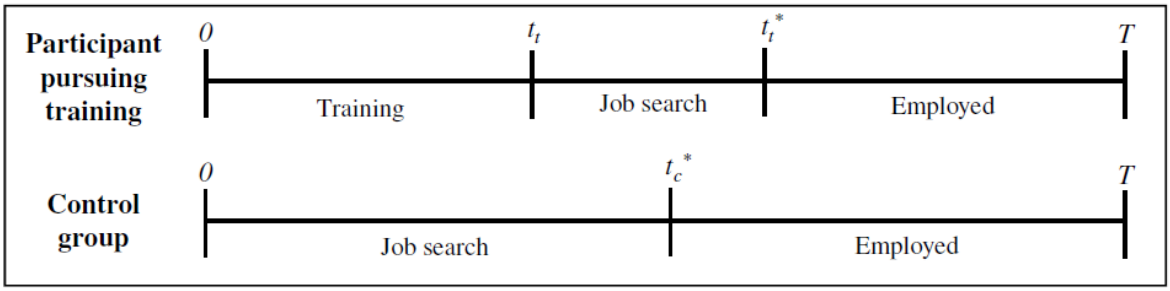
Type of training			
Duration of training in weeks (t_F)			*(1)*
Hours of training per week			*(2)*
Expected duration (in weeks) of the job search for the individual pursuing training (t_F^*) using equation (3.4).			*(3)*
Expected duration of the job search in weeks for the reference individual who is not pursuing training (t_T^*) using equation (3.4) with $\widehat{\beta}_1^{PE} = 0$)			*(4)*
Expected weekly salary — Participant pursuing training (using equation (3.6))			*(5)*
Expected weekly salary — Participant in the control group (using equation (3.6) with $\widehat{\beta}_1^{PSE} = 0$)			*(6)*
Cost of delivering training (per student hour)			*(7)*
Additional cost of pursuing training (per month)			*(8)*
Assessment period (*T* in weeks)			*(9)*
Training costs			
Cost of delivering training	*(1) × (2)× (7)*		*(10)*
Additional cost of pursuing training	*(8) × (1) ÷ 4.3*		*(11)*
Scenario 1: $t_C^* < t_T$			
Benefit			
Impact on wages once employed	*[(9) – (3)] × [(5) – (6)]*		*(12)*
Other costs			
Lost wages for the duration of the training	*[(1) – (4)] × (6)*		*(13)*
Lost wages during job search	*0.6 × [(3) – (4)] × (6)*		*(14)*
Net benefit	*(12) – [(10) + (11) + (13) + (14)]*		*(15)*
Scenario 2: $t_T < t_C^* < t_C^*$			
Benefit			
Impact on wages once employed	*[(9) – (3)] × [(5) – (6)]*		*(16)*
Other costs			
Lost wages during job search	0.6 × *[(3) – (4)] × (6)*		*(17)*
Tangible net benefit	*(16) – [(10) + (11) + (17)]*		*(18)*
Scenario 3: $t_C^* > t_T^*$			
Benefit			
Impact on wages once employed	*[(9) – (3)] × (6)* **-** *[(9) – (4)] × (5)*		*(19)*
Tangible net benefit	*(19) – [(10) + (11)]*		*(20)*

Figure 3.1: Timelines of the Participants in Training and of the Participants in the Control Group (Initially Unemployed Participants)

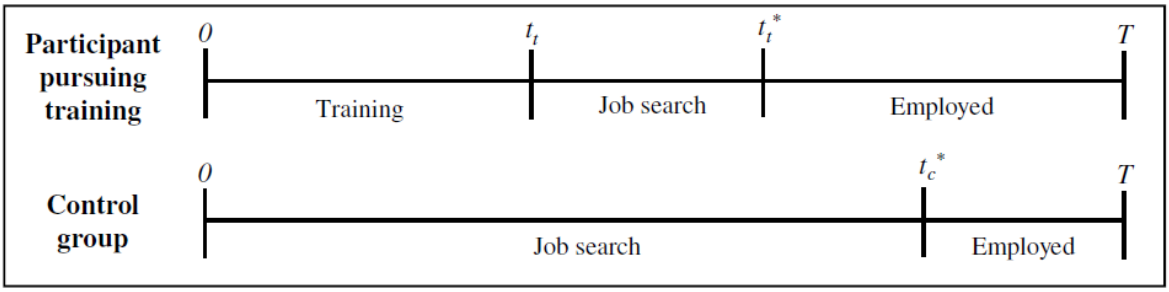
Scenario 1: $t_c^* < t_t$



Scenario 2: $t_t < t_c^* < t_t^*$



Scenario 3: $t_c^* > t_t^*$



Legend:

t_t: Duration of training

t_t^*: Expected moment when the individual pursuing training will find employment (it should be noted that $t_t^* - t_t =$ expected duration of the job search of an individual pursuing training)

T: Observation period

t_c^*: Expected duration of the job search of an individual in the control group who has the same characteristics as the individual pursuing training

Table 3.3: Costs and Benefits of Pursuing Training for Employed Immigrants

Type of training			
Duration of training in weeks (t_F)			*(1)*
Hours of training per week			*(2)*
Average salary before training			*(3)*
Impact of pursuing training on weekly salary (using equation 2)			*(4)*
Cost of delivering training (per student hour)			*(5)*
Additional cost of pursuing training (per month)			*(6)*
Duration of follow-up (*T* in weeks)			*(7)*
Benefit			
Impact on earnings after completing the training	*[(7) – (1)] × (4)*		*(8)*
Training costs			
Cost of delivering this training	*(1) × (2) × (5)*		*(9)*
Additional cost of pursuing this training	*(6) × (1) ÷ 4.3*		*(10)*
Loss of leisure time	*0.4 × (1) × (2) × (3)*		*(11)*
Total costs	*(9) + (10) + (11)*		*(12)*
Net benefit	*(12) – (8)*		

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Chapter 4: The Data

4.1 Introduction

This chapter discusses the data used to calibrate the model. The second section of this chapter provides the general framework underlying the data collection process. The third section presents the recruitment process of the participants in our action research. The fourth section discusses the assignment of immigrant participants to training programs. The fifth section presents statistics on participant immigrants initially unemployed and initially employed whose survey questionnaires were kept for analysis. The sixth section gives statistics on the training courses pursued and the seventh and last section gives statistics on the employers who took part in the action research.

4.2 General Framework

This action research was conducted between the summer of 2013 and the summer of 2017 in six provinces: Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia. Seven categories of LES training were targeted: Francization—Beginner, Francization—Intermediate, Francization—Advanced, English as a Second Language—Beginner, English as a Second Language—Intermediate, English as a Second Language—Advanced, and Computing—Beginner.

In order to measure the impact of LES training on the labour market performance of both unemployed and employed individuals, the participants in the action research were divided into four groups: the first group was comprised of unemployed individuals pursuing training; the second, of unemployed individuals who were not pursuing training (a control group); the third, of employed individuals who were pursuing training; and the fourth, of employed individuals who were not pursuing training (another control group). Thus, four questionnaires were prepared to collect the data: a standard questionnaire and a final questionnaire for participants (applicable both to participants pursuing training and those in the control groups), a questionnaire for the

employers, and another for the training centres (see Appendices 4A to 4D for the questionnaires and letters of consent).

Participants pursuing training were asked to fill a questionnaire at the beginning of the training, another after completing the training, and every three months thereafter. Employed participants, members of the control group, and employers were asked to fill questionnaires every three months. Initially, we had planned to ask participant to fill a maximum of five questionnaires. However, this meant that participants pursuing training would have been monitored for a maximum of nine months after completing the training, which is probably a period of time too short to observe the benefits of pursuing training. To address this issue, a final retrospective questionnaire was administered to the participants in June 2017 to bridge the gap between the last questionnaire they had completed and the end of the action research.

4.3 Recruitment Process

For the purposes of this action research, we had to recruit training centres, participants in the training programs, members in the control group and employers. All individuals had to sign a consent form.

4.3.1 Recruitment of training centres and facilitators

Training centres offering LES courses were contacted to recruit participants pursuing training. Following negotiations, if the centre showed interest, a partnership agreement was proposed. Once the agreement was signed, a facilitator (that is, a competent resource person such as a professor, referral agent, educational counsellor, intervener, etc.) was named by the training centre. The facilitator was then given training on the process for recruiting participants, filling out questionnaires, etc. If the training centre did not have the means to perform one of these tasks, it received support from *Actions interculturelles* to do so. The facilitators were paid $40 per completed questionnaire. In total, 27 training centres participated in the action research (see Table 4.1).

Table 4.1: Number of Participating Training Centres per Province

	Number
Nova Scotia	3
New Brunswick	2
Quebec	10
Ontario	8
Manitoba	1
British Columbia	3
Total	**27**

4.3.2 Recruitment of participants pursuing training

Participating training centres held information briefings in LES classes to allow facilitators to explain the action research to potential participants. The students interested in taking part in the action research would then indicate their willingness to participate and complete a consent form as well as the first questionnaire with the help of the facilitator. The participants pursuing training were paid $10 for each completed questionnaire.

4.3.3 Recruitment of members for the control groups

Several strategies were followed to recruit members for the control groups. The two main recruiting channels were training centres and organizations offering employment assistance programs. To recruit members for the control groups, the participating training centres used lists of individuals who had shown interest in pursuing training, but who had not followed-up for various reasons. A facilitator named by the centre would then gather the potential members for the control group, explained the action research, and then have those willing to participate in the action research fill out a consent form and the first questionnaire. The members of the control groups were paid $10 for filling out the first questionnaire, $15 for the second questionnaire and $20 for each additional questionnaire.

Another strategy we followed to recruit participants for the control groups was to approach organizations offering employment assistance programs. Immigrants who are not

pursuing training often rely on these programs to help them in their job search. Other recruiting channels were also used, including job fairs and references from individuals already participating in the action research.

4.3.4 Recruitment of employers

Employers were recruited through employed participants who were required to provide their consent before *Actions interculturelles* could contact their employer. The employers did not receive any financial compensation for filling out the questionnaires.

4.4 Assignment of Participants to Training Programs

From a statistical point of view (especially within the context of biomedical experiments), it is usually recommended that participants be randomly assigned (that is, by flipping heads or tails) among the treatments to be tested. This is to ensure as much similarity as possible between the participants undergoing treatment and the members of the control groups, and consequently ensure that any systematic differences between the participants' results can be attributed to the effects of the treatments. However, this is not the approach we have followed: as previously mentioned in the description of the recruitment process for the participants pursuing training, participants were assigned to training programs based on their personal preferences. The reason for doing so is that a random assignment would have been perceived as being unfair, as many individuals admissible to the training programs (and who could have benefitted from them) would not have been selected to participate in these programs. Very few training centres and individuals would have agreed to take part in our action research if we had proceeded that way.

In theory, a non-random assignment may lead to biased estimates of the effects of training, as the individuals who pursue training may be fundamentally different (as far as the unobservable characteristics are concerned) from the individuals who do not pursue training and their performances on the job market would be different anyway. For example, let us suppose that an unemployed immigrant decides to pursue training because he believes that in the long run, it

will lead to a better job and a higher salary, while another unemployed immigrant wants (for whatever reason) to find a job as soon as possible and decides not to pursue training. In practice, the second individual might find a job sooner than the first, which could lead us to conclude that training lengthens the duration of unemployment, while the correct conclusion should be that the second individual was more aggressive in his job search. That said, in practice, studies have shown that the biases caused by non-random assignments may be low (see for example Card, Kluve and Weber, 2010).

4.5 Data on Immigrant Participants

Table 4.2 provides statistics on the response rate of participants in the action research. In total, 5,292 questionnaires were completed by immigrant participants. It should be noted that the proportion of participants who completed at least five questionnaires is very high, ranging from 72.8 percent to 95.1 percent (see Table 4.3).

Table 4.2: Completed Questionnaires

	Q1	Q2	Q3	Q4	Q5	Q final	Total
Unemployed – Pursued training	515	515	509	411	375	264	2,589
Unemployed – Control group	153	153	151	144	126	76	803
Employed – Pursued training	257	257	255	219	212	138	1,338
Employed – Control group	103	103	103	103	98	52	562
Total	1,028	1,028	1,018	877	811	530	5,292

Table 4.3: Response Rate

	Percentage of respondents whose last completed questionnaire was...					
	Q1	Q2	Q3	Q4	Q5	Q final
Unemployed – Pursued training	0.0	1.2	19.0	7.0	21.6	51.2
Unemployed – Control group	0.0	1.3	4.6	11.8	32.7	49.7
Employed – Pursued training	0.0	0.8	14.0	2.7	28.8	53.7
Employed – Control group	0.0	0.0	0.0	4.9	44.7	50.4

4.5.1 Statistics on immigrant participants who were initially unemployed

For initially unemployed participants, those pursuing training were followed for a period of 6.2 quarters on average (4.7 quarters on average after completing the training), while participants in the control group were followed for a period of 6.4 quarters on average (see Table 4.4).

Table 4.4: Number of Quarters Monitored (Unemployed Participants)

Number of quarters	Group pursuing training				Control group	
	Including training		Excluding training			
	Frequency	%	Frequency	%	Frequency	%
0	0	0.0	9	1.7	0	0.0
1	1	0.2	99	19.2	2	1.3
2	84	16.3	62	12.0	7	4.5
3	59	11.5	52	10.1	18	11.7
4	63	12.2	52	10.1	42	27.3
5	56	10.9	33	6.4	8	5.2
6	25	4.9	21	4.1	10	6.5
7	6	1.2	42	8.2	1	0.6
8	15	2.9	63	12.2	6	3.9
9	101	19.6	68	13.2	14	9.1
10	86	16.7	14	2.7	35	22.7
11	18	3.5			10	6.5
12	1	0.2			1	0.6
Total	515	100.0	515	100	154	100
Average	6.2		4.7		6.4	

Table 4.5 provides statistics on the characteristics of the group of initially unemployed participants. These characteristics were selected for observation as they are the ones generally considered in the literature as having the most influence on the performance of immigrants in the labour market (see, for example, Nadeau and Seckin, 2010, and Nadeau and Grenier, 2011).

