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Factors that Influence Informal Learning in the Workplace

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Abstract

Purpose – The purpose of this study was to investigate factors that influence informal learning in the workplace and the types of informal learning activities people engage in at work. More specifically, the research examined (1) the relationship between informal learning engagement and the presence of learning organization characteristics, and (2) perceived factors that affect informal learning engagement.

Methodology – Workplace learning and performance improvement professionals were invited to respond to an anonymous online survey, and 125 professionals volunteered to participate in the study.

Findings – This study did not find a significant correlation between informal learning engagement and the presence of learning organization characteristics. While age and education level did not impact informal learning engagement, it was found that older workers tended to engage in more informal learning. There were also certain types of informal learning activities in which they were most likely to engage. The findings also include rank-ordered lists of personal and environmental factors that workers perceived to influence their engagement in informal learning.

Practical implications – The rank-ordered lists of factors that influence informal learning engagement is likely to be useful to practitioners for prioritizing informal learning interventions. The results of this study suggest that the degree of engagement in informal learning alone would not be a sufficient construct for predicting the presence of learning organization characteristics.

Originality/value of paper – Very little empirical research has attempted to connect individual learning to the learning organization concept. This research addresses that gap by examining the relationship between individual informal learning engagement and the presence of learning organization characteristics.

Keywords: informal learning, learning organization, factors influencing informal learning

Peter Senge, who has been credited with popularizing the learning organization concept in his book, *The Fifth Discipline* (1990), characterizes a learning organization as a work environment in which "people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (p. 3). The learning organization concept can be viewed as a type of *organizational culture* (Garavan, 1997). When viewed as a culture, the learning organization is defined by an implicit set of shared meanings and values amongst its people that yields learning and knowledge transmission. However, the learning organization concept is usually viewed more objectively as *a strategy* that focuses on process design (Garavan, 1997; Thomas and Allen, 2006). From this perspective, a learning organization is defined by the nature of the organization's processes and the extent to which they enhance employees' learning and facilitate the transfer of learning to others. It is this view that is likely to have more relevance for practitioners in the fields of human resources, learning technology, and organizational development, as the focus on process design and environmental factors suggests that an organization can be converted into a learning organization through the application of appropriate interventions.

When facilitating the development of a learning organization, the organization's learning can be viewed from three levels – organizational, group, and individual (Marsick and Watkins, 2001, 2003b). While each level of learning has distinct attributes, all three contribute to the success of a learning organization. At the organizational level, learning

is described as a collective experience and tends to result from the need to respond to an organization's environmental influences. The group level of learning is described as "the mutual construction of new knowledge including the capacity for concerted, collaborative action" (Marsick and Watkins, 2001, p. 32). Learning at the individual level is the way in which people obtain knowledge and skills (Marsick and Watkins, 2001), through the promotion of inquiry and dialogue and the creation of continuous learning opportunities (O'Neil, 2003).

Although the foundational level of a learning organization is the *individual* level, much of the existing literature examines the concept of the learning organization from an organizational perspective, and very little research has connected the concept to learning activities at the individual level (Garavan, 1997; Lee and Roth, 2007; Small and Irvine, 2006; Thomas and Allen, 2006; Tsang, 1997). Also, in exploring the individual level of learning, it is important to note that while 80% of workplace learning occurs through informal means, only 20% of what organizations invest in learning is dedicated to enhancing informal learning (Cross, 2007). To better understand the relationship between the individual level of informal learning and the development of a learning organization, we will explore the subject of informal learning in the workplace in the following section, which will later be linked to the learning organization concept.

Informal Learning in the Workplace

Formal Learning vs. Informal Learning

Informal learning is often described by contrasting it with formal learning. Formal learning can be likened to riding a bus, as the route is preplanned and the same for everyone. Informal learning, then, is more like riding a bike in that the individual determines the route, pace, etc. (Cross, 2007). Informal learning is "predominately unstructured, experiential, and noninstitutional" (Marsick and Volpe, 1999, p.4). Informal learning can take a reactive form, where the learning was unplanned but still recognized by the learner retrospectively. Informal learning can be incidental and integrated into daily activity (Hodkinson, Colley, and Malcolm, 2003; Marsick and Volpe, 1999). It can also be intentional, and potentially somewhat structured (Simpson. 2006). Informal learning is sometimes viewed as any learning that takes place outside of a classroom setting (Hodkinson, Colley, and Malcolm, 2003; Kremer, 2005; Reardon, 2004; Livingstone, 2000, 2001; Slater, 2004).

