A Survey of Factors Influencing the Engagement of Two Professional Groups in Informal Workplace Learning Activities

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A survey was conducted to describe the informal workplace learning experiences of 318 public school teachers and HRD professionals. Analysis of the data found that teachers rely to a greater extent on interactive learning activities while HRD professionals rely to a greater extent on independent learning activities. Both professional groups reported that two environmental factors frequently inhibit their engagement in informal learning activities: a lack of time and a lack of proximity to colleagues' work areas. Three additional environmental factors were found to inhibit HRD professionals from engaging in informal learning: an unsupportive organizational culture, the unwillingness of others to participate in informal learning activities, and the inaccessibility of subject matter experts. One additional environmental inhibitor was found for teachers: a lack of funds. Seven personal characteristics were found to enhance the motivation of both professional groups to engage in informal learning: initiative, self-efficacy, love of learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality. Implications of these findings for HRD theory, research, and practice are discussed.

An important way that professionals develop their expertise is through informal learning in the workplace (Cseh, Watkins, & Marsick, 1999). Informal learning refers to activities people initiate in work settings that result in the development of their professional knowledge and skills (Cofer, 2000; Lohman, 2000). Unlike formal learning, informal learning can be planned or unplanned and structured or unstructured. Examples include talking and sharing resources with others, searching the Internet, and experimenting with new techniques or tools. The U.S. Bureau of Labor Statistics reports that 70 percent

of new learning is acquired through informal learning in the workplace (Benson, 1997). The bureau's report also indicated that the wage and salary cost associated with informal learning is $48.4 billion per year, a figure almost equal to the estimated cost per year of formal training.

The importance of informal learning in cultivating professional expertise has focused greater attention on the interplay among informal learning activities, the environment where they occur, and characteristics of those engaged in them (Billett, 2001; Ellstrom, 2001). Recent studies have made important progress in developing greater understanding of the types of work-based activities associated with informal learning as well as personal and contextual factors that tend to promote or inhibit participation in informal learning (Boud & Middleton, 2003; Ellinger, 1999; Ellstrom, 2001; Kwakman, 2003; Lohman, 2000). However, few studies have investigated the ways in which certain characteristics of workers and the work environment influence engagement in specific informal learning activities.

Further research of this area of investigation would make several important contributions to new knowledge in HRD. One contribution would be the construction of instruments for assessing informal workplace learning. A second contribution to new knowledge in HRD would be greater understanding of the personal and environmental factors that influence informal workplace learning. These two contributions are important to HRD because they would provide a valid and reliable means of assessing factors that influence informal workplace learning as well as provide information about the characteristics of workers and work environments that typically promote or inhibit informal workplace learning. In addition, human resource developers could use the findings from such studies to rethink both the design of work environments so that they are more conducive to informal learning and the design of professional development programs so that they further develop the ability of professionals to solve problems and learn independently.

Factors Influencing Engagement in Informal Workplace Learning

Workplace learning is an important way in which individuals construct meaning from their work experiences (Daley, 1997; Marsick, Volpe, & Watkins, 1999). This form of learning involves engagement in both structured and unstructured on-the-job activities that result in the development of new capabilities required for effective work practice (Billett, 2002). The concept of engagement has been described in role theory as the channeling of energies on physical, cognitive, and emotional tasks (Kahn, 1992). Therefore, for the purpose of this study, *informal workplace learning* is defined as an aspect of workplace learning that specifically involves those learning activities that employees initiate in the workplace; involve the expenditure of physical,

cognitive, or emotional effort; and result in the development of professional knowledge and skills (Cofer, 2000; Lohman, 2000).

The theoretical framework for this study of informal workplace learning was based on Jarvis's theory of adult learning and McClusky's theory of margin. Jarvis's theory emphasizes the social context of learning and hierarchically represents learning outcomes that may result from different types and levels of reflective activity (Merriam & Caffarella, 1999). According to Jarvis (1987b, 1992), learning begins when a discrepancy is encountered between a person's entire history of experiences and a new experience that cannot be handled automatically. The inability to cope with the situation unthinkingly gives rise to potential learning. However, a person's response determines whether the situation ends with nonlearning, nonreflective learning, or reflective learning. Nonlearning occurs when a person responds in a routine way, is too preoccupied to consider a response, or rejects the opportunity to learn. Nonreflective learning occurs when individuals unconsciously internalize something, repeatedly practice a new skill, or memorize information. And reflective learning occurs when individuals contemplate, reflectively think about and reconsider their actions, or actively experiment. These three types of learning are hierarchical, with reflective learning representing a higher level of learning than the other two.

