

Retention of Highly Skilled Workers in Science and Technology: Distant Regional Employers' Point of View

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ABSTRACT

This exploratory research focuses on the retention of highly skilled workers in science and technology (HSWST) in the distant regions of Canada. Indeed, the human resource shortage forces them to seek more stability in their employment relationships. Our first objective is to analyze the point of view of distant regional employers regarding their retention capacity of HSWST and the reasons behind voluntary turnover in this group of workers. Our second objective is to analyze the retention strategies and practices implemented by these employers. This study uses a qualitative approach, which is to say the case study of businesses hiring HSWST in the Lower St. Lawrence Region of Canada. Results show that employers generally think they have good retention capacity. Employers believe that departures are chiefly due to personal reasons or working conditions. In addition, employers generally have no formal or planned strategies or practices with respect to retention.

1. Introduction

In the context of labor shortage, organizations in Canada are experiencing some difficulty attracting and retaining the skilled workers necessary to attain their objectives. In fact, the question of staff retention has been at the forefront of Canada business preoccupations for a number of years now. The aging population, which characterizes this country among other things, has resulted in massive retirements, indicative of a shrinking workforce. In addition, growth in employment and in the labor force participation rate, the decline in low-skilled jobs, and an increase in skilled employment are other factors making retention an issue of great concern. This context points to labor shortage in several key sectors, at a time when human resources seem more and more necessary in order to meet the needs of organizations with respect to their ability to compete. In the specific case of the distant regions, the decreasing population—mainly caused by aging and a mass outward migration of young people toward large urban centres—suggests that businesses will have difficulties meeting their staffing needs in the future. Since professional, scientific and technical services experience the highest growth in these areas, workers in the field of science and technology³ will, therefore, pose a number of recruitment and retention problems in businesses of distant regions. In this respect, it becomes necessary to question the retention capacity of businesses that employ workers in this category.

1.1 Staff Retention Capacity

The concept of staff retention refers to organizations' capacity to retain the human resources they need in order to reach their organizational and strategic objectives (Arthur, 2001). In order to measure organizations' staff retention capacity, research on this subject generally uses the concept of turnover, which can be defined as "the movement of members across the boundary of an organization" (Price, 2001: 600). In this way, it refers to people entering (being hired) and exiting (leaving or quitting) the organization. It should be noted, however, that studies generally tackle employees exiting, which is to say their departure rather than their arrival (Price, 1977). Turnover can be voluntary or involuntary (Price, 1977; Campion, 1991; Shaw, Delery, Jenkins & Gupta, 1998; Iverson & Pullman, 2000). "An instance of voluntary turnover, or a quit, reflects an employee's decision to leave an organization, whereas an instance of involuntary turnover, or a discharge, reflects an employer's decision to terminate the employment relationship" (Shaw, Delery, Jenkins & Gupta, 1998: 511). It is, therefore, a choice made by the person who is leaving (Campion, 1991). Studies on staff turnover generally focus on voluntary turnover, which means

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³ The field of science and technology includes engineering, health, chemistry, biology, oceanography, mathematics, and computer science.

on the employee's not the employer's decision. Indeed, measurement of the rate of voluntary turnover enables a retrospective study of organizations' retention capacity. It gives information on the difficulties related to retention only after employees have left the organization.

Voluntary turnover is divided into two categories (Iverson & Pullman 2000). The individual's decision to leave the organization can ensue from factors related or unrelated to employment (ex., spouse's mobility or health problems). There is turnover that can be avoided (avoidable) and turnover over which neither employee nor employer has any control (unavoidable) (Abelson, 1987; Shaw, Delery, Jenkins & Gupta, 1998). There are multiple causes behind voluntary turnover, and several studies have looked into its antecedents in order to identify the factors that are likely to influence organizations' retention capacity.

1.2 Staff Turnover Antecedents in Organizations

1.2.1 Research on the Economic Context

Some research focuses chiefly on the characteristics of the external environment and attempt to explain the turnover phenomenon on this basis (March & Simon, 1958; Mobley, 1977; Griffeth, Hom & Gaertner, 2000). This first category of studies takes on an economic perspective. As a matter of fact, turnover depends among other things on the state of the labor market. In this way, a labor market characterized by high unemployment reduces employees' external mobility because of job insecurity (Mobley, 1982; Cotton & Tuttle, 1986; van Ours, 1990; Hom, Caranikas-Walker, Prussia & Griffeth, 1992; Fields, Dingman, Roman & Blum, 2005). Inversely, full employment has a positive influence on turnover, increasing external mobility when unemployment is low (van Ours, 1990; Fields, Dingman, Roman & Blum, 2005).

