

**Studies in Comparative and International Education**

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**LEARNING FOR WELL BEING**  
Studies using the International Adult Literacy Survey

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## **Abstract**

This thesis is a collection of five independent but closely related studies. The overall purpose is to approach the analysis of learning outcomes from a perspective that combines three major elements, namely lifelong-lifewide learning, human capital, and the benefits of learning. The approach is based on an interdisciplinary perspective of the human capital paradigm. It considers the multiple learning contexts that are responsible for the development of embodied potential – including formal, non-formal and informal learning – and the multiple outcomes – including knowledge, skills, economic, social and others– that result from learning. The studies also seek to examine the extent and relative influence of learning in different contexts on the formation of embodied potential and how in turn that affects economic and social well being. The first study combines the three major elements, lifelong-lifewide learning, human capital, and the benefits of learning into one common conceptual framework. This study forms a common basis for the four empirical studies that follow. All four empirical studies use data from the International Adult Literacy Survey (IALS) to investigate the relationships among the major elements of the conceptual framework presented in the first study.

### Study I. A conceptual framework for the analysis of learning outcomes

This study brings together some key concepts and theories that are relevant for the analysis of learning outcomes. Many of the concepts and theories have emerged from varied disciplines including economics, educational psychology, cognitive science and sociology, to name only a few. Accordingly, some of the research questions inherent in the framework relate to different disciplinary perspectives. The primary purpose is to create a common basis for formulating and testing hypotheses as well as to interpret the findings in the empirical studies that follow. In particular, the framework facilitates the process of theorizing and hypothesizing on the relationships and processes concerning lifelong learning as well as their antecedents and consequences.

### Study II. Determinants of literacy proficiency: A lifelong-lifewide learning perspective

This study investigates lifelong and lifewide processes of skill formation. In particular, it seeks to estimate the substitutability and complementarity effects of learning in multiple settings over the lifespan on literacy skill formation. This is done by investigating the predictive capacity of major determinants of literacy proficiency that are associated with a variety of learning contexts including school, home, work, community and leisure. An identical structural model based on previous research is fitted to the IALS data for 18 countries. The results show that even after accounting for all factors, education remains the most important predictor of literacy proficiency. In all countries, however, the total effect of education is significantly mediated through further learning occurring at work, at home and in the community. Therefore, the job and other literacy related factors complement education in predicting literacy proficiency. This result points to a virtual cycle of lifelong learning, particularly to how educational attainment influences other learning behaviours throughout life. In addition, results show that home background as measured by parents' education is also a strong predictor of literacy proficiency, but in many countries this occurs only if a favourable home background is complemented with some post-secondary education.

Study III. The effect of literacy proficiency on earnings: An aggregated occupational approach using the Canadian IALS data

This study uses data from the Canadian Adult Literacy Survey to estimate the earnings return to literacy skills. The approach adapts a labour segmented view of the labour market by aggregating occupations into seven types, enabling the estimation of the variable impact of literacy proficiency on earnings, both within and between different types of occupations. This is done using Hierarchical Linear Modeling (HLM). The method used to construct the aggregated occupational classification is based on analysis that considers the role of cognitive and other skills in relation to the nature of occupational tasks. Substantial premiums are found to be associated with some occupational types even after adjusting for within occupational differences in individual characteristics such as schooling, literacy proficiency, labour force experience and gender. Average years of schooling and average levels of literacy proficiency at the between level account for over two-thirds of the premiums. Within occupations, there are significant returns to schooling but they vary depending on the type of occupations. In contrast, the within occupational return of literacy proficiency is not necessarily significant. The latter depends on the type of occupation.

Study IV: Determinants of economic and social outcomes from a lifewide learning perspective in Canada

In this study the relationship between learning in different contexts, which span the lifewide learning dimension, and individual earnings on the one hand and community participation on the other are examined in separate but comparable models. Data from the Canadian Adult Literacy Survey are used to estimate structural models, which correspond closely to the common conceptual framework outlined in Study I. The findings suggest that the relationship between formal education and economic and social outcomes is complex with confounding effects. The results indicate that learning occurring in different contexts and for different reasons leads to different kinds of benefits. The latter finding suggests a potential trade-off between realizing economic and social benefits through learning that are taken for either job-related or personal-interest related reasons.