An area of this theory of adult learning requiring further examination in relation to informal workplace learning concerns the kinds of self-initiated activities that evoke the responses that Jarvis associates with higher levels of learning. It has been suggested that dilemmas in one's work promote critical reflection and experimentation, and thereby learning (Smylie, 1995). Unquestionably a reality of professional work is that one must deal with the "low-lying swamp of messy problems and persistent dilemmas of practice" (Sykes, 1996, p. 466).

To deal effectively with challenging work situations, Cseh and her colleagues (1999) suggest that individuals engage in a series of eight steps that closely resemble the steps of the problem-solving process: (1) framing the context, (2) responding to triggers to a potential learning experience, (3) interpreting the experience, (4) examining alternative solutions, (5) choosing learning strategies, (6) producing alternative solutions, (7) assessing intended and unintended consequences, and (8) evaluating lessons learned. As individuals successfully navigate through these problem-solving steps, reflective learning occurs (Jarvis, 1987a, 1987b, 1992).

A growing concern, however, is that the intensification of professional work constrains participation in these types of learning activities (Corcoran, 1990). In the past fifteen years, the scope, complexity, and ambiguity of problems that professionals deal with in their jobs have intensified dramatically (Webb et al., 2004). Unfortunately, this intensification of professional work has diminished the opportunity and time available for participation in many learning activities (Hargreaves, 1992; Less secure, more intense jobs, 1999). This

leaves one wondering what learning activities professionals do use to develop their knowledge and skills.

Furthermore, as Jarvis indicates in his theory of adult learning, the inability to cope unthinkingly with a challenging work situation gives rise to a potential learning experience. However, a person's response determines whether the situation does or does not lead to learning. What is it, then, that influences a response? McClusky's theory of margin (1984) provides a framework for considering this question. In this theory, margin in life is represented by the ratio of a person's load (the demands made on an individual by self or society) to power (the internal and external resources that a person can command in coping with his or her load). The power that people have available over and beyond that required to handle their load represents their margin in life. The concept of margin is significant to informal learning in that people require ample margins to engage in growth-enhancing learning experiences (Hiemstra, 1993). Therefore, the ability or desire of employees to engage in informal workplace learning activities may be influenced not only by the types of demands (challenging work situations) being made on them, but also the availability of appropriate external resources to meet those demands (work environment characteristics) and the types of internal resources (personal characteristics) that they can call on to help handle their load. These theoretical understandings highlight the need to know more about the types of specific informal learning activities in which professionals engage, as well as the characteristics of work environments and workers that promote or inhibit engagement in those activities.

Several conceptual models have been recently constructed in an attempt to identify such activities and characteristics. These models have been based predominantly on theory and research studies of workplace learning, motivation, and job demand and stress. For example, in the model of Doornbos, Bolhuis, and Simons (2004), work-related learning is described as work-based activities related to handling novel, ambiguous work problems. This work-related learning model identifies six work environment characteristics (autonomy, work pressure, support, task variation, interaction partner variety, and collegial availability) and four worker characteristics (social integration with managers, social integration with colleagues, experience of competence, and recognition of value of learning at work) as paramount to promoting work-related learning.

Similarly, van Woerkom, Nijhof, and Nieuwenhuis (2002) constructed a model of factors influencing critical reflective behavior at work. Critical reflective behavior was defined as a "set of connected, individual activities, aimed at analysing, optimising or innovating work practices on individual, team, or organisational level" (p. 376). The model posits that eight work activities are associated with critical reflective behavior: reflection on oneself in relation to the job, learning from mistakes, vision sharing, challenging groupthink, asking for feedback, experimentation, sharing knowledge, and awareness of employability. Factors influencing participation in these work activities include

ten job characteristics (workload, alternation, autonomy, task obscurity, information, participation, cooperation, communication, coaching, organizational climate for learning) and three worker characteristics (motivation, self-efficacy, and variety of experience).

Empirical studies have been conducted to examine some aspects of these models. For example, Kwakman (2003) investigated factors affecting engagement in informal learning activities in a survey of 542 secondary teachers in the Netherlands. Survey findings revealed that four personal characteristics (professional attitudes, appraisals of feasibility of learning activities, appraisals of the meaningfulness of learning activities, and loss of personal accomplishment), two task factors (work pressure and job variety), and two work environment factors (collegial support and intentional learning support) influenced participation in workplace learning activities, with the personal characteristics appearing to influence participation more substantially than either the task or work environment factors.

Similarly, van Woerkom et al. (2002) conducted a survey of 742 educators to examine the influence of job and individual characteristics on critical reflective working behavior. Of the thirteen individual and job characteristics studied, one was reported by the respondents to be most potent in relation to promoting critical reflective working behavior—self efficacy.