To be more precise, turnover is understood according to the job alternatives perceived by employees (March & Simon, 1958; Mobley, 1977; Griffeth, Hom & Gaertner, 2000). In this respect, perceived job alternatives are positively (if weakly) correlated with turnover (Griffeth, Hom & Gaertner, 2000). In fact, some studies show that perceived job alternatives rarely cause turnover, rather job opportunity would play a mediating role (Price, 1977; Price, 2001). Although employees do not leave because they perceive alternatives, the economic situation will nevertheless influence their final decision. In addition to perceived job alternatives, studies also focus on perceived job alternative attractiveness (Griffeth, Hom & Gaertner, 2000). As they compare alternatives with their current job, employees will be more or less inclined to leave their organization. Comparison of alternatives predicts turnover slightly better than perceived alternatives, but their relationship remains moderate (Griffeth, Hom & Gaertner, 2000).

1.2.2 Research on Organizations and Their Characteristics

Organizational dynamics would also be linked to organizations' staff retention capacity. Studies on high-performance work systems focus on this second category of antecedents. This way of organizing work offers employees new opportunities, such as teamwork, autonomy, communication, self-management, participation in quality improvement, problem solving, and skill development (Guthrie, 2001). High-performance work systems are characterized by a combination of work reorganization and mechanisms for workers to participate in organization decisions (Godard, 2001). Generally speaking, studies on this subject show a significant negative relationship between high-performance work systems and staff turnover (Arthur, 1994; Huselid, 1995; Guthrie, 2001; Combs, Liu, Hall & Ketchen 2006; Luna-Arocas & Camps, 2008). However, some authors (Griffeth, Hom & Gaertner, 2000; Godard, 2001; Price, 2001) emphasize that high-performance work practices produce stress that can increase the turnover rate. Without focusing on all high-performance work systems, some authors studied a few characteristics of work organization, notably: participation, job enrichment, and autonomy (Cavanagh & Coffins, 1992; Griffeth, Hom & Gaertner, 2000; Price, 2001; Luna-Arocas & Camps 2008). Their results generally confirm those of studies on high-performance work systems, although they reveal weak to moderate correlations.

Other studies are more interested in the relationship between work conditions and staff turnover. Some show that competitive salaries, job security, and promotion opportunities are linked—albeit weakly or moderately—to retention (Neal, 1998; Griffeth, Hom & Gaertner, 2000; Price, 2001; Griffeth & Hom 2001; Fields, Dingman, Roman & Blum, 2005; Luna-Arocas & Camps 2008; Tangthong, Trimetsoontorn & Rojniruntikul, 2014). Studies on turnover have equally dealt with the question of role-related pressures (Fisher and Gitelson 1983; Hassan, Akram & Naz, 2012). They show high correlations between role conflict and the intention to leave as well as between role ambiguity and the intention to leave.

1.2.3 Research on Individuals and Their Experience

Research on the third category of antecedents has focused more specifically on employee attitudes and perceptions and their effect on turnover. Among the attitudes studied, job satisfaction is a major variable in turnover literature. It refers to the positive feeling employees have toward their job (Locke, 1976). The relationship between job satisfaction and turnover is shown to be negative (Griffeth, Hom & Gaertner, 2000; Price, 2001; Lee & Rwigema, 2005; Podsakoff, Lepine & Lepine, 2007). Moreover, some studies consider that dissatisfaction is the best turnover predictor (Griffeth, Hom & Gaertner, 2000). Many studies also tackle organizational commitment (Tett & Meyer, 1993; Griffeth, Hom & Gaertner, 2000; Price, 2001; Meyer, Stanley, Herscovitch & Topolnytsky, 2002; Lee & Rwigema, 2005; Podsakoff, Lepine & Lepine, 2007), which is defined as “a force that binds an individual to a course of action of relevance to” the organization (Meyer & Herscovitch, 2001: 299). Generally speaking, studies on commitment also show a significant negative relationship with turnover. In fact, organizational commitment is considered as one of the best turnover predictors.

Satisfaction and commitment are moderating variables for turnover, which developed according to the presence or absence of particular antecedents, such as compensation and benefits (Tangthong, Trimetsoontorn & Rojniruntikul, 2014; Treuren & Frankish, 2014), organizational support (Ko, Price & Muller, 1997; Mansell, Brought & Cole, 2006), organizational justice (Cohen-Charash & Spector 2001), role clarity (Chatterjee, 1992), work-life balance policies (Bajpai, Prasad & Pandley, 2003; Huffman, Casper & Payne, 2014), autonomy, as well as opportunities for promotion (Chênever, Charest & Simard, 2007), developing competencies (Tangthong, Trimetsoontorn & Rojniruntikul, 2014) and self-expression (Meyer & Allen, 1988).

