
Foundations for a learning organization: organization learning mechanisms

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Keywords

Learning organizations, Workplace learning

Abstract

This paper outlines the results of research currently being carried out at Victoria University, Australia, into what is a learning organization, how organizations learn, and how to develop a learning organization. The objective of the present study was to identify the components that underpin the development and operation of a learning organization, i.e. the foundations, or organizational learning mechanisms, that support the development and maintenance of a learning organization. The study identified four facilitating mechanisms: the learning environment, identifying learning and development needs, meeting learning and development needs and applying learning in the workplace. Factor analysis of the learning environment questionnaire identified 12 scales that supported the structural hypotheses, 11 of which had minimum reliability coefficients of 0.70 and above. This research provides an instrument for systematically measuring and monitoring progress towards achieving a learning organization.

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Introduction

There is little opposition to the premise that organizational learning is a competence that all organizations should develop in fast-changing and competitive environments (Hamel and Prahalad, 1994; Nonaka, 1991; Senge, 1992). Easterby-Smith and Araujo (1999) distinguish between organizational learning, which concentrates on the observation and analysis of the processes involved in individual and collective learning inside organizations (Argyris and Schon, 1978; Dodgson, 1993; Fiol and Lyles, 1985; Huber, 1991; Kim, 1993; Levitt and March, 1988; Romme and Dillen, 1997; Shaw and Perkins, 1992; Shrivastva, 1983; Stata, 1989), and the learning organization literature that has “an action orientation, and is geared toward using specific diagnostic and evaluative methodological tools which can help to identify, promote and evaluate the quality of learning processes inside organizations” (McGill *et al.*, 1993; Nonaka, 1991; Senge, 1992; Ulrich *et al.*, 1993). The main focus of the latter is on individual and group outcomes, including production, rewards, and tools and techniques such as “dialogue” and systems analysis. Huysman (1999, p. 61) summarises various definitions (for example, Garvin, 1993; Pedler *et al.*, 1991) of a learning organization “as a form of organization that enables the learning of its members in such a way that it creates positively valued outcomes, such as innovation, efficiency, better alignment with the environment and competitive advantage”. In addition to distinguishing between the above “means” (organizational learning) and “ends” (learning organizations) Finger and Brand (1999, p. 137) conceptualise the learning organization as a strategic objective “like, for example, increased profitability or customer satisfaction”.

This study does not fit neatly into either category. Its purpose was not to identify learning processes nor the tools that could be used in creating a learning organization, but rather to map the context within which learning could occur, that is, the organizational processes and structures that can create or improve learning opportunities. These underlying structures are called organization learning mechanisms (OLMs). OLMs are the cultural and structural facets of an organization that facilitate the development of, improvement to and renewal of a learning organization. Without these mechanisms, a learning organization is unlikely to emerge.



The cultural facets consist of a set of shared values, norms beliefs, attitudes, roles, assumptions and behaviours that enable real learning (Argyris and Schon, 1978). Senge (1992) also speaks of a shared vision in mental models embedded in the culture of an organization. The shared vision, which enables a learning culture to develop, is reflected in such things as commitment to resources for learning prerequisites such as identifying learning needs and delivering training activities. Other values that could influence learning could include, for example, the shared or disparate perceptions of the role of learning in achieving organization performance by individuals and their supervisors, empowerment, innovation and individual responsibility.

The structural facets are the institutionalised structural and procedural arrangements that allow organizations to systematically collect, analyse, store, disseminate, and use information that is relevant to the effectiveness of the organization (Popper and Lipshitz, 1995). Gephart and Marsick (1996), in a framework developed for ASTD, identified such facilitating organizational systems as vision and strategy, leadership and management, culture, change management, systems and processes, communication, information and knowledge systems, performance management and support systems and technology.

Both cultural and structural facets have implications for people's learning at different levels in an organization: individual, groups or teams and at the whole of organization level (Senge, 1992).

From the above discussion, it can be concluded that a learning organization has appropriate "cultural" facets (vision, values, assumptions and behaviours) that support a learning environment; processes that foster people's learning and development by identifying their learning needs and facilitating learning; and "structural facets" that enable learning activities to be supported and implemented in the workplace. These elements formed the basis for operationalising OLMs.

