

Chapter 6

Revisiting major determinants of participation in adult education with a direct measure of literacy skills

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Abstract

The purpose of this article is to investigate major determinants of participation in adult education. Specifically, a direct measure of literacy skills available in the International Adult Literacy Survey is included. Interpreted as a measure of human capital, it is expected that literacy skills are at least as important a predictor of participation in adult education and training as educational attainment. The findings however do not support this expectation. Instead educational attainment remains the most important factor predicting participation in adult education and training. The models in this article are based on the idea that readiness to learn is formed early in life and further developed through educational and work experiences. Factors that are hypothesised to influence participation in adult education and training are separated into factors associated with the long arm of the family and the long arm of the job. The findings indicate the long arm of the family plays an important role, which supports early intervention, especially during the formal schooling years. The results also highlight the strong link between the use of literacy skills at work and participation in adult education and training.

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1. Introduction

Adult education, long regarded as the poor cousin (Rubenson, 1999), has shed its marginal position and become a central public policy issue. The OECD's 1999 decision to launch a thematic review of adult learning in the member countries speaks to the new urgency of adult education. The development is driven by an observation that industrial countries are undergoing a period of fundamental economic transformation in which knowledge and information increasingly are becoming the foundations for economic activity (OECD, 1989).

The New Economy holds the promise of increased productivity and an improved standard of living. It also introduces a new set of transitions and adjustment challenges for society, industry and individuals which could increase the permanent exclusion or marginalisation of segments of the population and exacerbate socio-economic divisions (OECD, 1996). Progressive welfare researchers are proposing that lifelong learning is part of the solution (Esping-Andersen, 1996, p. 259). Adult learning can promote competencies to adapt to the demands of the new economy and to allow full participation in social and economic life. Lifelong learning increases citizens' chances to acquire adequate skills and help prevent low-paid jobs in the service sector from becoming life cycle traps. A *pareto optimal* welfare state of the future might be one that shifts the accent of social citizenship from its present preoccupation with income maintenance towards a menu of rights to lifelong learning and qualification (Esping-Andersen, 1996, p. 260). It is against this background that one should understand the increased concerns regarding levels and distribution across ethnic and social groups. A particularly disturbing trend is that those who might be most in need of further education and training (e.g., those with a restricted functional literacy capability) are the least likely to participate.

Using data from the International Adult Literacy Survey (IALS) the purpose of this article is to investigate major determinants of participation in adult education. In particular, a direct measure of literacy skills is considered. Testing the relationship between current literacy skills, education and participation in adult education enriches the analyses.

The chapter is divided in two parts. The first part will present a brief overview of previous research findings and presents some of the main theories that predict participation in adult education. The second part presents the major results of a model predicting participation in adult education. A particular emphasis is placed on the relationship between literacy skills and participation in adult education.

2. Analytical framework

Descriptive research on participation in adult education and training strongly suggests that whether an individual will come to participate or not is largely influenced by two sets of determinants; the long arm of the family and the long arm of the job (Rubenson, 1999).

2.1. The long arm of the family

As noted in Johnstone and Rivera's (1965) seminal study and confirmed in study after study (Bélanger & Tuijnman, 1997), educational attainment is by far the best predictor of participation in adult education. The more education a person has, the more likely he or she is to have participated in some form of organised adult education or training. This relationship reflects a stratification process that starts early in life and progresses through schooling and working life. For example, there exists a strong link between an individual's level of functional literacy and the literacy culture of the family in which an individual grows up (OECD & HRDC, 1997). While the roots are established during childhood, readiness for learning is further fostered in the educational system. The same social and cultural forces that are behind the relationship between early literacy and family background also link the distribution of educational attainment and reading and writing habits across different socio-economic groups. As Saha (1997) notes, the family influences educational attainment in many and complex ways. Social background tends to affect student success and influence occupational status. According to Collins and Thompson (1997) it is a common and plausible assumption that families prepare and reinforce the symbolic attributes required by schooling, and that schooling builds upon and elaborates the symbolic resources derived from the family. Thus, the most important influence on children's academic achievement is their home environment (Fuligni & Stevenson, 1997). Through socialisation within the family and later in the school a positive disposition towards adult education becomes a part of many people's habitus but not of others (Bourdieu, 1994).