Research on individual characteristics has also been interested in the different cognitive paths that influence behavior (Lee, Holtom & McDaniel, 1999; Holtom, Mitchell, Lee & Inderrienden, 2005). It is also suggested that behavior is sometimes linked to shocks, which are considered as distinctive events, whether positive or negative, that destabilize individuals' opinion of their job and can lead them to leave their organization. Shocks are defined as changes that disrupt how employees see their work and/or their employer. They are objective events that can affect either a single person (ex., a salary increase that has been rejected) or all of the employees (ex., during a merger). They can occur at work (ex., a promotion that has been rejected, a dispute with a supervisor) or outside work (ex., winning the lottery, divorcing). However, it is cognition (thinking and comparing) and not shock that brings about a decision to stay or leave. Moreover, it would seem that the various shocks are more often associated with turnover than with the accumulation of job dissatisfaction (Holtom, Mitchell, Lee & Inderrienden, 2005).

Finally, the characteristics of individuals—such as age, education, seniority, citizenship behavior and family relationships—are associated with turnover (Cotton & Tuttle, 1986; Iverson & Pullman, 2000; Griffeth, Hom & Gaertner, 2000; Fields, Dingman, Roman & Blum, 2005 ; Podsakoff Whiting, Podsakoff & Blume, 2009; Khalid, Nor, Ismail & Razali, 2013; Ito, Brotheridge & McFarland, 2013). The relationship, however, differs from author to author and is generally not significant.

2. Methodology

For the purpose of this study, we were interested in the capacity of employers in remote areas of Canada to keep their science and technology workers. Our first objective was to identify and describe the point of view of distant regional employers regarding their retention capacity of highly skilled workers in science and technology (HSWST) and the reasons behind voluntary departures in this group of workers. Our second objective was to identify and describe the retention strategies and practices implemented by these employers. Most studies focus on voluntary departures from the perspective of employees. Our study is original because it rather focuses on the perspective of employers. In this sense, the exploratory nature of this research justifies the qualitative methodological choice.

This study uses a qualitative approach, which is to say the case study of businesses hiring HSWST in the Lower St. Lawrence Region of Canada. With respect to data collection, we conducted semi-structured interviews with employers' representatives of 10 businesses. These were of varying sizes (10–1,000 employees) and in different sectors. Specifically, both companies are large (1000 + employees). Three of them are pretty average size (between 200 and 350 employees). Two companies are small (between 35 and

50 employees), and three are very small (less than 15 employees). 4 companies have a formal HR department (2 large companies and 2 medium-sized enterprises). 4 companies have a formal HR department (both large companies and 2 medium-sized enterprises). Other instead use an HR consultant not attached to an HR department or the management of human resources is fully assumed by the manager or leader. Specifically, in our interviews, we asked HR professionals when companies hired, five in total. On the HR professionals, one of them only perform this function in the organization and is attached to the administrative services of the company. In other organizations, we interviewed the owner of the business (four) or manager (one).

The number of interviews was fixed according to a theoretical saturation. Ergo, the data collection ended when new data no longer contributed to our understanding of the phenomenon being studied. The interviews lasted on average 90 minutes. We taped, transcribed, and analyzed the contents of the interviews.

3. Results

Employers' perceptions of their current retention capacity of workers in science and technology differed greatly from one organization to the other. Indeed, most of them showed a normal, if not weak, voluntary turnover rate. Despite this positive perception among several employers, some of them still faced an important difficulty with regards to staff turnover. For example, an employer mentioned that the turnover rate jumped from 2% to 20% in his organization over the past 24 months, but this particular difficulty was expressed by only a few other employers who were interviewed.

Some employers did not anticipate any potential problems related to the retention of HSWST. On the one hand, according to them, the workers are young, which precludes departures caused by retirement. On the other hand, other participants claimed that retention problems will increase in the coming years. Two causes were underlined by employers: economic fluctuations and a shortage of graduates from technical schools and universities in the field of science and technology. However, few of the employers interviewed considered retirement and outward migration of young people toward large urban centres as a potential problem. Neither did they mention the demographic situation. In fact, generally speaking, their attraction capacity seems to be more problematic than their retention capacity, which explains why they are greatly worried about economic fluctuations and the scarcity of graduates in science and technology.

3.1 Reasons Behind Voluntary Turnover

In most of the organizations studied, none of the employers conducted departure interviews to understand what drove their employees in science and technology to leave their organization. In addition, most of the organizations studied did not ascertain employee satisfaction before they decide to change jobs. Consequently, the causes of voluntary departures reported by employers were generally based on their perceptions, since they did not check them systematically.