Study V: The effects of learning on economic and social well being: A comparative analysis

Using the same structural model as in Study IV, hypotheses are comparatively examined using the International Adult Literacy Survey data for Canada, Denmark, the Netherlands, Norway, the United Kingdom, and the United States. The main finding from Study IV is confirmed for an additional five countries, namely that the effect of initial schooling on well being is more complex than a direct one and it is significantly mediated by subsequent learning. Additionally, findings suggest that people who devote more time to learning for job-related reasons than learning for personal-interest related reasons experience higher levels of economic well being. Moreover, devoting too much time to learning for personal-interest related reasons has a negative effect on earnings except in Denmark. But the more time people devote to learning for personal-interest related reasons tends to contribute to higher levels of social well being. These results again suggest a trade-off in learning for different reasons and in different contexts.

**Descriptors:** lifelong learning, lifewide learning, human capital, literacy skills, International Adult Literacy Survey, benefits of learning, learning outcomes

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Richard Desjardins  
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# Introduction

## 1. Introduction to the studies

### *1.1 Human capital theory*

By the 1960s, the theory of human capital was formalized and rapidly became a field of inquiry. The theory suggests that the embodied potential of individuals has a profound impact on standards of living via its productivity effect. This proposition brought the idea that people are the most valuable asset of a nation to the forefront of economics. Most of the concepts involved such as capital and productivity, are indeed economics concepts, and therefore, it is of no surprise that this field of inquiry was introduced by and continues to be firmly grounded in the economics discipline.

The theory, however, has far reaching implications, which extend beyond the disciplinary boundaries that have manifested themselves over the last century. For example, the formation of human capital extends into education, psychology, sociology, and linguistics, to name only a few. Even the very nature of what embodied potential means is deeply rooted in many other disciplines including psychology, biology, philosophy and sociology. Finally, the impact of embodied potential on standards of living is much more complex than the neo-classical economic treatment of the theory, and involves psychology, sociology and political science.

While the theory has been influential, there is a growing concern and dissatisfaction with its treatment. First, not all potential sources of human capital investment are considered in empirical applications. By omitting economically relevant learning activities, most empirical applications do not maximize the informational value of the human capital theory framework and thus leave many questions unanswered.

Some suggest that embodied potential is becoming increasingly important for the production structures and hence standards of living of some countries (e.g., Brown, 2001). Accordingly, it is important to understand better the processes of human capital formation. In particular, a better understanding of the contributing influence of different learning activities, which span the 'lifelong-lifewide' dimensions of learning is desirable. For example, even though informal learning appears to be pervasive in advanced societies (Livingstone, 2000), little is known about its relative contribution to the creation of human capital (Solow, 2000). In general, further research is needed to gain a

greater understanding of the substitutability and complementarity of learning occurring in different settings and over the lifespan.

Second, neo-classical interpretations have shortcomings that unnecessarily limit the scope and relevance of the human capital framework. Only considering the embodied potential that is deemed to be directly relevant to productivity is too simplistic. Economic systems are interdependent with other systems; learning, for example, that contributes to the development of the social and political systems will indirectly influence economic systems (see McMahon, 1999). In this sense, the economic relevance of different types of learning may be broader than previously suggested; and learning that would otherwise be deemed consumption might have more of an investment dimension than previously thought. Little is known about which learning or which types of embodied potential lead to different impacts, and how the different impacts of learning are interrelated.

Finally, the vindication that economic well being is the only end reflecting higher standards of living is easily refuted. There is little doubt that embodied potential has a positive impact on standards of living [other than increased productivity in the production of goods and services exchanged on markets]. Therefore, embodied potential that leads to social and human development but not necessarily economic development, also represents stored value that should be considered an asset. Extending the theory of human capital to encompass a broader notion of well being is not incompatible with the economics discipline, and especially not with welfare theory.