Table 4.5: Statistics on the Initially Unemployed Group*

	Initial Group				Those Who Found Employment				
	Unemployed – Pursued training		Unemployed – Control group		Unemployed – Pursued training		Unemployed – Control group		Difference between the Pursued training group and the Control group (%)
	#	%	#	%	#	% of original group	#	% of original group	
n	475	75.8	152	24.2	143	30.1	71	46.7	-16.6
Average age (a_)									
18-25	67	14.1	31	20.4	22	32.8	18	58.1	-25.2
26-35	172	36.2	53	34.9	50	29.1	22	41.5	-12.4
36-45	149	31.4	43	28.3	49	32.9	21	48.8	-16.0
46-55	56	11.8	17	11.2	16	28.6	8	47.1	-18.5
56-65	31	6.5	8	5.3	6	19.4	2	25.0	-5.6
Women (female)	318	66.9	73	48.0	81	25.5	32	43.8	-18.4
With children under 5 years of age (c_u5)	129	27.2	32	21.1	38	29.5	19	59.4	-29.9
Province (prov_)									
Nova Scotia (ns)	5	1.1	10	6.6	2	40.0	3	30.0	10.0
New Brunswick (nb)	18	3.8	4	2.6	6	33.3	2	50.0	-16.7
Quebec (q)	254	53.5	80	52.6	78	30.7	42	52.5	-21.8
Ontario (o)	178	37.5	36	23.7	47	26.4	19	52.8	-26.4
Manitoba (m)	9	1.9	6	3.9	4	44.4	3	50.0	-5.6
British Columbia (bc)	11	2.3	16	10.5	6	54.5	2	12.5	42.0
Knowledge of spoken French (sf_)									
None (n)	0	0.0	0	0.0	0	n.a.	0	n.a	n.a
Beginner (b)	162	34.1	22	14.5	50	30.9	8	36.4	-5.5
Intermediate (i)	168	35.4	65	42.8	52	31.0	33	50.8	-19.8
Advanced (a)	145	30.5	65	42.8	41	28.3	30	46.2	-17.9
Knowledge of written French (wf_)									
None (n)	31	6.5	1	0.7	11	35.5	1	100.0	-64.5
Beginner (b)	156	32.8	28	18.4	43	27.6	11	39.3	-11.7
Intermediate (i)	166	34.9	68	44.7	54	32.5	34	50.0	-17.5
Advanced (a)	122	25.7	55	36.2	35	28.7	25	45.5	-16.8
Knowledge of spoken English (se_)									
None (n)	62	13.1	10	6.6	8	12.9	3	30.0	-17.1
Beginner (d)	123	25.9	44	28.9	33	26.8	17	38.6	-11.8
Intermediate (i)	149	31.4	57	37.5	52	34.9	28	49.1	-14.2
Advanced (a)	141	29.7	41	27.0	50	35.5	23	56.1	-20.6
Knowledge of written English (we_)									
None (n)	92	19.4	14	9.2	16	17.4	6	42.9	-25.5
Beginner (b)	86	18.1	36	23.7	23	26.7	9	25.0	1.7
Intermediate (i)	157	33.1	58	38.2	51	32.5	35	60.3	-27.9
Advanced (a)	140	29.5	44	28.9	53	37.9	21	47.7	-9.9
Education (scol_)									

Elementary (e)	138	29.1	39	25.7	28	20.3	16	41.0	-20.7
High school (hs)	63	13.3	20	13.2	18	28.6	10	50.0	-21.4
College (c)	66	13.9	22	14.5	24	36.4	10	45.5	-9.1
Undergraduate (u1)	125	26.3	41	27.0	44	35.2	18	43.9	-8.7
Graduate (u2)	83	17.5	30	19.7	29	34.9	17	56.7	-21.7
Continent of origin (co_)									
Americas + Mexico (a_m)	85	17.9	27	17.8	38	44.7	12	44.4	0.3
Europe (eur)	29	6.1	12	7.9	14	48.3	7	58.3	-10.1
Africa (af)	137	28.8	65	42.8	27	19.7	23	35.4	-15.7
Asia (as)	68	14.3	16	10.5	22	32.4	11	68.8	-36.4
Middle East + North Africa (mena)	156	32.8	31	20.4	42	26.9	18	58.1	-31.1
# of years since arrival (ysa)	3.6	n.a.	3.7	n.a.	2.9	n.a.	3.0	n.a.	n.a.
Category (cat_)									
Economic – principal	102	21.5	38	25.0	42	41.2	20	52.6	-11.5
Economic – dependent	58	12.2	18	11.8	14	24.1	7	38.9	-14.8
Refugee	169	35.6	51	33.6	35	20.7	20	39.2	-18.5
Family reunification	112	23.6	28	18.4	42	37.5	19	67.9	-30.4
Other	34	7.2	17	11.2	10	29.4	5	29.4	0.0
Current status (status_)									
Canadian citizen	57	12.0	27	17.8	11	19.3	11	40.7	-21.4
Permanent resident	373	78.5	115	75.7	117	31.4	57	49.6	-18.2
Other	45	9.5	10	6.6	15	33.3	3	30.0	3.3
Experience prior to arrival (xprior)	362	76.2	116	76.3	120	33.1	55	47.4	-14.3
Average # of years of experience	8.9	n.a.	7.0	n.a.	7.3	n.a.	5,4	n.a.	n.a.
Employment support (es)	208	43.8	87	57.2	66	31.7	45	51.7	-20.0
Months unemployed before 1st questionnaire (mu)	22.9	n.a.	19.0	n.a.	15.5	n.a.	13.3	n.a.	n.a.
Average # of training weeks (tdur)	17.3	n.a.	n.a.	n.a.	15.6	n.a.	n.a.	n.a.	n.a.
Hours worked (weekly average)	n.a.	n.a.	n.a.	n.a.	36.0	n.a.	37.9	n.a.	n.a.
Average hourly wage	n.a.	n.a.	n.a.	n.a.	17.1	n.a.	16.8	n.a.	n.a.
Duration of unemployment for those who have found employment**	n.a.	n.a.	n.a.	n.a.	3.4	n.a.	1.9	n.a.	n.a.
Length of time to find employment after completing training**	n.a.	n.a.	n.a.	n.a.	2.1	n.a.	n.a.	n.a.	n.a.
Percentage who pursued further training	82.1	n.a.	n.a.	n.a.	72.0	n.a.	n.a.	n.a.	n.a.
Duration of training**	2.4	n.a.	n.a.	n.a.	2.2	n.a.	n.a.	n.a.	n.a.

*The mnemonics associated to variables are indicated in brackets.

**Average number of quarters.

All participants who were followed for one quarter or more (excluding the duration of training for those who pursued training) were included in the analysis, except for those aged 65 years or more or who had missing or incomplete information in their questionnaires. Thus, of the 509 unemployed participants who pursued training and who were followed for one quarter or more after completing training, 475 are included in the analysis, while of the 153 individuals in the unemployed group who did not pursue training and who were followed for one quarter or more, 152 are included in the analysis.

It should be noted that the composition of the initial Unemployed-Control group significantly differs from the composition of the initial Unemployed-Pursued trainingg group with respect to at least the five following characteristics:[20]

- Gender. The representation rate of women in the Unemployed-Pursued training is significantly higher than in the Unemployed-Control group: 66.9 percent vs. 48.0 percent.
- Representation across provinces. Compared to their representation in the Unemployed-Pursued training group, individuals from Nova Scotia and British Columbia are significantly overrepresented in the Unemployed-Control group.
- Knowledge of the host region's language. The proportion of individuals with little knowledge of French or English is much higher in the Unemployed-Pursued training group than in the Unemployed-Control group. For example, those with no knowledge of spoken French or at the beginner's level represent 34.1 percent of the Unemployed-Pursued training group compared with 14.5 percent of the Unemployed-Control group.
- Current status. Canadian citizens are overrepresented in the Unemployed-Pursued training group while immigrants in the Current status-Other category (which includes refugees) are overrepresented in the Unemployed-Control group.
- Continent of origin. Compared to the Unemployed-Pursued training group, immigrants from Africa are overrepresented in the Unemployed-Control group (42.8 percent vs. 28.8 percent),

[20] A probit analysis show that these five blocks of variables are individually statistically significant in explaining whether or not an immigrant who is unemployed will pursue training (pseudo-R^2 of 0.14).

while immigrants from the Middle East and North Africa are underrepresented in the Unemployed-Control group (20.4 percent vs. 32.8 percent).

Therefore, this seems to suggest that the non-random assignment of participants between the Unemployed-Pursued training group and the Unemployed-Control group may also have resulted in an uneven distribution of the participants' unobservable characteristics (that may affect performance in the labour market) between both groups, which could bias our estimates of the effects of pursuing training on the performance of immigrants in the labour market.[21]

It should also be noted that Quebec is the province that is by far the most represented in the sample of unemployed participants, with 53.5 percent of the group pursuing training and 52.6 percent of the control group. Nova Scotia, New Brunswick, Manitoba, and British Columbia have low representation, and therefore we will take advantage of geographical similarities and group together Nova Scotia with New Brunswick and Manitoba with British Columbia to estimate the impact of training on integration in the labour market.[22]

Another significant observation is that other than the fact that the representation of provinces in the sample is weighted toward Quebec, the representation in the unemployed group is a good representation of the population of recent Canadian immigrants: they are generally highly educated (roughly speaking, about 45 percent of the members of this group are holders of undergraduate or graduate degrees), and relatively few come from Europe.

[21] Several characteristics that may influence the performance of an individual in the labour market are unobservable, such as motivation, social skills, and team spirit. The point we are making here is that given the non-random assignment of individuals between the group pursuing training and the control group, the members of the control group could be on average more motivated than those of the group pursuing training, which would cause the impact of training on the performance of immigrants in the labour market to be underestimated.

[22] When analyzing the performance of immigrants in the labour market, it is a common practice to separate Quebec (because of its cultural distinctiveness) and to group together other Canadian provinces. See, for example, Nadeau and Seckin (2010).

4.5.2 Statistics on participants who were initially employed

For initially employed participants, those pursuing training were followed for a period of 5.6 quarters on average (4.6 quarters on average after completing the training), while participants in the control group were followed for a period of 6.4 quarters on average (see Table 4.6).

Table 4.6: Number of Quarters Monitored (Employed Participants)

Number of quarters	Group Pursuing Training				Control Group	
	Including training		Excluding training			
	Frequency	percent	Frequency	%	Frequency	%
0	0	0.0	4	1.6	0	0.0
1	1	0.4	36	14.0	0	0.0
2	38	14.8	21	8.2	0	0.0
3	18	7.0	49	19.1	5	4.9
4	52	20.2	17	6.6	42	40.8
5	15	5.8	45	17.5	6	5.8
6	47	18.3	3	1.2	11	10.7
7	2	0.8	33	12.8	6	5.8
8	29	11.3	37	14.4	15	14.6
9	43	16.7	10	3.9	6	5.8
10	10	3.9	2	0.8	11	10.7
11	2	0.8			1	1.0
12					5	4.9
Total	257	100.0	257	100.0	103	100.0
Average	5.6		4.6		6.4	

Table 4.7 presents the observed variables and statistics for the group of immigrant participants who were initially employed. Because of significant fluctuations across quarters, to obtain more reliable statistics for this group, we retained for analysis only individuals who completed all five questionnaires.[23] Thus, after having also discarded questionnaires with incomplete information, out of the 212 employed participants pursuing training who completed all five questionnaires, 191 are included in the analysis, while out of the 98 employed individuals not pursuing training, 86 are included in the analysis.

[23] While for the unemployed group, the key data is the quarter in which individuals have found employment (which necessitates observing what happens in every quarter), for the employed group, the key data is the comparison of salaries between those who have pursued training and those who have not, which requires that participants be followed over several quarters.

Table 4.7: Statistics on the Group of Participant Immigrants Initially Employed

	Employed – Pursued training		Employed – Control group		Difference	
	#	%	#	%	#	%
n	191	69.0	86	31.1	105	37.9
Average duration of training (in weeks)	13.0	n.a.	n.a.	n.a.	n.a.	n.a.
Average age						
18-25	13	6.8	8	9.3	5	-2.5
26-35	60	31.4	38	44.2	22	-12.8
36-45	70	36.6	28	32.6	42	4.1
46-55	36	18.8	9	10.5	27	8.4
56-65	12	6.3	3	3.5	9	2.8
Women	107	56.0	42	48.8	65	7.2
With children under 5 years of age	16	8.4	13	15.1	3	-6.7
Province						
Nova Scotia	5	2.6	3	3.5	2	-0.9
New Brunswick	5	2.6	6	7.0	-1	-4.4
Quebec	125	65.4	45	52.3	80	13.1
Ontario	26	13.6	16	18.6	10	-5.0
Manitoba	30	15.7	12	14.0	18	1.8
British Columbia	0	0.0	4	4.7	-4	-4.7
Knowledge of spoken French						
None	0	0.0	0	0.0	0	0.0
Beginner	58	30.4	22	25.6	36	4.8
Intermediate	90	47.1	21	24.4	69	22.7
Advanced	43	22.5	43	50.0	0	-27.5
Knowledge of written French						
None	6	3.1	0	0.0	6	3.1
Beginner	78	40.8	23	26.7	55	14.1
Intermediate	81	42.4	27	31.4	54	11.0
Advanced	26	13.6	36	41.9	-10	-28.2
Knowledge of spoken English						
None	11	5.8	5	5.8	6	-0.1
Beginner	38	19.9	22	25.6	16	-5.7
Intermediate	47	24.6	32	37.2	15	-12.6
Advanced	95	49.7	27	31.4	68	18.3
Knowledge of written English						
None	14	7.3	5	5.8	9	1.5
Beginner	36	18.8	19	22.1	17	-3.2
Intermediate	52	27.2	36	41.9	16	-14.6
Advanced	89	46.6	26	30.2	63	16.4
Education						
Elementary	38	19.9	11	12.8	27	7.1
High school	12	6.3	10	11.6	2	-5.3
College	35	18.3	10	11.6	25	6.7

Undergraduate	60	31.4	29	33.7	31	-2.3
Graduate	46	24.1	26	30.2	20	-6.1
Continent of origin						
South America + Mexico	80	41.9	24	27.9	56	14.0
Europe	27	14.1	7	8.1	20	6.0
Africa	11	5.8	31	36.0	-20	-30.3
Asia	29	15.2	13	15.1	16	0.1
Middle East + North Africa	44	23.0	11	12.8	33	10.2
Number of years since arrival	6.4	n.a.	4.5	n.a.	n.a.	n.a.
Category						
Economic (principal)	64	33.5	22	25.6	42	7.9
Economic (dependent)	20	10.5	18	20.9	2	-10.5
Refugee	20	10.5	19	22.1	1	-11.6
Family reunification	57	29.8	22	25.6	35	4.3
Other	30	15.7	5	5.8	25	9.9
Current status						
Canadian citizen	56	29.3	24	27.9	32	1.4
Permanent resident	117	61.3	61	70.9	56	-9.7
Other	18	9.4	1	1.2	17	8.3
Experience prior to arrival	173	90.6	70	81.4	103	9.2
Average # of years of experience prior to arrival (for those with experience)	7.8	n.a.	6.5	n.a.	1.3	-3.5
Employment retention						
9 months	14	7.3	7	8.1	7	-0.8
12 months	24	12.6	13	15.1	11	-2.6
15 months	153	80.1	66	76.7	87	3.4
Hours worked on average*	27.9	n.a.	29.8	n.a.	-1.9	n.a.
Average salary ($/hour)*	17.2	n.a.	18.5	n.a.	-1.3	n.a.
Change in number of hours worked**	4.1	n.a.	2.4	n.a.	1.7	n.a.
Change in salary ($/hour)**	0.1	n.a.	0.6	n.a.	-0.5	n.a.
Percentage pursuing further training	72.8	n.a.	n.a.	n.a.	n.a.	n.a.
Average # of quarters in training	2.2	n.a.	n.a.	n.a.	n.a.	n.a.

*Calculated over the first quarter observed.

**Difference between the average of the first two quarters and the last two quarters observed.

Except for the characteristics Age, Province, Gender and Experience before arrival, the group of employed individuals who pursued training is quite different from the group of employed individuals who did not pursue training:[24]

- Knowledge of the host region's language. As might be expected, in the group that pursued training, there is generally a higher percentage of individuals with little knowledge of the host

[24] A probit analysis shows that these six blocks of variables are individually statistically significant in explaining whether or not an immigrant who is unemployed will take training (pseudo-R^2 of 0.29).

region's language. For example, 43.9 percent of employed participants who pursued training have little to no knowledge of written French, while this percentage is 26.7 percent for the employed control group.

- Education. As might also be expected, the proportion of immigrants with lower education are overrepresented in the Employed-Pursued training group. For example, 19.9 percent of the participants in the Employed-Pursued training group have less than a high-school diploma compared with 12.8 percent of those in the Employed-Control group.
- Continent of origin. The proportion of immigrants coming from Africa is six times higher in the Employed-Control group than in the Employed-Pursued training group.
- Number of years since arrival. Individuals in the Employed-Control group arrived in Canada more recently on average than those in the employed group pursuing training: 4.5 years vs. 6.4 years.
- Immigrant category. The representation of economic immigrants (dependent) and of refugees is lower in the employed group pursuing training than in the employed control group: respectively, 10.5 percent vs. 20.9 percent, and 10.5 percent vs. 22.1 percent.
- Current status. The proportion of immigrants in the Current status-Other category is much larger in the Employed-Pursued training group than in the Employed-Control group (9.4 percent compared with 1.2 percent).

As in the case of the group of participant immigrants initially unemployed, major differences between the composition of the employed group pursuing training and the employed control group suggest that the unobserved attributes may also be different between the two groups and that our estimates of the impact of training on the performance of immigrants in the labour market (salary, for example) might turn out to be biased.

It should also be noted that just as in the case of the unemployed group, it is necessary to combine the data for Nova Scotia and New Brunswick as well as the data for Manitoba and British Columbia to obtain a sufficiently large sample for statistical analyses.