The purpose of this study was to develop a psychometric scale with known psychometric properties that can measure OLMs.

The aims of this research

The purpose of this research was to:

- (1) Identify the support structures, or organizational learning mechanisms,

(OLMS) that underpin the development and operation of a learning organization.

- (2) Identify the organizational learning mechanisms that facilitate organizational learning, i.e. the organizational learning mechanisms.
- (3) Develop an instrument that would aid in the implementation of a learning organization and be able to:
 - measure and monitor the progress of implementation; and
 - detect a decline, deterioration or dysfunction in organizational learning mechanisms.

Methodology

An action learning approach (Pedler, 1983) involved representatives of staff in a large public sector organization in the design and interpretation of the results of the study. Initially the authors drew on the literature to develop preliminary categories of constructs that were selected for investigation. After consultation with a steering committee, workshops with 60 staff, and a pilot study to test the questionnaire, four categories of OLMs were identified, and 65 questionnaire items, representing 12 scales, were included in a learning environment questionnaire (LEQ).

The four categories of OLMs were:

- (1) learning environment;
- (2) identifying learning and development needs;
- (3) meeting learning and development needs;
- (4) applying learning in the workplace.

The researchers designed 12 scales to measure these four categories of OLMs. The 65 items were deliberately chosen to measure the 12 scales. Not all scales are included in the final version of the LEQ. They were included in the initial version of the scale at the request of the sponsoring organization. These 12 scales were called:

- (1) S1 Mission linked learning.
- (2) S2 Facilitative learning environment.
- (3) S3 Mission support.
- (4) S4 Learning identification satisfaction – section/work units.
- (5) S5 Learning identification satisfaction – immediate supervisor.
- (6) S6 Organization support.
- (7) S7 Low personal impact.
- (8) S8 Mentoring and coaching.

- (9) S9 Training satisfaction.
- (10) S10 Learning application – suitability.
- (11) S11 Learning application – effectiveness.
- (12) S12 Learning application – immediate supervisor support and feedback.

Table I indicates the correspondence between the scales and the areas of the questionnaire.

It was hypothesised that if the LEQ were robust and reliable, the analysis of the 65 items would provide evidence for the presence of the expected scales in the structure of the LEQ.

Analysis of the questionnaire

A principal factor analysis with a varimax rotation using SPSS 6.1 was conducted of the items measured in the LEQ[1]. The “expected” factors emerged for each category of OLM without the need of being forced. The factors for each category of OLM are shown in Table II together with their alpha coefficients.

Even though factors emerged as expected, it does not necessarily mean that they form consistent scales. The appropriate analysis for this testing of consistency is reliability analysis (Kervin, 1992). There are three well-known types of reliability analysis: test-retest, alternative forms and internal consistency reliability (Mohapatra, 1993).

Sekaran (2000) suggests that “in almost all cases, Cronbach’s alpha can be considered a perfectly adequate index of the inter-item consistency reliability”. This test gives the

mean value of all the possible ways of splitting scale items and correlating them, giving an overall split-half coefficient, known as Cronbach’s alpha (Mohapatra, 1993). The closer Cronbach’s alpha is to 1.0, then, the more reliable the scale.

The literature suggests that the lower cut-off point for a sufficient coefficient lies somewhere between 0.60 (Mohapatra, 1993) and 0.70 (Kervin, 1992). Therefore, for each of the scales, the question item, its factor loading, percentage of variation explained, its reliability coefficient, and the number of cases is provided.

Of the 12 scales, 11 had reliability coefficients 0.70 or above, seven had reliability coefficients 0.80 or above. Three had reliability coefficients 0.90 and above. The coefficients improved for some scales when they were optimised. This suggests that the scales in the questionnaire, especially those with alphas of 0.80 and above, are meaningful constructs of different aspects of the learning organization. The Cronbach alphas for the scales in the questionnaire are presented in Table II.

