

The Determinants of Participation in Non-Mandatory Training

Les déterminants de la participation à la formation continue volontaire

Los factores determinantes de participación en el entrenamiento no obligatorio

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Résumé de l'article

Cet article présente une étude empirique sur les déterminants de la participation des employés à la formation continue offerte par l'employeur aux travailleurs sur une base volontaire. Pour ce faire, l'article recense non seulement la documentation portant sur la formation obligatoire mais aussi celle sur la formation volontaire.

Le modèle d'analyse proposé identifie deux groupes de déterminants : (1) les déterminants sociodémographiques, comprenant l'âge, le genre, les responsabilités familiales et le niveau de scolarité atteint; (2) les déterminants liés à l'emploi, soit l'ancienneté organisationnelle, le niveau hiérarchique et le statut d'emploi. Sept hypothèses sont émises pour chacun des déterminants à l'étude en relation avec la participation à la formation continue sur une base volontaire. En fonction des résultats empiriques recensés et des théories examinées dans les études antérieures, cet article postule que : (1) l'âge est négativement relié à la participation à la formation; (2) les femmes participent moins à la formation que les hommes; (3) les responsabilités familiales, mesurées à la fois par la présence d'enfants et le statut matrimonial, sont négativement liées à la participation à la formation; (4) le niveau de scolarité est associé négativement à la participation à la formation; (5) l'ancienneté organisationnelle est positivement reliée à la participation à la formation; (6) le niveau hiérarchique est positivement associé à la participation à la formation, et (7) les employés à temps plein participent davantage à la formation que les employés à temps partiel.

Des données provenant d'une grande organisation canadienne de services financiers sont utilisées afin de tester empiriquement les hypothèses de recherche. L'organisation a commencé en 1996 à offrir plusieurs types de formation volontaire à ses employés en leur remboursant les frais de scolarité et le matériel. Cependant, la formation se tenait en dehors du temps de travail. Le but premier de l'organisation était d'augmenter le sens des responsabilités des employés envers leur capital humain. Depuis le début du programme, plusieurs d'entre eux ont participé activement à cette formation sur une base volontaire alors que d'autres n'ont pas participé. Les données proviennent plus précisément du fichier informatisé RH des employés qui étaient à l'emploi de l'organisation à la fin de 1998, soit deux ans après le début de l'offre de formation. Ces données portent sur 1 918 employés et représentent environ 20 % de l'effectif total de l'entreprise. La procédure de sélection probabiliste aléatoire simple a été utilisée afin de sélectionner les employés.

Les résultats indiquent que l'âge influence négativement la participation, que les femmes participent plus que les hommes, et que le niveau d'éducation est négativement lié à la participation. Les résultats démontrent aussi une relation non-linéaire entre l'ancienneté organisationnelle et la participation. Ils montrent également que la probabilité de participer dans la formation continue non obligatoire augmente avec la position hiérarchique occupée. Finalement, les résultats indiquent que ni les responsabilités familiales ni le statut d'emploi ne sont des déterminants significatifs de la participation. Ces résultats ajoutent aux connaissances sur la formation et peuvent aider les organisations à identifier les employés qui sont moins susceptibles de participer à la formation.

The Determinants of Participation in Non-Mandatory Training

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This article presents an empirical research on the determinants of employees' participation in non-mandatory training offered by their employer. The analysis model identified two groups of determinants, i.e. socio-demographic (age, gender, family responsibilities and education level) and employment-related (organizational tenure, hierarchical position and employment status). Participants, mostly female, were employees from a large Canadian service organization. Results showed that age negatively influenced participation, that women participated more than men, and that the education level was negatively related to participation. Findings also indicated a non-linear relationship between organizational tenure and participation, and that the probability of participation in non-mandatory training increased with the hierarchical position occupied. Family responsibilities and employment status were not found to be significant predictors of participation.

In today's society, labour force training is increasingly important. It is a concern for and involves workers as much as it does trade unions, businesses and government authorities. In Quebec, where a law was enacted in 1995 to promote employees' development, training expenditures amounted

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to 1,165 billion in 1999 for businesses with a payroll of over \$250,000 (Emploi-Quebec 2001). In Canada, a survey conducted in 2002 by the Canadian Federation of Independent Business revealed that 56% of the 6,700 members interviewed increased their training investments—time and money—between 1999 and 2002 (Dulipovici 2003). In the United States, businesses with over 100 employees planned to spend over 50 billion dollars for training in 2004 (Dolezalek 2004). These considerable investments do not include, in general, dollars invested in non-mandatory training which refers to continuous learning or voluntary training taking place throughout adult life once the qualification training has been completed (MEQ 2002). Today, protecting an organization's human capital increasingly requires focussing on both mandatory training and on non-mandatory training (Noe and Colquitt 2002). Accordingly, numerous organizations strongly encourage their labour force to develop themselves on their own on a voluntary basis via, for instance at Bell Canada, the offering of thousands of online courses (Messier 2003).

At the scientific research level, numerous studies were conducted in the past decades on the ins and outs of training in organization (Goldstein 1980; Latham 1988; Salas and Cannon-Bowers 2001; Tannenbaum and Yukl 1992; Wexley 1984). In the context of mandatory training, researchers have been mostly interested in investigating the effectiveness of training programs as well as employees' pre and post training motivation (Colquitt, LePine and Noe 2000). With respect to participation, some studies have investigated the impact of the choice to participate on motivation, learning and other variables (Baldwin and Magjuka 1991; Cohen 1990; Hicks and Klimoski 1987) as well as the relationship between motivation and participation in training and development (Tharenou 2001).