4.6 Statistics on Training

Table 4.8 provides statistics on the types of training pursued by participants by province. Initially, the types of training were grouped into 7 categories. It should be noted that except for Manitoba, the breakdown of the types of training reflects the main working language in the provinces. Thus, no participant in Nova Scotia or British Columbia pursued training in French. Similarly, it should be noted that the most significant categories of training are those in French, which reflects in part the over-representation of Quebec in the action research. It should also be noted that in proportion, a slightly higher number of participants in the employed group pursued training in French than in the unemployed group: 94.8 percent vs. 84.2 percent (see Table 4.9). Finally, it must be noted that Quebec is the only province where participants pursuing computing courses were followed.

Table 4.8: Number of Participants by Type of Training*

	N.S.	N.B.	Que.	Ont.	Man.	B.C.	Total
Francization—Beginner (fr_b)	0	11	105	63	26	0	**206**
Francization—Intermediate (fr_i))	0	6	147	6	8	0	**167**
Francization—Advanced (fr_a)	0	3	106	94	5	0	**208**
English as a Second Language—Beginner (ESL_b)	0	1	0	3	0	7	**11**
English as a Second Language—Intermediate (ESL_i))	10	2	0	14	0	4	**30**
English as a Second Language—Advanced (ESL_a)	0	0	0	23	0	0	**23**
Computing—Beginner (comp)	0	0	21	0	0	0	**21**
Total	**10**	**23**	**379**	**203**	**39**	**11**	**666**

*The mnemonics associated to variables are indicated in brackets

Table 4.9: Types of Training Pursued — Unemployed Group vs. Employed Group

Training	Unemployed — Pursuing training		Employed — Pursuing training	
	#	% of total	#	% of total
Francization—Beginner	146	30.7	60	31.4
Francization—Intermediate	91	19.2	76	39.8
Francization—Advanced	163	34.3	45	23.6
English as a Second Language—Beginner	9	1.9	2	1.0
English as a Second Language—Intermediate	24	5.1	6	3.1
English as a Second Language—Advanced	22	4.6	1	0.5
Computing —Beginner	20	4.2	1	0.5
Total	**475**	**100.0**	**191**	**100.0**

4.7 Statistics on Employers

In total, 643 questionnaires were filled by employers (see Table 4.10). Note that the proportion of employers who answered at least five questionnaires is very high: 78.1 percent.

Table 4.10: Questionnaires Completed by Employers and Participation Rate

	Q1	Q2	Q3	Q4	Q5	Q final	Total
Number of completed questionnaires	137	137	131	128	107	3	643
Percentage of employers whose last completed questionnaire is…	0,0	4,4	2,2	15,3	75,9	2,2	n.d.

For initially employed participants whose employers were followed, the follow-up began with the first questionnaire that these participants completed. For initially unemployed participants whose employers were followed, the follow-up began at the first questionnaire that the participants completed after finding employment. Only employers who completed at least three questionnaires are included in the analysis, that is, 131 employers, who employed 138 participants. They were concentrated in Quebec in the manufacturing sector (see Table 4.11). It should be noted that relatively few employers outside of Quebec were followed.

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Table 4.11: Statistics on the Participants whose Employers Were Followed

	Unemployed — Pursued training	Unemployed — Control group	Employed — Pursued training	Employed — Control group	Total
Number of employers followed	16	18	68	29	131
Number of employees followed by their employers	16	20	69	32	137
Province					
Nova Scotia	1	2	4	1	8
New Brunswick	2	0	4	1	7
Quebec	9	11	52	24	96
Ontario	2	4	2	5	13
Manitoba	1	2	7	1	11
British Columbia	1	1	0	1	3
Sectors					
Manufacturing	3	8	12	7	30
Catering/Hotel	3	2	2	3	10
Community service	2	1	5	3	11
Retail	3	4	2	3	12
Health/Childcare	2	1	6	5	14
Construction			4	1	5
Other	3	4	21	2	30
Number of employees					
1-10	4	5	16	3	28
11-25	5	1	11	14	31
26-50	2	3	12	6	23
51-100	2	3	11	2	18
More than 100	3	8	18	8	37
% of immigrants	41.4%	33.0%	45.9%	36.1%	n.a.
% whose employer observed an improvement in general performance in the first six months of follow-up	68.8%	55.0%	59.4%	60.6%	n.a.
% whose employer observed an increase in productivity in the first six months of follow-up	62.5%	65.0%	52.2%	33.3%	n.a.
% of increase in productivity among those whose employer has observed an increase in productivity in the first six months of follow-up	38.9%	30.4%	17.5%	28.0%	n.a.
% whose employer observed that the situation had improved in the first six months of follow-up (e.g., increase in hours of work, increased responsibilities)	31.3%	40.0%	18.8%	27.3%	n.a.

Appendix 4A: Questionnaire and Letter of Consent for Participant Immigrants

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Participant number:
Date:

Questionnaire for PARTICIPANTS

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

This project is an action research designed to follow francophone immigrants, both enrolled in educational programs and not. The goal is to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills on the socio-economic integration of francophone immigrants.

The data collected from this study will be completely confidential and will under no circumstances lead to your identification. The data will be discussed in a general manner and will not be related to specific persons.

The masculine gender is used as a generic term for the sole purpose of brevity and designates both female and male gender.

Title (not required)		
Mr. ☐	Mrs. ☐	Ms. ☐
Last Name		**First Name(s)**
Current Address		
Number and Street		*Apartment Number*
City and Province		*Postal Code*
Telephone Number		***Email***
( ) -		

Participant in the following category:

☐ Employed ☐ Unemployed ☐ Control Group (employed) ☐ Control Group (unemployed)

Courses taken or in progress (Does not apply to Control Groups)	Name of educational centre	Level	Course start date	Number of hours
1.				
2.				
3.				
4.				
5.				

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Website: www.aide.org – Email: ria@aide.org

A. If you are not currently enrolled in an educational program, what is the reason?

- ☐ I do not need to improve my skills to find a job
- ☐ I have a job and I do not think that I need to improve my skills
- ☐ I prefer to stay home and take care of my family
- ☐ I do not think that I will be looking for work, so I do not need to improve my skills to enter the job market at the moment
- ☐ Other _____

B. If you are currently enrolled in an educational program, what is the reason you are enrolled in this program?

- ☐ Government requirement
- ☐ To find a job
- ☐ Requirement for other forms of studies (secondary, post-secondary)
- ☐ Improvement of the working conditions
- ☐ Integration into the host community
- ☐ Other, specify : _____

C. These questions will help us to get to know you better. Answer only if this is the first time that you complete this questionnaire.

1. Your gender:
   ☐ Female ☐ Male

2. Which age group do you belong to?

18 to 25 years	☐
26 to 35 years	☐
36 to 45 years	☐
46 to 55 years	☐
56 to 65 years	☐
66 years or more	☐

3. Country of birth: _____

4. Year of arrival in Canada: _____

5. Which category best reflects your situation when you arrived?

Refugees	☐
Sponsored by your family	☐
Skilled worker (principal (requester) applicant)	☐
Skilled worker (spouse of principal (requester) applicant)	☐
Other, specify: _____	☐

6. What is your present status?

Permanent resident	☐
Canadian citizen	☐
Other, specify: _____	☐

7. Did you work in your home country?

☐ Yes ☐ No

a) If you answered yes to question 7, state your longest held occupation.
_____

b) For how many years were you in that profession? _____

D. The following questions will help us better understand your personal situation or that of your family.

8. You are presently:

☐ Single
☐ Common-law
☐ Married
☐ Divorced or separated
☐ Widowed

9. Do you have children **in your care** in Canada?

☐ Yes ☐ No

a) If yes, how many children do you have? _____

b) Specify the age of **all** the children in your **care**: _____

10. What is your mother tongue? _____

11. Please indicate your levels of *spoken and written* language:

	Beginner	Intermediate	Advanced
Spoken French	☐	☐	☐
Written French	☐	☐	☐
Spoken English	☐	☐	☐
Written English	☐	☐	☐
Other language spoken: _____	☐	☐	☐
Other language written: _____	☐	☐	☐

E. The following questions will help us better understand the type of program that corresponds to your level of education and will help determine the benefits that you will receive from it.

12. Level of education:

	Achieved	Year	Country
Elementary or Primary	☐ Incomplete ☐ Completed		
Secondary or equivalent	☐ Incomplete ☐ Completed		
College (diploma / vocational / technical)	☐ Incomplete ☐ Completed		
University (First Cycle/ Undergraduate /Bachelor's)	☐ Incomplete ☐ Completed		
University (Second Cycle/Graduate/Master's)	☐ Incomplete ☐ Completed		

13. If your level of education does not appear in the above table, please specify :
_____

14. If you have studied at the post-secondary level, what was your field of specialization?
_____

F. To better understand your professional history, please reply to the following questions:

15. What is your current professional situation in Canada?
- ☐ I am employed (*private, community or public sector*)
- ☐ I am self-employed (*e.g., entrepreneur, merchant, craftsman*)
- ☐ I am unemployed

16. If you are unemployed, for how long are you?

_____

17. If you are unemployed, what is the reason?

- ☐ Internship
- ☐ Enrolled in a program
- ☐ Illness/Accident at work
- ☐ Maternity/paternity leave
- ☐ Seasonal employment
- ☐ On call work ((0-10h every two weeks)

Other : _____

18. If you received employment support since the last questionnaire, which service did you use?

- ☐ Government services
- ☐ Employment centres
- ☐ Internet sites
- ☐ Community organizations
- ☐ Personal contacts
- ☐ Other: _____

19. If you are unemployed, what is your financial situation?

- ☐ I receive employment insurance in the monthly amount of: _____
- ☐ I receive social assistance in the monthly amount of: _____
- ☐ I benefit from other financial support: _____
- ☐ I have no source of income

☐ If you are employed or self-employed, what is your approximate current salary? Answer A or B

A. Annual salary	
$5,000 to $6,000	☐
$6,000 to $7,000	☐
$7,000 to $8,000	☐
$9,000 to $10,000	☐
$11,000 to $12,000	☐
$12,000 to $13,000	☐
$13,000 to $14,000	☐
$14,000 to $15,000	☐
Other, specify: _____	☐

or

B. Hourly rate	
$10.00 to $10.50	☐
$10.50 to $11.00	☐
$11.50 to $12.00	☐
$12.00 to $12.50	☐
$13.00 to $13.50	☐
$13.50 to $14.00	☐
$14.00 to $14.50	☐
$14.50 to $15.00	☐
Other, specify: _____	☐

19. What is your total number of work hours during the last two weeks?

Hours for the last two weeks	
0 to 10 hours	☐
11 to 20 hours	☐
21 to 30 hours	☐
31 to 40 hours	☐
41 to 50 hours	☐
51 to 60 hours	☐
61 to 70 hours	☐
71 hours or more	☐ Specify _____

20. If you were to enroll in an educational program, how much do you think you would pay, in total, for these expenses per month?

Expenses	Approximate amount per month	Who would pay these costs?
Childcare costs for your children	$	
Transport (bus, gas)	$	
Other, specify _____	$	

21. Since the last questionnaire, have you enrolled in any other programs? If yes, which and how long did it last?

_____

Reserved space - do not complete this section

Participant number:
Date:

Letter of consent for PARTICIPANTS

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

Under the direction of Mr. Serge Nadeau, Actions interculturelles de développement et d'éducation (AIDE) is conducting an action research funded by the Office of Literacy and Essential Skills (OLES). The project is designed to follow francophone immigrants (both enrolled in educational programs and not) to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills (LES) on the socio-economic integration of francophone immigrants. Thus, this research is relevant for the future of immigrant populations as well as companies and society as a whole. It will also demonstrate the importance of investing in essential skills in our society.

We invite you to take part in this research project. If you agree to participate, your contribution to this research project will consist of completing 5 short questionnaires:

1. At the start of a LES program;
2. At the end of a LES program;
3. Three months after a LES program;
4. Six months after a LES program;
5. Nine months after a LES program.

The completion of the questionnaires will take place at a location defined by the local facilitator (_____) and at the time most convenient to you, according to the schedule above.

The data collected from this study (on paper or online) will be completely confidential and will under no circumstances lead to your identification. Data will be treated anonymously, meaning that it will not be related to specific persons. Results will be distributed through a research report, via the AIDE Internet portal, articles in scientific journals, in conference material, etc.

During the process the only persons who will have access to the data (on paper or online) will be the Lead Researcher, Mr. Serge Nadeau and the research project team (Mohamed Soulami, General Director; Roukayatou Idrissa Abdoulaye, Project Officer; Ornella Rukingama, Project Assistant) as well as the facilitator administering the questionnaire. The latter have previously signed a confidentiality agreement in order to protect participants' confidential information.

The responses will not be used for purposes other than those described in this document. Access to the electronic data on the extranet is protected by a password. Each participant has a unique username and password.

After the process, the collected data will be kept under lock and key for a maximum of five years, at the AIDE office and will be destroyed after this period. The electronic data will be deleted after this period as well.

The level of predicted or apparent risk associated with this study is considered minimal, comparable to that of everyday life. There is no conflict of interest, potential or apparent to the researchers, their associated institutions or the project fund donor. There is no private partner involved in this research project.

Your participation in this study is voluntary. You are entirely free to participate or not and may withdraw at any time without prejudice. By involving yourself with this project, you are not at risk.

If you have questions related to this research project, please contact:

Lead Researcher	**Contact information:**
Serge Nadeau	Email: serge.nadeau@uottawa.ca Telephone: 1-877-310-4180 (toll free)

If you have ethical questions related to this research project (CCNB participants), please contact:

CCNB Research Ethics Committee Chair	**Contact information:**
Marie-Noëlle Ryan	Email: marie-noelle.ryan@umoncton.ca Telephone: 506-858-4021

If you have ethical questions related to this research project (Douglas College participants), please contact:

Douglas College Research Board Chair	**Contact information:**
Dr. Kathy Denton	Email: dentonk@douglas.bc.ca Telephone: 604-527-5300

Monetary Compensation

Considering the time required of the participant, each completed questionnaire entitles the eligible participant to monetary compensation which is to be distributed by the local facilitator, or by AIDE, according to their agreement.

Participation Consent

I have read and understand the document concerning the project "Developing Immigrants' Literacy and Essential Skills". I understand the conditions and the benefits of my contribution. I have received answers to my questions regarding this project. I am aware of the monetary compensation to be remitted to me for each completed questionnaire. I freely agree to participate in this research project.

I understand that the completion of the five questionnaires is necessary for the quantitative and qualitative success of this action research.

Date:	
Participant name:	
Signature:	
Facilitator name:	
Signature:	

Consent for Employer Involvement

If you are employed, your employer will also be asked to complete 5 questionnaires, including questions regarding your productivity at work, as well as your employment status and your compensation.

I agree that my employer (in the case where I am employed) also completes questionnaires regarding my performance and remuneration.

Date:	
Participant name:	
Signature:	
Employer name:	
Employer contact information:	

Facilitator responsibility statement

I certify have explained to the signatory to this form, research project objectives and implications, have answered clearly to his questions and have indicated that he or she is free to withdraw from the research project described at any time without the need for justifying its decision in any way and without prejudice.

Facilitator name:	
Title and/or role of the facilitator :	
Signature :	

Appendix 4B: Final Questionnaire for Participant Immigrants

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Reserved space - do not complete this section

Participant number:
Date :

FINAL Questionnaire for PARTICIPANTS

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

This project is an action research designed to follow francophone immigrants, both enrolled in educational programs and not. The goal is to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills on the socio-economic integration of francophone immigrants.

The data collected from this study will be completely confidential and will under no circumstances lead to your identification. The data will be discussed in a general manner and will not be related to specific persons.

The masculine gender is used as a generic term for the sole purpose of brevity and designates both female and male gender.

Title (not required)		
Mr. ☐	Mrs. ☐	Ms. ☐
Last Name		**First Name(s)**
Current Address		
Number and Street		*Apartment Number*
City and Province		*Postal Code*
Telephone Number		***Email***
( ) -		

A. Are you currently enrolled in an educational program?

☐ Yes
☐ No

- If yes, what is the program?