Items in the scales

The question items that constitute the 12 scales, S1 to S12, item scale loading and an indication of the spread for the host organization are shown in Tables III-V: the learning environment; Tables VI-VII: identifying learning and development needs; Tables VIII-XI: meeting learning and

Table I Scales confirmed by factor analysis of the items measuring each of the issues

Issue	Factors	Section
Learning environment	S1 Mission linked learning	1
	S2 Facilitative learning environment	
	S3 Mission support	
Identifying learning and development needs	S4 Learning identification satisfaction – section/work units	2
	S5 Learning identification satisfaction – immediate supervisor	3
Meeting learning and development needs	Learning and development needs:	4
	S6 Organization support	
	S7 Low personal impact	
	S8 Mentoring and coaching	
Applying learning in the workplace	S9 Training satisfaction	5
	S10 Learning application – suitability	6
	S11 Learning application – effectiveness	
	S12 Learning application – immediate supervisor support and feedback	7

Table II The Cronbach alphas of the scales in the questionnaire

Issue	Scales	Alpha	Alpha optimised
Learning environment	S1 Mission linked learning	0.92	0.92
	S2 Facilitative learning environment	0.86	0.87
	S3 Mission support	0.74	0.74
Identifying learning and development needs	S4 Learning identification satisfaction – section/work units	0.77	0.80
	S5 Learning identification satisfaction – immediate supervisor	0.94	0.95
Meeting learning and development needs	S6 Organization support	0.79	0.79
	S7 Low personal impact	0.81	0.81
	S8 Mentoring and coaching	0.77	0.77
	S9 Training satisfaction	0.85	0.87
Applying learning in the workplace	S10 Learning application – suitability	0.65	0.66
	S11 Learning application – effectiveness	0.72	0.72
	S12 Learning application – immediate supervisor support and feedback	0.92	0.92

Table III The learning environment

Question no.	S1 – Mission linked learning	N	Disagree	Neither agree nor disagree	Agree	Do not know/Not applicable	Item-total correlation
6	Learning and development plans are linked to ABC's vision, mission and goals	35.8	27.0	25.9	11.4	0.80	
9	ABC sees developing staff as essential to organizational success	33.7	19.7	43.3	3.4	0.77	
11	ABC is an organization that encourages me to learn and develop to my full potential	46.8	23.5	28.3	1.5	0.76	
7	Business plans within ABC identify the resources that will be used to meet training and development needs	34.6	24.9	23.0	17.4	0.73	
8	ABC's learning and development plans focus on continuous organizational improvement	25.7	25.9	38.4	10.0	0.72	
19	ABC evaluates how the development of its people is contributing to business goals and targets	47.5	25.9	13.3	12.7	0.71	
18	ABC has a learning and development process available which includes looking at future job roles	48.9	24.8	18.7	7.7	0.70	
5	ABC has a comprehensive and structured organizational planning process which regularly sets and reviews short and long term organizational goals	34.0	20.9	33.6	13.4	0.67	
10	ABC has a process for regularly reviewing the training and development needs of all employees	37.9	13.5	34.2	4.4	0.67	
2	ABC's mission statement places high importance on developing its staff	36.9	23.7	27.1	15.4	0.61	

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 570; Cronbach alpha = 0.92

Table IV The learning environment

Question no.	S2 – Facilitative learning environment	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree	Agree		
12	ABC has structures and systems that encourage teamwork		33.5	25.7	39.2	1.6	0.68
15	I work in a highly efficient and effective organization		50.5	27.3	20.2	2.1	0.66
13	ABC encourages me to be innovative and entrepreneurial		52.2	24.3	21.3	2.2	0.66
21	The continuing commitment of top management to developing people is communicated to all employees		55.6	24.5	14.9	5.0	0.65
14	Employee multi-skilling is effectively used by ABC to improve organizational effectiveness		42.1	24.1	31.1	2.7	0.62
20	Top management understands the broad costs and benefits of developing people		34.6	26.3	25.9	13.1	0.61
17	My contribution to the organization's performance is recognised		35.9	29.2	31.3	3.6	0.60
23	I am pleased I chose ABC to work for over other organizations I had considered joining		17.3	30.9	42.4	9.3	0.55
22	ABC is an organization that allows me to learn from my mistakes		19.2	32.2	45.5	3.0	0.48
16	I have the necessary skills and knowledge to contribute to the ABC's performance		4.5	11.0	83.5	0.9	0.22