It is interesting to note that some researchers have found a direct relationship between parents' education and later participation in adult education and training (Doray & Arrowsmith, 1997). But often, studies do not control for other factors, and thus it is difficult to determine from these studies if parents' education has any influence on participation in adult education above and beyond its effect on initial educational attainment. Accordingly, in this study, the long arm of the family is considered further by way of introducing the extent to which educational attainment influences occupational status. A common hypothesis suggests that higher educational attainment leads to higher occupational status (Tachibanaki, 1997). Therefore, it is important to consider adult education participation in relation to both the long arm of the family and the long arm of the job.

2.2. The long arm of the job

Research on participation in adult education has to take account of the new realities for adult education. A notable change involves the dramatic shift over the last 25 years in the extent of employer-supported learning, which has radically altered the landscape of adult education (Rubenson, 1996; Finbak & Skaalvik, 2001). For example, in 1975, 17 per cent of Swedes participating in adult education were sponsored by their employer. In 2000, this figure increased to 50 per cent. In Anglo Saxon countries, the current share of employer-supported training learning is

even higher (OECD & Statistics Canada, 2000). This development may reflect broader changes in the labour market and the forces that make people take up adult education and training. Perhaps it reveals the increasing pressure on individuals to participate in work-related training (Hight, 1998; Carré, 2000). Contrary to a common position in the adult education research literature, participation may not always be a voluntary act. The strength of the long arm of the job is also evident by the fact that a large proportion of participants in adult education, which are not sponsored by their employer, nevertheless report that they participate for job or career-related reasons.

While participation in adult education and training is becoming increasingly linked to the world of work, the importance of factors associated with the nature of the work including firm characteristics have received increased attention. From various theoretical perspectives, such as human capital, signalling, job-matching, resource conversion and others, researchers have explored the relationship between job and individual characteristics, on the one hand, and adult education participation, on the other hand (Altonji & Spletzer, 1991; Betcherman, McMullen, & Davidman, 1998; Boudard, 2001; Boudard & Villalba-García, 2004).

Six findings stand out in this research. First, firm size is generally identified as the strongest determinant of formal training activity within establishments. Second, there are large industry differences. Incidents of training are highest in non-market service industries such as health and education. Third, companies competing in global markets show high training activity. Fourth, companies undergoing significant technological change and/or changing work practices report the highest training activity. This suggests that training activity is strongly associated with innovation. Fifth, the presence of trade unions is linked to formalised approaches to training. Sixth, occupational status, income and supervisory roles are linked to participation, where blue-collar workers report the lowest rates of participation.

Another aspect to the “long arm of the job” involves the learning occurrences that take place informally in the work place. The opportunity to learn new things on the job varies with the characteristic and position of the job (Åberg, 2002). Cognitive development theory supports this by suggesting that the context can serve to enhance or maintain knowledge and skills (Horn & Hofer, 1992; Baltes, 1993; Shaie, 1994; Smith & Marsiske, 1997; Marsiske & Smith, 1998). Further, Tuijnman and Boudard (2001) found that the most significant factor predicting recurrent training is engagement in a variety of literacy activities both at work and at home. These findings are also consistent with other research studies, which show that individuals, who have more opportunities to practice their skills at work, have higher literacy scores (e.g., OECD & HRDC, 1997, pp. 82–84; OECD & Statistics Canada, 2000, pp. 38–41; Statistics Canada & HRDC, 2001).

3. Analyses

The analysis presented in this article is carried out in three steps. Analysis 1 provides an estimate of the variance explained by major groups of variables, namely

Table 1

Labour force status of both men and women, population aged 25–55, 1994–1998

	Employed	Unemployed	Retired	Student	Homemaker	Other	Total
Men	7978	670	431	164	28	272	9543
Women	7705	813	509	271	1274	561	11,133

the long arm of the family and the long arm of the job. Analysis 2 focuses on the individual variables that are associated with each group, while the final analysis reports the results of the full model where both groups of variables are considered together in structural model.