In the context of organizational non-mandatory training, few studies have investigated the factors influencing employees' participation. Among others, using both self-report measures and hard data, Noe and Wilk (1993) have tested the impact of individual variables (e.g., self-efficacy), work environment variables (e.g., situational constraints), as well as organizational membership characteristics (e.g., hierarchical position and organizational tenure) on participation in both mandatory and non-mandatory training. Participants came from three different industries (health, finance, and engineering) and occupied various positions. A similar study was conducted by Maurer and Tarulli (1994) using only self-report data from clerical, technical and sales employees of a large corporation. Finally, using also only self-report measures, Birdi, Allan, and Warr (1997) tested the effect of demographic factors (e.g., age, education level and gender), affective factors (e.g., motivation to learn), and work environment factors (e.g., management support) on participation in various types of training

activities, only one of which was voluntary learning on one's own time. Participants, mostly male, were shop floor vehicle assemblers employed in a large manufacturing firm in the United Kingdom.

Although the above studies have shed some light on what factors influence employees' participation in non-mandatory training, there is still a need for research in this area. The purpose of this study was to investigate the relationships between four socio-demographic and three organizational membership variables and participation in non-mandatory training in an organizational setting. This empirical research offers many contributions. First, it attempts to increase knowledge on the determinants of participation in non-mandatory organizational training by combining, in the same empirical study, factors separately investigated in previous studies. This will help to identify the relative contribution of each studied factor. Second, it investigates family responsibilities and employment status, two factors that have not been included in previous research. Third, this research increases external validity of past results by testing the determinants of participation in a large Canadian service organization where employees are mostly female. Fourth, it addresses some of the previous studies' methodological problems by examining exclusively non-mandatory training activities, relying only on hard data and using actual participation data as opposed to employees' intention to participate. And last, from a practical perspective, results from this study will help organizations to develop interventions aimed at increasing participation in non-mandatory training. This in turn will increase the return on investment (ROI) for their non-mandatory training activities. In the following text, we begin by presenting the seven studied determinants and their related hypotheses. We continue with methodology and results, and conclude with a discussion elaborating on both theoretical and practical significance.

CONCEPTUAL FRAMEWORK

Based on a review of the scientific literature on both mandatory and non-mandatory organizational training, Tharenou (1997) noted that studies conducted on participation in training were in general from two distinct research streams. The first one is from a labour market perspective and is based on the human capital theory. In short, it assesses individuals' attributes (e.g., age, education, job tenure), job attributes (e.g., position), and industry types for their link to training. The second research stream, from a psychological basis, explains participation in terms of employees' attitudes and motivation as well as work environment (e.g., management support). This present research falls into the first research stream and focuses on a subset of the many potential factors that might affect participation.

Specifically, we investigated the relationships between participation in non-mandatory organizational training and age, gender, family responsibilities, education level, organizational tenure, hierarchical position and employment status. The following text details theoretical explanations, empirical studies and hypotheses related to each of our model's variables.

Age

The effect of age on participation in non-mandatory training can be explained by the human capital theory (Becker 1962). This theory posits that the efforts invested in training will translate into an increased human capital, which in turn will translate into a superior performance that will result in higher wages and benefits. This suggests that a younger worker, who has more years to amortize his training investments, will be more interested in training, in whatever form, than an older worker. In short, one could say that, according to the human capital theory, the profitability of training decreases with age. Empirical findings support that explanation. Among others, Greenhalgh and Stewart (1987) found that the most important determinant of training was age. In their study, the marginal effect of one additional year of age reduced the probability of receiving training by 6% for both single women and men. Results from Birdi, Allan and Warr (1997) showed that age was significantly negatively associated with voluntary job-related ($r = -.10$) and non-job learning ($r = -.13$). Findings from a longitudinal research conducted by Maurer, Weiss and Barbeite (2003) also indicated a significant negative relationship between age and participation in both mandatory and non-mandatory training activities. Finally, results from a meta-analysis conducted by Colquitt, LePine and Noe (2000) in the context of mandatory training showed a significant negative corrected correlation between age and motivation to learn ($r_c = -.18$) suggesting that older workers were less motivated to learn than younger workers.

Hypothesis 1. Age is negatively related to participation in non-mandatory training.

Gender

Numerous empirical results have shown that, in general, males participate more in organizational training than women (see Feinberg and Halperin 1978; Green 1993; Green and Zanchi 1997; Lepage 1999; Veum 1993). A possible explanation for this effect lies in the segmentation market theory. In short, women would be confined to occupations and industries where technological change is not very significant, which would justify the fact that employers demonstrate less interest in skills development through

training programs (Beck, Horan and Tolbert 1980; Boston 1990; Pfeffer and Ross 1990). Conversely, men would be concentrated in sectors and jobs requiring more knowledge and higher adaptation ability. In support, Brown (1990) found that professional and management jobs, a majority of which are held by men, generally have more significant training content than do service-related jobs usually occupied by women.

Even though most of the above studies were conducted in the context of mandatory training, we believe that the segregation theory might also be relevant to non-mandatory training since it is, for instance, the organization that chooses which online courses are offered for voluntary learning on its Intranet. In large organizations, the voluntary course' offering encompasses mostly management and technical courses (Messier 2003).

Hypothesis 2. Female gender is negatively related to participation in non-mandatory training.