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 652; Cronbach alpha = 0.86

Table V The learning environment

Question no.	S3 – ABC's mission support	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree	Agree		
4	I support ABC's mission statement		8.7	27.9	50.1	13.2	0.66
1	ABC has a mission statement which clearly reflects the purpose of the organization		9.9	11.0	69.3	9.9	0.55
3	I am aware of the mission of ABC		20.1	17.8	51.7	10.3	0.48

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 716; Cronbach alpha = 0.74

Table VI Identifying learning and development needs

Question no.	S4 – Learning identification satisfaction – section/work unit	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree	Agree		
27	My section/work unit has a sound process for prioritising my learning and development needs		42.7	26.9	28.3	2.1	0.71
24	I am satisfied with how my learning and development needs are currently being identified		48.0	21.3	29.1	1.6	0.64
28	The skills of existing employees are developed in line with business objectives		37.1	29.3	26.7	7.6	0.57
26	I participate in staff training, learning and development decisions		18.8	17.2	62.2	1.8	0.51
25	I clearly understand what skills and knowledge I need to be able to do my job well		9.0	9.4	30.7	0.8	0.31

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 782; Cronbach alpha = 0.77

Table VII Identifying learning and development needs

Question no.	S5 – Learning identification satisfaction – immediate supervisor	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree			
33	My immediate supervisor uses a constructive approach to discussing my learning and development needs with me		27.3	25.1	41.3	6.2	0.86
31	My immediate supervisor is committed to me meeting my learning and development needs		22.4	26.9	45.0	5.7	0.85
36	I am satisfied with the agreement I have with my immediate supervisor for my learning and development		26.8	25.9	39.3	7.9	0.82
29	My immediate supervisor and I agree on what my learning and development needs are		20.4	26.7	46.6	6.1	0.81
34	My immediate supervisor encourages me to undertake activities that meet my learning and development needs		18.8	26.5	51.5	3.3	0.81
30	My immediate supervisor and I discuss how my job will change in the future when talking about my learning and development needs		35.3	24.3	34.0	6.4	0.77
35	My immediate supervisor ensures learning and development opportunities are available to all staff in my section/work unit		20.5	22.9	52.0	4.5	0.75
32	My immediate supervisor understands what skills and knowledge I need to do my job well		17.0	20.7	57.9	4.4	0.75
37	I have met with my immediate supervisor within the last 12 months to discuss my learning and development needs		42.6	9.7	43.0	11.8	0.64

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 710; Cronbach alpha = 0.94

Table VIII Meeting learning and development needs

Question no.	S6 – Learning and development need – organizational support	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree			
40	My learning needs are generally met within three months of being identified and agreed		39.8	25.8	24.7	6.8	0.65
41	I am usually able to undertake training programs that meet my training needs		25.6	22.1	49.3	3.0	0.65
39	Where my learning needs require I be absent from my workplace for a period, I am usually released to complete the relevant activity		12.2	12.7	71.7	3.5	0.55
44	I am usually able to undertake learning and development activities with other people from my section/work unit who have similar needs to me		23.6	22.8	48.4	5.2	0.47
38	I have access to information about available learning options and opportunities		16.7	17.0	62.7	1.6	0.44
43	Managers are often involved in delivering the learning and development activities I undertake		52.4	23.5	18.7	5.3	0.42
42	I understand how the learning and development activities I undertake help me to become more effective in my job		4.9	14.2	78.5	2.5	0.40

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 733; Cronbach alpha = 0.79

Table IX Meeting learning and development needs

Question no.	S7 – Learning and development need – low personal impact	N	Disagree	Neither agree nor disagree	Agree	Do not know/Not applicable	Item-total correlation
46	My family is rarely disadvantaged by me undertaking a learning or development activity		52.4	23.5	18.7	0.67	0.68
45	I am rarely financially disadvantaged by undertaking a learning or development activity		23.6	22.8	48.4	0.64	0.68

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 787; Cronbach alpha = 0.81

Table X Meeting learning and development needs

Question no.	S8 – Learning and development needs – mentoring and coaching	N	Disagree	Neither agree nor disagree	Agree	Do not know/Not applicable	Item-total correlation
47	I should have a mentor (senior counsellor) to help me with my career		20.2	23.4	52.7	3.7	0.62
48	I should have a coach (someone to teach me on a one to one basis) to develop me on the job		29.9	29.9	36.3	4.0	0.62