Intentional and Unintentional Informal Learning Activities

Intentional informal learning activities are easier to observe, describe, and research than those that are unintentional and more integrated into other tasks. Some of the intentional informal learning activities in the workplace include self-directed learning (Livingstone, 2000; Marsick and Watkins, 2001), mentoring (Conlon, 2004), networking (Eraut, 2004), asking questions (Eraut, 2004; Reardon, 2004), and receiving feedback (Eraut, 2004; Marsick and Watkins, 2001).

While a great deal of research covers the observable and somewhat structured facets of informal learning, these activities only make up a small proportion of what is really taking place (Marsick and Volpe, 1999). Unintentional informal learning frequently takes place while executing daily tasks (Hodkinson, Colley, and Malcolm, 2003; Slater, 2004), and it is often difficult to separate work and learning as workers tend to equate the basic act of working, such as learning from mistakes or trial-and-error, to learning (Marsick and Watkins, 2001; Tikkanen, 2002). Informal learning also takes place through daily social interactions such as participation in group activities, working alongside others, tackling challenging tasks, and working with clients; the success of these forms of informal learning is highly dependent upon the quality of human relationships in the workplace (Eraut, 2004).

Factors that Influence Engagement in Informal Learning

The way people behave, make decisions, and communicate is largely influenced by their personal characteristics (Gregorc, 1982; Hirsh and Kummerow, 1990). Therefore, personal factors such as age and educational background may influence their degree of engagement in informal learning. However, the research seems to show inconsistent results. For example, in Tikkanen's (2002) and Kremer's (2005) studies, less experienced, younger workers reported engaging in more informal learning, while more experienced, older workers were less likely to engage in informal learning activities and tended to view their informal learning as being less embedded in the work. However, the findings reported in Livingstone's (2000) study of informal learning in Canada contradict these suggestions – older

participants in his study reported engaging in as much informal learning as did younger participants. Livingstone (2001) also discovered that younger participants tended to look to others as sources of information in informal learning, whereas older learners tended to engage in more individualistic activities. In terms of the impact of educational background on informal learning, Livingstone (2001) found that the amount of time respondents reported engaging in informal learning activities was about the same for all levels of education, from "no high school diploma" to "university degree." We did not find any other research that investigated the relationship between the degree of workers' engagement in informal learning and their educational background. Overall, more research should be conducted to investigate the effects of personal characteristics on *specific* informal learning activities.

Connecting Informal Learning to the Learning Organization Concept

A vast amount of literature exists on the concept of the learning organization; however, the idea is often discussed in an abstract, descriptive form, and much less literature exists on how this concept may be observed in a concrete, empirical way (Marsick and Watkins, 2003a; Thomas and Allen, 2006). Furthermore, although Senge (1990) acknowledges that individual learning is central to leveraging organizational learning and presents personal mastery as one of the five disciplines for building a learning organization culture, very little empirical research connects individual learning, especially informal learning, to the presence of learning organization characteristics (Garavan, 1997; Lee and Roth, 2007; Small and Irvine, 2006; Thomas and Allen, 2006). Connecting the constructs of the learning organization to informal learning engagement may be one step toward making the learning organization concept more concrete. In the following section, we describe a study we conducted as an effort to make that connection. We also investigated the relationship between personal characteristics and specific informal learning activities.

Methods

Research Questions and Hypotheses

This study aimed to answer the following research questions:

1. How does an organization's learning culture relate to the degree of informal learning engagement among employees?

2. Do employees' personal characteristics such as age, gender, and educational background influence the degree of their engagement in specific informal learning activities?

3. What are the perceived factors that influence workers' engagement in informal learning?

The first two research questions were answered by testing the following null hypotheses, and the third research question was answered with descriptive statistics:

$H_0 1$ - There is no significant correlation between an organization's learning culture, as perceived by employees, and the degree of their informal learning engagement.

$H_0 2$ - There is no significant correlation between employees' age and the degree of their informal learning engagement.

$H_0 3$ - There are no significant effects of gender and educational background on the degree of informal learning engagement among employees.

