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Organizational learning among senior public-service executives: An empirical investigation of culture, decisional latitude and supportive communication

Abstract: For several years, organizational learning has been a concept of interest in the search for efficiency, innovation, and knowledge management in both the private and public sectors. In general, three determinants of organizational learning are identified in the literature: the organizational learning culture as a major determinant, the control or decisional latitude that individual employees have over their work, and the impact of supportive supervisor communication. However, little empirical research has been offered to substantiate the relationship between these variables. As part of the national Association of Professional Executives of the Public Service of Canada (APEX) study on work and health, a representative sample of 1,822 public-service executives were surveyed. Results showed that organizational learning culture and decisional latitude played an important role in the acquisition of organizational learner attitudes and behaviour. Supportive supervisor communication was not significantly related to individual organizational learning. This article offers unique empirical evidence concerning the relationship between organizational learning culture, decisional latitude and individual learning attitudes and behaviour. The discussion emphasizes the contribution of theoretical models of organizational learning and suggests future avenues of research.

Sommaire : Depuis plusieurs années, l'apprentissage organisationnel est un concept intéressant pour la recherche de l'efficacité, de l'innovation et pour la gestion des connaissances, à la fois dans les secteurs privé et public. On retrouve générale-

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ment trois déterminants de l'apprentissage organisationnel dans la documentation : la culture de l'apprentissage organisationnel comme déterminant principal, le contrôle ou la latitude de décision que les employés individuels ont sur leur travail, et l'impact de la communication des superviseurs attentionnés. Cependant, peu de recherche empirique a été entreprise pour corroborer les relations entre ces variables. Dans le cadre de l'étude nationale de l'APEX (Association professionnelle des cadres de la fonction publique du Canada) sur le travail et la santé, un échantillon représentatif de 1 822 cadres supérieurs de la fonction publique ont participé à un sondage.* Les résultats ont indiqué que la culture d'apprentissage organisationnel et la latitude de décision jouaient un rôle important dans l'acquisition d'attitudes et de comportements de l'apprenant organisationnel. La communication des superviseurs attentionnés n'était pas liée de manière significative à l'apprentissage organisationnel individuel. Le présent article offre une évidence empirique unique en ce qui concerne les relations entre la culture d'apprentissage organisationnel, la latitude de décision et l'attitude et les comportements liés à l'apprentissage individuel. Le débat met l'accent sur la contribution des modèles théoriques de l'apprentissage organisationnel et offre des pistes de recherche pour l'avenir.

Over the last ten years, organizational learning has been a staple concept in management research.¹ The reason for this emphasis is that survival of an organization depends on its capacity to adapt to environmental changes, and this capacity is intrinsically dependent on learning by individual employees. Technological changes, increased expectations for quality of service, economic pressures and demographic changes also lead to the continuous adaptation of the organization. P.A. Sabatier's theoretical model on knowledge management is also part of this reflection on organizational learning and the impact of external factors on the development of policies to guide the organization towards adaptive learning. According to P. Senge and E. Schein, adaptation within governmental organizations is dependent on executive leadership.²

What factors explain organizational learning in public administration? Our research aimed to provide the heretofore missing empirical evidence by looking at the three factors frequently cited in the literature as determinants of organizational learning. More specifically, our overall goal was to determine the extent to which perceived organizational learning culture, decisional latitude, and supportive supervisor communication can jointly predict the level of individual organizational learning among the senior executives in the Canadian federal public service.

Organizational learning

An organization is a social system whose ability to adjust to its environment

*Cette étude fait partie d'une étude de recherche beaucoup plus vaste qui examine les cadres au sein de la fonction publique fédérale. On trouvera des références au modèle conceptuel intégral dans le « Rapport préliminaire sur l'état de santé des cadres » sur le site www.apex.gc.ca.

is related to members becoming aware of changes in their activity fields, understanding the consequences of these changes, finding appropriate solutions to current and potential problems, and then implementing the solutions. Individual learning is a basic requirement at each stage of the process. As Schein points out, organizational learning only occurs when the organization's individual members learn. A 1994 CCMD report recognized this relationship between individual and organizational learning and put forward a number of examples of organizational interventions that promote individual learning. While individual learning is not always adequate and does not always produce positive results at the organization level, organizations certainly cannot progress if their individual members do not learn.³ In this article, individual learning will be the unit of analysis.