Empirical studies such as these have helped to develop greater understanding of factors influencing engagement in the informal workplace learning process. However, few studies have examined the degree to which specific characteristics of workers and work environments influence participation in certain types of informal learning activities.

One empirical study that did delve into this area of investigation was a qualitative study of informal learning among public school teachers (Lohman & Woolf, 2001). This study found that teachers engaged in three types of informal learning activities: (1) knowledge exchanging, in which teachers shared and reflected on others' practice and experiences; (2) experimenting, in which teachers actively experimented with new ideas and techniques; and (3) environmental scanning, in which teachers independently scanned and gathered information from sources outside the school. Teachers' engagement in these activities was inhibited by four aspects of their work environment: lack of time for learning, lack of proximity to learning resources, and a lack of meaningful monetary rewards as well as a lack of nonmonetary rewards for learning (Lohman, 2000). When faced with these environmental inhibitors, teachers relied on four personal characteristics to enhance their ability to engage in informal learning: initiative, self-efficacy, commitment to lifelong learning, and love of content area (Lohman, 2003). The findings from this qualitative study have provided rich insights into the informal learning experiences of the teachers studied. However, the degree to which the findings have applicability to all public school teachers as well as other professional groups experiencing increasing levels of job intensification is unknown.

One professional group that has experienced high levels of job intensification in recent years is HRD professionals (McLagan, 1999). In the past, human resource developers were primarily responsible for the design and delivery of training programs. In today's organizations, HRD professionals are responsible for working with organizational members to diagnose performance needs as well as to plan, implement, and evaluate interventions that address those needs (Gayeski, 1997; Jacobs, 1997). These broader, more complex job responsibilities have created many new learning needs for HRD professionals, needs that are often met by engaging in informal workplace learning.

Both HRD professionals and public school teachers share a fundamental job responsibility: providing training and educational services to others. Therefore, it seems plausible that the findings from the qualitative study of informal learning among public school teachers would apply to HRD professionals. However, these two professional groups differ with respect to whom they deliver educational services (children versus adults) and where they work (schools versus business establishments). As a consequence, it is equally possible that the findings from the qualitative study of informal learning among teachers may not be generalizable to HRD professionals. Further study of this topic needs to be conducted to examine this issue.

The purpose of this survey research study was to examine the degree to which the findings from a previous qualitative study of informal learning among public school teachers apply to both a larger, more diverse group of public school teachers and to HRD professionals. Accordingly, three research questions were addressed:

1. What types of activities do public school teachers and HRD professionals use to learn informally in the workplace?
2. What characteristics of work environments inhibit the engagement of public school teachers and HRD professionals in informal learning activities in the workplace?
3. What personal characteristics enhance the motivation of public school teachers and HRD professionals to engage in informal learning activities in the workplace?

Methods

The procedures for subject selection, instrument construction, and data collection and analysis are described in this section.

Subject Selection. Public school teachers and HRD professionals were the target populations for this study. The database of Quality Education Data was used to select participants from the public school teacher population. This database contains up-to-date demographic and contact information for 83,867 public school teachers in the United States. The U.S. membership list of the American Society for Training and Development (ASTD) was used to select

study participants from the HRD population. ASTD is one of the largest professional associations serving practitioners, managers, educators, and researchers in the field of HRD. At the time of the study, the ASTD database contained records of 29,950 HRD professionals in the United States. ASTD members identifying themselves as professors ($n = 443$) in higher educational institutions were excluded from the study to avoid confusion between the two professional groups under investigation (public school teachers and HRD professionals).

A random sampling software program was used to randomly select six hundred subjects from each of the two databases to participate in the study. Two mailings of the survey were administered, producing 318 responses, for a response rate of 26.5 percent. The response rates for both professional groups was similar, with a rate of 27.7 percent ($n = 166$) for teachers and 25.3 percent ($n = 152$) for HRD professionals.

The majority of all respondents were female (68.6 percent). The percentage of female teachers responding was even higher, at 83.1 percent, while the gender of HRD respondents was fairly evenly split between male (52.6 percent) and female (46.7 percent). The mean age of all respondents was 47.2 ($SD = 10.6$), with an average age of 43.8 ($SD = 10.5$) for teachers and 51.1 ($SD = 9.2$) for HRD professionals. The majority of respondents in both professional groups held master's degrees (54.7 percent), with this figure being slightly higher for teachers (58.4 percent) and slightly lower for HRD professionals (50.7 percent). HRD professionals worked in a range of industries, including manufacturing (11.2 percent), postsecondary education (11.2 percent), service (10.5 percent), technology (10.5 percent), health care (9.9 percent), finance (7.9 percent), transportation and public utilities (5.4 percent), and government (4.6 percent). In addition, 22.4 percent ($n = 34$) of the HRD professionals identified themselves as consultants and did not indicate an affiliation with a specific industry. Of the public school teachers, 57.2 percent ($n = 95$) worked in elementary schools, 41 percent ($n = 68$) in secondary schools, and one respondent worked at a postsecondary institution.