$H_0 3.1$ – There is no significant gender effect on the degree of informal learning engagement.

$H_0 3.2$ – There is no significant educational background effect on the degree of informal learning engagement.

$H_0 3.3$ – There is no significant interaction effect of gender and educational background on the

3

degree of informal learning engagement.

Participants

The target population for this research is workplace learning and performance improvement professionals. In spring 2007, we posted a solicitation email message to five professional listservs, the topics of which are closely related to learning and performance improvement. The subscribers to the listservs, who are likely working professionals in the fields of instructional and performance technology, organizational behavior management, organizational development, training, and e-learning, were invited to participate in this study by submitting an anonymous survey via the web. During the three weeks after the solicitation email was posted to the listservs, a total of 125 listserv subscribers volunteered to participate in the study.

Instruments

The anonymous survey questionnaire used in this research consists of four sections (see Appendix A). The first section requests basic demographic information from respondents. The second section addresses the respondents' job tasks at work. The third section of the questionnaire solicits information about their degree of engagement in informal learning activities (as well as formal training) at work, and the degree that they think certain factors affect their informal learning activities. This section of the questionnaire was developed based on the instrument used by Lohman (2006). The questionnaire's final section assesses the presence of learning organization characteristics in the respondent's workplace and consists of the first 43 questions of the Dimensions of the Learning Organization Questionnaire (DLOQ) (Marsick and Watkins, 2003b). Permission to use the DLOQ in this study was obtained from the developers of the questionnaire. The DLOQ measures seven dimensions of an organization's learning practices and culture, which are grouped into three levels – individual, group, and organizational, with acceptable levels of validity and reliability (Marsick and Watkins, 2003b; Yang, 2003; Yang et al., 2004).

Data Analysis

The data were analyzed using *SPSS 14.0 for Windows*. Since each question of the web-based survey instrument was set to require respondents' input before submission, there were no missing data.

Results

Descriptive Statistics on Demographic Information

Among 125 respondents, 62 (49.6%) of them were male and 63 (50.4%) were female. Ninety-seven (77.6%) of them were White, 10 (8.0%) were Asian/Pacific Islander, 7 (5.6%) were Hispanic, 5 (4.0%) were Black, and 6 (4.8%) chose not to report their ethnic background. At the time of the survey, 11 (8.8%) of them held a doctoral degree as their highest degree earned, 59 (47.2%) held a master's degree, 51 (40.8%) held a bachelor's degree, 2 (1.6%) held an associate degree, and 2 (1.6%) held a high school degree. The average age of the participants was 42.36 (see Table 1).

Table 1
Descriptive Statistics about Participants' Age

Variable	N	Min.	Max.	M	SD
Age	125	23	61	42.36	10.02

According to the respondents' job titles, 63 (50.4%) of them identified themselves as professionals of instructional technology such as instructional designers, trainers, instructors, training managers, technical writers; 62 (49.6%) were professionals with performance improvement foci such as business managers, project managers, communication managers, and consultants. The types of industries in which they worked included health care, insurance, banking, retail, manufacturing, telecommunication, education, government, and the military.

Types of Learning Activities

Respondents were asked to rate the frequency of their engagement in various informal learning activities and formal training when they have to learn something new to perform their job tasks. The mean scores of individual informal learning activities were rank-ordered (see Table 2). The most frequently used type of informal learning was 'reflecting on their previous knowledge and actions' and the least frequently used type of informal learning was 'posting questions to listservs.'

Table 2
Rank-Order of Informal Learning Activities

Rank-Ordered Activities	Min.	Max.	M	SD
1. Reflect	2	7	5.90	1.09
2. Talkf2f	1	7	5.61	1.34
3. Email	1	7	5.54	1.40
4. Trial & Error	2	7	5.32	1.24
5. Web Search	1	7	5.12	1.63
6. Read Journal	1	7	4.23	1.75
7. Observe	1	7	3.70	1.62
8. Listserv	1	7	2.74	1.73

The overall degree of informal learning was 4.76, whereas the average score of training was 3.38. The training and informal learning variables were not skewed (Skewness = .25 and Skewness = -.04, respectively). A paired-samples t test revealed a significant difference between the two types of learning, $t(124) = -10.55$, $p < .01$ (see Table 3), and the effect size was large ($d = -.95$).