In order for a public organization to become a learning organization, it must count on a learning culture that fosters continuous learning

Organizational learning is defined in many ways in the literature: a cycle or process that facilitates acquisition of knowledge; a process of collective learning through interaction with the environment; a theory of identifying anomalies and corrections through a restructuring of the theory of action by actors; an enhanced ability to achieve desired results; or an organization's ability to use experience to maintain and improve its performance.⁴ For Senge, organizational learning is associated with systems theory – in other words, a set of factors that affect and interact with each other over a period of time in the context of achieving a common objective. In general, all these authors share the view that the overall organizational environment plays a vital role in the process of organizational learning as a whole.⁵

Senge's model

Senge's model is a landmark in the field of organizational learning. By positing a set of five disciplines, he essentially links individual learning to organizational learning: An organization only learns through the learning of its individual members. According to the basic premise of his theory, in any learning organization its main actors (i.e., its senior managers) must master five disciplines or competencies – namely, personal mastery, insight into mental models, building shared vision, team learning, and systems thinking. These competencies are clearly reflected in the publications and discussion papers of the Canadian Centre for Management Development.⁶ There seems to be a consensus in the Canadian public management community about the importance of these competencies and of their impact on organizational

learning among members of the public service.⁷ For instance, the Government of Canada underscored the importance of developing these competencies by publishing a practical guide to help managers transform their work environment into a continuous learning organization. This guide recommends the development of a series of key competencies in line with those presented in Senge's model.⁸

[R]isk-taking, mutual support among employees and knowledge-sharing are essential values for the development of a learning culture

The competency of "personal mastery," Senge's first key competency, relates to an individual's ability to manage his or her own learning – that is, to be able to continually improve his or her ability to achieve new objectives. The second competency, "insight into mental models," refers to the ability to question mental images or representations (e.g., prejudices or stereotypes) that individuals make of themselves and the world around them. The third competency concerns an individual's ability to develop a common vision for the group so as to help others to act on the basis of the organization's goals and values. "Shared vision" helps instil a common goal, create an overarching objective, and engender a new way of acting by maintaining an active learning process. The fourth competency, "team learning," tends to increase the likelihood that learning will be diffused throughout the entire organization via both individuals and groups. Lastly, the fifth competency, "systems thinking," refers to an individual's ability to see phenomena in the context of overall systems, to study cause-and-effect relationships rather than individual events, and to observe processes of change. "Systems thinking" conditions underpin the other four. In summary, although individual learning of these five competencies does not guarantee organizational learning, without individual learning, organizational learning is impossible. In conformity with Senge's view, the extent to which each of these five competencies is evident in an organization indicates the organization's ability to qualify as a learning organization and constitutes a measure of its potential for organizational learning. The configuration of these learning competencies and behaviour in organization members would represent a measure of individual organizational learning.

Factors associated with organizational learning

Many factors at structural, behavioural and cognitive levels can be expected

to either facilitate or impede organizational learning. Organizational culture, participation in decision-making (decisional latitude) and supportive supervisor communication have an impact on individual and collective learning.⁹

Organizational culture

In order for a public organization to become a learning organization, it must count on a learning culture that fosters continuous learning.¹⁰ According to Peter Aucoin and Ralph Heintzman, continuous learning is the most significant dimension of accountability. Its importance has been repeatedly stressed by focus groups on learning led by the Government of Canada. In fact, these groups recommend the creation of a culture based on continuous learning throughout the public service of Canada, stating that continuous learning is essential if this institution is to fully achieve its mandate.¹¹

Organizational culture has been defined as a set of attitudes, values, goals and practices that characterize an organization. It is a set of implicit assumptions that are taken for granted by a given group and that determine how the group perceives, thinks and reacts in various environments; a set of values, beliefs and ways of thinking that are shared by the organization's members and that are taught to new members.¹²

One approach often used in evaluating an organization's culture is to focus on the values that the organization promotes. Generally speaking, an organization's values represent the most concrete expression of organizational ideology, and all organizations tend to adopt and maintain their own system of values. R. Daft points out that the strength of an organization's culture is based on the degree to which specific values are shared among the organization's employees. The 1994 CCMD report on the creation of a learning organization states that the promotion of risk-taking, mutual support among employees and knowledge-sharing are essential values for the development of a learning culture.¹³ Along the same lines, Yeung et al. maintain that a learning culture should promote values such as proaction and experimentation, knowledge acquisition, knowledge-sharing, reciprocity, risk-taking, and recognition of the opportunities created by change. In short, these authors strongly endorse the idea that an organization's values represent both a central construct for understanding its organizational learning culture and a pillar of its learning culture. Hence, executives who perceive their organization as promoting these values have a greater tendency to adopt attitudes and behaviour favourable to learning.