_____

- For how long have you been in that program?

_____

B. Please indicate your levels of *spoken and written* language:

	Beginner	Intermediate	Advanced
Spoken French	☐	☐	☐
Written French	☐	☐	☐
Spoken English	☐	☐	☐
Written English	☐	☐	☐
Other language spoken: _____	☐	☐	☐
Other language written: _____	☐	☐	☐

Please choose one of the following options:

- If you were employed on the date of your last questionnaire and are currently unemployed, please go to question **C**.
- If you were unemployed on the date of your last questionnaire and are still unemployed now, please go to question **E**.
- If you were unemployed on the date of your last questionnaire and are currently employed, please go to question **F**.
- If you were employed on the date of your last questionnaire and are still employed now, please go to question **G**.

C. Since when are you unemployed?

_____

D. Why are you unemployed?

- ☐ Internship
- ☐ Enrolled in a program
- ☐ Illness/Accident at work
- ☐ Maternity/paternity leave
- ☐ Seasonal employment
- ☐ On call work ((0-10h every two weeks)
- ☐ Other : _____

E. Quelle est votre situation financière ?

a. I receive employment insurance in the monthly amount of: _____
b. I receive social assistance in the monthly amount of: _____
c. I benefit from other financial support: _____
d. I have no source of income

Your questionnaire is now completed.

Thank you very much!

F. When did you start working?

_____

G. What is your current salary?

_____

H. Since the date of your last questionnaire (if you were employed) or since the date you started to work, did you get any salary increase?

☐ Yes ☐ No

I. If yes, how many times was your salary increased?

_____

J. If yes, when exactly was your salary increased?

_____

K. In the last two weeks, how many hours did you work?

_____

Your questionnaire is now completed.

Thank you very much!

Appendix 4C: Questionnaire and Letter of Consent for Employers

Reserved space - do not complete this section

Participant number:

Questionnaire for EMPLOYERS

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

This questionnaire must be completed by the employer or the supervisor of the immigrant employee.

This project is an action research designed to follow francophone immigrants, both enrolled in educational programs and not. The goal is to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills on the socio-economic integration of francophone immigrants.

The data collected from this study will be completely confidential and will under no circumstances lead to your identification. The data will be discussed in a general manner and will not be related to specific persons.

The masculine gender is used as a generic term for the sole purpose of brevity and designates both female and male gender.

Employer name (company/institution)	
Sector of activities	
Name of the employee	
Position of the employee	
Hourly wage of the employee	
Evaluation period	from _____ to _____
Number of employees	
Approximate number of immigrant employees working in your organization	
Date the questionnaire was completed	

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Use the following scale to evaluate the performance of the employee since the last questionnaire:

5	Exceptional (excellent, outstanding)
4	Exceeds expectations in some areas
3	Satisfactory and meets expectations
2	Performance improvements required
1	Unsatisfactory or unacceptable

	1	2	3	4	5
Communication					
Expresses ideas clearly					
Good understanding in conversation and other exchanges					
Teamwork					
Ability to work with colleagues					
Positive contribution to the work environment					
Personal skills					
Punctuality and attendance					
Motivation					
Quality of work					
Creativity					
Initiative					
Efficiency					
Flexibility					

General assessment of employee performance (<u>to complete only with Questionnaires 2 to 5</u>):

	1	2	3	4	5
From a general point of view, do you believe that the employee has made progress in the last 3 months?					

Has the productivity of the employee improved in the last 3 months? Yes ____ No ____

If yes, by what percentage (approximately)?

Has the employee's situation changed in the last 3 months? If yes, how:	
Length of the contract extended	
More work hours	
Increased responsibilities/tasks	
Other, specify	

General comments

_____

Reserved space - do not complete this section

Participant number:
Date:

Letter of consent for EMPLOYERS

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

Under the direction of Mr. Serge Nadeau, *Actions interculturelles de développement et d'éducation* (AIDE) is conducting an action research designed to follow francophone immigrants (both enrolled in educational programs and not) to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills (LES) on the socio-economic integration of francophone immigrants.

If you agree to participate, your contribution to this research project will consist of completing 5 short questionnaires regarding your employee(s) who are in the process (or not, in the case of participants in the control group) of improving their levels of literacy and essential skills (LES):

1. At the start of the LES program;
2. At the end of the LES program;
3. Three months after the LES program;
4. Six months after the LES program;
5. Nine months after the LES program.

The completion of the questionnaires will take place at a location defined by the local facilitator (_____) and at the time most convenient to you, according to the schedule above.

The data collected from this study will be completely confidential and will under no circumstances lead to your identification. Data will be treated anonymously, meaning that it will not be related to specific persons. Results will be distributed through a research report, via the AIDE Internet portal, articles in scientific journals, in conference material, etc.

During the process the only persons who will have access to the data will be those named above as well as the facilitator who administers the questionnaire. The responses will not be used for purposes other than those described in this document. After the process, the collected data will be kept under lock and key for a maximum of five years, at the AIDE office.

Your participation in this study is voluntary. You are entirely free to participate or not and may withdraw at any time without prejudice. By involving yourself with this project, you are not at risk.

If you have questions concerning this research project, including any ethical issues, please do not hesitate to contact Serge Nadeau, lead researcher, at serge.nadeau@uottawa.ca or 1-877-310-4180 (toll free).

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Telephone: 1 (819) 822-4180 Fax: 1 (819) 822-4415
Website: www.aide.org – Email: claire.holt@aide.org

Participation Consent

I have read and understand the document concerning the project ***"Developing Immigrants' Literacy and Essential Skills"***. I understand the conditions and the benefits of my contribution. I have received answers to my questions regarding this project. I freely agree to participate in this research project.

I understand that the completion of the five questionnaires is necessary for the quantitative and qualitative success of this action research.

Date:	
Employer name:	
Signature:	
Facilitator name:	
Signature:	

465 rue Lawford, Sherbrooke QC J1G 2C2
Telephone: 1 (819) 822-4180 Fax: 1 (819) 822-4415
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Appendix 4D: Questionnaire and Letter of Consent for Training Centres

Reserved space - do not complete this section

Participant number:

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Questionnaire for ADULT EDUCATION CENTRES

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

This project is an action research designed to follow francophone immigrants, both enrolled in educational programs and not. The goal is to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills on the socio-economic integration of francophone immigrants.

The data collected from this study will be completely confidential and will under no circumstances lead to your identification. The data will be discussed in a general manner and will not be related to specific persons.

The masculine gender is used as a generic term for the sole purpose of brevity and designates both female and male gender.

Date (dd/mm/yyyy)		
Name of adult education centre		
Course name		
Course period	From _____ to _____	
Essential skills taught in this course	**Description**	**Level**
	Reading ☐	
	Writing ☐	
	Document use ☐	
	Numeracy ☐	
	Computer Use ☐	
	Thinking (reasoning) ☐	
	Oral communication ☐	
	Working with others ☐	
Total course hours		
Number of students at beginning of course		
Number of students at end of course (you will be contacted again at the end of the course period)		
Cost to offer this course		
Annual total rental cost of the permises occupied by your center		
Annual total electricity cost of the permises occupied by your center		
Annual total heating cost of the permises occupied by your center (if heatin is not included in the electricity bill)		

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Website: www.aide.org – Email: claire.holt@aide.org

Annual total cost for maintenance services of the permises occupied by your center	
Annual cost of the municipal taxes	
Approximate space (in square meters) of all the permises occupied by your center	
Approximate space (in square meters) of all the permises used for teaching	
Other costs	
Approximate cost of all the material used by your center (like books and other)	
Total cost for the use of computers (divide up the purchase cost of computers on six years	
Approximate administration total cost of your center (managers, receptionist, secretary, phone, etc.)	
Approximate total amount of teaching hours (on average) given by your center every year	
Cost of the promotion of the courses	
Cost of the evaluation and subscription of participants to the courses	
Premiums for students	
Number of classes	
Cost per class	
Note	
Other 1	
Other 2	
Portion of cost representing the cost of teacher's salaries	
What would be the approximate hourly rate of your teachers if there is no more courses for immigrants? For example, would it be comparable to that presently earned in your centre? Would your teachers work for minimum wage? Would they be unemployed?	

Professor salary	
Hourly rate	
Salary range	
Note	
Other 1	
Other 2	

Reserved space - do not complete this section

Participant number:

Letter of consent for ADULT EDUCATION CENTRES

PROJECT: DEVELOPING IMMIGRANTS' LITERACY AND ESSENTIAL SKILLS

Under the direction of Mr. Serge Nadeau, Actions interculturelles de développement et d'éducation (AIDE) is conducting an action research funded by the Office of Literacy and Essential Skills (OLES). The project is designed to follow francophone immigrants (both enrolled in educational programs and not) to collect data which will be used to develop a tool able to demonstrate the effects of improved levels of literacy and essential skills (LES) on the socio-economic integration of francophone immigrants. Thus, this research is relevant for the future of immigrant populations as well as companies and society as a whole. It will also demonstrate the importance of investing in essential skills in our society.

We invite you to take part in this research project. If you agree to participate, your contribution to this research project will consist of completing one questionnaire (questionnaire for adult education centers) for each educational programs in which there are participants in this study.

The completion of the questionnaires will take place at a location defined by the local facilitator (_____) and at the time most convenient to you, according to the schedule above.

The data collected from this study (on paper or online) will be completely confidential and will under no circumstances lead to your identification. Data will be treated anonymously, meaning that it will not be related to specific persons. Results will be distributed through a research report, via the AIDE Internet portal, articles in scientific journals, in conference material, etc.

During the process the only persons who will have access to the data (on paper or online) will be the Lead Researcher, Mr. Serge Nadeau and the research project team (Mohamed Soulami, General Director; Roukayatou Idrissa Abdoulaye, Project Officer; Ornella Rukingama, Project Assistant) as well as the facilitator administering the questionnaire. The latter have previously signed a confidentiality agreement in order to protect participants' confidential information.

The responses will not be used for purposes other than those described in this document. Access to the electronic data on the extranet is protected by a password. Each adult education center has an affiliated facilitator and the latter has only access to participants of this adult education center. Thus, each facilitator has a unique username and password.

After the process, the collected data will be kept under lock and key for a maximum of five years, at the AIDE office and will be destroyed after this period. The electronic data will be deleted after this period as well.

The level of predicted or apparent risk associated with this study is considered minimal, comparable to that of everyday life. There is no conflict of interest, potential or apparent to the researchers, their associated institutions or the project fund donor. There is no private partner involved in this research project.

Your participation in this study is voluntary. You are entirely free to participate or not and may withdraw at any time without prejudice. By involving yourself with this project, you are not at risk.

If you have questions related to this research project, please contact:

Lead Researcher	**Contact information:**
Serge Nadeau	Email: serge.nadeau@uottawa.ca Telephone: 1-877-310-4180 (toll free)

If you have ethical questions related to this research project (CCNB participants), please contact:

CCNB Research Ethics Committee Chair	**Contact information:**
Marie-Noëlle Ryan	Email: marie-noelle.ryan@umoncton.ca Telephone: 506-858-4021

If you have ethical questions related to this research project (Douglas College participants), please contact:

Douglas College Research Board Chair	**Contact information:**
Dr. Kathy Denton	Email: dentonk@douglas.bc.ca Telephone: 604-527-5300

Adult education center participation Consent

I have read and understand the document concerning the project "Developing Immigrants' Literacy and Essential Skills". I understand the conditions and the benefits of my contribution. I have received answers to my questions regarding this project. I am duly authorized to sign on behalf of the adult education center and I know that I may withdraw at any time without prejudice

I understand that the completion of the five questionnaires to francophone immigrants is necessary for the quantitative and qualitative success of this action research.

Date:	
Adult education center name:	
Signature:	

Facilitator responsibility statement

I certify have explained to the signatory to this form, research project objectives and implications, have answered clearly to his questions and have indicated that he or she is free to withdraw from the research project described at any time without the need for justifying its decision in any way and without prejudice.

Facilitator name:	
Title and/or role of the facilitator :	
Signature :	

Chapter 5: Results—Estimation of the Tangible Benefits and Costs of Providing Training

5.1 Introduction

In this chapter, we present estimates of the benefits and costs of taking LES training. We examine the impact of training on the length of unemployment spells and the wages of initially unemployed immigrant participants and initially employed participants. We also look at the impact of training on productivity and overall performance according to the results of the questionnaires completed by employers, as well as the costs incurred by training centres to provide training and the costs incurred by participants to pursue training. We conclude by providing selected examples of cost-benefit calculations for both initially unemployed and initially employed individuals. These examples are selected in such a way as to provide a range of the possible results resulting from estimating the tangible benefits and costs of LES training using our model.

5.2 Impact of Pursing Training on Initially Unemployed Individuals

Overall, on average, compared to those in the control group, a lower proportion of participants who pursued training found employment during the observation period: 30.1 percent vs. 46.7 percent (see Table 4.5). Furthermore, it appears that in the case of participants who pursued training and found employment, the average duration of unemployment was longer (3.4 quarters vs. 1.9); the average number of weekly hours worked slightly lower (36.0 hours vs. 37.9); and the average hourly wage slightly higher ($17.10 vs. $16.80) than for those who had not pursued training. These findings are counter-intuitive and seem to suggest that, from an integration into the labour market point of view, it would be preferable for immigrants not to pursue training and instead to use the time spent on training to look for employment. However, these are average results that vary depending on the immigrants' characteristics (such as their knowledge of the host region's language and their level of education for example). Estimating the survival model and Mincer salary equations discussed in Section 3.2.2 allows one to identify the categories of immigrants for which training may reduce unemployment spells and lead to higher salaries. In addition, these findings may reflect the consequences of not having been able to randomly assign

participants between the groups who pursued training and the control groups: it is possible that the participants who chose not to pursue training have unobservable characteristics that help them find employment faster or earn higher salaries than those who chose to pursue training (see the discussion in Section 4.4).

5.2.1 Impact of training on unemployment spells

Figure 5.1 shows the Kaplan-Meier survival functions of unemployment duration spells of groups who pursued various types of training. Except for individuals who pursued training in English as a Second Language—Intermediate or Francization—Advanced, individuals who did not pursue training had a higher probability of finding employment during the observation period than individuals who pursued training. For example, the probability of still being unemployed after five quarters is 53.6 percent for individuals who did not pursue training, but vary between 54.2 percent and 95 percent for those who pursued training (see Table 5.1).