Table 3
Results of a Paired-Samples t Test to Compare Training and Informal Learning

Types of Learning	M	SD	Diff.	t	p
Training	3.38	1.56	-1.39	-10.55	.00
Informal Learning	4.76	.80			

The Relationship between Learning Culture in the Organization and Informal Learning

The first research question was: How does an organization's learning culture relate to the degree of informal learning engagement among employees? In other words, can the degree of employees' informal learning be predicted based on the level of learning culture they perceive in their organization? Its null hypothesis was: There is no significant correlation between an organization's learning culture, as perceived by employees, and the degree of their informal learning engagement. The normality tests showed that both variables (the level of learning culture and the degree of informal learning) were normally distributed (see Table 4), but the scatter plot showed that linearity between the variables was weak. Therefore, Spearman's rho was calculated to show the relationship between the level of learning culture in the organization and the degree of informal learning that employees engage in at work. As shown in Table 5, the correlation between the two variables was not significant (rho = .05, $p > .05$). Therefore, the first null hypothesis was retained. In other words, the level of learning culture in the organization was not a strong predictor for the degree of informal learning that employees engage in at work.

Table 4
Tests of Normality

	Shapiro-Wilk	df	p
Informal Learning	.989	125	.456
Learning Culture	.980	125	.055

Table 5
Correlations between the Level of Learning Culture and the Degree of Informal Learning

	Informal Learning ($N = 125$)	
	Spearman's rho	p (1-tailed)
Learning Culture (Overall)	.05	.29
Individual Level	.02	.39
Team/Group Level	.10	.15
Organization Level	.06	.27

Informal Learning Engagement Based on Age

The second null hypothesis was: There is no significant correlation between employees' age and the degree of their informal learning engagement. As shown in Table 6, a positive correlation between age and informal learning engagement (combined) was found, and the correlation was significant at the .05 level [$r(123) = .195$, $p < .05$]. The second null hypothesis was rejected. When a bivariate correlation was calculated between age and each individual informal learning activity, the correlations that were significant at the .006 level (using the Bonferroni method) were between age and two of the 8 informal learning activities - web search [$r(123) = .338$, $p < .006$] and reading journals [$r(123) = .252$, $p < .006$], both of which are independent learning activities.

Table 6
Correlations between Age and Informal Learning Activities

	Age ($N = 125$)	
	Pearson's r	p (1-tailed)
Informal Learning (Combined)	.195*	.015
1. Reflect	.113	.106
2. Talk F2F	-.064	.240
3. Email	.052	.282
4. Trial & Error	-.083	.178
5. Web Search	.338**	.000
6. Read Journal	.252**	.002
7. Observe	.055	.273
8. Listserv	.097	.140

** Correlation is significant at the 0.006 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

Informal Learning Engagement based on Gender and Educational Background

The third null hypothesis was: There are no significant effects of gender and educational background on the degree of informal learning engagement among employees. Specifically, 3 sub-null hypotheses were tested to reveal the gender and educational background main effects and the interaction effect. Because there were only 2 respondents with a high school diploma, 2 respondents with an associate degree and 11 respondents with a doctoral degree, they were excluded from the analysis, and the 2 remaining groups with bachelor's and master's degrees (a total of 110 subjects) were compared in the analysis (see Table 7). The sizes of 4 factorial groups were approximately equal (25, 27, 26 and 32). Normality tests conducted on the four factorial groups' informal learning variables revealed that the normality assumptions were met for all groups except one (Shapiro-Wilk = .95, $p = .25$ for the male, bachelor's group; Shapiro-Wilk = .96, $p = .43$ for the female, bachelor's group; Shapiro-Wilk = .87, $p = .00$ for the male, master's group; and Shapiro-Wilk = .97, $p = .55$ for the female, master's group). The Levene's test revealed that the assumption of homogeneity of variances was satisfied, $F(3, 106) = 2.225$, $p = .090$. As the ANOVA assumptions were not markedly violated, a two-way ANOVA was conducted to test the 3 sub-null hypotheses (Morgan, Leech, Gloeckner, and Barrett, 2007).