### *1.2 Interdisciplinary and continuous thinking in the social sciences*

Historians and philosophers have for a long time shown an interest in how knowledge is created and how it is passed on within and across generations. But only recently have scholars from many different social science disciplines joined them in the study of these processes (Keeves, 1997). This has brought many new methods and new perspectives to this area of inquiry. Moreover, these processes are inherently intertwined with the wider social and behavioural sciences. This presents an extraordinary challenge for educational and social science researchers.

In general, scientific inquiry has assembled an immense body of knowledge about social and psychological processes including educational processes. But it is apparent that few major generalizations have emerged that can be directly applied to benefit the creation and transmission of knowledge or the operation of society (Keeves, 1997). Keeves (1997) points out, however, that it is naive and simplistic to expect that the body of knowledge relevant to the social and

behavioural sciences can be used to improve educational, social and psychological processes in the same way that the body of knowledge relevant to the natural sciences is used to improve the physical world.

As a major reason for this difference, Keeves suggests that individuals create their own knowledge and ideas through a process of assimilating and accommodating the debate surrounding the body of knowledge into their own frame of mind. This changes their views and perceptions of the social and behavioural “real-world”. In turn, through social action, which is the process by which individuals or groups affect social and behavioural processes, changes in educational and other social processes are perpetuated. The perpetuation increases the perceptions and understanding of those processes, and through scientific inquiry adds to the body of knowledge relevant to the social and behavioural sciences. It is evident that in the human and behavioural sciences, researchers play an important role in the nature of social action by advancing generalizations, which are manifested through the educational and social theories held by them.

The body of knowledge, however, is so vast that educators have a task of making simple and coherent the extensive and complex ideas and relationships from this body of knowledge. This is necessary to communicate what is known in such a way as to permit the assimilation and structuring of these ideas and relationships in the minds of individuals. But the vastness is so great that specialization has become necessary.

While the body of knowledge relevant to educational, social and psychological processes is vast and continues to grow, it still needs to be further assimilated into a coherent and meaningful body. This is the task of researchers. But educators who tend to be specialized according to disciplines can inadvertently limit the scope of this task, and researchers are further limited by their own need to specialize. This perpetuates a deeply fragmented body of knowledge, which has negative consequences for social action. Accordingly, it is important that generalizations that are suggested by research attempt to draw from as broad a body of knowledge as possible. Moreover, the need to train educators and researchers in areas that transcend disciplinary boundaries is evident, as is the need to sustain a democratized approach to developing and transferring the body of knowledge.

A recent study of citations in the social sciences by Pieters and Baumgartner (2002) illustrates the extent of fragmentation occurring between the economics discipline and the wider social sciences. Their findings suggest that while many academics, who specialize in management, finance, accounting, marketing, political science and sociology, not to mention policy makers, rely heavily on

the economics discipline, research in the economics discipline rarely builds on knowledge from closely related disciplines.

Concern about the negative consequences of research based on fragmented bodies of knowledge is highlighted by the recognition of interdisciplinary research approaches in recent years, which have grown dramatically. Not surprisingly, interdisciplinary research perspectives are currently part of every fashionable research policy agenda. Considering the mounting evidence of the potential impact of learning on human existence, adapting an interdisciplinary approach to analysing learning outcomes, in terms of their formation across the lifespan and in multiple settings and their impact on individuals and societies, is tantamount.

A separate but related issue involves the interpretation and use of concepts and theories in the social sciences. While the purpose of theories is to systematize a set of ideas and relationships, they never provide a complete picture. Consequently, several alternative and opposing theories, each with limited usefulness, are often involved in the debate surrounding the body of knowledge as well as the methods of scientific inquiry that add to the body of knowledge. In some cases the theories may overlap and in others they be mutually exclusive.

For the sake of clarity, however, it is common to view concepts and theories discretely even though there is overlap. A drawback to this approach is the inadvertent promotion of discrete or absolute thinking, which invariably leads to narrow interpretations of phenomena and their concomitant properties. Table 1 lists some basic theories and concepts that are relevant to this thesis and susceptible to discrete application. While this approach is both necessary and useful, synchronous and continuous thinking are also necessary to achieve balanced perspectives of concepts and theories in the social sciences. The latter is key to reconciling scientific theories with “real-world” observations.