Family Responsibilities

The work and family conflict theory rests on the hypothesis that individuals have a limited amount of energy that they must share between their different activities. This may cause stress that will translate into a conflict between the different roles the person must exercise (Mark 1977). Factors such as giving equal importance to both roles (Greenhaus et al. 1989), the lack of support at home (Lorech, Russel, and Rush 1989), and the presence of children (Voydanoff 1988; Lorech, Russel, and Rush 1989) will fuel the conflict. In addition to creating a conflict, the individuals' roles and responsibilities within the family can have an impact on their interest to participate in training and development activities. Moreover, this role conflict is experienced in general more intensively by women than men given the fact that, even though women are increasingly educated and their labour force attachment has increased in the past decades, they have not abandoned their traditional role (Aryee 1992). In support, Tharenou (1997: 17) noted that a lower participation in training activities by women can be explained by the fact that "women with young children and spouses [...] are thought less able to be more committed to paid labour than others because of family-caring responsibilities."

Hypothesis 3. Family responsibilities are negatively related to participation in non-mandatory training.

Education Level

Numerous empirical results have indicated that the more employees are educated, the more they participate in formal training activities (Altonji and

Spletzer 1991; Baker and Wooden 1992; Belzil and Hansen 2002; Birdi, Allan and Warr 1997; Green 1993). The theoretical explanation most often advanced to explain this link between education and participation rests on the capability level of the employee: a more educated employee being seen as having greater aptitude and willingness to be trained than a less educated employee (see Mincer 1994; Spence 1974). This, in turn, leads the organization to deliver more training to those with high education than to those with low education.

However, in the context of non-mandatory training, the previous explanation appears to be less relevant because the decision to participate rests on the employee, not the employer. In that situation, the human capital theory appears more appropriate. Becker's human capital model (1962) allows predicting that the relation between education level and participation in non-mandatory training will be negative because training, in general, is more profitable for those with less formal education than for those with a higher level of education.

Hypothesis 4. Education level is negatively related to participation in non-mandatory training.

Organizational Tenure

Empirical results have established a positive relationship between organizational tenure and training. For instance, findings from Birdi, Allan and Warr (1997) indicated a significant positive association between organizational tenure and voluntary learning ($r = .09$, $p < .001$) and findings from Noe and Wilk (1993) revealed a significant positive link between organizational tenure and the number of internal courses taken in the past year ($r = .20$, $p < .05$). No theoretical explanations, however, have been advanced to support these results. From a labour market perspective, the human capital theory offers an explanation by suggesting that employees with low tenure are motivated to invest in their human capital since it will enable them to obtain higher positions and higher benefits. In support, Maurer, Pierce and Shore (2002: 434) noted that "the belief that one will personally benefit is expected to be a consistent and primary motivator of development activity." However, we believe that this occurs only up to a certain organizational tenure point after which marginal benefits from further investment in training and development plateau. At that point, employees only need to maintain their human capital in order not to lose the gained benefits. This suggests that the relationship between organizational tenure and training is non-linear.

Hypothesis 5. Organizational tenure is positively related to participation in non-mandatory training, but at a decreasing probability.

Hierarchical Position

The relationship between the hierarchical position occupied and participation in training and development has often been explained by the fact that training is a position-related advantage and that advantages are positively related to the importance of the position. Thus, an employee in a high position would, in general, be offered more training and development activities than an employee in a low position. In support, evidence from research in the management education field indicates that managers received more training than non-managers (see Keys and Wolfe 1988; Wexley and Baldwin 1986). The dichotomy between “lower” and “higher” hierarchical position can also be found within high-level positions. Results from Saari et al. (1988) showed that 66% of the businesses interviewed for their study offered university programs only to managers occupying top positions. In the context of non-mandatory training, results from Noe and Wilk (1993: 300) revealed that “across the three firms, position was the only variable that had a consistent significant relation with development activity.” In short, managers attended more formal training and development activities than non-managers did.

Hypothesis 6. Hierarchical position is positively related to participation in non-mandatory training.

Employment Status

The last variable of our model is employment status, i.e. full time or part time. From a labour market perspective, the relation between this variable and participation can be explained by a choice issue based on time constraint. In short, considering that the existing constraint regarding available time for work may lead an employee to choose a part-time rather than a full-time job (Greenhaus et al. 1989; Greenhaus and Beutell 1985), it is plausible to argue that the same time constraint will affect participation in training and development activities. In line, findings from Birdi, Allan and Warr (1997) revealed a strong negative link between time constraints and learning motivation ($r = -.40, p < .001$).

Hypothesis 7. Full time employment status is positively related to participation in non-mandatory training.

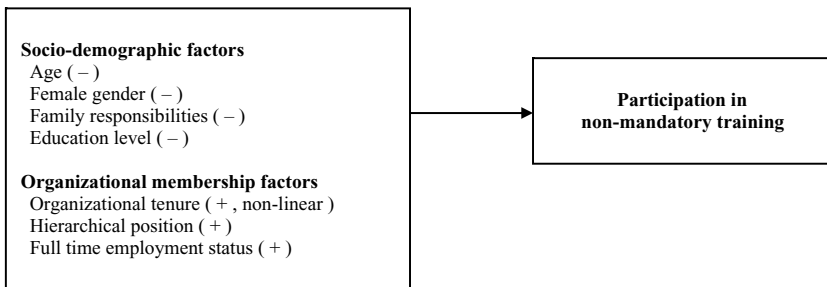
Figure 1 illustrates our conceptual model and summarizes previous hypotheses.