Although authors agree on the influence of an organization's culture on organizational learning, little empirical evidence is available to support the belief. In our study, we will attempt to verify the hypothesis that the values proposed by Yeung and his colleagues orient senior managers towards adopting the learning behaviour patterns associated with the five competencies identified by Senge.¹⁴ Thus, our first hypothesis: *The more an organiza-*

tional culture is oriented towards learning, the greater the increase in individual organizational learning.

Decisional latitude

Decisional latitude is defined as the ability of workers to control both their own work and the use of their abilities.¹⁵ Decision-making autonomy is a key component of workplace learning because it stimulates expression of the strengths and potential of both individuals and work teams. In the public service of Canada, the concept of delegation of authority in decision-making is considered to be a determining factor in fostering ownership of problems by the individuals involved, as well as a determining factor in learning.¹⁶

[T]he public service, just like any other organization, faces multiple challenges that necessitate fast and continual adaptation

There is some debate as to whether decisional latitude, or participation in decision-making, is in fact just a sub-dimension of organizational culture. Authors, such as S. Zamanou and S.R. Glaser, associate these two concepts.¹⁷ Others contend that an organizational learning culture can exist when decisional latitude is limited by the nature of the problem or solution at hand, by the type of organization or by the individual characteristics of the people involved.¹⁸ The only empirical evidence on the issue suggests that the concepts "organizational learning culture" and "decisional latitude" are actually two different constructs.¹⁹

The few studies that have investigated the work environment as a vector of individuals' development and growth follow the work of R. Karasek and T. Theorell. Their model postulates that a high workload and a low level of decisional latitude (low control) presage negative learning outcomes by employees.²⁰ On the other hand, a high level of decisional latitude is likely to produce more opportunities for employees to develop their abilities. Data suggest that decisional latitude is the main factor that affects learning.²¹

In summary, decisional latitude is considered by several authors to be a key component of workplace learning. However, despite the popularity of the concept, few empirical studies to date have focused explicitly on the connection between decisional latitude and organizational learning. In this respect, the second objective of our study was to test the degree to which decisional latitude was indeed linked with organizational learning. Our second hypothesis: *The more decisional latitude is perceived to exist, the greater the increase in individual organizational learning. This association would be observed over and above the contribution of the organizational culture.*

Supportive supervisor communication

Several authors on organizational learning suggest that supportive supervisor communication fosters more advanced learning. For example, in the theory of organizational learning developed by C. Argyris and D. Schon, the quality of superior sub-communication is identified as an important part of the organizational learning process. For these authors, supervisor support within an organization is one factor that helps stimulate critical examination of the premises underlying decision-making, thereby creating a non-defensive overall working climate; this process is what they called "double-loop learning."²² According to this model, double-loop learning is negatively influenced by the normal tendency of human beings to create defense mechanisms to protect their image and self-respect. However, a defensive attitude acts as a barrier to learning because it inhibits individual thinking about the organization's basic problems, such as the relative value of either its objectives or the projects the individual is working on. In theory, this defensive attitude can be alleviated if support and a climate of trust exist between superiors and subordinates. The quality of the supervisor-employee relationship and the supervisor's ability to openly discuss opinions and ideas and to encourage risk-taking and experimentation are recognized in the federal public service as prerequisites for creating a learning environment. These conditions are clearly reflected in CCMD's various training programs.²³ A supportive relationship with their respective supervisors encourages subordinates to think for themselves regarding the relevance of their work objectives, the quality of their work and their performance at work. What is more, it also encourages them to raise basic, unsettling questions that challenge some of the organization's standards, values, policies, practices and procedures without fear of negative personal consequences. Several types of management behaviour that foster the development of a relationship of mutual trust have been proposed. For example, A.M. Elliger argues that managers who assume the role of teacher, facilitator and helper will have a greater effect on organizational learning.²⁴ Therefore, our third hypothesis: *Supportive supervisor communication will positively affect individual organizational learning over and above that provided by organizational culture and decisional latitude.*

Bureaucracy and organizational learning

Bureaucracies are often criticized, on the one hand, for their inability to manage uncertainty and environmental complexity, and, on the other, they are also criticized for their inability to maintain the learning activities required to adjust to change. According to some authors, bureaucratic structures create a barrier to learning.²⁵ However, such a conclusion has not been based on empirical research. As O. Brodrick points out, the public service, just like any other organization, faces multiple challenges that necessitate fast and continual

adaptation.²⁶ As procedures quickly become outdated, prompt actions are needed to allow the public service to meet the requirements of a dynamic environment. Although it is possible that bureaucratic characteristics such as specialization and formalization can inhibit learning, it cannot be stated that the bureaucratic structure is the core factor that limits learning in such organizations. Nor can it be stated that a bureaucracy is simply a mechanical structure in which everything is already programmed. There are clearly important differences between various bureaucracies in terms of their respective missions, strategies, cultures, communication climates, and formal or informal systems that foster learning.²⁷ To become learning entities, organizations need both flexibility and stability in their management of environmental complexity.²⁸ Stability is thus not in itself a factor that is detrimental to learning.²⁹ Several authors now acknowledge that even within the bureaucratic environment of the public service, learning organizations can develop.³⁰