**Table 1. Dichotomous/discrete thinking in scientific research**

Economic development	Social development
Human capital theory	Screening theory
Investment	Consumption
Literate	Illiterate
Emic	Etic
Cultural practices paradigm	Individual skills paradigm
Formal learning	Informal learning
Quantitative research methods	Qualitative research methods

## **2. Overall purpose and specific objectives of the studies**

The overall purpose of this collection of studies is to approach the analysis of learning outcomes from a broad conceptual framework that combines three major elements, namely lifelong-lifewide learning, human capital, and the benefits of learning. The approach is based on an interdisciplinary perspective of the human capital paradigm. The framework presented considers the multiple learning contexts that are responsible for the development of embodied potential – including formal, non-formal and informal learning – and the multiple outcomes – including knowledge, skills, economic, social and others– that result from learning. The studies also seek to examine the extent and relative influence of learning in different contexts on the formation of embodied potential and how in turn that affects economic and social well being.

Five independent studies relating to this overall purpose are presented as a collection of studies. See the next section for a discussion of how the studies relate to each other. The following lists the primary objective(s) of each study:

### *Study I. A conceptual framework for the analysis of learning outcomes*

1. To develop a conceptual framework relating some key concepts and theories that are relevant for the analysis of learning outcomes.
2. To provide a basis for formulating and testing hypotheses as well as to interpret the findings in further empirical studies. In particular, to facilitate the process of theorizing and hypothesizing on the relationships and processes concerning lifelong learning as well as their antecedents and consequences.

### *Study II. Determinants of literacy proficiency: A lifelong-lifewide learning perspective*

3. To investigate the lifelong and lifewide processes of skill formation. In particular, to estimate the substitutability and complementarity effects of learning in multiple settings over the lifespan on literacy skill formation.

### *Study III. The effect of literacy proficiency on earnings: An aggregated occupational approach using the Canadian IALS data*

4. To gain a better understanding about the role of the work setting in the skill formation process. In particular, to investigate the role of literacy skills in relation to the nature of occupational tasks.

5. To estimate the economic return to literacy skills from an aggregated occupational approach. Specifically, to acknowledge heterogeneity in labour markets and allow the effect of literacy proficiency on earnings to vary according to its relevance in different occupational types.

*Study IV: Determinants of economic and social outcomes from a lifewide learning perspective in Canada*

6. To estimate the relative impact of learning in different contexts and for different reasons on different outcomes.
7. To gain insight into the consequences of learning in different contexts and for different reasons.

*Study V: The effects of learning on economic and social well-being: A comparative analysis*

8. To add an international comparative perspective to Study IV.

### **3. Relationship of the studies**

Five independent, but closely related studies on lifelong-lifewide learning, human capital, and the benefits of learning, are presented in this thesis. The first study combines these three major elements into one common conceptual framework. The thread linking the three major elements is based on the notion that learning leads to well being, hence the title of the thesis. The framework brings together many theories and concepts that have emerged from varied disciplines including economics, educational psychology, cognitive science and sociology, to name only a few. Accordingly, some of the research questions inherent in the framework relate to different disciplinary perspectives.

Four applied studies follow the conceptual framework outlined in the first study. All four of these studies use data from the International Adult Literacy Survey to investigate the relationships among the major elements of the framework.

The second study, *Determinants of literacy proficiency: A lifelong-lifewide learning perspective*, investigates the relationships between lifelong-lifewide learning and the formation of human capital. Specifically, it focuses on the effects of learning across the lifespan and in multiple settings on the formation of literacy skills. The approach follows from educational and literacy research and incorporates an international comparative perspective.

Shifting to the relationship between human capital and the benefits of learning, the third study, *The effect of literacy proficiency on earnings: An aggregated occupational approach using the Canadian IALS data*, focuses on

the relationships between indicators of human capital and labour market earnings. The approach is firmly grounded in the economics discipline.