METHODOLOGY

Sampling and Field

The data used to empirically verify our hypotheses came from a large Canadian financial services organization. During the 90s, under the

FIGURE 1
Conceptual Model*



* Expected directions of relationships are shown in parentheses.

pressure of external factors (e.g., adoption of new capital adequacy regulations in 1988, the 1990-91 recession which led to many loan defaults), the operating environment faced by Canadian financial organizations changed dramatically. To satisfy regulators' demands, and to meet investors' profit expectations, financial firms had, among others, to modify their internal processes and methods, and broaden the scope of their services. Furthermore, intensifying competitive pressures led financial institutions to emphasize customer-focused service as a way to gain a strategic advantage. In support, the human resources directors of two Canadian banks affirmed that sales were now the name of the game in the financial industry and that the banking profession needed to be redefined (Bartel 1998; Messin and St-Onge 2000). In such a context, employees' training and development became a strategic tool.

In 1996, the studied organization began to offer various non-mandatory training opportunities to its employees and paid tuition fees as well as instructional material but not time. All these training sessions had to be attended on the employees' personal time. The organization's first objective was to develop employees' responsibility towards their own human capital. Information collected from the employer confirmed that participation in the continuous learning program was completely voluntary. Since the beginning of the program, some employees actively participated while others did not.

Data were retrieved from the computerized records of those employees employed in 1998, that is two years after the non-mandatory training offering was first made. These data provide information on 1,918 employees, representing approximately 20% of the organization's employees. A probability and random sampling procedure was used to select this sample.

Each employee had a probability of $1/N$ (N being the number of employees in the firm) of being selected.

Measurements

Participation. The PARTICIP variable indicated whether a person enrolled in the available training. The PARTICIP variable was coded 1 when the person attended training between 1996 and 1998, and 0 if not.

Age. The AGE variable was measured in number of years.

Gender. Gender was measured using the FEMALE dichotomous variable; a female employee was given a value of 1 and a male employee a value of 0.

Family Responsibilities. This variable was measured using two indicators: having children or not, and marital status. The CHILD variable was given a value of 1 when the employee had children, and 0 if not. For marital status, the MSTAT was given a value of 1 when the employee declared a spouse and 0 in other cases. In the database, having a spouse was irrespective of the legal status of the relationship.

Education Level. The academic background of participants was measured using a series of dichotomous variables. These variables provided information on the highest level of education attained by an employee. The EDULEVEL0 variable = 1 when the employee had a high school level or less, EDULEVEL1 = 1 when the employee had up to a college level education, EDULEVEL2 = 1 when the employee had up to a university degree, EDULEVEL3 = 1 when the employee had a bachelor's degree, and EDULEVEL4 = 1 when the employee had a graduate or post-graduate university degree. The "high school level or less" category was the omitted category.

Organizational Tenure. The TENURE variable measured the number of years spent by an employee with the organization. It should be mentioned that it was possible to accumulate seniority from one or several positions. The TENURE² variable measured the square of the number of years spent by an employee with the firm.

Hierarchical Position. The consulted data included five hierarchical levels of employment. We defined the following variables: HPOSITION0 = 1 when the employee occupied a junior assistant position, HPOSITION1 = 1 when the employee occupied a senior assistant position, HPOSITION2 = 1 when the employee occupied a junior manager position, HPOSITION3 = 1 when the employee occupied a middle manager position, and HPOSITION4 = 1 when the employee occupied a senior manager position. The "junior assistant" category was the omitted category.

Employment Status. Our research field distinguished status as follows: an employee occupying a position of 30 hours or more per week was

considered full time while any position of less than 30 hours per week was considered part time. The FULLTIME variable was coded as 1 for a position of 30 hours or more, and 0 in other cases.

RESULTS

Table 1 presents the descriptive statistics of the variables under study. In 1998, about one employee out of five participated in non-mandatory training offered by the employer. The average employee was close to 40 years old, was a woman, had a spouse and one or more children. A majority of employees either had a high school diploma or less, 13 years of organizational tenure, and occupied a junior assistant position.

TABLE 1
Descriptive Statistics

	<i>Mean</i>	<i>Standard deviation</i>	<i>Min / Max</i>
PARTICIP	0.21	0.4	0 / 1
AGE	38.74	8.42	19 / 64
FEMALE	0.79	0.41	0 / 1
MSTAT	0.69	0.46	0 / 1
CHILD	0.59	0.49	0 / 1
EDULEVEL0	0.57	0.49	0 / 1
EDULEVEL1	0.17	0.38	0 / 1
EDULEVEL2	0.074	0.26	0 / 1
EDULEVEL3	0.16	0.36	0 / 1
EDULEVEL4	0.025	0.16	0 / 1
TENURE	13.41	9.19	0.09 / 41.01
TENUR ²	264.26	296.28	0.01 / 1681.82
HPOSITION0	0.35	0.47	0 / 1
HPOSITION1	0.2	0.4	0 / 1
HPOSITION2	0.21	0.41	0 / 1
HPOSITION3	0.14	0.34	0 / 1
HPOSITION4	0.11	0.31	0 / 1
FULLTIME	0.79	0.4	0 / 1

N = 1918

In order to empirically evaluate our analysis model for participation in non-mandatory training, we used a logistic regression, the dependent variable being dichotomous. The non-standardized coefficient associated with

each explanatory variable indicated its marginal effect on the probability of voluntarily participating in training. The results of the logistic regression are presented in Table 2. NagerKerke's pseudo R^2 is 0.157 indicating that our model applied well to the sample data as it explained nearly 16% of the probability of participating in non-mandatory training. Specific results are as follow. For the AGE variable, we obtained a negative and significant coefficient ($p < 0.01$). This confirmed our first hypothesis. For the FEMALE variable, we had a positive and significant coefficient ($p < 0.01$), indicating that being a woman increased the probability of participating in the non-mandatory training being offered. This result is contrary to our second hypothesis. With respect to family responsibilities, results in Table 2 showed that neither the CHILD variable nor the MSTAT variable had a significant effect on participation. In consequence, hypothesis 3 was not supported.