Figure 5.1: Survival Functions of Unemployment Duration Spells

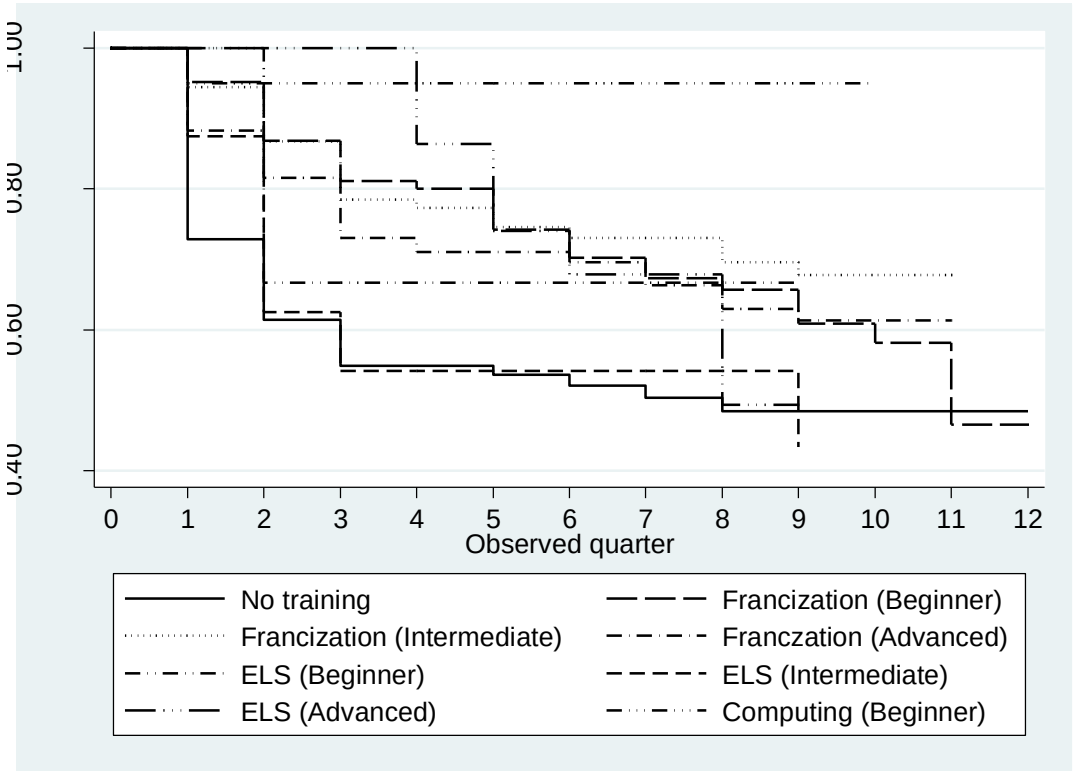


Table 5.1: Probability of Being Unemployed after Five Quarters

No training	53.6%
Francization—Beginner	74.5%
Francization—Intermediate	74.6%
Francization—Advanced	71.0%
English as a Second Language—Beginner	66.7%
English as a Second Language—Intermediate	54.2%
English as a Second Language—Advanced	74.0%
Computing—Beginner	95.0%

At this point, it is important to note that our estimates of the duration of unemployment spells are of *total duration*; that is, they include the time spent on training. This implicitly assumes that participants pursuing training are also looking for a job during their training. This hypothesis is probably more realistic in the context of this research than it is in the context of impact studies of secondary or post-secondary education, because unlike these types of training, LES training is generally completed much more rapidly and is generally not pursued with the objective of obtaining a diploma. As a matter of fact, in our sample, 55 participants who pursued training had already found employment at the end of their training period. In any event, we can always estimate the duration of a job search after completing training by subtracting the duration of training from the total duration of the unemployment spell. Thus, we note that based on the statistics presented in Table 4.5, although the total duration of unemployment spells is on average shorter for participants who have not pursued training than it is for participants who have pursued training (1.9 quarters vs. 3.4 quarters), it is close to the average duration of unemployment spells of participants who have pursued training after they have completed their training (1.9 quarters vs. 2.1 quarters). In addition, it is of note that for certain types of training (such as English as a Second Language—Intermediate), the average duration of unemployment spells after completing training is shorter for participants who pursued training than the average duration of unemployment spells of participants who did not pursue training (see Figure 5.2).

Figure 5.2: Survival Functions of Unemployment Duration Spells

(Excluding Time Spent in Training)

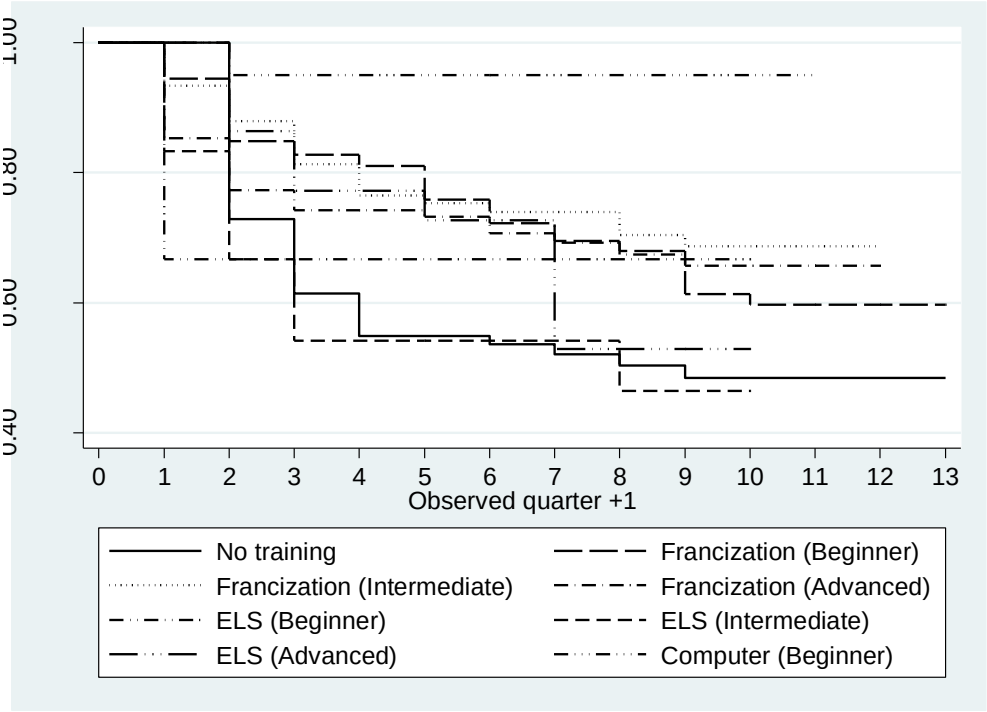


Figure 5.3: Survival Functions of Unemployment Duration Spells — All Types of Training

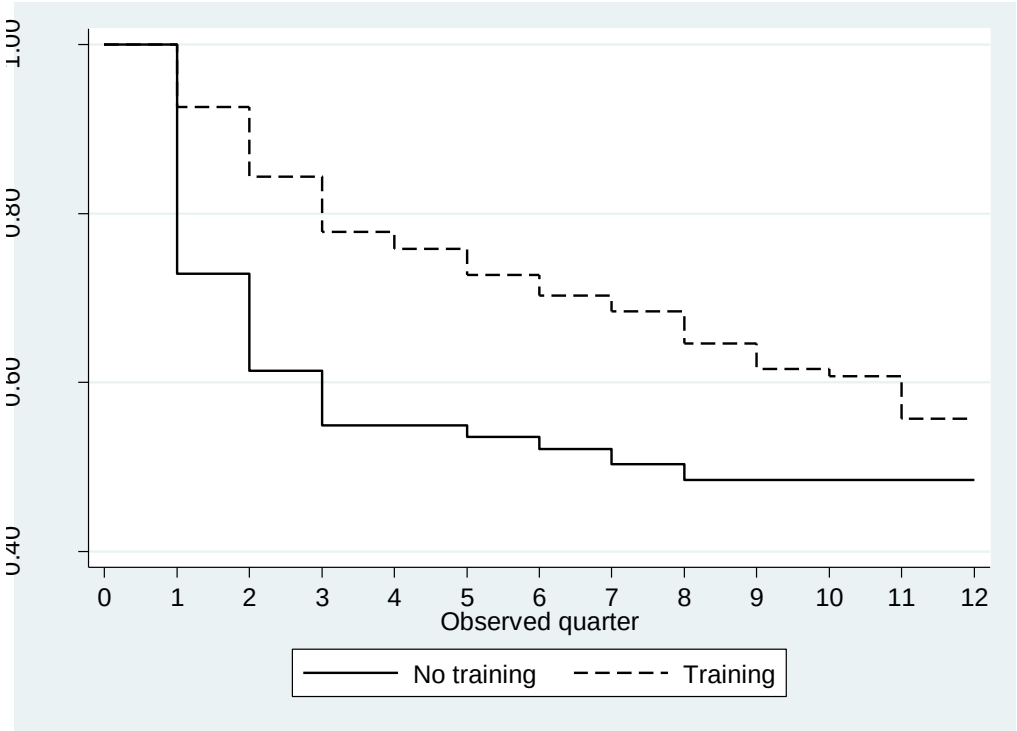
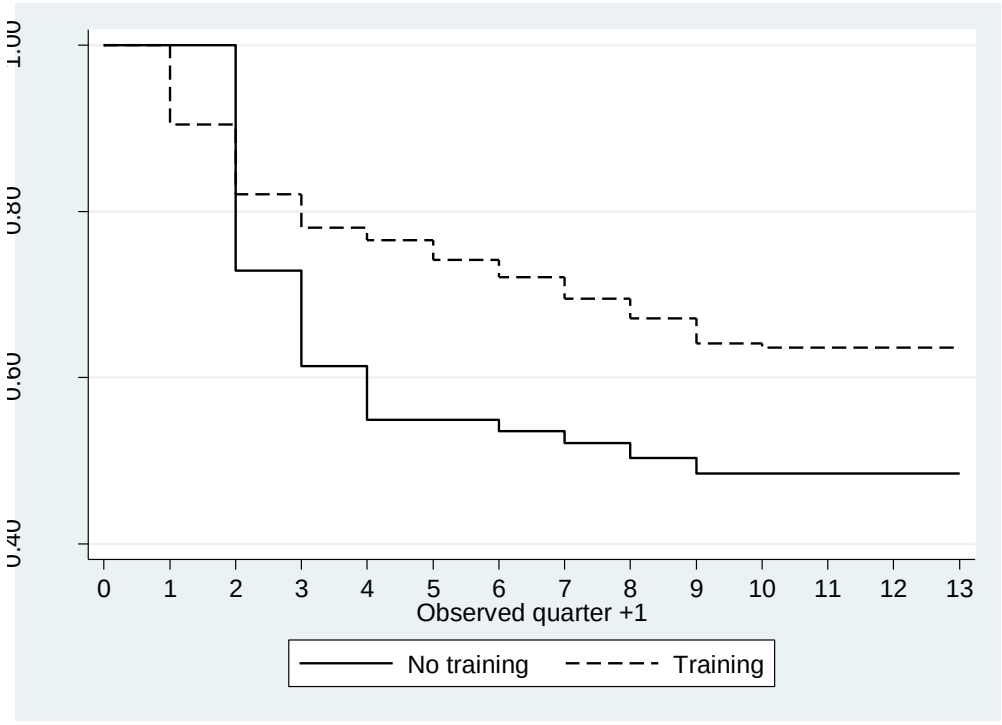


Figure 5.4: Survival Functions of Unemployment Duration Spells —All Types of Training (Excluding Time Spent in Training)



A first key finding is that although Figures 5.1 and 5.2 seem to suggest that the impact of training on the duration of unemployment spells varies depending on the type of training, one cannot reject the hypothesis that, statistically speaking, all types of training have the same impact on the duration of unemployment spells (p-value of 26.5%). Therefore, our analysis will not distinguish between the types of training completed. Figures 5.3 and 5.4 compare the survival function of the duration of unemployment spells for participants who did not pursue training with, respectively, the survival function of unemployment duration spells and the survival function of unemployment spells excluding the time spent pursuing training for participants who did pursue training.

Because duration of unemployment spells may vary depending on an individual's characteristics (such as, for example, their province, their level of education, their continent of origin), we estimate a survival model of the type described in Section 3.2.2. The results of estimating Equation (3.3) are provided in Table 5.2.

Table 5.2: Estimated Survival Function of the Duration of Unemployment Spells

Explanatory variables	$\hat{\beta}$	% Δ	Reference individual † (1)				Reference individual / prov_m_bc (2)				Reference individual / prov_o, we_x‡ (3)				Reference individual / prov_ne_nb, co_moan, we_x (4)				Reference individual / female, c_u5 (5)			
			No training		Training		No training		Training		No training		Training		No training		Training		No training		Training	
prov_o	0.85****	-53									1	0,85	1	0,85								
c_u5	0.71***	-47																	1	0,71	1	0,71
female × c_u5	-1.10****	164																	1	-1,10	1	-1,10
mse	-0.01****	1																				
co_as	0.83**	-52																				
tdur	-0.05****	5			12	-0.66			12	-0.66			12	-0,66			12	-0,66			12	-0,66
tdur×prov×ns_nb	0.02*	-2															12	0,29				
tdur×prov×m_bc	0.07***	-6							12	0.81												
t_we_x‡	0.78****	-50											1	0.78			1	0,78				
t_co_af	-1.63****	319																				
t_co_as	-1.79***	386																				
t_co_moan	-1.59****	307															1	-1,59				
tdur × co_af	0.04**	-3																				
tdur × co_as	0.05**	-4																				
tdur × co_mena	0.06**	-5															12	0,70				
constant term	-2.39***		1	-2.39	1	-2.39	1	-2.39	1	-2.39	1	-2,39	1	-2,39	1	-2,39	1	-2,39	1	-2,39	1	-2,39
1/p	0.15																					
λ				0.09		0.05		0.09		0.06		0.22		**0.24**		0.09		0.10		0.06		0.03
Expected # of quarters unemployed				**7.4**		**13.1**		**7.4**		**6.5**		**3.6**		**3.2**		**7.4**		**11.3**		**10.4**		**18.3**
Expected duration of unemployment (in weeks)				**96.6**		**170.2**		**96.6**		**84.6**		**46.4**		**41.7**		**96.6**		**147.0**		**135.2**		**238.0**
Expected # of quarters unemployed after training						**12.2**				**5.6**				**2.3**				**10.4**				**17.4**

† Reference: Man living in Quebec, with no knowledge of written English, and whose continent of origin is either the Americas or Europe.
‡ *we_x* : some knowledge of written English (*we_x = we_d + we_i + we_a*).
* p-value < 10 percent **p-value < 5 percent; ***p-value < 1 percent; ****p-value < 0.1 percent.

Of all the variables listed in Table 4.5, only those listed in Table 5.2 are retained as explanatory variables. These variables were sequentially selected according to their level of statistical significance in explaining the duration of unemployment spells (Table 5A1 in Appendix 5A provides intermediate survival functions that were estimated in this selection process). Participants from Nova Scotia were grouped with those from New Brunswick (*ns_nb* variable) and participants from Manitoba were grouped with those from British Columbia (*m_bc* variable) because the observation samples were too small in these provinces. It should be noted that except for the variables *mu* (number of months unemployed before the first questionnaire) and *tdur* (duration of training), all these variables are binary, meaning that their value is either zero or one, depending on whether or not the characteristic is observed for an individual. The reference individual is a man living in Quebec, with no knowledge of written English, and whose continent of origin is either the Americas or Europe.

If a $\hat{\beta}$ coefficient in Table 5.2 has a positive value, it means that the variable associated with the coefficient reduces the expected duration of unemployment. For example, by using equation (3.5), we calculate that, on average, all other things being equal, an immigrant in Ontario will take about 53 percent less time to find a job than an immigrant living in the other provinces who took part in the action research. Another finding is that, all other things being equal, the expected duration of unemployment for an immigrant man with children under five is 47 percent lower than for an immigrant man with children five years old or older, whereas for a immigrant woman, the expected unemployed time is 117 percent higher if she has children under five than if she has children five years old or older.

A counter-intuitive finding is that although we would expect that a higher level of education would shorten the duration of unemployment, we find that the level of schooling does not seem to impact the duration of unemployment. However, we find that the length of unemployment spells increases by approximately one percent for every month the individual was unemployed before the beginning of the observation period. Also, we estimate that for the observation period, the probability of exiting unemployment (that is, the probability of finding a job) decreases as the unemployment period increases

($p > 1$)[25] and that , on average, it takes 52 percent less time for an immigrant from Asia to find a job than an immigrant from elsewhere in the world.

The variables that measure the impact of LES training on the duration of unemployment spells include *t_* or *tdur* in their mnemonic labels. The estimated impact of training depends on the characteristics of the individual pursuing training. Thus, according to our model, in general, in the case of Francophone immigrants,

- only LES training provided in Manitoba or British Columbia reduces the expected duration of unemployment spells, while training provided in Nova Scotia or New Brunswick does not increase the expected duration of unemployment spells as much as training provided in Quebec or Ontario;
- LES training provided to individuals who have some knowledge of written English may shorten their expected period of time unemployed but only if it lasts less than 10 weeks; and
- LES training provided to people from elsewhere than the Americas or Europe substantially extends the expected period of time without employment. For example, for an individual from the Middle East or North Africa, pursuing LES training more than triple the expected period of time without employment.