In summary, in our study, we hypothesized that in a bureaucracy, an organizational learning culture will be positively linked to individual organizational learning, enhanced decisional latitude, and supportive supervisor communication. To date, there has been no research examining the relationships among these three variables and individual organizational learning. In the absence of a clear theoretical model clarifying the moderating effect of these variables in the equation, the role of their interactions will be analysed on a purely exploratory basis.

Methodology

Survey respondents

Data came from the APEX (Association of Professional Executives of the Public Service of Canada) national survey. The APEX study was carried out to assess the health of senior executives and to identify those organizational parameters most conducive to creating a "learning" organization. In this context, the human resources branch of each department and agency was responsible for distributing the questionnaire, in February 2002. In total, 3,670 senior management executives in the federal public service received the questionnaire. The complete kit included a questionnaire in French and in English, a bilingual letter of participation and informed consent, and a pre-paid return envelope addressed to a non-government post office box. The replies remained anonymous, and the results were compiled by a team of researchers. Nearly forty-seven per cent of the EX-level managers responded. Table 1 shows the composition of the sample compared with the composition of the EX-level population of the federal public service.

Comparative analysis revealed that the sample closely reflected the composition of the national EX-level population in terms of gender, hierarchical level (EX1 to EX5) and age.³¹ In terms of highest educational level, 2.1 per cent

Table 1. *Composition of the Sample compared with the Overall Composition of EX-level Managers in the Federal Public Service, in Percentages (N = 1,732)*

	Sex		Hierarchical level					Age category					
	Male	Female	EX1	EX2	EX3	EX4	EX5	≤40	40-44	45-49	50-54	55-59	≤60
Population	68	32	52	25	16	5	2	6	13	24	35	18	4
Sample	67	33	51	26	15	6	2	5	13	23	35	19	4

of the respondents had a high school diploma, 10.4 per cent a college diploma, and 87.5 per cent a university degree of some kind.

Measurement of predictor variables

Organizational culture was measured with Yeung et al.'s scale.³² Participants indicated their level of agreement from 1 to 7 ("totally disagree" to "totally agree") with twelve statements representing values oriented towards organizational learning (e.g., "My organization welcomes open inquiry and self-analysis."). Internal consistency was high, at .92.

The decisional latitude measurement scale was taken from the work of J.J. Hurrell and M.A. McLaney.³³ Ten items measured the degree of control exercised by respondents over various aspects of their work. Participants were asked to respond on a scale of 1 to 5 ("very little" to "enormously") to the following instructions: "Indicate the degree of influence you currently exert over each of the various factors below. By 'influence,' we refer to the degree of control that you exert over what is done by others and the freedom of choice that you have in your own work. How much influence do you have over: 1) the availability of supplies and equipment you need to do your work? 2) etc." The internal consistency of the scale was estimated to be 0.84 ($M = 3.47$, $SD = 0.66$).

The measurement of "supportive supervisor communication" consisted of items from the work of L. Duxbury and C. Higgins.³⁴ Respondents were asked to assess sixteen statements on a scale of 1 to 5 (from "strongly disagree" to "strongly agree") using the following instruction: "My manager/superior: 1) Gives recognition when I do my job well. 2) etc." The internal consistency of this scale is estimated to be 0.90 ($M = 3.64$, $SD = 0.81$).

Measurement of the criterion variable

An individual organizational learning (IOL) scale, developed by A. Ieroncig and her colleagues,³⁵ operationalizes Senge's five competencies (i.e., "personal mastery," "insight into mental models," "building shared vision," "team learning," and "systems thinking." A preliminary version of the scale contained eighteen pertinent items and five neutral items. Validation of the scale was established by first administering the scale to twenty-eight senior managers. Respondents were required to indicate on a scale of 1 to 6 (from

“totally agree” to “totally disagree”) the degree to which each item reflected one or another of Senge’s competencies of individual organizational learning. An item analysis indicated that the respondents were able to clearly distinguish the items associated with Senge’s model ($M = 5.31, SD = 0.109$) from the neutral items ($M = 3.53; SD = 0.152$) ($t = 11.94, p < .001$), thus showing that the measurement used referred to the organizational learning construct in Senge’s model. The ten strongest items, chosen by over eighty-five per cent of the respondents with a rating of 4 or over on a six-point scale as reflecting one of Senge’s learning competencies, were retained.