TABLE 2
Logistic Regression of Participation in Non-Mandatory Training
(Non-Standardized Coefficients)

<i>Variables</i>	<i>Participation</i>
Socio-demographic variables	
AGE	-0.047***
FEMALE	0.388**
MSTAT	-0.142
CHILD	0.176
EDULEVEL1	-0.459***
EDULEVEL2	0.063
EDULEVEL3	-0.871***
EDULEVEL4	-2.621***
Employment-related variables	
TENURE	0.195***
TENURE ²	-0.004***
HPOSITION1	0.486***
HPOSITION2	0.776***
HPOSITION3	1.19***
HPOSITION4	1.09***
FULLTIME	0.279
Constant	-1.931***
NagerKerke R^2	0.157***

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ for a test at both end points.

Our results confirmed our fourth hypothesis of a negative relation between education level and participation in non-mandatory training. For

the EDULEVEL1 variable, we had a coefficient of -0.459 ($p < 0.01$) indicating that an employee who successfully completed college studies was less likely to participate in training than an employee who had a maximum of high school education level. The coefficient estimator of the EDULEVEL2 variable was positive but non-significant and took the value of 0.063. The coefficient estimator of the EDULEVEL3 variable was -0.871 ($p < 0.01$) indicating that an individual with a bachelor's degree was less likely to participate in training than an individual who had only a high school diploma or less. Finally, the coefficient estimator of the EDULEVEL4 variable was -2.621 ($p < 0.01$). This indicated that employees who completed graduate/postgraduate studies were those less likely to participate in non-mandatory training. In sum, most of these dichotomous variable coefficients showed a negative relation between education level and participation.

With respect to organizational tenure, both TENURE and TENURE² were statistically related to participation. More specifically, the TENURE variable was positively related to participation up to 21.6 years of tenure, after which the relation became negative as indicated by the significant coefficient of the TENURE² variable. This indicated a non-linear relation between organizational tenure and participation. Our fifth hypothesis was therefore confirmed. Hypothesis 6 stated that hierarchical position was positively related to participation in non-mandatory training. Results partially confirmed that hypothesis. All coefficients up to HPOSITION3 showed that the probability of participating in training increased with the hierarchical position occupied by the employee while it was not the case for HPOSITION4. Finally, we obtained a positive coefficient for the FULLTIME variable, but this result was non-significant. Therefore, our last hypothesis was invalidated.

DISCUSSION

The objective of this study was to investigate the relationships between four socio-demographic (age, gender, education level and family responsibilities) and three employment-related variables (organizational tenure, hierarchical position and employment status) and participation in non-mandatory training in an organizational setting. Our results showed that three socio-demographic variables (age, female gender and education level) as well as organizational tenure and hierarchical position significantly impacted participation in non-mandatory training while no significant results were found for family responsibilities and employment status. The following text discusses these results from both a theoretical and practical perspective. It also includes discussion on limitations and need for future research.

In this study, results indicated that age was negatively related with participation. This suggests that as an employee is ageing, the probability of

participating in non-mandatory training decreases. This finding is consistent with previous empirical results in both mandatory and non-mandatory training contexts as well as with predictions from the human capital theory. From a practical perspective, this result signals to organizations to pay closer attention to older workers in training and development activities. "The number of older workers in the workforce is projected to grow significantly in the coming years [...] and organizations will increasingly need to use them effectively to prevent skill shortages in a tight labour market" (Maurer, Weiss and Barbeite 2003: 709–710). Furthermore, although age discrimination can be excluded as an explanation for the negative relation between age and participation because our data came exclusively from a non-mandatory training offer, organizations need to make sure there are no barriers for older workers to participate in continuous learning to avoid possible litigations (Maurer and Rafuse 2001).

For gender, we hypothesized a negative relationship between female gender and participation in non-mandatory training activities. This hypothesis has developed based on both empirical results (e.g., Feinberg and Halperin 1978; Green 1993) and the segmentation market theory (Boston 1990) which proposes that women receive less training and development because they are employed in secondary sectors. Surprisingly, our results were the opposite of what was expected. We believe that this can be explained by the fact that, in this research, although the studied sector was female-predominant, it did not fall into the secondary market category. From a practical perspective, organizations with mostly female employees in the lower ranks should be aware that these employees see benefits in participating in training and development. Consequently, organizations caring for their human capital should accommodate these female workers.

With regard to family responsibilities, no significant relationship was found between this determinant and participation. We believe that this inconclusive finding is mostly due to a data limitation since it was impossible for us to know either the number of dependant children or their age. Research has found that having young and dependant children impacts more on the work-family conflict than the fact of having children (St-Onge et al. 2002). Consequently, in addition to continuing to include this variable in their model, future research should also use, when possible, appropriate measures of family responsibilities.

Based on Becker's human capital theory, we hypothesized a negative relationship between educational level and participation in non-mandatory training activities. Our results provided support to that hypothesis. This suggests that the more an employee is educated, the less profitable it is for that employee to invest in non-mandatory training activities. This finding, however, is contrary to numerous empirical results from mandatory training

where, in general, it has been shown that employees with a high education receive more training than employees with a low educational level because they are believed to have higher learning capabilities. It would be pertinent for future research to try to replicate this result in other industries and with various groups of workers. This would reinforce the external validity of our results. Future research should also examine the interaction effect of the human capital needed by the organization and education level. Employees with low education in a firm requiring extensive human capital might be more interested in non-mandatory training than employees in a firm not requiring extensive competencies. The organizational learning culture could then be used as an explanation.