A few concrete examples are provided in Table 5.2:

- For the reference individual, pursuing LES training increases the expected duration of unemployment by about three percent for each week of training. Therefore, while the expected duration of unemployment is estimated at 7.4 quarters for the reference individual who does not pursue training, it is estimated at 13.1 quarters for this same individual if they are pursuing training for 12 weeks (see column (1) in Table 5.2). An intriguing finding is that even if we account for the duration of training (which is 0.9 quarter in this case), the expected duration of

[25] The result that the probability of exiting unemployement increases as the length of the unemployment period increases (the so-called negative duration dependence in unemployment spells) is well known in the labour economics literature (see, for example, Coleman 1990).

unemployment remains longer for the individual who pursues training than for the individual who does not: 12.2 quarters vs. 7.4 quarters.

- However, we note that if the individual lives in Manitoba or in British Columbia, then pursuing LES training reduces the expected duration of unemployment (see column (2) in Table 5.2). For example, if the individual completes a 12-week training session, then the expected duration of unemployment is 6.5 quarters (that is, 5.6 quarters if excluding the duration of training) compared with 7.4 quarters had they not pursued training.
- Another example where pursuing LES training may shorten the expected duration of unemployment is the case of an individual who has some knowledge of written English. For example, consider the case of an individual who is similar in all respects to the reference individual, except that they live in Ontario and has some knowledge of written English (see column (3) in Table 5.2). In this case, completing a 12-week training session reduces the expected duration of unemployment from 3.6 quarters to 3.2 quarters, or 2.3 quarters if we exclude the duration of training.
- An example where pursuing LES training may increase the expected duration of unemployment is the case of a man living in Nova Scotia our New Brunswick who has some knowledge of written English and who comes from the Middle-East or North-Africa (see column (4) in Table 5.2). If this individual completes a 12-week training session, then the expected duration of unemployment is 11.3 quarters (or 10.4 quarters if we exclude the duration of training), compared with 7.4 quarters had they not pursued training.
- Another example where LES training may significantly increase the expected duration of unemployment is the case of an individual similar in all respects to the reference individual, except for being a woman having children less than five years old (see column (5) in Table 5.2). If this woman completes a 12-week training session, then the expected duration of unemployment is 18.3 quarters (or 17.4 quarters if we exclude the duration of training), compared with 10.4 quarters had she not pursued training.

5.2.2 Impact of training on salaries of participant immigrants initially unemployed

Completing LES training may have an impact not only on the duration of unemployment spells, but also on an individual's salary and number of hours worked. According to Table 4.5, on average, individuals who pursued training and found employment work fewer hours per week and earn slightly higher hourly wages than the members of the control group: 36.0 vs. 37.9 hours per week, and $17.10 vs. $16.80 per hour. However, to measure the statistical significance of these findings and to control for the individual characteristics of participants that may have an impact on salary and the number of hours worked, we estimate a Mincer equation for weekly salary as outlined in Section 3.2.1. The results of this estimation are provided in Table 5.3. Of all the variables listed in Table 4.5, only those listed in Table 5.3 are retained as explanatory variables. As for the explanatory variables retained in the estimation of the survival model discussed earlier, the variables listed in Table 5.3 were sequentially selected according to their level of statistical significance in explaining the salary of initially unemployed individuals once they have found a job (Table 5A2 in Appendix 5A provides intermediate equations that were estimated in this selection process).

Table 5.3: Equation to Predict the Salary of Initially Unemployed Individuals Who Eventually Found a Job

Explanatory Variables	Coefficients (in $ per week)
English as a Second Language (Intermediate) training	281**
Nova Scotia or New Brunswick	-228*
Manitoba or British Columbia	364**
Female	-96*
High school or college education	147*
Undergraduate degree	231***
Graduate degree	333****
Constant term	468****
N	214
R^2	0.15****

*p-value < 10%; ** p-value < 5%; *** p-value < 1%; **** p-value < 0.1%.

According to the results shown in Table 5.3, all other things being equal, in comparison to residents of Quebec and Ontario, the participants living in Nova Scotia or New Brunswick earn on average $228 less per week, while those living in Manitoba or British Columbia earn on average $364 more per week. We also note that all other things being equal, women Francophone immigrants earn on average almost $100 less per week than men.

Although no relationship is found between the level of education and the duration of unemployment, a monotonous and statistically close relationship is found between salaries and the level of education: all other things being equal, an individual whose highest level of education is high school or college earn on average $147 more per week than an individual whose highest level of education is elementary school, and this difference increases to $333 per week if the individual has a graduate degree. However, we estimate that LES training has no impact on salary, unless it is English as a Second Language (Intermediate), which yields a positive impact of $281 per week.

5.3 Impact of Pursing Training on Initially on Employed Individuals

According to Table 4.7, in the case of the participant immigrants who were initially employed, those who completed LES training increased their hours worked by an average of 4.1 hours per week (compared with 2.4 for those who did not pursue training), and their average hourly wages increased by $0.10 per hour (compared with $0.60 for those who did not pursue training) over the observation period. However, to measure the statistical significance of these findings and to control for the individual characteristics of participants that may have an impact on salary and the number of hours worked, we estimate a Mincer salary equation (see Equation 3.1). The results of the estimation process are shown in Table 5.4. The explanatory variables were sequentially selected according to their level of statistical significance in explaining the changes in the salaries that the participant immigrants who were initially employed experienced during the period of observation (Table 5A3 in Appendix 5A provides intermediate equations that were estimated in this selection process).

Table 5.4: Equation to Predict Changes in the Salaries of Initially Employed Francophone Immigrants

Explanatory variables	Coefficients (in $ per week)
Pursued training	9
Manitoba or British Columbia	52*
Continent of origin_Europe	-60*
Continent of origin_Africa	-58*
Continent of origin_Asia	-73**
Constant term	82****
N	266
R^2	0.04**

*p-value < 10%; ** p-value < 5%; *** p-value < 1%; **** p-value < 0.1%..

According to Table 5.4, pursuing training increases the weekly salary of initially employed individuals by only $9 per week, which is not statistically significant. It should be noted that the weekly salary of employed individuals increased by an average of $70 during the observation period.

Another variable that is necessary to estimate the cost benefit of training for individuals who are already employed is the hourly wage they earned before pursuing training (see Table 3.3, line 3). To measure this variable, we estimated another Mincer salary equation. The results of the estimation process are provided in Table 5.5. Explanatory variables were sequentially selected according to their level of statistical significance (Table 5A4 in Appendix 5A provides intermediate equations that were estimated in this selection process).

As might be expected, there are several determinants of salaries that are common for participants who were unemployed and who eventually found employment, and for those who were already employed, including province, gender, and level of education (see tables 5.3 and 5.5).

Table 5.5 Equation to Predict the Hourly Wage (Before Training) of Initially Employed Francophone Immigrants

Explanatory Variables	Coefficients (in $ per week)
Ontario	5.63****
Manitoba or British Columbia	4.66****
Number of years since arrival	0.28****
Work experience prior to arrival	0.19**
Female	-2.89***
Undergraduate degree	3.14***
Graduate degree	7.49***
Constant term	11.70****
N	277
R^2	0.24****

* p-value < 10%; ** p-value < 5%; *** p-value < 1%; **** p-value < 0.1%;.

5.3 Impact of Pursuing Training—Results Based on the Questionnaires Completed by Employers

According to Table 4.11, for the case of initially unemployed participants who eventually found employment during the observation period, employers observed an improvement in overall performance among a greater proportion of those who pursued training than among those who did not: 68.8 percent vs. 55.0 percent. However, the proportion of employees whose employers observed an increase in productivity is very similar among those who pursued training and those who did not: 62.5 percent vs. 65.5 percent Although the average increase in productivity was higher among participants who pursued training than among those who did not (38.9 percent increase vs. 30.4 percent increase), the difference is not statistically significant (p-value = 0.49).

The results of the employers' survey regarding the impact of training on the performance of initially employed participants are also mixed. On one hand, although the probability that an employer observed an improvement in overall performance is not significantly different among those who completed training and those who did not (59.4 percent vs. 60.6 percent), employers noted an increase in productivity among a higher proportion of participants who had completed training than among participants who had not; on the other hand, they observed a lower average increase in productivity

among participants who had not completed training than among those who did not (17.5 percent vs. 28.0 percent).

Based on the employers' questionnaires, it is thus difficult to unambiguously conclude that LES training increases the overall performance and productivity of francophone immigrants.

5.4 Estimations of the Tangible Benefits of Offering LES Training on Francophone Immigrants—Summary and Conclusion

So, according to our estimations, LES training has mixed impacts on the integration of Francophone immigrants into the labour market: it does not shorten the duration of unemployment (except for training provided in Manitoba or British Columbia); it does not increase income after finding employment (except if training is in English as a Second Language—Intermediate); and it has no impact on the salaries of individuals already employed. Although it is not possible to compare our findings with those of other studies since, to the best of our knowledge, ours is the first study of its kind, it remains that based on the literature on the determinants of successful integration of immigrants into the labour market, we were expecting that pursuing LES training would have more positive effects. Indeed, our findings contradict the consensus in the literature that the major determinants of the successful integration of immigrants into the labour market are the essential skills that are supposed to be developed by those types of training, such as the knowledge of the host region's language and the level of education (see, for example, Nadeau and Seckin, 2010, and Coulombe, Grenier and Nadeau, 2014). We provide some explanations below.

At least two methodological reasons may explain why we possibly underestimate the impact of pursuing LES training on the performance of Francophone immigrants in the labour market. The first is that participants were not randomly assigned across the groups pursuing training and the control groups. As discussed in Section 4.4, it is possible that our results reflect that the participants in the control groups may have been fundamentally different from the participants in the groups pursuing training. For example, participants in the control groups may have been more motivated to find employment quickly, in which case we should not conclude that training increases the duration of unemployment, but rather that immigrants who do not pursue LES training are more motivated to find employment. Had the participants in the control group completed training, they might have found employment even faster.

The second methodological reason that may explain why we possibly underestimate the impact of LES training on the performance of francophone immigrants in the labour market is the short duration of the observation period of participants in this action research. Training is an investment that may yield benefits over a period of several years. For example, if we were to observe two individuals for a year after they have completed their high school studies, one of them in the labour market and the other one pursuing post-secondary education, we would probably observe that the situation of the first individual in the labour market is better than that of the second individual. However, if we were to follow these same two individuals over several years, it is most likely that the situation of the second individual would eventually become better than that of the first individual. Therefore, although the observation period in this action research was somewhat long (up to 12 quarters in some cases), it was possibly not long enough to account for all the tangible benefits of LES training.

That said, it is, of course, possible that our findings are correct and that pursuing LES training has little positive impact on the performance of Francophone immigrants in the labour market. This would suggest that policymakers should try to find other ways of facilitating the integration of immigrants into the labour market beside formally offering LES training. In any event, given that this study is the first of its kind, its findings must be interpreted with caution.

5.5 Cost of Providing Training

The estimated median costs of providing training that were calculated from the questionnaires completed by the training centres are provided in Table 5.6. It should be noted that these costs do not include the costs related to infrastructure, heating, and electricity, because most centres were unable to provide this information. Thus, it is likely that in many cases these costs have been underestimated, unless these resources would have been left unused. We have also assumed that the instructors would have earned about 50 percent of their current salary if they had had another job.

Table 5.6: Costs of Providing Training ($ per student hour)

Training	Median cost
Francization—Beginner	7.55
Francization—Intermediate	6.88
Francization—Advanced	5.80
English as a Second Language—Beginner	5.09
English as a Second Language—Intermediate	2.06
English as a Second Language—Advanced	1.80
Computing —Beginner	1.13

It is striking to observe how much the costs vary across the different types of training. For example, the average cost of providing training ranges from $1.13 per hour per student for Computing—Beginner courses, to $7.55 for Francization--Beginner courses. The costs associated with the instructors represent on average 90 percemt of the costs of providing training and largely explain the cost variations across type of training, depending on whether the instructors are volunteers or unionized. Another key variable in explaining the variations in the cost of providing training is the number of students per class.

5.6 Costs of Pursuing Training

The costs incurred to pursue training that we consider in our analysis are those associated with transportation and child care. The costs incurred by initially unemployed participants pursuing training are 72 percent higher than those incurred by employed participants pursuing training (see Table 5.7). This is because the average cost of child care per child is, on average, almost three times higher for unemployed participants than for employed participants, mainly because a greater proportion of unemployed participants have children less than five years of age: 27.2 percent vs. 8.4 percent (see Tables 4.5 and 4.7).

Table 5.7: Average Cost of Pursuing Training (in $ per month)

Category of cost	Participants pursuing training who are initially…		Average cost
	Unemployed	Employed	
Child care	146	44	111
Transportation	83	89	85
Average total	229	133	196

5.7 Selected Examples of Cost-Benefit Calculations for Unemployed Individuals

The first example is the case of the reference unemployed immigrant (a male living in Quebec, with no knowledge of written English and less than a high-school diploma and whose continent of origin is either the Americas, Europe or Asia) who pursues a 10-hour a week-12-week training course in Francization at the beginner level (see column (1) in Table 5.8). For this immigrant, we estimate that the net tangible benefit (measured over a period of five years) of pursuing this type of training is -$22,212. In this case, the main reason for the negative cost-benefit impact is that pursuing training increases the expected duration of unemployment by 73.6 weeks, which translates into $20,667 in lost earnings. The estimated cost of training only subtracts $906 from the net tangible benefit. It should be noted that the cost-benefit greatly varies depending on whether the immigrant is living in Quebec or Ontario; for example, the cost-benefit impact of LES training for an immigrant similar in all aspects to the one we have just analyzed, but who lives in Ontario (instead of Quebec) would be -$6,700 (this result is not shown in Table 5.8).

The second example is the case of an immigrant who has the same characteristics as the reference unemployed immigrant except that he lives in Manitoba or British Columbia and has a graduate or postgraduate degree, and who pursues a 10-hour a week-12-week training course in English as a Second Language at the intermediate level (see column (2) in Table 5.8). In the case of this immigrant, we estimate that the net tangible benefit (measured over a period of five years) of pursuing LES training is $62,381, which is a substantial amount: pursuing training shortens the expected duration of unemployment by about 12 weeks and increases the expected salary (once employed) by $281 a week.

The third example is the case of an immigrant who has the same characteristics of the reference unemployed immigrant except that he lives in Ontario, has an undergraduate degree, and pursues a 10-hour a week-12-week training course in Francization at the intermediate level (see column (3) in Table 5.8). In the case of this immigrant, we estimate that the net tangible benefit (measured over a period of five years) of pursuing this training is $2,821. In this case, the cost-benefit impact is positive because we estimate that pursuing training reduces the duration of unemployment by 4.7 weeks which translates into $3,285 in additional earnings. The estimated cost of providing training only subtracts $826 from the net tangible benefit.

Table 5.8: Calculation of the Cost-benefit of Training—Selected Examples (Unemployed Individuals)

	Reference individual */ Francization--Beginner (1)	Reference individual / Manitoba or B.C., Graduate degree, ESL—Intermediate (2)	Reference individual / Ontario, Knowledge of written English, Undergraduate degree, Francization—Intermediate (3)	
Duration of training in weeks (t_F)	12	12	12	*(1)*
Hours of training per week	10	10	10	*(2)*
Expected duration (in weeks) of the job search for the individual pursuing training (t_F^*) using equation (5) and Table 5.2	170.2	84.6	41.7	*(3)*
Expected duration of the job search in weeks for the reference individual who is not pursuing training (t_T^*) using equation (5) with $\widehat{\beta}_1^{PE} = 0$ and Table 5.2	96.6	*96.6*	*46.4*	*(4)*
Expected weekly salary — Participant pursuing training (using equation (3.6) and Table 5.3)	$468	*$1,446*	*$699*	*(5)*
Expected weekly salary — Participant in the control group (using equation (3.6) with $\widehat{\beta}_1^{PSE} = 0$ and Table 5.3)	$468	*$1,165*	*$699*	*(6)*
Cost of delivering training based on Table 5.6 (per student hour)	$7.55	*$2.06*	*$6.88*	*(7)*
Additional cost of pursuing training based on Table 5.7 (per month)	$229	*$229*	*$229*	*(8)*
Assessment period (*T* in weeks)	260	260	260	*(9)*
Training costs				
Cost of delivering training *(1) × (2)× (7)*	$906	$247	$826	*(10)*
Additional cost of pursuing training *(8) × (1) ÷ 4.3*	$639	$639	$639	*(11)*
Scenario 1: $t_t^* < t_t$				
Benefit: Impact on wages once employed *[(9) – (3)] × [(5) – (6)]*				*(12)*
Other cost: Lost weeks of salary for the duration of the training *[(1) – (4)] × (6)*				*(13)*
Other cost: Lost wages during job search 0.6 × *[(3) – (4)] × (6)*				*(14)*
Tangible net benefit *(12) – [(10) + (11) + (13) + (14)]*				*(15)*
Scenario 2: $t_t < t_c^* < t_t^*$				
Benefit: Impact on wages once employed *[(9) – (3)] × [(5) – (6)]*	0			*(16)*
Other cost: Lost wages during job search 0,6 × *[(3) – (4)] × (6)*	$20,667			*(17)*
Tangible net benefit *(16) – [(10) + (11) + (17)]*	-$22,812			*(18)*
Scenario 3: $t_c^* > t_t^*$				
Benefit: Impact on wages once employed *[(9) – (3)] × (6) - [(9) – (4)] × (5)*		*$63,287*	$3,285	*(19)*
Tangible net benefit **(***19) – [(10) + (11)]*		$62,381	$2,821	*(20)*

*Reference individual: a male unemployed immigrant living in Quebec, with no knowledge of written English and less than a high-school diploma and whose continent of origin is either the Americas, Europe or Asia.