A comparison of the respondents to their respective populations was conducted to determine the degree to which the results may be generalizable to the two populations (Dooley & Lindner, 2003). Respondents' gender, industry in which employed, and age (for teachers only; information regarding the mean age of the HRD population was unavailable) were compared to their respective populations using population data from the Quality Education Data and ASTD databases. The comparison revealed that the respondents and populations were highly similar with respect to these demographic characteristics.

Informal Learning Survey. A written questionnaire was constructed to measure three aspects of informal learning: types of informal learning activities, environmental inhibitors to informal learning, and personal characteristics enhancing informal learning. Because the purpose of the study was to examine the generalizability of the findings from a recent qualitative study of

public school teachers to a larger, more diverse group of public school teachers and to HRD professionals, the qualitative study findings were used as the basis for creating the questionnaire items in the current study (Lohman, 2000, 2003; Lohman & Woolf, 2001). The survey instrument contained nineteen items grouped within four main sections: section 1, informal learning activities; section 2, environmental characteristics; section 3, personal characteristics; and section 4, demographic questions. A combination of closed-ended items, containing Likert rating scales with point values of 1 (low) to 5 (high), and open-ended items was used.

As shown in Exhibit 1, the first section of the survey asked respondents to rate the frequency with which they use eight informal learning activities to learn something new at work: (1) talk with others, (2) collaborate with others, (3) observe others, (4) share materials and resources with others, (5) search the Internet, (6) scan professional magazines and journals, (7) trial and error, and (8) reflect on your actions. A Likert scale ranging from 1 (Never Use the Learning Activity) to 5 (Always Use the Learning Activity) was used for these items. In addition, an open-ended item was included so that respondents could identify additional activities that they use to learn informally.

The second section asked respondents to rate the frequency with which five characteristics of their work environments (lack of free time, lack of

Exhibit 1. Informal Workplace Learning Survey

Section 1: Informal Learning Activities

1. How frequently do you use the following activities when you need to learn something new at work?
   (a) Talk with others
   (b) Collaborate with others
   (c) Observe others
   (d) Share materials and resources with others
   (e) Search the Internet
   (f) Scan professional magazines and journals
   (g) Trial and error
   (h) Reflect on your actions
   (i) Other activities? Please identify:

Section 2: Environmental Inhibitors to Informal Learning

2. How frequently does a lack of free time inhibit you from engaging in the following learning activities?
   (a) Talk with others
   (b) Collaborate with others
   (c) Observe others
   (d) Share materials and resources with others
   (e) Search the Internet
   (f) Scan professional magazines and journals
   (g) Trial and error
   (h) Reflect on your actions

3. How frequently does a lack of proximity to your colleagues' work areas inhibit you from engaging in the following activities?
   [Survey contained same eight activities as those listed in question 2.]

4. How frequently does a lack of access to computer technology inhibit you from engaging in the following activities?
   [Survey contained same eight activities as those listed in question 2.]

5. How frequently does a lack of monetary rewards inhibit you from engaging in the following activities?
   [Survey contained same eight activities as those listed in question 2.]

6. How frequently does a lack of recognition inhibit you from engaging in the following learning activities?
   [Survey contained same eight activities as those listed in question 2.]

7. Please identify any other aspects of your work environment that inhibit you from engaging in the learning activities listed below.
   [Survey contained same eight activities as those listed in question 2.]

Section 3: Personal Characteristics Influencing Informal Learning

8. To what extent does your determination to begin and persist in an activity enhance your motivation to engage in the following learning activities?
   [Survey contained same eight activities as those listed in question 2.]

9. To what extent does your perception of your professional capabilities enhance your motivation to engage in the following learning activities?
   [Survey contained same eight activities as those listed in question 2.]

10. To what extent does your love of learning enhance your motivation to engage in the following learning activities?
    [Survey contained same eight activities as those listed in question 2.]

11. To what extent does your interest in your professional field or subject area enhance your motivation to engage in the following learning activities?
    [Survey contained same eight activities as those listed in question 2.]

12. Please identify any other personal characteristics that enhance your motivation to engage in the learning activities listed below.
    [Survey contained same eight activities as those listed in question 2 with a blank beside each activity for a response.]

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proximity to colleague's work areas, lack of access to computer technology, lack of monetary rewards, and lack of recognition) inhibit their engagement in the eight previously identified informal learning activities. A Likert scale ranging from 1 (Never Inhibits My Engagement) to 5 (Always Inhibits My Engagement) was used for these items. An open-ended item was also provided in this section so that respondents could share additional environmental factors that inhibit them from engaging in any of the eight informal learning activities.