The data sets are derived from the IALS microdata file (see Chapters 1 and 2 in this issue for a description of the IALS data). There are 10 country data sets, which together form a combined sample of 20,676 individuals and represent an approximate total population of 179,851,087 between the ages of 25 and 55 in those countries. In Analysis 1 and 2, the populations from the 10 countries are considered together, while in Analysis 3, individual country populations are also considered separately. Throughout, however, models are fitted to male and female samples separately since labour market outcomes such as labour force status and earning have been shown to systematically differ for these two populations (Table 1).

The analysis is conducted with a structural equation modelling (SEM) method, namely the linear structural relations (LISREL). See Jöreskog and Sörbom (1999a, b) and Tuijnman and Keesee (1997) for an explanation of the method. See also Boudard (2001) for the measurement properties of the variables include in the analysis.

3.1. Analysis 1

In order to predict participation in adult education, three models are estimated separately:

- the long arm of the family;
- the long arm of the job; and
- the full model that includes both the long arm of the family and the long of the job.

The long arm of the family includes five variables: parents' education, language status, educational attainment, literacy practice at home and literacy proficiency. Although, the last two refer to the situation as an adult, they are included in the long arm of the family since home and schooling contexts are important factors fostering the development of literacy skills and literacy practice occurring in the home context later in life. The variable literacy skill is interpreted in the model as a direct measure of human capital and as such is hypothesised to be at least as important a predictor of participation in adult education and training as educational attainment. The long arm of the job includes six variables: labour force status, occupational status, work

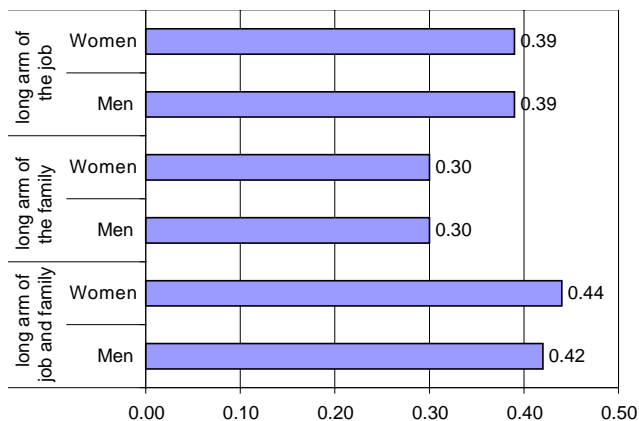


Fig. 1. Variance explained for participation in adult education by three different models: the long arm of the family, the long arm of the job and the full model with both groups of variables together.

experience, firm size, literacy practice at work and individual earnings. The full model includes all 11 variables from the two previous models. The participation in adult education and training variable is a latent construct formed by three indicators: training variety; training orientation; and training intensity. A detailed description of each latent constructs and their measurement properties can be found in Boudard (2001).

Fig. 1 shows the important role that the long arm of the family and the long arm of the job play in explaining the observed variance in adult education and training participation. The results are similar for both men and women, where the long arm of the family explains 30 per cent of the variance and the long arm of the job explains 38 per cent. Considering both in the same model, the long arm of the family and the job together explain 44 per cent of the variance in the model for women and 42 per cent for men.

Three points can be highlighted from these findings. First, the long arm of the job explains additional variance above and beyond the long arm of the family. Second, the long arm of the family has an indirect effect on adult education participation by influencing individual opportunities in the labour market. The last point is elaborated in Analysis 2, namely that the long arm of the family maintains a direct influence on participation regardless of individual opportunities in the labour market.

3.2. Analysis 2

The structural models, which hypothesise the causal effect of the long arm of the family and the long arm of the job on adult education and training participation, are presented in Fig. 2.