Participants indicated their level of agreement to each statement (e.g., “Over the past year, in my role as leader I have assessed environmental opportunities and threats that affected my work unit accurately.”) on a scale of 1 to 5 (from “strongly agree” to “strongly disagree”). Factor analyses confirmed the scale’s uni-dimensional component representing individual organizational learning. Cronbach alpha was .83 ($M = 3.92, SD = 0.48$).

Analytic strategy

A multiple regression with forced entry was performed to determine the relative importance of organizational culture, decisional latitude and supportive supervisor communication in predicting organizational learning. The model first tested controlled for age, gender, education and hierarchical level. While these demographic variables can be interesting, the purpose of this study was to investigate the interplay between other organizational factors predictive of individual organizational learning. The three predictors of interest – “organizational learning culture,” “decisional latitude” and “supportive supervisor communication” – were then entered simultaneously into the regression equation.

Results

The three main hypotheses about the direct effects of organizational culture, decisional latitude and supervisor support were tested. First, all variables were entered simultaneously in the model to test out their combined effects. Subsequently, the effects of interaction were checked using separate models. The results on the means (see Annex) show that the respondents have a positive perception of their organizational learning culture ($M = 4.47$). They also perceive their individual organizational learning levels fairly high ($M = 3.92$) On the other hand, the executives are only slightly in agreement ($M = 3.47$) that they receive supervisory support and work in an environment that encourages decisional latitude ($M = 3.47$). The correlations show that all of the variables are positively co-related in the directions expected. All the correlations between individual organizational learning and other variables are greater than .25, with the exception of supportive supervisory communication ($r = .12$).

As predicted in our first hypothesis, the results of the regression analyses show that a learning culture milieu supports an increase in organizational learning. When all the variables are entered simultaneously into the model, it is the latter that accounts for seven per cent of the variance. The second hypothesis is also confirmed in the regression analyses. In effect, the results show that the more executives have greater decisional latitude in their work, the more organizational learning will increase. This variable accounts for three per cent of the additional variance. Contrary to the first two hypotheses, the third was not supported by these results. Even though the supervisory support was positively correlated with organizational learning ($r = .12$), in the regression analysis, this variable did not contribute significantly to an increase in individual organizational learning outcomes.

[D]ecision-making autonomy is a key component of workplace learning because it stimulates expression of the strengths and potential of both individuals and work teams

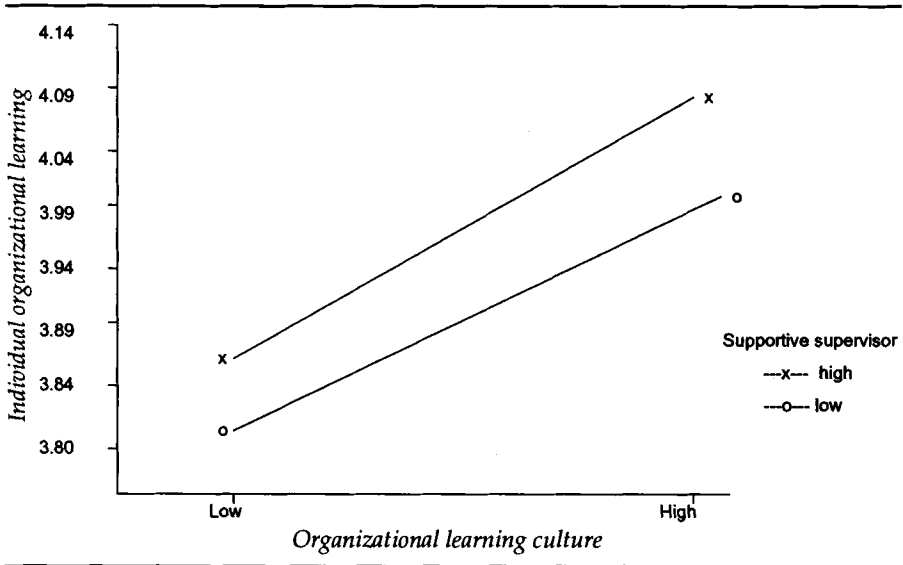
Exploring interactions between the various predictor variables, a significant but small size interaction ($R^2 = .01$) was found between organizational learning culture and supportive supervisor communication. An analysis of means, after splitting the groups on the median, indicated that individual organizational learning was greater ($M = 4.06$) for those executives who perceived a strong organizational learning culture and high level of supportive supervisor communication compared to those who either reported: 1) high organizational learning culture and a low supportive supervisor communication ($M = 3.98$); 2) low organizational learning culture and a high supportive supervisor communication ($M = 3.86$); or 3) low organizational learning culture and low supportive supervisor communication ($M = 3.81$) (See Figure 1).