For organizational tenure, our results confirmed our hypothesis. They showed that tenure was positively related to participation in non-mandatory training, but at a decreasing probability. This result extends current empirical knowledge since the literature has yet only indicated a positive relationship between tenure and participation. Furthermore, it gives support to the theoretical explanation we advanced. From a labour market perspective, the human capital theory suggests that employees with low tenure are motivated to invest in their human capital since it will enable them to obtain higher positions and higher benefits. However, we believe that this occurs up to a certain organizational tenure point, after which marginal benefits from further investment in training and development activities plateau. Further research is needed to establish that non-linear effect. From a practical perspective, our finding suggests that organizations should especially promote the benefits of non-mandatory training to high tenured employees since these are needed as much as workers with low tenure.

As predicted, empirical results showed that the probability of participation in non-mandatory training increased with hierarchical position. This result is in line with results from Noe and Wilk (1993) as well as the literature considering training and development as organizational benefits positively related to the importance of the position. It also suggests an inequity among employees. As it is the case for age, organizations need to be careful and offer development activities to all if they want to maintain their human capital. In some industries or regions, replacing a floor employee appears to be harder than replacing a manager. Finally, and contrary to what was predicted, we found no significant relationship between employment status and the probability to participate in non-mandatory training activities. In short, results revealed that part-time employees engaged in non-mandatory training as much as full-time employees. This result might be due to our operationalization of employment status. In this research, an employee occupying a position of 30 hours or more per week was considered full time while any position of less than 30 hours per week

was considered part time. Furthermore, we had no possibility to measure if part-time employees occupied other jobs. Future research needs to address these limitations by developing a measurement that encompasses the full domain of employment status. Future research should also use a more rigorous classification when examining mandatory and non-mandatory training. Indeed, a review of the literature revealed that there are some differences from one empirical research to another in regard to how mandatory or non-mandatory training is defined. For instance, while some researchers included in non-mandatory activities seminars proposed by the employer on work time, other researchers included only in the development activities learning that took place on one's own time. A good example of classification is the one used by Birdi, Allan and Warr (1997) based on recommendations from Noe et al. (1997).

In conclusion, organizations, trade unions, and government authorities realize more and more everyday that the human capital is a growth factor and accordingly encourage workers to upgrade their skills. In this context, the need to better understand the determinants of participation in non-mandatory training becomes very relevant. Our findings add to the present body of knowledge on organizational training and development by showing that age, gender, education, tenure and position all have a relative contribution in explaining participation in voluntary learning or non-mandatory training. Knowledge about who participates in non-mandatory training can also help organizations to focus their efforts toward non-participating employees.

■ REFERENCES

- ALTONJI, J. G., and J. R. SPLETZER. 1991. "Worker Characteristics, Job Characteristics, and the Receipt of On-the-Job Training." *Industrial and Labor Relations Review*, Vol. 45, 58–79.
- ARYEE, S. 1992. "Antecedents and Outcomes of Work-Family Conflict among Married Professional Women: Evidence from Singapore." *Human Relations*, Vol. 45, No. 8, 813–837.
- BAKER, M., and M. WOODEN. 1992. "Immigration and its Impact on the Incidence of Training in Australia." *The Australian Economic Review*, Vol. 98, 39–53.
- BALDWIN, T., and R. MAGJUKA. 1991. "Organizational Training and Signals of Importance: Effects of Pre-Training Perceptions on Intentions to Transfer." *Human Resources Development*, Vol. 2, 25–36.
- BARTEL, A. P. 1998. *The Performance of Retail Bank Branches: Does Human Resource Management Play a Role?* Working paper, Columbia Business School and NBER, October.
- BECKER, G. 1962. "Investment in Human Capital: A Theoretical Analysis." *Journal of Political Economy*, Vol. 70, 9–49.