Coefficients are reported as standardised regression weights, and represent either the total or the direct effect of one variable on another. The total effect is the sum of

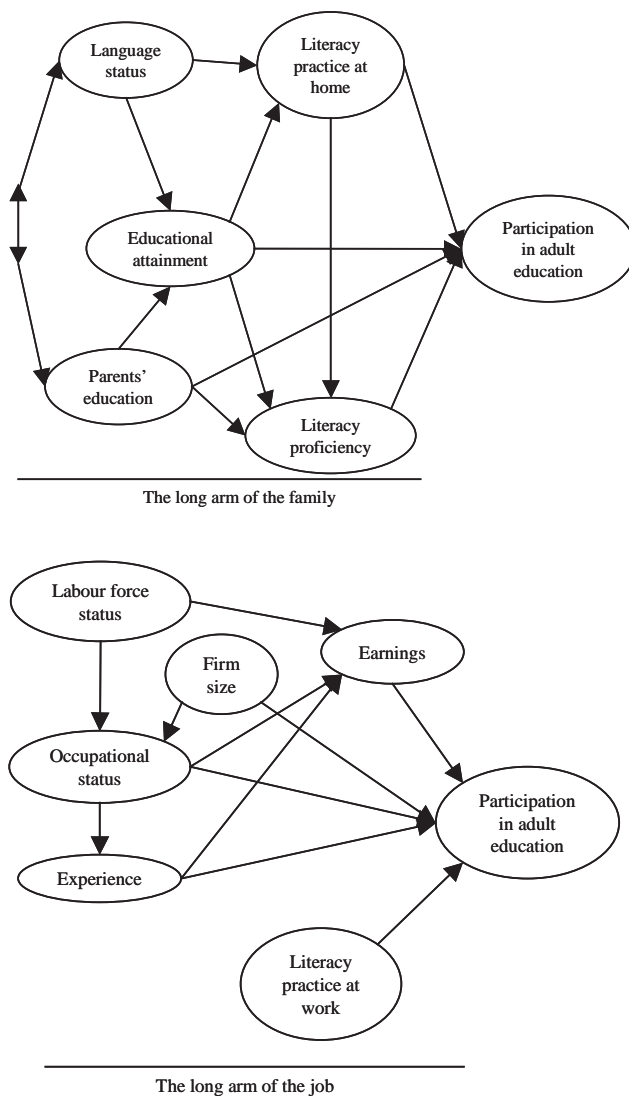


Fig. 2. Hypothesised long arm of the family and long arm of the job models predicting participation in adult education.

the direct and indirect effect. For example, the effect of parental education on literacy proficiency is, according to the model in Fig. 2, mediated by educational attainment. Coefficients inform on the weight of each predictor while controlling for others factors. Table 2 suggests the importance of the family background in predicting participation in adult education. The total effect of parental education on participation is strong (0.32 for men and 0.36 for women). The direct effect is not significant (-0.03), because the effect is mediated by the influence of parental

Table 2

The long arm of the family model: direct and total effect coefficients predicting participation in adult education (standardised regression weights)

Country	Language status	Parents' education	Educational attainment	Literacy proficiency	Literacy practice at home
<i>Total effect</i>					
Men	0.03	0.32	0.50	0.22	0.21
Women	0.05	0.36	0.48	0.20	0.17
<i>Direct effect</i>					
Men	—	−0.03	0.25	0.19	0.21
Women	—	—	0.29	0.18	0.17

Note: “—” Estimate not statistically significantly different from 0.

Table 3

The long arm of the job model: direct and total effect coefficients predicting participation in adult education (standardised regression weights)

Country	Labour force status	Firm size	Experience	Occupational status	Literacy practice at work	Earnings
<i>Total effect</i>						
Men	0.23	0.35	−0.22	0.32	0.32	—
Women	0.35	0.27	−0.17	0.34	0.31	−0.07
<i>Direct effect</i>						
Men	0.13	0.26	−0.15	0.15	0.32	—
Women	0.35	0.17	−0.08	0.18	0.33	−0.07

Note: “—” Estimate not statistically significantly different from 0.

education has on individual educational attainment, which in turn affects participation. Of the five predictor variables constituting the long arm of the family, educational attainment is by far the strongest predictor with a total effect of 0.50 for men and 0.48 for women and direct effects of 0.25 and 0.29, respectively. Including the literacy skills variable in the same model reduces the effect of education. While the total effect of literacy skills is strong, 0.22 for men and 0.20 for women, it is lower than the coefficient for educational attainment. Literacy practice at home has an observed total effect of approximately 0.20, while language status does not exert any significant effect in this model.