The third section asked respondents to rate the extent that four personal characteristics (initiative, self-efficacy, love of learning, and interest in professional field/subject area) enhance their motivation to engage in the eight informal learning activities. A Likert scale ranging from 1 (Not at All) to 5 (To a Great Extent) was used for these items. In addition, an open-ended item was included so that respondents could identify any additional personal characteristics that enhance their motivation to engage in any of the eight informal learning activities.

The fourth section of the survey contained five demographic questions. These questions asked respondents to identify their age, gender, educational level, industry or school level in which they work, and job title.

The validity of the survey instrument was established with a panel of experts and a field test (Mueller, 1986). First, two educational researchers with extensive expertise in informal workplace learning and research design examined the content and design of the survey. Because the closed-ended items in the first three sections of the survey (informal learning activities, environmental inhibitors, and personal characteristics) reflected the findings from a previous qualitative study, one of the panel's recommendations was to include an open-ended item in each of these sections to provide a mechanism for capturing additional information that was not found in the qualitative study. A second recommendation concerned the operationalization of the constructs in two items in the personal characteristics section of the survey. To improve the clarity of the first item in this section, it was changed from, "To what degree does your initiative enhance your motivation to engage in the following activities?" to, "To what degree does your determination to begin and persist in an activity enhance your motivation to engage in the following activities?" A similar revision was made for the second item in this section. The original version of the item, "To what degree does your level of self-efficacy enhance your motivation to engage in the following activities?" was changed to, "To what degree does your perception of your professional capabilities enhance your motivation to engage in the following activities?"

Next, a field test was conducted with nine participants. Six of the participants worked in the HRD profession, and the other three were public school teachers. The average age of the field test participants was 30.9 years ($SD =$ 6.47). Five of the participants were male, and four were female. The survey was administered in person to field-test participants. Participants were instructed to provide written and oral feedback on the clarity and structure of the survey items as well as the degree to which the items comprehensively reflected the activities they use to learn informally, characteristics of work environments that inhibit them from engaging in those activities, and personal characteristics they possess that promote their engagement in informal learning activities. Feedback from the field test resulted in three revisions to the survey instrument. First, the original version of item 11 read, "To what extent does your fondness for your professional field or subject area enhance your motivation to engage in the following activities?" Several participants indicated that they were either unfamiliar or uncomfortable with "fondness." As a consequence, "fondness" was replaced with "interest in your professional field or subject area." Second, in the original version of the survey, the phrase, "try out a new way of doing something," was used to identify the informal learning activity that dealt with experimentation. Field-test participants reported that they believed the phrase "trial and error" more accurately described this learning activity. Therefore, the original phrase, "try out a new way of doing something," was replaced with, "trial and error." Third, because participants indicated that they did not have sufficient space to write their responses to the

open-ended questions in the survey, additional lines and white space were added for each of the open-ended items.

Reliability coefficients were calculated for groups of closed-ended items, yielding the following alpha coefficients: Informal learning activities (eight items), .63; Environmental influence—Lack of free time (eight items), .79; Environmental influence—Lack of proximity to colleagues' work areas (eight items), .84; Environmental influence—Lack of access to computer technology (eight items), .93; Environmental influence—Lack of monetary rewards (eight items), .94; Environmental influence—Lack of recognition (eight items), .96; Personal characteristic—Initiative (eight items), .89; Personal characteristic—Self-efficacy (eight items), .93; Personal characteristic—Love of learning (eight items), .85; and Personal characteristic—Interest in profession (eight items), .88.

Data Collection and Analysis Procedures. Mailing packets containing a cover letter, the questionnaire, and a postage-paid return envelope were prepared. To encourage a high response rate, the cover letter was written on the participating university's letterhead, was hand-signed, and explained the benefits of participating in the study (Fowler, 1993). In addition, the questionnaire was printed on high-quality bond paper in booklet format. Participant code numbers were assigned to the twelve hundred subjects selected to participate in the study. The code numbers were placed on the lower right corner of the questionnaire's back page to maintain participant confidentiality and enable the researchers to track respondents and nonrespondents. Two mailings were used to collect the data. The first mailing was distributed during the last week of February 2004. Nonrespondents were mailed a second packet six weeks later.

Descriptive statistics and *t*-tests were used to analyze the responses to the closed-ended items. Content analysis was used to analyze the textual responses to the three open-ended items (Miles & Huberman, 1994). This analysis process involved recording the responses on a worksheet, coding the responses, categorizing the coded responses, and tabulating the number of responses in each category (Seidel & Kelle, 1995). Labels were generated to reflect the content of all the responses in each category. Any category that contained responses from more than 10 percent of all the respondents in the study ($n > 31$) was judged to reflect a pattern among the responses and was reported as an additional finding.