Discussion

Theoretical implications

The goal of our study was to determine to what extent organizational learning could be predicted by a strong organizational learning culture, increased decisional latitude, and supportive supervisor communication.

Though theoretical links have often been proposed between an organizational learning culture and individual organizational learning, little empirical research had verified this relationship in organizations, and even less so in bureaucracies. The results of the regression analyses support the first hypotheses, which states that the perception of an organizational learning

Figure 1. *Significative Interaction*

culture is positively related to individual organizational learning. The importance of the organizational learning culture variable compared to the others is aligned with the theoretical proposals of E.H. Schein, who advances that the organizational culture is a major predictor of the organizational learning process. Our results are also in line with those of Yeung et al., who advocate that some specific organizational values support a favourable context to organizational learning. The measurement of the organizational culture developed by Yeung and his colleagues is restricted to the presence of certain specific values (e.g., proaction). Although an organizational learning culture could be apprehended in many other ways (e.g., artefacts, basic assumptions), their instrument is a step in this direction, since few authors have operationalized the construct.³⁶

The results of our regression analyses also support the second hypothesis. The variance explained by decisional latitude, over and above the effect of the organizational learning culture, supports the idea that decisional latitude is a determining variable for stimulating individual organizational learning. These results confirm the opinion of several authors who affirm that decision-making autonomy is a key component of workplace learning because it stimulates expression of the strengths and potential of both individuals and work teams. Our results support also Schein's model, which makes participation in decisions a central theme of his theory.³⁷

Actually, the concept of decisional latitude is closely linked with the con-

cept of empowerment. Both definitions imply delegation of responsibility and decision-making authority with respect to one's own actions.³⁸ We did not measure directly the concept of empowerment. However, research and theoretical models that deal with the concept of empowerment can contribute to a better understanding of the potential effect of decisional latitude on individual organizational learning. For example, models developed by R.L. Robbins, M.D. Crino and L.D. Fredenhall on the empowerment process clarify the role of contextual, environmental, cognitive and behavioural variables in the authority-delegating process. These authors consider that the control that individual employees have over their duties represents a way to increase learning through the creation of opportunities for more varied experiences, which in itself has a positive effect on employees' feelings of self-efficacy, feelings that naturally generate stronger motivation towards their work.³⁹ In this regard, there is considerable consensus that diversity of experience is a critical factor in the acquisition of the knowledge and tacit skills required to solve work-related problems, especially those in the management area.⁴⁰ Lastly, interesting links have been discovered between empowerment and the level of effort and persistence when faced with a difficult situation, and the ability to learn new tasks.⁴¹ These formulations about empowerment are consistent with research conclusions on decisional latitude.⁴² These studies show that increased decisional latitude is associated with enhanced motivation to learn and to use one's abilities.

The challenge for an organization facing an increasingly complex environment is how to change its traditional culture to a learning culture that involves critical appraisal and system thinking

The results confirm the first and second hypotheses. However, they must be interpreted with care, given that it is always possible that the answers were skewed positively (upward bias). The executives having a positive opinion of their organizational culture could give favourable scores of organizational learning, thus over-estimating the bond between the variables. Yet, the opposite phenomenon could also have occurred. Indeed, the results of APEX⁴³ showed that one in five executive was disillusioned and negative about their organization, thus the bias could be a negative one. If such is the case, the results obtained would be then an underestimation of reality.

The absence of interaction between organizational culture and decisional latitude in furthering more organizational learning suggests that the organizational learning culture can have an impact on the individual organizational learning independently of the degree of decisional latitude. This point

converges towards the results of M.A. Thompson and W.M. Kahnweiler, which suggest that the two concepts can act independently.⁴⁴

The third hypothesis – the unique contribution of supervisor support – was not corroborated. The significant first-order correlation (.49) between this variable and organizational learning culture may explain the absence of a unique relationship. In theory, supportive supervisor communication reduces defense mechanisms and encourages subordinates to examine both their own objectives and those of their organizations. In practice, study findings have provided equivocal empirical support of significant association between supportive communication and less defensive behaviour. For example, G. Green and W. Schumann have shown that a supportive communication does not necessarily lead to openness and a willingness to question one's own behaviour, objectives and the organization's way of doing things. Indeed, for individuals to question both themselves and the status quo, the relationship of trust has to extend beyond the superior-subordinate dyad and include an overall perception of trust embracing the whole organization.⁴⁵ We obtained an interaction between culture and supportive supervisor communication. The significant interaction suggests that supportive supervisor communication can make a positive contribution to learning, but in a restricted way ($R^2 = .01$) in an environment where the organizational learning culture is weak.