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 817; Cronbach alpha = 0.77

Table XI Meeting learning and development needs

Question no.	S9 – Training satisfaction	N	Disagree	Neither agree nor disagree	Agree	Do not know/Not applicable	Item-total correlation
The following questions refer to training (either formal or on the job) as the specific learning activity undertaken							
53	The training programs I have undertaken in the last 12 months usually meet my training needs		14.6	22.0	54.7	8.7	0.68
51	Training is usually offered in a way that makes it easy for me to learn		10.1	23.4	63.7	3.7	0.66
50	Most of the training I have undertaken is useful for my work		10.0	16.7	69.7	3.6	0.65
54	The pace of training I have done usually matches my learning needs		19.8	19.3	56.3	4.6	0.59
49	I have found the training I have undertaken in the last 12 months to be well structured and organised		17.5	27.7	51.3	8.4	0.37
52	Training that I want to do does not usually clash with my work demands		34.6	21.2	39.9	4.3	0.35

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) = 758; Cronbach alpha = 0.75

development needs; and Tables XII-XIV: applying learning in the workplace.

Conclusion

In this study, we proposed a multifaceted definition of organizational learning mechanisms. The paper describes the principles that guided the development of the LEQ, a learning environment questionnaire, developed to measure the cultural and structural facets of a learning organization.

The paper presents the results of a factor analysis of the dimensions underlying the scales. The results support the hypothesised dimensions and suggest that the scales in the questionnaire are meaningful constructs of different organizational learning mechanisms. From this perspective the LEQ may prove a valuable framework with which to design and analyse the values and structures supporting learning organizations and monitor their progress.

Considering the extensive literature on organizational learning, the discussion of

Table XII Applying learning in the workplace

Question no.	S10 – Learning application – suitability	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree			
56	I am encouraged to share what I have learnt with co-workers in my section/work unit		17.1	19.1	61.0	2.8	0.53
57	I am usually asked to evaluate the suitability of my completed learning and development activities for my co-workers		39.1	24.0	31.2	5.8	0.48
55	I am able to access accurate records of my own learning and development		24.9	21.9	44.1	9.0	0.39

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) for alpha = 754; Cronbach alpha = 0.65

Table XIII Applying learning in the workplace

Question no.	S11 – Learning application – effectiveness	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree			
59	Services and products which help me learn are benchmarked against the best services and products available		30.1	33.6	10.9	24.5	0.62
60	Learning and development activities within ABC are cost effective		22.2	32.2	17.3	28.3	0.50
58	Time is made available for me to practise what I have learnt in the workplace		42.8	28.0	25.5	3.6	0.50

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) for alpha = 544; Cronbach alpha = 0.72

Table XIV Applying learning in the workplace

Question no.	S12 – Learning application – immediate supervisor support and feedback	N	Neither agree nor disagree			Do not know/Not applicable	Item-total correlation
			Disagree	Agree			
62	My immediate supervisor ensures that learning and development activities I have undertaken have met my needs		40.9	28.4	24.8	5.9	0.82
64	My immediate supervisor helps me to put my learning into practise in the workplace		40.2	27.3	27.6	4.8	0.82
65	My immediate supervisor gives me feedback on how well I am using what I have learnt from completed learning and development activities		48.4	26.6	19.5	5.5	0.81
61	My immediate supervisor usually discusses the learning or development activity with me after I have completed it		34.8	18.6	30.5	6.1	0.79
63	I usually discuss with my immediate supervisor how I will apply what I have learnt to my job		38.4	27.1	29.5	5.4	0.76

Notes: N of cases (after listwise deletion and coding of "don't know" to system missing) for alpha = 789; Cronbach alpha = 0.92

interventions aimed specifically at developing organizational learning is slim. Focusing on OLMs provides a clear and distinct direction for such interventions. Building learning organizations requires institutionalising OLMs in them by establishing and monitoring OLMs as well as having the

necessary organizational enabling values. The main benefits of the LEQ are that it provides a publicly available instrument that can be used to gauge the readiness of and increase the preparation of an organization for becoming a learning organization, identifies the requirements for supporting its development

and maintenance, and identifies the support structures that are needed to meet the current and future needs of the organization.

Note

- 1 Factor loadings for the scales are not included, as this information is described in another paper which is available from the researchers.

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