Results

Three research questions concerning the informal learning activities of respondents were examined in this study.

*Q1: **What Types of Activities Do Public School Teachers and HRD Professionals Use to Learn Informally in the Workplace?*** As shown in Table 1, the overall mean score for all respondents on the frequency with which they

Table 1. Comparison of the Frequency with Which Two Professional Groups Use Eight Informal Workplace Learning Activities

Informal Workplace Learning Activities	n	M	SD	t
OVERALL RATINGS FOR ALL EIGHT INFORMAL LEARNING ACTIVITIES				
All respondents	310	3.8	0.45	
Teachers	162	3.8	0.48	
HRD professionals	148	3.8	0.41	−0.669
RATINGS FOR EACH INFORMAL LEARNING ACTIVITY				
Talk with others				
All respondents	313	4.3	0.68	
Teachers	163	4.4	0.64	
HRD professionals	150	4.3	0.73	1.881
Collaborate with others				
All respondents	313	4.1	0.70	
Teachers	163	4.1	0.69	
HRD professionals	150	4.0	0.71	2.056*
Observe others				
All respondents	313	3.3	0.98	
Teachers	163	3.1	1.03	
HRD professionals	150	3.5	0.88	−3.779*
Share materials and resources with others				
All respondents	312	4.2	0.68	
Teachers	162	4.2	0.69	
HRD professionals	150	4.1	0.65	2.106*
Search the Internet				
All respondents	313	3.6	1.00	
Teachers	163	3.4	1.07	
HRD professionals	150	3.9	0.86	−5.084*
Scan professional magazines and journals				
All respondents	313	3.4	0.99	
Teachers	163	3.1	0.99	
HRD professionals	150	3.7	0.90	−5.297*
Trial and error				
All respondents	312	3.3	1.10	
Teachers	163	3.5	0.89	
HRD professionals	149	3.0	1.18	3.993*
Reflect on your actions				
All respondents	311	4.1	0.83	
Teachers	163	4.2	0.81	
HRD professionals	148	3.9	0.80	4.242*

Note: Rating scale: 1 = Never Use Learning Activity, 5 = Always Use Learning Activity.

*$p < .05$.

use all eight informal learning activities was 3.8 ($SD = 0.45$) on a five-point scale. A *t*-test found no significant difference between public school teachers and HRD professionals on this measure.

However, significant differences were found between the mean scores of the two professional groups on the frequency with which they engage in seven

of the eight informal learning activities. Specifically, teachers reported that they collaborate with others, share materials and resources, engage in trial and error, and reflect on their actions to a significantly greater degree than the HRD professionals do. Conversely, HRD professionals reported that they observe others, search the Internet, and scan professional magazines and journals to a significantly greater degree than teachers do.

Analysis of the open-ended responses yielded no additional types of informal learning activities beyond the eight identified in the closed-ended items of the questionnaire.

Q2: What Characteristics of Work Environments Inhibit the Engagement of Public School Teachers and HRD Professionals in Informal Learning Activities in the Workplace? As shown in Table 2, the ratings of all respondents on the degree to which each of the five environmental factors inhibit engagement in all eight learning activities ranged from 3.1 (*SD* = 0.66) for a lack of time to 1.4 (*SD* = 0.68) for a lack of recognition. Furthermore, *t*-tests revealed only one significance between the two groups on the degree to which an environmental factor inhibits their participation in all eight informal learning activities. Specifically, a lack of time was found to inhibit teachers from engaging in informal learning to a significantly greater degree than HRD professionals.

The degree to which the five environmental factors inhibit engagement in each of the eight informal learning activities was also examined. Respondents perceived that only two of the five environmental factors frequently inhibit them from engaging in one or more of the informal learning activities: a lack of time and a lack of proximity to colleagues' work areas. The degree to which a lack of time inhibits informal learning ranged from a low of 2.6 for teachers (*SD* = 1.18) and HRD professionals (*SD* = 1.13) when reflecting on action and for teachers only (*SD* = 1.02) when engaging in trial and error, to a high of 4.1 (*SD* = 1.04) for teachers when trying to observe others. The degree to which a lack of proximity to colleagues' work areas inhibits informal learning ranged from a low of 1.4 (*SD* = 0.70) for HRD professionals when searching the Internet to a high of 3.0 (*SD* = 1.23) for the same group when trying to observe others. Mean scores of the ratings for the remaining three environmental factors—computer technology, monetary rewards, and recognition—for all of the eight informal learning activities were below 2.0, indicating that respondents did not perceive that the factors inhibited them from engaging in the informal learning activities studied.