The fourth and fifth studies combine all three major elements of the conceptual framework into one operationalized structural model. Specifically, the fourth study, *Determinants of economic and social outcomes from a lifewide learning perspective in Canada*, explores the variable impact of learning in different contexts and for different reasons on different types of outcomes, namely earnings and community participation. The fifth study, *The effects of learning on economic and social well-being: A comparative analysis*, extends the fourth study by adding an international comparative perspective. These latter two studies have an interdisciplinary perspective.

#### **4. Significance of the studies**

The first study is significant by offering a broad conceptual framework from which further interdisciplinary studies can approach the analysis of learning outcomes. Interdisciplinary approaches to analyzing the outcomes of learning avoid the risk of focusing on only one line of research. As an example, narrow economic approaches that overlook peripheral and structural feedback effects will invariably lead to misguided policies. The human capital framework has thus far proven to be valuable because it offers a powerful means to inform and support education policy. But it is hoped that a broader perspective of the theory will help to generate better policy relevant information.

The applied studies are significant by contributing to scientific knowledge about the relative effects of learning in different settings over the lifespan on the development of skills as well as on certain social and economic outcomes. They also provide insights into the variable impact of learning in different contexts and for different reasons.

Economies and societies are increasingly dependent on knowledge and information, making a holistic approach to the analysis of learning outcomes all the more important. Individuals are facing ever-increasing demands that require them to devote time and other resources to learning, not just for work but also to balance other personal and social demands. Accordingly, this research attempts to contribute to a better understanding of lifelong learning processes both in terms of their effect on skill development and their impact on social and economic outcomes.

Recent policy efforts associated with the implementation of lifelong learning underscore the growing importance of incorporating lifelong learning theories and concepts into applied research as it is done in this thesis. Three of the applied studies consider multiple learning contexts, which span the lifelong-lifewide learning dimensions, simultaneously. This is necessary to generate

findings that will help to integrate and build strong links between formal, non-formal and informal learning over the lifespan, and hence for lifelong learning systems to evolve.

## **5. Limitations of the studies**

Approaching the analysis of learning outcomes from an interdisciplinary perspective is itself a limitation since the body of knowledge surrounding the topic is so vast. The approach in this thesis builds on an economic perspective of the human capital theory.

Data used in the applied studies are based on a cross sectional study, namely the International Adult Literacy Survey. Thus, the results represent a picture at one point in time only, and do not provide estimates of direct and indirect effects of various learning activities on economic and social outcomes over one's life cycle. A longitudinal study with all the variables of interest including direct measures of skills for representative populations is not yet available.

Also the data on adult education and training only refers to the twelve months preceding the survey. The analysis would be much more telling and complete with a record of adult education and training over the person's lifetime. In general, while the studies incorporate indicators that span the lifewide dimension of learning, there are many relevant learning activities that are not considered because the data are not available.

Another important limitation is the availability of measures of learning outcomes. The studies use the direct measure of literacy skills made available through the International Adult Literacy Survey. While the measure is deemed to a good indicator of general skills, it omits other important skills such as communication and interpersonal skills, not to mention other learning outcomes such as affective behaviours.

Many other missing variables limit the studies. For example, no empirical evidence on the hypothesized causal link between knowledge and skills and productivity is offered because only the earnings data is available. Ability is another variable that is not factored into the following research.



## **6. Main conclusions of the studies**

Findings from the collection of studies included in this thesis provide support for the following propositions:

- While learning in school has the strongest impact on the development of general human capital, learning informally at work, at home, in the community and in leisure maintains a substantial impact
- Together, learning informally at work, at home, in the community and in leisure can have a larger impact on the development of general human capital than schooling
- Informal learning at work has a substantial impact on economic outcomes such as earnings
- Informal learning at home and in leisure has a substantial impact on social outcomes such as individual involvement and participation in the community
- Informal learning can substitute or compensate for low levels of schooling and home backgrounds that feature relatively low educative climates
- A lack of informal learning can lead to loss of human capital acquired during formal schooling and in nurturing home environments during childhood
- The substantial impact of informal learning on the development of human capital, economic and social outcomes warrants the regular production of indicators that allow for the monitoring of informal learning flows
- A large part of the expenses that are related to informal learning has an investment dimension that needs to be acknowledged further

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