Turning to the long arm of the job, Table 3 shows that four variables, including labour force participation, firm size, occupational status and literacy practice at work, are equally important in determining participation in adult education, each with a coefficient of approximately 0.30. Experience, as measured by subtracting years of schooling and five from age, exerts a negative effect on participation while individual earnings do not have a significant effect.

3.3. Analysis 3

The full structural model, which includes all 11 variables from the two groups, is presented in Fig. 3. Table 4 displays the main statistical indices of overall fit R^2 , χ^2 and χ^2/df , RMR, and GFI for the full model. Despite differences in the amount of variance explained (R^2), the coefficients are significant in all countries, ranging from 0.22 (men in Norway) to 0.56 (women in Italy). The poor fit for some countries (see Table 4) suggests that either the structure predicting participation varies between countries or that other country specific variables that are important for predicting participation have been omitted. Results indicate that this may especially be the case for Canada, Hungary, Italy and Slovenia.

Total effects for the full model are presented in Tables 5 and 6, while the direct effects are reported in Tables 7 and 8. The importance of social and cultural capital, as manifested by parents' education, is evident in all countries, although more markedly in some than others. Total effects range from a low of 0.11 for men in the Czech Republic and women in Denmark to a high of 0.42 for women in Slovenia. In all countries, these effects are indirect and mediated by educational attainment. Language status exerts a small positive effect in most of the countries considered.

The importance of educational attainment is observed by its total effect coefficients, which range from 0.25 (men in Denmark) to 0.69 (women in Italy). Education is the most important predictor of participation in adult education in 16 of 20 models. The effect of educational attainment, however, is largely indirect and mediated by the long arm of the job. Although in some countries, particularly for women in Slovenia (0.31) and men in Italy (0.25), it maintains a strong direct effect on participation in adult education and training.

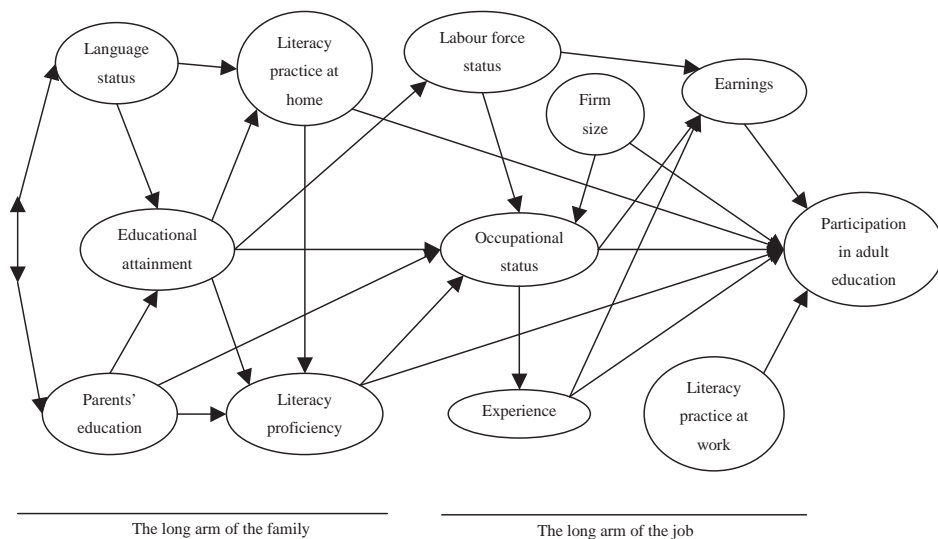


Fig. 3. Hypothesised full model predicting participation in adult education.