T-tests revealed significant differences between the two professional groups on the degree to which a lack of time and a lack of proximity to colleagues' work areas inhibit their engagement in the eight informal learning activities. Specifically, a lack of time was found to inhibit teachers from talking, collaborating, observing others, searching the Internet, and reading magazines and journals to a significantly greater degree than HRD professionals. In contrast, the same environmental factor, a lack of time, impeded HRD professionals from engaging in only one informal learning activity to a significantly greater

Table 2. Comparison of the Frequency with Which Five Environmental Factors Inhibit Respondents' Engagement in Informal Workplace Learning Activities

	Informal Workplace Learning Activities				Time Proximity to Colleagues' Work Areas				Computer Technology				Monetary Rewards				Recognition			
	n	M	SD	t	n	M	SD	t	n	M	SD	t	n	M	SD	t	n	M	SD	t
OVERALL RATINGS FOR ALL EIGHT INFORMAL LEARNING ACTIVITIES																				
All respondents	312	3.1	0.66		311	2.1	0.77		312	1.7	0.83		315	1.5	0.80		313	1.4	0.68	
Teachers	163	3.2	0.67		163	2.1	0.82		164	1.8	0.92		165	1.6	0.84		163	1.4	0.64	
HRD professionals	149	2.9	0.59	4.657*	148	2.1	0.71	0.756	148	1.5	0.69	2.409*	150	1.4	0.74	1.95	150	1.4	0.72	0.012
RATINGS FOR EACH INFORMAL LEARNING ACTIVITY																				
Talk with others																				
All respondents	317	3.0	0.96		314	2.4	1.18		317	1.5	0.95		317	1.4	0.85		314	1.5	0.85	
Teachers	166	3.3	0.95		164	2.5	1.14		166	1.7	1.06		166	1.4	0.88		164	1.4	0.76	
HRD professionals	151	2.8	0.91	4.708*	150	2.4	1.23	.771	151	1.4	0.78	2.809*	151	1.4	0.83	0.384	150	1.5	0.94	−1.034
Collaborate with others																				
All respondents	317	3.2	0.94		314	2.6	1.14		317	1.7	1.01		317	1.6	0.99		314	1.6	0.93	
Teachers	166	3.4	0.95		164	2.6	1.10		166	1.8	1.08		166	1.6	1.05		164	1.5	0.88	
HRD professionals	151	2.9	0.86	4.777*	150	2.6	1.18	.154	151	1.6	0.92	1.820	151	1.5	0.92	1.152	150	1.6	0.98	−0.666
Observe others																				
All respondents	316	3.6	1.10		315	2.9	1.28		315	1.6	1.06		317	1.6	1.08		314	1.5	0.85	
Teachers	166	4.1	1.04		164	2.9	1.33		166	1.6	1.15		166	1.8	1.21		164	1.5	0.88	
HRD professionals	150	3.1	0.95	8.924*	151	3.0	1.23	−.876	149	1.5	0.96	0.965	151	1.4	0.87	3.151*	150	1.4	0.81	1.092
Share materials and resources																				
All respondents	316	2.9	0.97		315	2.4	1.09		317	1.8	1.10		317	1.7	1.06		314	1.5	0.91	
Teachers	165	3.0	1.00		164	2.4	1.09		166	1.9	1.16		166	1.8	1.16		164	1.5	0.85	
HRD professionals	151	2.8	0.92	1.901	151	2.4	1.09	−.324	151	1.6	1.01	2.188*	151	1.6	0.91	2.029*	150	1.6	0.97	−0.706

	N	M	SD	t	N	M	SD	t	N	M	SD	t	N	M	SD	t	N	M	SD	t
Search the Internet																				
All respondents	314	3.0	1.06		314	1.6	0.91		316	2.0	1.37		316	1.4	0.83		313	1.3	0.62	
Teachers	164	3.2	1.10		164	1.7	1.05		165	2.2	1.36		165	1.5	0.93		163	1.3	0.59	
HRD professionals	150	2.8	0.97	3.689*	150	1.4	0.70	3.031*	151	1.9	1.38	1.799	151	1.3	0.68	2.731*	150	1.2	0.64	0.803
Scan professional magazines and journals																				
All respondents	314	3.4	1.02		315	1.7	0.93		317	1.7	0.99		317	1.6	1.03		314	1.3	0.67	
Teachers	164	3.5	1.05		165	1.8	0.98		166	1.8	1.11		166	1.7	1.13		164	1.3	0.66	
HRD professionals	150	3.2	0.97	2.651*	150	1.6	0.86	2.140*	151	1.5	0.81	2.582*	151	1.4	0.88	2.547*	150	1.3	0.68	0.843
Trial and error																				
All respondents	313	2.7	1.08		315	1.8	1.52		315	1.6	0.92		316	1.5	0.94		314	1.4	0.74	
Teachers	164	2.6	1.02		165	1.8	1.88		166	1.6	0.99		166	1.5	0.91		164	1.4	0.67	
HRD professionals	149	2.9	1.14	−2.463*	150	1.8	0.97	.064	149	1.5	0.84	1.500	150	1.5	0.98	−0.321	150	1.4	0.81	−0.148
Reflect on your actions																				
All respondents	314	2.6	1.15		315	1.6	0.90		314	1.4	0.79		316	1.3	0.78		314	1.3	0.65	
Teachers	164	2.6	1.18		165	1.6	0.92		165	1.5	0.94		165	1.4	0.83		164	1.3	0.62	
HRD professionals	150	2.6	1.13	0.157	150	1.6	0.88	.346	149	1.3	0.57	2.880*	150	1.3	0.73	0.910	150	1.3	0.68	0.270