Table 7
Degree of Informal Learning by Gender and Educational Background

Gender	Education	M	SD	N
Male	Bachelor's	4.76	1.06	25
	Master's	4.70	.64	27
	Total	4.73	.86	52
Female	Bachelor's	4.82	.82	26
	Master's	4.78	.69	32
	Total	4.79	.75	58
Total	Bachelor's	4.79	.94	51
	Master's	4.74	.67	59
	Total	4.76	.80	110

The two-way ANOVA revealed that there were no significant gender, educational background and the interaction effects on the degree of informal learning engagement among employees (see Table 8). Therefore, all 3 sub-null hypotheses of the third null hypothesis were retained.

Table 8
Two-Way ANOVA Results Table

Source	df	F	p
Corrected Model	3	.09	.96
Intercept	1	3736.45	.00
Gender	1	.18	.66
Education	1	.08	.76
Gender * Education	1	.00	.97
Error	106		
Total	110		
Corrected Total	109		

Factors Affecting the Engagement in Informal Learning

The third research question was: What are the perceived factors that affect workers' engagement in informal learning? When the 10 factors were rank-ordered by the mean values, employees' interests in their current professional field was the one that they thought affected their engagement in informal learning the most ($M = 6.20$, $SD = .842$), and monetary rewards given for good performance was the one that they thought affected their engagement in informal learning the least ($M = 3.47$, $SD = 1.945$) (see Table 9).

Table 9
Rank-Order of Factors Affecting the Engagement in Informal Learning

Rank-Ordered Factors	M	SD
1. Interest in Current Field	6.20	.842
2. Computer Access	5.73	1.573
3. Personality	5.65	1.421
4. Professional Capability	5.62	1.182
5. Relationship with Colleagues	5.55	1.439
6. Job Satisfaction	5.55	1.359
7. Job Itself	5.53	1.202
8. Work Environment	4.82	1.751
9. Physical Proximity	4.78	1.808
10. Monetary Rewards	3.47	1.945

Discussion

The purpose of this study was to answer three questions related to the nature of informal learning engagement in the workplace, within the framework of a learning organization. The first of those questions was: How does an organization's learning culture relate to the degree of informal learning engagement among employees? The responses in this study did not demonstrate a significant correlation between learning organization culture and informal learning engagement. This may be viewed as a surprising finding, as it would seem logical that an organization with a strong learning culture would be structured in a way that creates opportunities for informal learning to a greater degree than those organizations that lack such culture. However, this may suggest that informal learning is not inhibited by a lack of learning organization structure. If a worker needs to obtain specific information to complete a task, one might assume that the individual will find a way to learn that information regardless of whether the organization has a structure in place to make that effort easier.

Another possible explanation for why a significant correlation between informal learning and learning organization culture was not found may have to do with the fact that individual learning is only one of many components that make up learning organization culture. For instance, Marsick and Watkins (2001, 2003b) posit that there are three levels of learning in a learning organization – individual, group, and organizational. Furthermore, while Senge (1990) addresses the influence of individual learning on the learning organization in his discussion of the personal mastery discipline, he insists that all five of the disciplines he presents – systems thinking, personal mastery, mental models, building shared vision, and team learning – must be nourished. In other words, perhaps the presence of individual learning, especially informal learning, is not a strong enough construct to independently demonstrate a relationship to an organization's learning culture at large.

The second research question for this study asks about differences in informal learning engagement based on gender, age and highest level of education. The findings presented in our research related to gender and education level are consistent with Livingstone's (2001) findings, in that informal learning engagement did not seem to differ based on these characteristics. However, our study revealed that as an employee's age increased, so did the degree of informal learning engagement. This may seem contrary to the findings discussed in Tikkanen's (2002) study, in which younger workers reported engaging in more informal learning. However, the different findings are understandable when considering that Tikkanen's research and our research were conducted with different purposes, using different research methods. The purpose of Tikkanen's research was to understand the employees' perceptions about the relationship between work and learning, using qualitative interview methodology. In that research, the younger interviewees with little work experience saw everyday work as challenging, and therefore, as learning. In contrast, older and more experienced workers did not have the same need for learning and did not perceive their work as being synonymous with learning. Unlike Tikkanen's research, our research investigated the degree of engagement in specific informal learning activities, and revealed that as age increased, so did the tendency to learn by searching the web and reading printed professional magazines and journals. This is consistent with Livingstone's (2000) finding that older individuals tend to engage in more independent (rather than social) forms of informal learning. One interpretation of this phenomenon can be made by looking at the source of knowledge used in informal learning. Unlike the other 6 informal learning activities included in the questionnaire, these 2 activities share a unique

characteristic – both consist of a 'published' form of knowledge. This attribute may be perceived to be more professional and credible (i.e., articles are reviewed by editors or professional peers), but perhaps it requires learners to have more experience (therefore, to be older) to be able to recognize the value of such professional knowledge and to utilize it as a source of their informal learning.