Table 4

Indices of overall fit for the full model predicting participation in adult education

Country	R^2		χ^2 and χ^2/df				RMR		GFI	
	Men	Women	Men		Women		Men	Women	Men	Women
Canada	0.30	0.26	4646	14.0	5986	17.6	0.068	0.075	0.81	0.79
Czech Republic	0.26	0.38	1461	4.2	2374	6.9	0.051	0.049	0.90	0.89
Denmark	0.32	0.31	1783	5.3	2222	6.6	0.044	0.053	0.90	0.88
Finland	0.57	0.46	2601	7.8	2171	6.3	0.063	0.054	0.85	0.87
Hungary	0.40	0.43	2194	6.3	3036	8.9	0.057	0.061	0.84	0.83
Italy	0.37	0.56	3401	10.1	3477	11.3	0.081	0.070	0.81	0.84
Norway	0.22	0.29	1993	5.9	1810	5.4	0.048	0.043	0.90	0.91
Poland	0.28	0.31	1801	5.4	4043	11.6	0.044	0.061	0.89	0.83
Slovenia	0.44	0.50	2121	6.3	9340	30.0	0.049	0.069	0.86	0.81
United States	0.43	0.42	1741	5.1	2051	6.1	0.046	0.048	0.89	0.89
Total	0.42	0.44	15075	45.8	17413	54.6	0.052	0.051	0.91	0.90

The literacy skills measure, which is interpreted as a direct measure of human capital, has less prediction power than parental education and educational attainment. With the exception for men in Canada (0.30) and men in Denmark and Slovenia (0.20) the total effects of literacy skills are moderate or low. The same is true for literacy practice at home with the highest total effects reported by women in Canada (0.28), Italy (0.26) and the United States (0.26). It is interesting to note that in all countries except the Czech Republic and Slovenia, literacy practice at home is a better predictor of women's participation in adult education and training than of men's.

It is also of interest to note that literacy practice at work exerts a stronger total effect on participation in adult education than literacy practice at home, and is the most important predictor for men in the Czech Republic, Denmark and Norway. The coefficient varies from 0.08 (women in Poland) to 0.39 (women in the Czech Republic). The coefficient indicating the direct effect of literacy practice at work ranges between 0.10 and 0.37 and is significant in all countries with the exception of women in Poland.

Labour force status, occupational status and firm size all have positive and in some cases strong total effects on participation in adult education. Labour force status varies from a low of 0.03 for men in Norway to a high of 0.26 in Finland. The effects of labour force status are partly direct and partly mediated through occupational status with total effects between 0.06 for men and women in Italy to 0.47 for women in Poland. With the exception of women in Denmark and Poland, occupational status has a low or moderate direct effect on participation. In several countries firm size is an important predictor and the total effect coefficient varies between 0.01 (women in Poland) to 0.40 (women in Italy).

Earnings exert a positive direct effect in most of the countries (the coefficient varies from 0.03 to 0.36) with the exception of men in Canada and Poland (the coefficient for the two latter shows a negative value). In all countries but Canada the

Table 5

Full model: variables related to the long arm of the family and total effect coefficients predicting participation in adult education

Country	Language status	Parents' education	Educational attainment	Literacy practice at home	Literacy proficiency
<i>Canada</i>					
Men	0.04	0.21	0.48	0.12	0.30
Women	0.05	0.24	0.28	0.28	—
<i>Czech Republic</i>					
Men	—	0.11	0.33	−0.13	—
Women	0.01	0.23	0.42	—	0.11
<i>Denmark</i>					
Men	—	0.21	0.25	0.08	0.20
Women	0.01	0.11	0.36	0.19	0.11
<i>Finland</i>					
Men	0.07	0.34	0.41	—	0.17
Women	0.10	0.27	0.42	0.10	0.07
<i>Hungary</i>					
Men	—	0.35	0.26	0.18	0.02
Women	—	0.27	0.52	0.19	0.18
<i>Italy</i>					
Men	0.04	0.33	0.56	—	0.04
Women	−0.02	0.33	0.69	0.26	—
<i>Norway</i>					
Men	—	0.23	0.27	—	0.17
Women	—	0.21	0.36	0.16	0.07
<i>Poland</i>					
Men	—	0.24	0.41	—	0.05
Women	0.07	0.26	0.48	—	0.04
<i>Slovenia</i>					
Men	0.02	0.38	0.47	0.20	0.20
Women	0.02	0.42	0.65	0.11	0.06
<i>United States</i>					
Men	0.03	0.22	0.53	0.17	0.13
Women	0.15	0.20	0.44	0.26	0.16
<i>Total</i>					
Men	0.03	0.34	0.49	0.11	0.17
Women	0.10	0.35	0.48	0.15	0.14

Note: “—” Estimate not statistically significantly different from 0.