3.1.1 Reasons Related To the Economic Context

Employers mentioned that some context-based reasons exacerbated their retention problems. Among these is raiding, which was reported by a few employers. Headhunters or recruiters from competing organizations sometimes contact workers in science and technology who are employed to offer them work. However, this situation did not seem to affect all of the employers. Some reported that in their sector there is a tacit agreement against raiding among employers in this region and that it is generally respected. Even if raiding is not prevalent, a few employers say that HSWST is in high demand. Job opportunities are therefore numerous for this category of employees and organizations compete to attract and retain them. A second cause of retention problems is crisis based. In some sectors, organizations are affected by various crises (ex., economic and lumber crises). Employees become fearful and seek out work in other sectors where there is greater job security.

3.1.2 Reasons Related To the Organization and Its Characteristics

Of all the reasons reported by the employers interviewed, the most significant seemed to be those related to working conditions. According to most of the participants, the fundamental reason for leaving rested on insufficient salary, fringe benefits, and pension funds. These reasons were more prominent in smaller organizations that do not have enough room to manoeuvre in order to compete with larger businesses with respect to work conditions. Similarly, some employers reported that their retention capacity was weakened

by the fact that they cannot offer many promotion opportunities to their workers in science and technology and by the uncertain nature of the positions offered. In addition, in some workplaces, the physical working conditions are hard (heat, noise, night shifts, dust, etc.), which pushes employees to leave the organization.

Besides working conditions, a few employers explained that the nature of the task itself can be the cause of voluntary departures. They mentioned that the tasks do not always suit workers in science and technology. Some employees have management responsibilities, whereas they are more motivated by tasks of a more scientific or technical nature. Inversely, other employers said that although workers in science and technology aspire to more management responsibilities, like being a project manager, they are restricted to scientific or technical tasks. According to two employers, employees are sometimes dissatisfied with the tasks they are given for the following reasons: because the given task does not correspond with either their aspirations or their abilities. Furthermore, a few employers attributed the departure of workers in science and technology to the need for new challenges or even the lure of smaller businesses where they could be more versatile.

3.1.3 Reasons related to individuals and their experience

Some employers reported employee-related reasons behind voluntary departure. In this respect, the remoteness of the Lower St. Lawrence Region is one of the main causes according to most of them. The incapacity of workers' spouses to find a job in remote areas largely contributes to the migration toward urban centres. Similarly, departures are motivated by workers' children who go study or work in another city. Other employers mentioned that workers who come from outside of the Lower St. Lawrence sometimes have a hard time adapting to the region. Some participants reported, on the other hand, that the region is sometimes an asset. The quality of life and outdoor activities entices some workers in science and to stay in the Lower St. Lawrence, and thus in the organization that hires them. Other than personal reasons related to employees' adaptation to the region, employers mentioned that some of their employees left to go back to school in the hopes of changing to a career that suits them better.

3.2 Retention strategies and practices

Our results show that few businesses developed a formal retention strategy. Most of the employers interviewed dealt with voluntary departures reactively and one at a time. However, when they acted in a preventive fashion, employers used hiring strategies, which is to say that they favoured candidates from the Lower St. Lawrence Region. Some employers went as far as considering only candidates from the region, completely excluding those from elsewhere. In this regard, a few employers explained that they purposefully did not fill some positions due to the lack candidates from the Lower St. Lawrence. They decided not to call on HSWST from other regions because of their fear that they would quickly leave the organization. Employers' retention strategies also rest on the use of students in training and the development of a social network to stay informed about potential candidates for long-term work relationships.

Employers tried to improve their retention capacity for HSWST by offering open-ended contracts and attractive salaries. They also avoided layoffs even in periods of low activity and used these periods to train employees or give them new tasks. Maintaining interesting terms of contract was thus a retention strategy used by employers in the Lower St. Lawrence Region. When departures were announced, employers were sometimes willing to negotiate with employees to convince them of staying. Similarly, in order to keep their science and technology workers, several employers were more flexible concerning work schedules and work locations, and also offered personalized working conditions and a career plan.

A few businesses, although much less numerous, employed other strategies, such as welcoming and integrating procedures with follow-up, services (ex., daycare centres and dry-cleaners), a recognition gala, and activities to help create a good job atmosphere and a sense of belonging. The purpose of all these activities is not only staff retention, but they contribute to it.