5.8 Selected examples of calculations for employed individuals

Table 5.9 provides three examples of the cost-benefit calculations of LES training for employed immigrants:

- the case of the reference employed immigrant (a male immigrant living in Nova Scotia, New Brunswick or Quebec, who is a Canadian citizen, with less than an undergraduate degree and whose continent of origin is either the Americas, the Middle-east or North Africa) who pursues a 10-hour a week-12-week training course in Francization at the beginner level (see column (1) in Table 5.9);
- the case of an immigrant who has the same characteristic as the reference employed immigrant, except that his highest level of education is a graduate or postgraduate degree, who pursues a 10-hour a week-12-week training course in English as a Second Language at the intermediate level (see column (2) in Table 5.9);
- the case of an immigrant who has the same characteristic as the reference employed immigrant, except that he lives in Manitoba or British Columbia, whose highest level of education is an undergraduate degree, who pursues a 10-hour a week-12-week training course in Francization at the intermediate level (see column (3) in Table 5.9).

All calculated net tangible benefits are small, positive, and vary little across examples: between $618 and $882 over five years. The main reason for these findings is that we have estimated that the impact of pursuing training is only $9 per week, regardless of the immigrants' characteristics (see Table 5.4). As discussed in Section 5.4, it is possible that if we had observed the participants over a longer period of time, we would have estimated a greater impact of completing LES training on the salary of an employed immigrant. We must also reiterate that caution should be exercised when interpreting these results, as the estimated net benefits only include tangible benefits and not intangible benefits such as greater confidence, co-operation, self-esteem, which have been proven to facilitate the social integration of immigrants.

Table 5.9: Calculation of the Cost-benefit of Training—Selected Examples (Employed Individual)

Type of training		**Reference individual* / Francization (Beginner) (1)**	**Reference individual / Grad_Degree, ESL (Intermediate) (2)**	**Reference individual / m_bc, Undergrad_Degree, Francization (Intermediate) (3)**	
Duration of training in weeks (t_t)		12	12	12	*(1)*
Hours of training per week		10	10	10	*(2)*
Average hourly wage during training (based on Table 5.5)		18.11	25.03	25.79	*(3)*
Impact of pursuing training on weekly salary (based on Table 5.4 and Equation 3.2)		9	9	9	*(4)*
Cost of delivering training (per student hour) (based on Table 5.6)		9.1	3.75	12.5	*(5)*
Additional cost of pursuing training (per month) (based on Table 5.7)		133	133	133	*(6)*
Assessment period (*T* in weeks)		260	260	260	*(7)*
Benefit					
Impact on income after completing training	*[(7) – (1)] × (4)*	$2,232	$2,232	$2,232	*(8)*
Training costs					
Cost of delivering training	*(1) × (2) × (5)*	$109	*$45*	*$150*	*(9)*
Additional cost of pursuing training	*(6) × (1) ÷ 4.3*	$371	$371	$371	*(10)*
Loss of leisure	*0.4 × (1) × (2) × (3)*	$869	*$1,201*	*$1,238*	*(11)*
Total costs	*(9) + (10) + (11)*	$1,350	*$1,618*	*$1,759*	*(12)*
Tangible net benefit	*(8) – (12)*	**$882**	**$614**	**$423**	

*Reference individual: a male employed immigrant living in Nova Scotia, New Brunswick or Quebec, who is a Canadian citizen, with less than an undergraduate degree, whose continent of origin is either the Americas, the Middle-east or North Africa and whose number of years since arrival and years of experience prior to arrival are equal to the averages observed (that is, 6.4 and 7.8).

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Appendix 5A: Estimation Processes—Intermediary Steps

Table 5A1: Survival Functions of Unemployment Spells[†]

	Function 1		Function 2		Function 3		Function 4	
1	*prov_ns_nb*	0.29	*prov_ns_nb*	-0.09	*prov_ns_nb*	0.27	*prov_ns_nb*	0.46
2	*prov_o*	0.68***	*prov_o*	2.07***	*prov_o*	2.05****	*prov_o*	1.77****
3	*prov_m_bc*	0.03	*prov_m_bc*	0.24	*prov_m_bc*	0.36	*prov_m_bc*	0.20
4	*sf_i*	-0.03	*sf_i*	0.47	*sf_i*	1.26	*we_x*[‡]	-0.43
5	*sf_a*	0.24	*sf_a*	0.78	*sf_a*	1.68*	*female*	-0.22
6	*wf_d*	-0.10	*wf_d*	-0.59	*wf_d*	0.80	*c_u5*	0.61**
7	*wf_i*	0.28	*wf_i*	0.08	*wf_i*	0.83	*female×c_u5*	-0.91***
8	*wf_a*	-0.17	*wf_a*	-0.74	*wf_a*	0.13	*mu*	-0.01****
9	*se_d*	0.29	*se_d*	1.42	*se_d*	0.84	*co_eur*	-0.41
10	*se_i*	0.46	*se_i*	1.57	*se_i*	1.22	*co_af*	-0.62
11	*se_a*	0.62	*se_a*	2.57*	*se_a*	2.12*	*co_as*	1.03**
12	*we_d*	-0.12	*we_d*	-3.02***	*we_d*	-2.54***	*co_mena*	0.40
13	*we_i*	0.37	*we_i*	-2.02*	*we_i*	-1.74**	*tdur*	-0.05****
14	*we_a*	0.12	*we_a*	-2.92**	*we_a*	-2.78**	*t_prov_ne_nb*	-0.39
15	*female*	-0.16	*female*	-0.23	*female*	-0.27	*t_prov_o*	-1.08***
16	*c_u5*	0.62**	*c_u5*	0.49	*c_u5*	0.47	*t_prov_m_bc*	0.64
17	*female × c_u5*	-0.79**	*female×c_u5*	-0.16	*female×c_u5*	-0.63*	*tdur_prov_ne_nb*	0.03
18	*a_2635*	-0.58**	*a_2635*	-0.84	*a_2635*	-0.52*	*tdur_prov_o*	0.00
19	*a_3645*	-0.29	*a_3645*	-0.56	*a_3645*	-0.31	*tdur_prov_m_bc*	0.02
20	*a_4655*	-0.02	*a_4655*	-0.24	*a_4655*	-0.08	*t_we_x*	1.20***
21	*a_5665*	-0.82*	*a_5665*	-1.53	*a_5665*	-0.91**	*t_co_eur*	0.11
22	*cat_ed*	-0.26	*cat_ed*	0.09	*cat_ed*	-0.22	*t_co_af*	-1.08*
23	*cat_r*	0.03	*cat_r*	0.70	*cat_r*	0.04	*t_co_as*	-2.23****
24	*cat_fr*	0.33	*cat_fr*	1.29***	*cat_fr*	0.44*	*t_co_mena*	-2.17****
25	*cat_o*	-0.07	*cat_o*	-0.11	*cat_o*	-0.19	*tdur_eur*	-0.02
26	*status_pr*	0.27	*status_pr*	0.28	*status_pr*	0.27	*tdur_af*	0.04
27	*status_o*	0.58	*status_o*	-0.14	*status_o*	0.61	*tdur_as*	0.05*
28	*scol_hs*	-0.19	*scol_hs*	-0.42	*scol_hs*	-0.07	*tdur_moan*	0.06**
29	*scol_c*	-0.03	*scol_c*	0.06	*scol_c*	0.18	*constant*	-2.11****
30	*scol_u1*	-0.15	*scol_u1*	-0.38	*scol_u1*	-0.07	*ln_p*	0.17***
31	*scol_u2*	-0.06	*scol_u2*	0.41	*scol_u2*	0.13		
32	*es*	0.23	*es*	0.71*	*es*	0.23		
33	*mu*	-0.01***	*mu*	0.00	*mu*	-0.01***		
34	*co_eur*	0.00	*co_eur*	-0.27	*co_eur*	-0.35		
35	*co_af*	-0.67**	*co_af*	-0.31	*co_af*	-0.49		
36	*co_as*	0.17	*co_as*	1.52**	*co_as*	1.62***		
37	*co_mena*	-0.41*	*co_mena*	0.54	*co_mena*	0.33		
38	*t_*	0.22	*t_*	0.01	*t_*	0.41		
39	*tdur*	-0.06***	*tdur*	-0.02**	*tdur*	-0.02**		
40	*t_fr_i*	-1.02*	*t_prov_ne_nb*	0.81	*t_prov_ne_nb*	0.49		
41	*t_fr_a*	-0.95**	*t_prov_o*	-1.44**	*t_prov_o*	-1.52***		
42	*t_infor*	-0.73	*t_prov_m_bc*	0.84	*t_prov_m_bc*	0.82		
43	*t_esl_b*	1.83	*t_st_i*	-0.80	*t_st_i*	-1.60*		
44	*t_esl_i*	0.86	*t_st_a*	-0.95	*t_sf_a*	-1.88*		
45	*t_esl_a*	0.50	*t_wf_d*	0.68	*t_wf_d*	-0.70		
46	*tdur × fr_i*	0.05	*t_wf_i*	0.26	*t_wf_i*	-0.38		
47	*tdur ×fr_a*	0.06**	*t_wf_a*	0.79	*t_wf_a*	0.03		

48	*tdur ×infor*	-0.19	*t_se_d*	-1.01	*t_se_d*	-0.28		
49	*tdur × esl_b*	0.01	*t_se_i*	-1.28	*t_se_i*	-0.66		
50	*tdur × esl_i*	-0.04	*t_se_a*	-2.88*	*t_se_a*	-2.26		
51	*tdur × esl_a*	0.01	*t_we_d*	3.53***	*t_we_d*	2.93***		
52	*constant*	-2.65****	*t_we_i*	3.12**	*t_we_i*	2.76**		
53	*ln_p*	0.17***	*t_we_a*	4.52***	*t_we_a*	4.29***		
54			*t_female*	-0.12	*t_co_eur*	-0.04		
55			*t_c_u5*	-0.01	*t_co_af*	-0.56		
56			*t_s_c_u5*	-0.54	*t_co_as*	-2.21***		
57			*t_a_2635*	0.55	*t_co_mena*	-1.27***		
58			*t_a_3645*	0.35	*constant*	-3.91**		
59			*t_a_4655*	0.38	*ln_p*	0.24****		
60			*t_a_5665*	0.83				
61			*t_cat_ed*	-0.48				
62			*t_cat_r*	-1.01				
63			*t_cat_fr*	-1.19**				
64			*t_cat_o*	-0.07				
65			*t_status_pr*	-0.07				
66			*t_status_o*	0.88				
67			*t_scol_hs*	0.40				
68			*t_scol_c*	0.12				
69			*t_scol_u1*	0.36				
70			*t_scol_u2*	-0.31				
71			*t_se*	-0.61				
72			*t_mu*	-0.01				
73			*t_co_eur*	-0.35				
74			*t_co_af*	-0.75				
75			*t_co_as*	-2.16***				
76			*t_co_mena*	-1.59***				
77			*constant*	-3.16				
78			*ln_p*	0.27****				

Statistical Hypothesis Tests

	Restrictions	**p-value**	**Restrictions**	**p-value**	**Restrictions**	**p-value**	**Restrictions**	**p-value**
	38 to 51 = 0	0.019	40 to 42 = 0	0.006	1 to 3 = 0	0.000	1. 14 . 17 = 0	0.323
	40 to 51 = 0	0.117	43 to 53 = 0	0.030	4 to 14 = 0	0.216	2. 15. 18 = 0	0.000
			54 to 56 = 0	0.710	4 to 5 = 0	0.216	3. 16 . 19 = 0	0.037
			57 to 60 = 0	0.913	6 to 8 = 0	0.535	4. 20 = 0	0.001
			61 to 66 = 0	0.330	9 to 11 = 0	0.236	9, 21, 25 = 0	0.446
			67 to 70 = 0	0.762	12 to 14 = 0	0.003	10, 22, 26 = 0	0.001
			71 to 72 = 0	0.224	15 to 17 = 0	0.020	11 23, 27 = 0	0.009
			73 to 76 = 0	0.008	18 to 21 = 0	0.010	12, 24, 28 = 0	0.000
					22 to 27 = 0	0.169		
					28 to 31 = 0	0.811		
					33 to 37 = 0	0.026		
					40 to 42 = 0	0.002		
					43 to 53 = 0	0.009		
					43 to 50 = 0	0.209		
					51 to 53 = 0	0.005		
					54 to 57 = 0	0.008		

† The mnemonics beginning with *t_* are associated with variables that take the value of *1* if the individual pursued training and 0 otherwise. For example, the variable *t_co_as* takes the value of *1* if the individual comes from Asia and pursued training and 0 otherwise.

‡ *we_x = we_d + we_i + we_a*

*p-value < 10% **p-value < 5%; ***p-value < 1%; ****p-value < 0.1%.