Table 6

Full model: variables related to the long arm of the job and total effect coefficients predicting participation in adult education

Country	Labour force status	Occupational status	Experience	Firm size	Literacy practice at work	Earnings
<i>Canada</i>						
Men	—	0.12	−0.16	0.14	0.19	−0.16
Women	0.10	0.13	0.01	0.13	0.27	—
<i>Czech Republic</i>						
Men	0.06	0.14	—	0.20	0.36	0.12
Women	0.11	0.32	0.02	0.16	0.39	0.25
<i>Denmark</i>						
Men	0.06	0.17	—	0.30	0.35	—
Women	0.07	0.36	—	0.18	0.27	—
<i>Finland</i>						
Men	0.26	0.32	—	0.35	0.33	0.20
Women	0.26	0.21	0.12	0.23	0.25	0.36
<i>Hungary</i>						
Men	0.16	0.10	−0.21	0.36	0.21	0.03
Women	0.20	0.27	—	0.07	0.18	0.23
<i>Italy</i>						
Men	0.05	0.06	−0.12	0.24	0.21	—
Women	0.10	0.06	−0.17	0.40	0.23	0.24
<i>Norway</i>						
Men	0.03	0.19	−0.09	0.14	0.29	—
Women	0.22	0.18	0.04	0.17	0.24	0.12
<i>Poland</i>						
Men	0.16	0.17	0.04	0.22	0.26	−0.13
Women	0.12	0.47	0.08	0.01	0.08	0.14
<i>Slovenia</i>						
Men	0.08	0.16	−0.08	0.14	0.35	0.16
Women	0.21	0.17	0.03	0.02	0.17	0.16
<i>United States</i>						
Men	0.13	0.18	—	0.28	0.27	—
Women	0.21	0.19	0.02	0.22	0.28	0.23
<i>Total</i>						
Men	0.12	0.18	−0.06	0.26	0.28	—
Women	0.21	0.12	0.03	0.21	0.31	0.13

Note: “—” Estimate not statistically significantly different from 0.

Table 7

Full model: variables related to the long arm of the family and direct effect coefficients predicting participation in adult education (standardised regression weights)

Country	Language status	Parents' education	Educational attainment	Literacy practice at home	Literacy proficiency
<i>Canada</i>					
Men	—	−0.15	—	0.12	0.27
Women	—	—	—	0.28	—
<i>Czech Republic</i>					
Men	—	—	—	−0.13	0.10
Women	—	—	0.13	—	0.06
<i>Denmark</i>					
Men	—	0.08	—	0.08	0.09
Women	—	−0.10	—	0.19	—
<i>Finland</i>					
Men	—	—	—	—	0.07
Women	—	—	0.18	0.10	—
<i>Hungary</i>					
Men	—	—	—	0.18	—
Women	—	−0.10	—	0.19	0.14
<i>Italy</i>					
Men	—	—	0.25	—	—
Women	—	—	—	0.26	−0.13
<i>Norway</i>					
Men	—	0.07	—	—	0.15
Women	0.10	—	0.13	0.16	—
<i>Poland</i>					
Men	—	—	0.18	—	—
Women	0.08	—	—	—	—
<i>Slovenia</i>					
Men	—	—	—	0.20	0.12
Women	—	—	0.31	0.11	—
<i>United States</i>					
Men	—	—	—	0.17	0.10
Women	—	—	—	0.26	—
<i>Total</i>					
Men	—	—	—	0.11	0.11
Women	—	—	0.12	0.15	0.07

Note: “—” Estimate not statistically significantly different from 0.