Practical implications

The public service of Canada has attempted to enhance the potential for learning within the executive community through a number of initiatives that take into consideration the key aspects of learning organizations. However, the success of these efforts is affected by the ever-changing political and social environment both within and outside of the public service. The shifting nature and scope of learning activities are largely due to factors that divert resources, including the availability not only of courses but the time available to executives to access them.

Our results suggest that individual organizational learning can be enhanced by an environment that advocates values that are supportive of individual and collective learning. The challenge for an organization facing an increasingly complex environment is how to change its traditional culture to a learning culture that involves critical appraisal and system thinking. In this respect, the task of promoting learning-culture factors is largely the responsibility of senior management, whose primary role is to create a strong culture. The findings of this study bring food for thought on how to orient management action in this direction. In fact, a number of subsequent analyses indicate that certain organizational characteristics are more likely than others to foster development of key organizational learning skills. Thus, analysis of correlations higher than 0.20 between measured items and

the dependent variable suggest that individual organization learning would be fostered by an environment that 1) considers learning as an important value and officially commits itself in this regard, 2) expresses appreciation for the work performed and encourages experimentation, self-questioning and reciprocity, 3) maintains an enjoyable working atmosphere, and 4) keeps its members informed about both the internal and external environment. In practical terms, our research makes it possible for federal public service managers to identify an important tool that can be used to increase individual organizational learning along these lines.

Our study focuses on executive leaders for whom the incentives and opportunities for learning will be quite different from those in other categories of employees. For example, some of the incentives at this level include potential for career advancement, more status and visibility in the organization, and greater degree of influence. The opportunities for this group may also be greater, including access to training budgets, possibility of external courses, special learning assignments or a professional coach. At the same time, it is important to recognize that these incentives and opportunities are in the organization's interest, since executive leaders have a wider impact within their roles and responsibilities. In addition, one must recognize the difference between individual leadership training and organizational learning. While these opportunities for individual development increase acquisition of new knowledge, it is the mastery of key competencies by the leader that permits the advancement of a learning organization.

Future directions

The measurement tool we developed, based on Senge's definition of organizational learning, is a first step to empirically assess individual organizational learning. It appears necessary in future research to expand the measurement and include other concepts proposed by C. Argyris and D. Schon or by N.M. Dixon.⁴⁶

The concept of organizational learning culture, as defined by Yeung et al., was also the only published measure with empirical data available for the construct.⁴⁷ However, other values promoted by organizations could also have an impact on learning. In future research, it would be interesting to extend this measurement to a set of other basic values (such as accountability and transparency) to obtain a more complete portrait of the organizational culture concerned and to study the relationship between these additional values and individual organizational learning.

The concept of the organizational learning culture is a construct still in development. In this regard, the dimensions proposed by E. Schein, such as measuring the degree of confidence in the organization, the balance between a work-centred orientation and interpersonal relations, or even the internal communication network, are elements that could be added.⁴⁸ Nevertheless,

the scale prepared by Yeung et al. has the advantage of being designed on the basis of actual working environments. In the future, researchers could introduce structural variables related to human resource management systems, such as training, compensation and performance management, in order to verify their relative contribution to individual organizational learning.

Limitations

Of course, given the cross-sectional and self-reported nature of the design, one limitation in our study is the risk of common variance among the variables, especially that of the individual organizational learning in conjunction with culture-related assessments – that is, relying on executives reporting both their perception of the organization and of their own behaviour. In practice, the respondents might have oriented their responses on learning-related items so as to confirm the value of an organizational learning culture. It would therefore be desirable in future research for researchers to obtain data from other sources when establishing the culture characterization.

As a correlational design, our results do not allow us to establish a cause-and-effect relationship between the independent variables and individual organizational learning. In order to confirm this type of relationship, a longitudinal study pairing participant response at various time points, along with a planned intervention would be required. An anonymous confidential survey cannot allow for this.

Despite the above limitations, this study provided rare empirical corroboration showing that an organizational learning culture and decisional latitude are two dimensions linked to individual organizational learning. This study is the first to our knowledge that has demonstrated the relationship between organization learning culture and individual organizational learning behaviour and competencies in the public sector. These results go against certain claims that organizational learning is absent or very limited in a bureaucracy. Despite the characteristic stability of the overall organization, bureaucracies, like other organizations, need to adapt to the challenges that their environment poses, especially in the areas of technology, socio-cultural and international contexts, human resources, as well as in their respective markets (the specific population groups they serve). Our study contributes to a better understanding of certain factors that can facilitate this adaptation.