Another interesting finding in our research is that although the sample was drawn from subscribers of several listservs, they reported 'posting questions to a listserv' as the least frequently used method for participating in informal learning to gain new knowledge to perform their job tasks. The mean was only 2.74 on a scale of 1 to 7 when 1 was 'Never' and 7 was 'Always.' This may indicate that they may have joined the listserv community to gain information that helps improve *general* knowledge about their profession, but they tend not to post questions *specific* to their job tasks to the listserv. However, it is worth noting that the use the listserv convenience sample, rather than a random sample from the population, is a limitation of this study.

The third research question addresses factors that influence informal learning at work. Of the 10 factors that respondents rated on the questionnaire, their 'level of interest in their current field' was identified as affecting their engagement in informal learning the most. This seems to be a logical finding, given that people tend to be intrinsically motivated to spend time on things that interest them. The factor rated as having the least impact on informal learning engagement was 'monetary rewards.' Perhaps because the decision to engage in informal learning is more likely to be a self-directed activity, it is more likely to be driven by intrinsic motivation (such as interest in one's professional field) rather than extrinsic motivation (such as monetary rewards). However, one might speculate that monetary rewards, and other extrinsic rewards, may still have an indirect impact on informal learning engagement. That is, if workers are motivated to perform better in order to receive a better reward (e.g., Farh et al., 1991; Helm et al., 2007), it can be hypothesized that they are more likely to engage in informal learning activities as a strategy in order to gain any new knowledge needed to perform at the higher level.

Another interesting comparison is shown between 'access to computer technology' as the second most important factor and 'physical proximity to colleagues' as the second least important factor that affects engagement in informal learning. This seems to illustrate current learning and performance improvement professionals' dependency on computer use for communicating with others or retrieving information online. Consequently, respondents perceived that having access to computer technology would be a more important factor than having physical proximity to their colleagues. However, this does not demote the value of talking with colleagues as an important means of informal learning. In fact, 'talking with colleagues' was the second most frequently used informal learning activity, as shown in Table 2. To understand these somewhat contradicting results, one should differentiate that 'computer technology' is a *tool* for participating in informal learning activities, whereas 'talking with colleagues' is an informal learning *activity*.

Conclusions

This study revealed that learning and performance improvement practitioners gain new knowledge from informal learning activities more frequently than they do from formal training. There are several factors that influence their informal learning engagement, and there are a variety of informal learning strategies that they employ. The rank-ordered list of factors that affect informal learning engagement (see Table 9) is likely to be of value to learning and performance improvement practitioners who are interested in fostering informal learning in the workplace. This list can be utilized as a tool in prioritizing potential interventions to encourage informal learning. This particular aspect of the study may prove especially useful to replicate in future research for the sake of confirming or challenging these findings for broader generalizations.

There is a tendency in learning organization research to focus on learning at the organizational level and to lend less attention to learning at the individual level. A handful of researchers have questioned why such research does not place more weight on the contribution of individual learning (e.g., Garavan, 1997; Lee and Roth, 2007; Small and Irvine, 2006; Thomas and Allen, 2006). Perhaps the lack of a clear link between learning organization culture and informal learning engagement shown in this study answers that question by supporting the idea that individual learning is only a small piece of organizational learning culture.

Finally, it is important to note that the tacit nature of informal learning makes it a challenging subject to study. Often, it is so embedded into daily activities that individuals are unable to recognize their informal learning retrospectively (Eraut, 2000; Livingstone, 2000), and therefore, it is generally taken for granted (Eraut, 2004; Marsick and Volpe, 1999). Livingstone (2000) noted the tendency of researchers to compare informal learning to an iceberg, explaining that while a small portion is observable, the vast majority of it takes place in subtle forms that are not easily observed and documented. We suggest other researchers pay attention to this hidden phenomenon in workplace learning and use ethnographic research methodology to uncover variables that may be crucial to developing a learning organization.