- BECK, E., P. HORAN, and C. TOLBERT. 1980. "Industrial Segmentation and Labor Market Problems." *Social Problems*, Vol. 28, 113–130.
- BELZIL, C., and J. HANSEN. 2002. "Unobserved Ability and the Return to Schooling." *Econometrica*, Vol. 70, 2075–2096.
- BIRDI, K., C. ALLAN, and P. WARR. 1997. "Correlates and Perceived Outcomes of 4 Types of Employees Development Activity." *Journal of Applied Psychology*, Vol. 82, 845–857.
- BOSTON, T. D. 1990. "Segmented Labor Markets: New Evidence from a Study of Four Race-Gender Groups." *Industrial and Labor Relations Review*, Vol. 44, 99–115.
- BROWN, C. 1990. "Empirical Evidence on Private Training." *Research in Labor Economics*, Vol. 11, 97–113.
- COHEN, D. J. 1990. "What Motivates Trainees?" *Training and Development Journal*, Vol. 44, No. 11, 91–93.
- COLQUITT, J. A., J. A. LEPINE, and R. A. NOE. 2000. "Toward an Integrative Theory of Training Motivation: A Meta-Analytic Path Analysis of 20 Years of Research." *Journal of Applied Psychology*, Vol. 85, No. 5, 678–707.
- DOLEZALEK, H. 2004. "Training Magazine's 23rd Annual Comprehensive Analysis of Employer-Sponsored Training in the United States." *Training*, Vol. 41, No. 10, 20–36.
- DULIPOVICI, A. 2003. *Skilled in Training*. Research Report from Canadian Federation of Independent Business.
- EMPLOI-QUEBEC. 2001. "Bilan quantitatif sur la participation des employeurs à la Loi favorisant le développement de la formation de la main-d'œuvre en vertu de l'article 3." Direction générale adjointe de l'apprentissage et de la formation de la main d'œuvre.
- FEINBERG, L. B., and S. HALPERIN. 1978. "Affective and Cognitive Correlates of Course Performance in Introductory Statistics." *Journal of Experimental Education*, Vol. 46, 11–18.
- GOLDSTEIN, I. L. 1980. "Training in Work Organizations." *Annual Review of Psychology*, Vol. 31, 229–272.
- GREEN, F. 1993. "The Determinants of Training of Male and Female Employees in Britain." *Oxford Bulletin of Economics and Statistics*, Vol. 55, No. 1, 103–122.
- GREEN, F., and L. ZANCHI. 1997. "Trends in the Training of Male and Female Workers in the United Kingdom." *British Journal of Industrial Relations*, December, 635–644.
- GREENHALGH, C., and M. STEWART. 1987. "The Effects and Determinants of Training." *Oxford Bulletin of Economics and Statistics*, Vol. 49, No. 2, 171–190.
- GREENHAUS, J., and N. BEUTELL. 1985. "Sources of Conflict Between Work and Family Roles." *Academy of Management Review*, Vol. 10, 76–88.
- GREENHAUS, J., S. PARASURAMAN, C. GRANROSE, S. RABINOWITZ, and N. BEUTELL. 1989. "Sources of Work-Family Conflict among Two-Career Couples." *Journal of Vocational Behavior*, Vol. 34, 133–153.

- HICKS, W. D., and R. J. KLIMOSKI. 1987. "Entry into Training Programs and its Effect on Training Outcomes: A Field Experiment." *Academy of Management Journal*, Vol. 30, 542–552.
- KEYS, B., and J. WOLFE. 1988. "Management Education and Development: Current Issues and Emerging Trends." *Journal of Management*, Vol. 14, 205–229.
- KNOKE, D., and Y. ISHIO. 1994. "Occupational Training in Organizations: Job Ladders and Unions." *American Behavioral Scientist*, Vol. 37, 992–1016.
- LATHAM, G. P. 1988. "Human Resource Training and Development." *Annual Review of Psychology*, Vol. 39, 545–582.
- LEPAGE, M. E. 1999. "Quels sont les facteurs qui influencent la participation des cols bleus au programme de formation offert par le Service du personnel de la ville de Montréal?" Mémoire de maîtrise en relations industrielles, Université de Montréal.
- LORECH, K., J. RUSSEL, and M. RUSH. 1989. "The Relationships Among Family Domain Variables and Work-Family Conflict for Men and Women." *Journal of Vocational Behavior*, Vol. 35, 288–308.
- MAURER, T. J., and N. E. RAFUSE. 2001. "Learning, Not Litigating: Managing Employee Development and Avoiding Claims of Age Discrimination." *Academy of Management Executive*, Vol. 15, No. 4, 110–121.
- MAURER, T. J., H. R. PIERCE, and L. M. SHORE. 2002. "Perceived Beneficiary of Employee Development Activity: A Three-Dimensional Social Exchange Model." *Academy of Management Review*, Vol. 27, 432–444.
- MAURER, T. J., and B. A. TARULLI. 1994. "Investigation of Perceived Environment, Perceived Outcome, and Person Variables in Relationship to Voluntary Development Activity by Employees." *Journal of Applied Psychology*, Vol. 79, 3–14.
- MAURER, T. J., E. M. WEISS, and F. G. BARBEITE. 2003. "A Model of Involvement in Work-Related Learning and Development Activity: The Effects of Individual, Situational, Motivational, and Age Variables." *Journal of Applied Psychology*, Vol. 88, 707–724.
- MARK, S. 1977. "Multiple Roles and Role Strain: Some Notes and Human Energy, Time and Commitment." *American Sociological Review*, Vol. 42, 921–936.
- MEQ (MINISTÈRE DE L'ÉDUCATION DU QUÉBEC). 2002. *Politique gouvernementale d'éducation des adultes et de formation continue*. Gouvernement du Québec.
- MESSIER, M. 2003. "La gestion des compétences : pour devenir une entreprise apprenante." Paper presented at the Symposium annuel de la Chaire en gestion des compétences, UQAM, Montreal, 1–2 May.
- MESSIN, M., and S. ST-ONGE. 2000. "Widening Salary Bands at the National Bank of Canada." *Workplace Gazette-An Industrial Relations Quarterly*, Vol. 2, 82–85.
- MINCER, J. 1994. "Human Capital: A Review." *Labor Economics and Industrial Relations: Markets and Institutions*. C. Kerr, and P.D. Staudohar, eds. Cambridge, Mass.: Harvard University Press, 109–141.