Finally, some participants considered work in itself as a criterion for retention in their organization. Interest in the work, diversity in tasks, and versatility would indeed be retention factors. However, only few employers mentioned these elements. In addition, they were more of an observation than strategies actually implemented to retain employees.

4. Discussion

The causes of voluntary turnover identified by employers rest on the three categories mentioned above, which is to say the economic context, the organizational context, and individuals themselves. The causes related to the economic context seemed particularly significant to the participating employers. While studies show that in general perceived job alternatives and their attractiveness have a weak to moderate effect on the decision to leave the organization (Griffeth, Hom & Gaertner, 2000; Price, 2001), some participants saw there an important relationship. In accordance with these studies, they reported that economic context was taken into consideration in the decision to leave, without it being however its main cause. Alternatives were considered when workers in science and technology were dissatisfied with their working conditions. In fact, working conditions were the most important turnover antecedent according to the employers interviewed. Several of them mentioned that insufficient salary, fringe benefits, and pension funds were at the root of departures. As shown in studies (Price, 2001; Luna Arocas & Camps, 2008), employers perceived dissatisfaction regarding these elements; satisfaction acting as a mediator variable between working conditions and turnover. Employees attitudes, like satisfaction, were therefore taken into consideration by employers when to explain turnover. Nevertheless, very few of the participants identified the most significant antecedents to satisfaction and organizational commitment as being sources of turnover. Although promotion opportunities were mentioned by a few employers, this was not the case for organizational justice, organizational support (Ko, Price & Muller 1997; Mansell, Brought & Cole, 2006), role clarity (Chatterjee, 1992), as well as opportunities for developing competencies, and self-expression (Meyer & Allen, 1988), which are the most significant factors of organizational commitment and satisfaction, themselves considered as being the best retention predictors (Griffeth, Hom & Gaertner, 2000). However, according to these employers, regarding the causes related to the individual, the personal and family situation of workers in science and technology would largely explain departures. Yet, according to literature, the relationship between employees' personal and family characteristics and turnover remains relatively insignificant (Cotton & Tuttle, 1986; Iverson & Pullman, 2000; Griffeth, Hom & Gaertner, 2000; Fields, Dingman, Roman & Blum, 2005).

Despite having identified some factors at the root of turnover in their organization, the employers interviewed said they were generally satisfied with their current retention capacity. This situation is not surprising since labor shortage is not prevalent in all sectors of science and technology; however, the weak rate of job vacancy in this field suggests a tightening in some sectors where scarcity may increase in the coming years (CETECH, 2010). In this respect, while some employers were worried about their future retention capacity, others did not perceive this forecasted shortage.

Some employers being unconcerned with their retention capacity, formal strategies to counter turnover were absent in several of the organizations studied. In fact, only one large organization implemented formal staff retention practices. This widespread absence of strategies can also be explained by their more pronounced preoccupation with attracting staff and their feeling of powerlessness in the face of this phenomenon. Indeed, these employer perceptions regarding the causes of voluntary turnover in their organizations reveal both job-related factors and factors unrelated to employment. They claimed to be able to act on some factors, while having no control over other factors. Factors related to science and technology workers' personal and family situation are doubtlessly difficult to avoid. In this way, employers' strategies rested largely on attracting people who have personal characteristics that promote a long-term work relationship. Where candidates come from thus plays a fundamental role in hiring decisions. In addition, employers tended to adopt all kinds of case-by-case practices to accommodate and satisfy individual employees. They recognized the importance of employee satisfaction and tried to promote it. However, few among them adopted a structured approach to identify the factors behind satisfaction and commitment in their own organization. In this way, they are acting in accordance with their perceptions, by trying to improve working conditions as well as according to employees' ad-hoc and personal requests. This personalization of conditions is in fact described as an important advantage by several participants. It is certainly good in some cases, since it made it possible to avoid some departures, according to employers. However, case-by-case management does not solve turnover problems, which are often managed reactively rather than preventively.

Conclusion

The employers' perception of their retention capacity was generally positive. The turnover rate in the organizations studied remained low and some employers showed confidence in the future. Others were, however, more worried and said they were aware of the shortages to come. Despite this awareness, employers often remained ineffective when faced with staff turnover. They could certainly pinpoint a number of causes for voluntary departures, but few of them adopted a structured approach to identify the actual reasons. In fact, the causes mentioned by the participants did not always correspond with the most significant causes identified in research. We cannot say if employers' point of view corresponds or not with reality. This is one of the key limitations of this exploratory study. This study nevertheless enabled us to identify the strategies used by employers to improve their retention capacity. These strategies are coherent with the causes perceived by employers. Our results, however, reveal that in keeping with the identification of the causes, the strategies implemented were often reactive and unstructured.

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