References

Conlon, T.J. (2004), "A review of informal learning literature, theory, and implications for practice in developing global professional competence", *Journal of European Industrial Training*, Vol. 28 No. 2-4, pp. 283-295.

Cross, J. (2007), *Informal Learning: Rediscovering the Natural Pathways that Inspire Innovation and Performance*, Pfeiffer, San Francisco, CA.

Eraut, M. (2000), "Non-formal learning and tacit knowledge in professional work", *British Journal of Educational Psychology*, Vol. 70 No. 1, pp. 113-136.

Eraut, M. (2004), "Informal learning in the workplace", *Studies in Continuing Education*, Vol. 26 No. 2, pp. 247-273.

Farh, J.L., Griffeth, R.W., Balkin, D.B. (1991), "Effects of choice of pay plans on satisfaction, goal setting, and performance", *Journal of Organizational Behavior*, Vol. 12 No. 1, pp. 55-62.

Garavan, T. (1997), "The learning organization: a review and evaluation", *The Learning Organization*, Vol. 4 No. 1, pp. 18-29.

Gregorc, A.F. (1982), *An Adult's Guide to Style*, Gregorc Associates, Inc., Columbia, CT.

Helm, C., Holladay, C.L., Tortorella, F.R. (2007), "The performance management system: Applying and evaluating a pay-for-performance initiative", *Journal of Healthcare Management*, Vol. 52 No. 1, pp. 49-62.

Hirsh, S.K., Kummerow, J.M. (1990), *Introduction to type in organizations*, Consulting Psychologists Press, Palo Alto, CA.

Hodkinson, P., Colley, H., Malcolm, J. (2003). "The interrelationships between informal and formal learning", *Journal of Workplace Learning,* Vol. 15 No. 7/8, pp. 313.318.

Kremer, A.L. (2005), "Predictors of participation in formal and informal workplace learning: Demographic, situational, motivational, and deterrent factors", Doctoral dissertation, George Mason University.

Lee, Y.J., Roth, W.M. (2007), "The individual collective dialectic in the learning organization", *The Learning Organization*, Vol. 14 No. 2, pp. 92-107.

Livingstone, D.W. (2000), "Exploring the icebergs of adult learning: Findings of the first Canadian survey of informal learning practices", *The Canadian Journal for the Study of Adult Education.*

Livingstone, D.W. (2001), *Adults' Informal Learning: Definitions, Findings, Gaps and Future Research*. NALL Working Paper No.21, OISE/UT , Toronto. Retrieved on February 7, 2007, from http://www.oise.utoronto.ca/depts/sese/csew/nall/res/21adultsifnormallearning.htm

Lohman, M.C. (2006), "Factors influencing teachers' engagement in informal learning activities", *Journal of Workplace Learning*, Vol. 18 No. 3, pp. 141-156.

Marsick, V.J., Watkins, K.E. (2001), "Informal and incidental learning", *New Directions for Adult and Continuing Education*, Vol. 2001 No. 89, pp. 25-34.

Marsick, V.J., Watkins, K.E. (2003a), "Summing up: Demonstrating the value of an organization's learning culture", *Advances in Developing Human Resources*, Vol. 5 No. 2, pp. 129-131.

Marsick, V.J., Watkins, K.E. (2003b), "Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire", *Advances in Developing Human Resources*, Vol. 5 No. 2, pp. 132-151.

Marsick, V.J., Volpe M. (1999), "The nature and need for informal learning", *Advances in Developing Human Resources*, Vol. 1 No. 1, pp. 1-9.

Morgan, G.A., Leech, N.L., Gloeckner, G.W., Barrett, K.C. (2007), *SPSS for introductory statistics* (3rd ed.), Lawrence Erlbaum Associates, Mahwah, NJ.

O'Neil, J. (2003), "Participants' guide for interpreting the results of the Dimensions of the Learning Organization Questionnaire", *Advances in Developing Human Resources*, Vol. 5 No. 2, pp. 222-230.

Reardon, R.F. (2004), "Informal learning after organizational change", *Journal of Workplace Learning*, Vol. 16 No. 7/8, pp. 385-395.

Senge, P.M. (1990), *The Fifth Discipline*, Doubleday, New York, NY.

Simpson, P.E. (2006), "Identifying the enhancers to informal learning for managers in a healthcare organization: An appreciative inquiry", Master's thesis, University of Toronto.