Table 5A2: Equations to Predict the Weekly Salary of Initially Unemployed Participants Who Eventually Found a Job[†]

	Equation 1		Equation 2		Equation 3		Equation 4	
1	*prov_ns_nb*	-444**	*prov_ns_nb*	-336***	*prov_ns_nb*	-335*	*prov_ns_nb*	-340*
2	*prov_o*	-85	*prov_o*	-143	*prov_o*	-179*	*prov_o*	-155
3	*prov_m_bc*	-17	*prov_m_bc*	-172	*prov_m_bc*	11	*prov_m_bc*	71
4	*sf_i*	5	*sf_i*	-70	*sf_i*	-42	*sf_i*	-54
5	*sf_a*	1	*sf_a*	-81	*sf_a*	-47	*sf_a*	-50
6	*wf_d*	241	*wf_d*	188	*wf_d*	169	*wf_d*	139
7	*wf_i*	267	*wf_i*	256	*wf_i*	254	*wf_i*	218
8	*wf_a*	219	*wf_a*	207	*wf_a*	216	*wf_a*	180
9	*se_d*	59	*se_d*	57	*se_d*	16	*se_d*	22
10	*se_i*	264	*se_i*	253	*se_i*	276	*se_i*	241
11	*se_a*	400	*se_a*	392	*se_a*	421	*se_a*	449
12	*we_d*	-41	*we_d*	-67	*we_d*	-22	*we_d*	-35
13	*we_i*	-196	*we_i*	-208	*we_i*	-241	*we_i*	-241
14	*we_a*	-142	*we_a*	-170	*we_a*	-224	*we_a*	-280
15	*female*	-93	*female*	-94	*female*	-128*	*female*	-129*
16	*c_u5*	94	*c_u5*	97	*c_u5*	33	*c_u5*	36
17	*female×c_u5*	-17	*female×c_u5*	-21	*female×c_u5*	18	*female×c_u5*	-4
18	*a_2635*	51	*a_2635*	77	*a_2635*	88	*a_2635*	80
19	*a_3645*	147	*a_3645*	154	*a_3645*	169	*a_3645*	149
20	*a_4655*	54	*a_4655*	42	*a_4655*	65	*a_4655*	7
21	*a_5665*	76	*a_5665*	17	*a_5665*	-39	*a_5665*	-141
22	*cat_ed*	-215	*cat_ed*	-215	*cat_ed*	-130	*scol_hs*	183*
23	*cat_r*	17	*cat_r*	-14	*cat_r*	-49	*scol_c*	80
24	*cat_fr*	-15	*cat_fr*	-21	*cat_fr*	-31	*scol_u1*	198**
25	*cat_o*	-86	*cat_o*	-118	*cat_o*	-121	*scol_u2*	282***
26	*status_pr*	164	*status_pr*	113	*status_pr*	155	*co_eur*	57
27	*status_o*	136	*status_o*	106	*status_o*	277*	*co_af*	26
28	*scol_hs*	119	*scol_hs*	131	*scol_hs*	181*	*co_as*	-68
29	*scol_c*	-4	*scol_c*	3	*scol_c*	59	*co_mena*	-149*
30	*scol_u1*	82	*scol_u1*	99	*scol_u1*	147	*t_fr_i*	-103
31	*scol_u2*	163	*scol_u2*	190*	*scol_u2*	234*	*t_fr_a*	-105
32	*es*	8	*es*	4	*co_eur*	68	*t_esl_b*	353
33	*mu*	0	*mu*	0	*co_af*	38	*t_esl_i*	388**
34	*co_eur*	54	*co_eur*	52	*co_as*	-30	*t_esl_a*	10
35	*co_af*	50	*co_af*	58	*co_mena*	-159*	*constant*	386*
36	*co_as*	-3	*co_as*	7	*t_fr_i*	-128		
37	*co_mena*	-157	*co_mena*	-147	*t_fr_a*	-137*		
38	*t_*	145	*t_fr_i*	-203	*t_esl_b*	297		
39	*t_fr_i*	-253	*t_fr_a*	-75	*t_esl_i*	318**		
40	*t_fr_a*	-148	*t_esl_b*	-19956*	*t_esl_a*	-19		
41	*t_esl_b*	-31141*	*t_esl_i*	1066****	*constant*	244		
42	*t_esl_i*	936***	*t_esl_a*	37				
43	*t_esl_a*	-115	*tdur_fr_i*	7				
44	*tdur*	-4	*tdur_fr_a*	-3				
45	*tdur_prov_ne_nb*	10	*tdur_esl_b*	787*				
46	*tdur_prov_o*	-10	*tdur_esl_i*	-42**				
47	*tdur_prov_m_bc*	-32	*tdur_esl_a*	-4				

48	*tdur_fr_i*	5	*constant*	286				
49	*tdur_fr_a*	1						
50	*tdur_esl_b*	1239*						
51	*tdur_esl_i*	-41**						
52	*tdur_esl_a*	10						
53	*constant*	113						
Statistical Hypothesis Tests								
	Restrictions	**p-value**	**Restrictions**	**p-value**	**Restrictions**	**p-value**	**Restrictions**	**p-value**
	38. 44 = 0	0.650	38 to 42 = 0	0.006	22 to 27 = 0	0.528	4 to 14 = 0	0.550
	39 to 43 = 0	0.006	43 to 47 = 0	0.110	36 to 40 = 0	0.082	16,17 = 0	0.898
	45 to 47 = 0	0.435					18 to 21 = 0	0.356
	48 to 52 = 0	0.756					22 to 25 = 0	0.070
							22 = 23	0.395
							26 to 29 = 0	0.309

† The mnemonics beginning with *t_* are associated with variables that take the value of *1* if the individual pursued training and 0 otherwise. For example, the variable *t_co_as* takes the value of *1* if the individual comes from Asia and pursued training and 0 otherwise.
*p-value < 10% **p-value < 5%; ***p-value < 1%; ****p-value < 0.1%.

Table 5A3: Equations to Predict Changes in the Weekly Salaries of Initially Employed Participants[†]

	Equation 1		Equation 2		Equation 3	
1	*prov_ns_nb*	-107	*prov_ns_nb*	-40	*prov_ns_nb*	13
2	*prov_o*	8	*prov_o*	6	*prov_o*	11
3	*prov_m_bc*	11	*prov_m_bc*	51	*prov_mcb*	61**
4	*sf_i*	-30	*sf_i*	-26	*co_eur*	-74**
5	*sf_a*	-63	*sf_a*	-59	*co_af*	-78*
6	*wf_d*	126	*wf_d*	87	*co_as*	-87***
7	*wf_i*	138	*wf_i*	101	*co_mena*	-40
8	*wf_a*	179*	*wf_a*	143	*t_*	10
9	*se_d*	-29	*se_d*	-55	*constant*	92***
10	*se_i*	87	*se_i*	61		
11	*se_a*	49	*se_a*	2		
12	*we_d*	90	*we_d*	100		
13	*we_i*	-26	*we_i*	-6		
14	*we_a*	-31	*we_a*	3		
15	*ysa*	2	*ysa*	2		
16	*xprior*	0	*xprior*	0		
17	*female*	19	*female*	21		
18	*c_u5*	-69	*c_u5*	-60		
19	*female×c_u5*	3	*female×c_u5*	-5		
20	*a_2635*	52	*a_2635*	52		
21	*a_3645*	16	*a_3645*	12		
22	*a_4655*	-21	*a_4655*	-24		
23	*a_5665*	69	*a_5665*	57		
24	*cat_ed*	15	*cat_ed*	11		
25	*cat_r*	-11	*cat_r*	-20		
26	*cat_fr*	-5	*cat_fr*	-8		
27	*cat_o*	-12	*cat_o*	-18		
28	*status_pr*	48	*status_pr*	45		
29	*status_o*	-5	*status_o*	-13		
30	*scol_hs*	79	*scol_hs*	77		
31	*scol_c*	16	*scol_c*	11		
32	*scol_u1*	17	*scol_u1*	17		
33	*scol_u2*	-33	*scol_u2*	-31		
34	*co_eur*	-64	*co_eur*	-57		
35	*co_af*	-44	*co_af*	-51		
36	*co_as*	-95**	*co_as*	-89*		
37	*co_mena*	-60*	*co_mena*	-52		
38	*t_*	48	*t_*	34		
39	*tdur*	-2	*constant*	-90		
40	*tdur_prov_ne_nb*	6				
41	*tdur_prov_o*	-2				
42	*tdur_prov_m_bc*	5				
43	*tdur_t_deb*	-1				
44	*tdur_fr_i*	-1				
45	*tdur_fr_a*	0				
46	*tdur_infor*	-25				
47	*tdur_esl_b*	0				
48	*tdur_esl_i*	-4				

49	*tdur_esl_a*	2				
50	*constant*	-120				
Statistical Hypothesis Tests						
	Restrictions	**p-value**	**Restrictions**	**p-value**	**Restrictions**	**p-value**
	39 to 49 = 0	0.993	4 to 14 = 0	0.539	1.2	0.934
			15 to 16 = 0	0.306		
			20 to 23 = 0	0.259		
			24 to 27 = 0	0.968		
			28 to 29 = 0	0.260		
			30 to 33 = 0	0.239		
			34 to 37 = 0	0.147		

† The mnemonics beginning with *t_* are associated with variables that take the value of *1* if the individual pursued training and 0 otherwise. For example, the variable *t_co_as* takes the value of *1* if the individual comes from Asia and pursued training and 0 otherwise.
*p-value < 10% **p-value < 5%; ***p-value < 1%; ****p-value < 0.1%.

Table 5A4: Equations to Predict the Hourly Wage (Before Training) of Initially Employed Participants

	Equation 1		Equation 2	
1	*prov_ns_nb*	-0.05	*prov_ns_nb*	-0.73
2	*prov_o*	5.17***	*prov_o*	5.59****
3	*prov_m_bc*	4.87***	*prov_m_bc*	4.56***
4	*sf_i*	5.09***	*ada*	0.27***
5	*sf_a*	4.96**	*xprior*	0.18**
6	*wf_d*	3.81	*female*	-2.85
7	*wf_i*	0.99	*scol_hs*	-0.69
8	*wf_a*	0.79	*scol_c*	0.42
9	*se_d*	-5.48	*scol_u1*	3.10**
10	*se_i*	-4.65	*scol_u2*	7.47***
11	*se_a*	-1.16	*constant*	11.90***
12	*we_d*	5.23		
13	*we_i*	5.54		
14	*we_a*	4.08		
15	*ada*	0.17		
16	*xprior*	0.21**		
17	*female*	-2.97***		
18	*c_u5*	-0.34		
19	*female×c_u5*	2.94		
20	*a_2635*	-1.63		
21	*a_3645*	-1.61		
22	*a_4655*	-2.38		
23	*a_5665*	-1.56		
24	*cat_ed*	-2.71		
25	*cat_r*	-2.18		
26	*cat_fr*	1.01		
27	*cat_o*	-2.02		
28	*status_pr*	-2.51		
29	*status_o*	-1.57		
30	*scol_hs*	-0.37		
31	*scol_c*	0.26		
32	*scol_u1*	2.92*		
33	*scol_u2*	7.33***		
34	*co_eur*	0.37		
35	*co_af*	1.16		
36	*co_as*	0.13		
37	*co_moan*	0.27		
38	*constant*	9.00*		
Statistical Hypothesis Tests				
	Restrictions	**p-value**	**Restrictions**	**p-value**
	4 to 14 = 0	0.198	7.8 = 0	0.873
	15.16 = 0	0.071		
	18.19 = 0	0.630		
	20 to 23 = 0	0.927		
	24 to 27 = 0	0.118		
	28.29 = 0	0.297		
	30 to 33 = 0	0.000		
	34 to 37 = 0	0.987		

*p-value < 10% **p-value < 5%; ***p-value < 1%; ****p-value < .1%.

Chapter 6: Summary, Conclusion, Lessons Learned, and Research Avenues worth Exploring

This report outlines the orientations and findings of an action research project aimed at developing and testing a model to measure the costs and benefits of LES training programs provided to Francophone immigrants. This action research focusses on the tangibles costs and benefits of such training; the measurement of the intangible costs and benefits are left to a future action research. To the best of our knowledge, the focus and scope of this action research make it the first of its kind in Canada.

This action research was conducted in six provinces: Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia. Seven categories of LES training were targeted: Francization—Beginner, Francization—Intermediate, Francization—Advanced, English as a Second Language—Beginner, English as a Second Language—Intermediate, English as a Second Language—Advanced, and Computing—Beginner. To calibrate the model, 1,028 immigrants were followed over a period ranging from 1 to 12 quarters. In total, 27 training centres and 131 employers participated in the action research. The vast majority of participating immigrants were from Quebec or Ontario.

In order to measure the impact of LES training on the labour market performance of both unemployed and employed individuals, the participants in the action research were divided into four groups: the first group was comprised of initially unemployed individuals who were pursuing training; the second, of initially unemployed individuals who were not pursuing training (a control group); the third, of initially employed individuals who were pursuing training; and the fourth, of initially employed individuals who were not pursuing training (another control group).

To estimate the tangible benefits of pursuing LES training, we had to estimate the impact of the training on the duration of unemployment as well as on salary. For that purpose, we developed a survival model of the duration of unemployment to assess the impact of training on

the duration of unemployment and *Mincer* type salary equations to assess the impact of training on salaries.

According to our estimations, LES training has mixed results on the integration of immigrants into the labour market, and thus on the tangible benefit of offering this type of training: there is no decrease in the duration of unemployment (except if the training is pursued in Manitoba or British Columbia); it does not lead to a higher salary once the recipient finds employment (except if the training is in English as a Second Language training at the intermediate level); and it has no significant impact on the salary of already employed individuals. Thus, for example, we estimate that the net tangible benefit of pursuing a Francization course at the beginner level for an unemployed immigrant who lives in Quebec is -$22,212 over five years. In this case, the main reason for this negative cost-benefit is that the immigrant is unemployed for a longer period of time if they pursue training than if they do not (170.2 weeks vs. 96.6 weeks), which translates into $20,667 in lost wages. However, in some cases, training may yield significant net tangible benefits. For example, we estimate that the net tangible benefit for an unemployed Manitoba or British Columbia immigrant with a graduate or postgraduate university degree who pursues an English as a Second Language course at the intermediate level is $62,381 over five years. As for immigrants who are initially employed, pursuing LES training leads to positive, yet statistically insignificant net benefits.

Therefore, in light of these findings and with some exceptions, completing LES training does not appear to be worthwhile. These results raise more questions than they answer, as they go against the consensus in the literature, according to which the key determinants of success for immigrants in the labour market are the skills that this type of training is supposed to develop, such as knowledge of the host region's language and the level of education.

At least two methodological reasons may explain why we possibly underestimate the impact of LES training on the performance of immigrants in the labour market. The first is that participants were not randomly assigned across the groups pursuing training and the control

groups. Therefore, the results may be biased because as far as unobservable characteristics are concerned, the participants in the control groups may have been fundamentally different from those who pursued training. For example, they may have been more motivated to find employment quickly, in which case our conclusion that LES training typically increases the duration of unemployment would be incorrect and should be instead that immigrants who do not pursue LES training are more motivated or otherwise "work ready" to find employment. Had the participants in the control groups pursued training, they might have found employment even more quickly.

The second methodological reason that may explain why we possibly underestimate the impact of LES training on the performance of immigrants in the labour market is the short duration of the observation period of the participants in this action research. Training is an investment that may yield benefits over a period of several years. Although the observation period in this action research was somewhat long (up to 12 quarters in some cases), it was possibly not long enough to observe and capture all the tangible benefits of LES training.

Another flaw of this cost-benefit analysis, which is common to nearly all cost-benefit studies on training programs is that it was impossible to observe and quantify the intangible benefits of pursuing LES training, such as confidence, co-operation, self-esteem and reliability, as well as the impact that this type of training may have on social cohesion. Although these are rarely quantified, there is a consensus in the literature that they may be substantial (see, for example, Oreopoulos and Salvanes, 2011 and Gyarmati, 2013).

That said, it is also possible that these estimates are correct and that LES training (as currently provided) has little positive impact on the performance of immigrants in the labour market. This would suggest that policymakers should try to improve the content or the delivery of this type of training[26] or to find other ways of facilitating the integration of immigrants into the

[26] For example, the last report of the Auditor General of Quebec raises questions about the effectiveness of the Department of Immigration, Diversity and Inclusion's francization programs. It notes that most individuals who take the francization courses offered by the department do not meet the threshold of

labour market beside formally offering LES training. In any event, given that this study is the first of its kind, its findings must be interpreted with caution. Just as new medication must be subjected to several test studies before being introduced on the market, this action research should be replicated or conducted with a greater scope to validate its findings.

One obvious avenue for future research is to repeat this action research, while correcting some of its flaws. For example, although it would be hard to find a way to resolve the issue of not assigning participants randomly between the groups that pursue training and the control groups and the issue pertaining to assessing intangible and external benefits, it would certainly be possible to conduct an action research project with a longer observation period. This would allow to better account for the long-term benefits of training on the performance of immigrants in the labour market. However, our recommendation would be to focus the action research on only a few provinces (only Quebec and Ontario, for example) to ensure representative samples of sufficient size to produce robust statistical estimates.

Another research avenue arises upon comparing the findings of our action research to those of Gyarmati et al. (2014). While we estimate that the LES training offered by training centres has mixed impacts on the performance of immigrants in the labour market, Gyarmati et al. (2014) estimates that the rate of return on the investment of basic training given in the workplace (in the accommodation sector of the tourism industry in eight provinces, to be specific) is very high (about 72 percent). A research avenue worth exploring would thus be to compare the cost-benefits of LES training formally provided by training centres with those of LES training provided in the workplace. A variation of this research theme would be to compare the cost-benefits of LES training delivered in part by training centres and in part in the workplace, with those entirely delivered by training centres and those entirely delivered in the workplace.

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language autonomy necessary to work or pursue post-secondary studies (see Immigration, Diversity and Inclusion 2017).

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