Annex

Table 2 displays the means, standard deviations and correlations of the study variables. Significant correlations ($p < .001$) were found between the predictor variables and the measurement of individual organizational learning in the direction expected. Zero-order correlations between the predictor variables and the outcome variable were first examined. Examination of the

Table 2. Descriptive Statistics and Correlation for all Study Variables (N=1,732)

Variables	M	SD	1	2	3
Org. learning culture	4.47	1.07	–		
Supportive supervisor comm.	3.64	0.81	0.49***	–	
Decisional latitude	3.47	0.66	0.36***	0.39***	–
Individual org. learning	3.92	0.48	0.26***	0.12***	0.25***

*p < 0.05; **p < 0.01; ***p < 0.001. All correlations significant at p < 0.01.

Table 3. Regression between Measurement of Individual Organizational Learning and the Predictor Variables of Organizational Learning Culture, Decisional Latitude and Supportive Supervisor Communication (N = 1,732)

Variables	B	SE B	β	F ^{change}	ΔR ²	R ² _{adjusted}
Step 1: Control Variable (education)	-0.03	0.01	-0.07	13.20	0.008***	0.008
Demographic variables						
Step 2: Main effect						
Organizational learning culture (A)	0.09	0.01	0.22	122.97	0.060***	0.07
Decisional latitude (B)	0.13	0.02	0.19	51.03	0.027***	0.10
Supervisor support (C)	-0.02	0.02	-0.03	4.443	0.002*	0.10
Step 3: Interaction terms						
A × B	-0.03	0.01	-0.05	0.116	0.000	0.10
A × C	0.06	0.01	0.11	19.27	0.010***	0.11
B × C	-0.01	0.02	-0.02	0.43	0.000	0.11
A × B × C	-0.00	0.01	-0.00	0.03	0.000	0.11

*p < 0.05; **p < 0.01; ***p < 0.001.

Note: Of demographic variables, gender, age, hierarchical level and educational level, only education was significant.

pattern among variables revealed a moderate correlation of .27 between individual organizational learning and an organizational learning culture, indicating these two constructs were perceived as different by respondents.

Because the predictors were inter-correlated, the variance inflation factors (VIFs) were checked. J. Stevens noted that VIFs should not exceed 10.⁴⁹ All VIFs in the regression analyses here were below 1.7.

Table 3 presents the results from the multiple regression analyses. As can be observed, our first hypothesis was corroborated in Step 2 of the regression. Multiple regression results indicated that organizational culture significantly explained the variance in individual organizational learning (F^{change} [1,1729] = 122.97, ΔR² = .07, p < .001). Specifically, the more executives perceived that their organizations value an organizational learning culture, the more likely they were themselves to demonstrate behaviour consistent with those values.

Our second hypothesis was also confirmed. As anticipated, decisional lat-

itude contributed significantly to the variance in individual organizational learning over and above that provided by an organizational learning culture ($F^{\text{change}} = 51.03 [1,1728]$, $\Delta R^2 = 0.03$, $p < 0.001$).

Our third hypothesis postulated that the supervisor supportive communication would predict individual organizational learning over and above organizational culture and decisional latitude. Although the variable was positively and significantly correlated with individual organizational learning ($r = 0.26^{***}$), the regression beta coefficient was non-significant ($-.06$). However, cross-validating the results on two random sub-samples did not produce the same result, suggesting a marginal statistical artefact. Therefore, our third hypothesis was not supported.

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Nous vous avons **très bien entendus !**

- Comment les organismes publics peuvent-ils employer l'imputabilité comme une force positive et un instrument utile pour atteindre leurs objectifs ?
- Comment pouvons-nous recadrer la discussion au sujet de l'imputabilité en se concentrant sur l'amélioration, l'innovation et le rendement des organismes plutôt que « sur qui rejeter la faute » ?
- En quoi la responsabilisation et la gestion du rendement sont-elles le complément de l'innovation ?
- Comment les ententes de responsabilité individuelles s'adaptent-elles à l'ensemble d'un organisme aux fins de réaliser les résultats escomptés ?
- Comment assurons-nous la responsabilisation à l'égard des résultats ?

Les gestionnaires du secteur public au Canada ont besoin d'un forum indépendant pour établir des relations, transférer le savoir et se perfectionner afin d'améliorer le rendement et la compétitivité des organismes dans un environnement de transparence et responsabilisation.

Pour faire écho à ce besoin, L'Institut d'administration publique du Canada (IAPC) a le plaisir d'annoncer l'établissement d'un **Centre d'excellence sur la gestion du rendement et l'imputabilité (CEGRI)**.