Table 8

Full model: variables related to the long arm of the job and direct effect coefficients predicting participation in adult education (standardised regression weights)

Country	Labour force status	Occupational status	Experience	Firm size	Literacy practice at work	Earnings
<i>Canada</i>						
Men	—	0.10	−0.20	0.15	0.16	−0.13
Women	—	0.15	—	0.16	0.23	—
<i>Czech Republic</i>						
Men	—	—	−0.09	0.26	0.37	0.12
Women	—	—	—	0.19	0.33	0.25
<i>Denmark</i>						
Men	—	—	−0.08	0.30	0.34	—
Women	—	0.26	−0.11	0.15	0.24	—
<i>Finland</i>						
Men	—	0.14	−0.17	0.30	0.31	0.20
Women	—	—	—	0.18	0.23	0.38
<i>Hungary</i>						
Men	0.16	—	−0.19	0.35	0.18	—
Women	0.10	0.17	−0.11	—	0.10	0.20
<i>Italy</i>						
Men	—	—	−0.13	0.28	0.21	—
Women	0.05	—	−0.18	0.38	0.14	0.24
<i>Norway</i>						
Men	—	—	−0.13	0.15	0.29	—
Women	0.16	—	—	0.12	0.20	0.15
<i>Poland</i>						
Men	0.18	—	—	0.26	0.30	−0.13
Women	—	0.45	−0.09	—	—	0.14
<i>Slovenia</i>						
Men	—	—	−0.09	0.12	0.29	0.16
Women	0.15	—	—	—	0.19	0.16
<i>United States</i>						
Men	0.12	0.12	−0.10	0.28	0.22	—
Women	0.09	—	—	0.16	0.15	0.31
<i>Total</i>						
Men	0.09	0.10	−0.12	0.25	0.25	—
Women	0.15	−0.05	—	0.17	0.24	0.15

Note: “—” Estimate not statistically significantly different from 0.

direct effects of earnings on participation are much stronger for women than men lending some support to the hypothesis that income is a determinant of women's participation in adult education. This also corroborates with the observation that women generally receive less employer support than men for training and, consequently, need to finance their own training needs (OECD & Statistics Canada, 2000).

4. Discussion

According to the conceptual framework adopted in this article, readiness to learn is formed early in life and further developed through educational and work experiences. This process was articulated by referring to the long arm of the family and the long arm of the job. When pooling the 10 country populations together, the full model (including 11 variables) explains between 42 (men) and 44 (women) per cent of the variance in participation in adult education. Only considering the variables associated with the long arm of the family explains between 30 and 39 per cent of the variance. This suggests that both groups of variables are important in predicting participation. Finally, parental education and educational attainment are the most important predictors of participation in adult education. Their effect is mediated via the impact they have on the long arm of the job.

This study interpreted the IALS literacy skills measure as a direct measure of human capital. Consequently, it is expected that this variable would be at least as important a predictor of participation in adult education and training as educational attainment. The findings do not support this hypothesis. Educational attainment is found to be the most important single factor predicting participation in adult education and training. There are several alternative explanations for the lower than expected impact of literacy proficiency. First, the findings may reflect the way literacy was measured in the IALS survey. That is, rather than measuring work-related skills, the IALS measured general or foundation skills. Second, the home background as indicated by parents' level of education affects educational attainment, which in turn affects career opportunities, and therefore provides further possibilities to access learning opportunities. Third, employers have difficulty directly observing literacy skills and hence rely on educational attainment as a criteria to distribute learning opportunities.

The analysis suggests that other important variables are not included in the model since almost 60 per cent of the variance is not explained. For example, there are no cumulative measures of learning beyond formal schooling, nor is any information concerning the method of financing included in the model. Firm size is included but it is only one of the many factors that describe the work organisation and the work environment. It needs to be supplemented with more detail. For example, by considering the presence and effectiveness of human resource departments and the use and implementation of new technologies, as well as other aspects (Boudard & Villalba-García, 2004).

The findings highlight the difficulties of realising lifelong learning for all. For many the combined effect of little support from the long arm of the family and the long arm of the job means little opportunity to engage in lifelong learning. Within this context, the importance of the long arm of the family justifies early intervention and highlights the influence of formal schooling. The findings, however, also point to the importance of looking closer at the long arm of the job. The strong link between use of literacy skills at work and participation in adult education and training is an indication that the problem may not primarily be a lack of skills but rather a lack of challenging context for literacy acquisition. Thus, the most promising policy for achieving lifelong learning for all might be to intervene in the long arm of the job and through this alter how a parent relates to a child's learning.

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