- NOE, R. A., and J. A. COLQUITT. 2002. "Planning for Training Impact: Principles of Training Effectiveness." *Creating, Implementing and Managing Effective Training and Development State-of-the-Art Lessons for Practice*. K. Kraiger, ed. San Francisco: Jossey-Bass, 53–79.
- NOE, R. A., and S. L. WILK. 1993. "Investigation of the Factors that Influence Employees' Participation in Development Activities." *Journal of Applied Psychology*, Vol. 78, 291–302.
- NOE, R. A., S. L. WILK, E. J. MULLEN, and J. E. WANER. 1997. "Employee Development: Issues in Construct Definition and Investigation of Antecedents." *Improving Training Effectiveness in Work Organizations*. J. K. Ford, S. Kozlowski, K. Kraiger, E. Salas, and M. Teachout, eds. Hillsdale, N.J.: Erlbaum, 153–188.
- PFEFFER, J., and J. ROSS. 1990. "Gender-Based Wage Differences: The Effects of Organizational Context." *Work and Occupation*, Vol. 17, 55–78.
- SAARI, L. M., T. R. JOHNSON, S. D. MCLAUGHLIN, and D. M. ZIMMERLE. 1988. "A Survey of Management Training and Education Practices in U.S." *Personnel Psychology*, Vol. 41, 731–743.
- SALAS, E., and J. A. CANNON-BOWERS. 2001. "The Science of Training: A Decade of Progress." *Annual Review of Psychology*, Vol. 52, 471–499.
- SPENCE, M. 1974. "Job Market Signaling." *Quarterly Journal of Economics*, 355–374.
- ST-ONGE, S., S. RENAUD, G. GUÉRIN, and E. CAUSSIGNAC. 2002. "Vérification d'un modèle structurel à l'égard du conflit travail-famille." *Relations Industrielles / Industrial Relations*, Vol. 57, No. 3, 491–516.
- TANNENBAUM, S. I., and G. YULK. 1992. "Training and Development in Work Organizations." *Annual Review of Psychology*, Vol. 43, 399–441.
- THARENOU, P. 1997. "Determinants of Participation in Training and Development." *Journal of Organizational Behavior*, 15–27.
- THARENOU, P. 2001. "The Relationship of Training Motivation to Participation in Training and Development." *Journal of Occupational and Organizational Psychology*, Vol. 74, 599–621.
- VEUM, J. R. 1993. "Training Among Young Adults: Who, What Kind, and for How Long?" *Monthly Labor Review*, Vol. 116, 27–32.
- VOYDANOFF, P. 1988. "Work Role Characteristics, Family Structure Demands, and Work-Family Conflict." *Journal of Marriage and the Family*, Vol. 50, 749–761.
- WEXLEY, K. N. 1984. "Personnel Training." *Annual Review of Psychology*, Vol. 35, 519–551.
- WEXLEY, K. N., and T. T. BALDWIN. 1986. "Management Development." *Yearly Review of Management*, Vol. 12, No. 2, 277–294.

RÉSUMÉ

Les déterminants de la participation à la formation continue volontaire

Cet article présente une étude empirique sur les déterminants de la participation des employés à la formation continue offerte par l'employeur aux travailleurs sur une base volontaire. Pour ce faire, l'article recense non seulement la documentation portant sur la formation obligatoire mais aussi celle sur la formation volontaire.

Le modèle d'analyse proposé identifie deux groupes de déterminants : (1) les déterminants sociodémographiques, comprenant l'âge, le genre, les responsabilités familiales et le niveau de scolarité atteint; (2) les déterminants liés à l'emploi, soit l'ancienneté organisationnelle, le niveau hiérarchique et le statut d'emploi. Sept hypothèses sont émises pour chacun des déterminants à l'étude en relation avec la participation à la formation continue sur une base volontaire. En fonction des résultats empiriques recensés et des théories examinées dans les études antérieures, cet article postule que : (1) l'âge est négativement relié à la participation à la formation; (2) les femmes participent moins à la formation que les hommes; (3) les responsabilités familiales, mesurées à la fois par la présence d'enfants et le statut matrimonial, sont négativement liées à la participation à la formation; (4) le niveau de scolarité est associé négativement à la participation à la formation; (5) l'ancienneté organisationnelle est positivement reliée à la participation à la formation; (6) le niveau hiérarchique est positivement associé à la participation à la formation, et (7) les employés à temps plein participent davantage à la formation que les employés à temps partiel.

Des données provenant d'une grande organisation canadienne de services financiers sont utilisées afin de tester empiriquement les hypothèses de recherche. L'organisation à l'étude a commencé en 1996 à offrir plusieurs types de formation volontaire à ses employés en leur remboursant les frais de scolarité et le matériel. Cependant, la formation se tenait en dehors du temps de travail. Le but premier de l'organisation était d'augmenter le sens des responsabilités des employés envers leur capital humain. Depuis le début du programme, plusieurs d'entre eux ont participé activement à cette formation sur une base volontaire alors que d'autres n'ont pas participé. Les données proviennent plus précisément du fichier informatisé RH des employés qui étaient à l'emploi de l'organisation à la fin de 1998, soit deux ans après le début de l'offre de formation. Ces données portent sur 1 918 employés et représentent environ 20 % de l'effectif total de l'entreprise. La procédure de sélection probabiliste aléatoire simple a été utilisée afin de sélectionner les employés.

Les résultats indiquent que l'âge influence négativement la participation, que les femmes participent plus que les hommes, et que le niveau d'éducation est négativement lié à la participation. Les résultats démontrent aussi une relation non-linéaire entre l'ancienneté organisationnelle et la participation. Ils montrent également que la probabilité de participer dans la formation continue non obligatoire augmente avec la position hiérarchique occupée. Finalement, les résultats indiquent que ni les responsabilités familiales ni le statut d'emploi ne sont des déterminants significatifs de la participation. Ces résultats ajoutent aux connaissances sur la formation et peuvent aider les organisations à identifier les employés qui sont moins susceptibles de participer à la formation.