Slater, T.R. (2004), "Informal learning in the workplace: Identifying contextual factors affecting employee's ability to engage in informal learning in the nonprofit financial services industry", Doctoral dissertation, Capella University.

Small, A., Irvine, P. (2006), "Towards a framework for organizational learning", *The Learning Organization*, Vol. 13 No. 3, pp. 276-299.

Thomas, K., Allen, S. (2006), "The learning organization: A meta-analysis of themes in literature", *The Learning*

       Organization, Vol. 13 No. 3, pp. 123-139.

Tikkanen, T. (2002), "Learning at work in technology intensive environments", *Journal of Workplace Learning*, Vol 14 No. 3, pp. 89-97.

Tsang, E.W.K. (1997), "Organizational learning and the learning organization: A dichotomy between descriptive and prescriptive research", *Human Relations*, Vol. 50 No. 1, pp. 73-89.

Yang, B. (2003), "Identifying valid and reliable measures for dimensions of a learning culture", *Advances in Developing Human Resources*, Vol. 5 No. 2, pp. 152-162.

Yang, B., Watkins, K.E., Marsick, V.J. (2004), "The construct of the learning organization: Dimensions, measurement, and validation", *Human Resource Development Quarterly*, Vol. 15 No. 1, pp. 31-55.

Appendix A. Informal Learning Survey

Section I: About Yourself

1. Age: _____ years old

2. Gender: ___ male   ___ female

3. Ethnic background:

    ___ American Indian

    ___ Asian/Pacific Islander

    ___ Black

    ___ Hispanic

    ___ White

    ___ Do not want to specify

4. Educational background (checkmark the highest degree that you currently hold):

    ___ High school diploma

    ___ Associate degree

    ___ Bachelor's degree

    ___ Master's degree

    ___ Doctoral degree

Section II: About Your Job

1. Job title: _____

   (e.g., training manager, e-learning specialist, performance consultant, etc.)

2. Department: _____

   (e.g., training, instructional design, organizational development, human resources, sales, etc.)

3. Type of business: _____

   (e.g., Manufacturing, Health Care, Education, Service, Government, etc.)

4. How long have you been working for this organization? ____ Years ____ Months

5. How satisfied are you with your job?   Not Satisfied 1 2 3 4 5 6 7 Very Satisfied

6. Because of the nature of your job, how often do you have to interact with other people while performing your

   job tasks?

Never have to interact with others	1 2 3 4 5 6 7	Constantly have to interact with others

7. How much of your job knowledge is tangible and easy to document and convey to others (explicit knowledge),

   and how much of it is intangible and difficult to document and convey to others (tacit knowledge)?

None of it is explicit (All of it is tacit)	1 2 3 4 5 6 7 (4 = half and half)	All of it is explicit (None of it is tacit)

8. How often do you seek the following types of information while performing your job tasks? (Never 1 2 3 4 5

   6 7 Always)

   - 'What-it-is' information

   - 'How-to-do-it' information

   - 'Why-or-when-to-do-it' information

Section III: About Your Learning Activities in the Workplace

9. How frequently do you engage in the following activities, when you have to learn something new to perform

   your job tasks?

   (1-Never, 2-Seldom, 3-Sometimes, 4-Often, 5-Usually, 6-Almost Always, 7-Always)

- Reflect on my previous knowledge and actions

- Learn from my own trial and error

- Observe others without interacting with them

- Search the web (including intranet)

- Read professional magazines and/or journals

- Talk with other people at work face to face

- Interact with other people at work via email

- Ask questions in professional listservs

- Attend a training program

- Other methods (describe): _____

10. How much do you think the following factors affect the degree of your engagement in informal learning?

(Not at all 1 2 3 4 5 6 7 Very much)

- Physical proximity to your colleagues

- Relationship with your colleagues

- Your access to computer technology

- Your work environment (e.g., cubicle vs. office)

- Monetary rewards given for good performance

- Your personality types

- Your job satisfaction

- Your interest in the current professional field

- Self-evaluation on your professional capabilities

- The type of your job itself

- Other factors (describe): _____

Section IV: About Your Organization's Culture

Forty-three statements from *the dimensions of the learning organization questionnaire* were used. See Marsick &

Watkins (2003b).