Note: Rating scale: 1 = Never Inhibits Engagement in Learning Activity, 5 = Always Inhibits Engagement in Learning Activity.

degree than teachers: trial and error. In addition, a lack of proximity to colleagues' work areas was found to impede teachers from searching the Internet and scanning magazines and journals to a significantly greater degree than HRD professionals.

As shown in Table 3, four additional environmental factors were reported by more than 10 percent of the respondents ($n > 31$) and were considered to be important additional environmental inhibitors to informal learning. First, an unsupportive organizational culture was reported by twenty-one HRD professionals and ten teachers as being an important environmental inhibitor. While an unsupportive culture most commonly inhibits HRD professionals from engaging in trial and error and talking with others, it most commonly inhibits teachers from observing and collaborating with others.

A second environmental inhibitor was the unwillingness of others to participate in informal learning activities, which was reported by twenty-nine HRD professionals and seven teachers. Respondents reported that the unwillingness of others inhibits talking with others (six HRD professionals and three teachers), collaborating with others (twelve HRD professionals and three teachers), observing others (seven HRD professionals and one teacher), and sharing materials and resources (four HRD professionals).

A third environmental inhibitor is the inaccessibility of a subject matter expert (SME). This inhibitor was reported by twenty-three HRD professionals and eight teachers. The inaccessibility of an SME inhibits talking with others (nine HRD professionals and one teacher), observing others (nine HRD professionals and four teachers), collaborating (three HRD professionals and two teachers), and sharing materials and resources (two HRD professionals and one teacher).

A fourth additional environmental inhibitor was a lack of funds. This inhibitor was reported by thirty-one teachers as compared to seven HRD professionals. Teachers reported that a lack of funds inhibits them from observing others ($n = 18$), largely because school policies require that substitute teachers be hired to cover classes for teachers who wish to conduct classroom observations and from sharing materials and resources ($n = 6$). Five respondents from each professional group also reported that insufficient funds inhibit them from scanning magazines and journals.

Q3: What Personal Characteristics Enhance the Ability of Public School Teachers and HRD Professionals to Engage in Informal Learning Activities in the Workplace? As shown in Table 4, the mean scores of all respondents on the degree to which four personal characteristics (initiative, self-efficacy, love of learning, and interest in profession) promote their engagement in all eight informal learning activities ranged from a low of 3.5 ($SD = 1.03$) for self-efficacy to a high of 4.1 for both love of learning ($SD = 0.82$) and interest in profession ($SD = 0.72$). *T*-tests revealed one significant difference between the two professional groups on the degree to which the four personal characteristics influence their motivation to engage in all informal learning activities, with

Table 3. Additional Environmental Factors Inhibiting Respondents' Engagement in Informal Workplace Learning Activities

Environmental Factors	Talk with Others		Collaborate with Others		Observe Others		Share Materials and Resources		Search the Internet		Scan Magazines and Journals		Trial and Error		Reflect on Your Actions		Total Number of Responses		
	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Total
Culture doesn't value/support it	1	5	4	1	5	1	2	10	2	10	21	31							
Funds unavailable	1	18	6	1	1	5	5	1	31	7		38							
Guidance for locating sources lacking	1	4	1	4	5														
Inaccessibility of subject matter expert	1	9	2	3	4	9	1	2	1	8	23	31							
Information source lacks credibility	3	2	3	2	5														
Information source unavailable	1	11	5	3	12	8	20												
Meeting/work space lacking	1	1	1	1	3	1	4												
Others in workplace are unwilling	3	6	3	12	1	7	4	7	29	36									
Others' workload and lack of time	6	11	2	0	19	19													
Proprietary information	1	1	3	4	1	8	9												
Recognition/rewards for contributions lacking	1	1	4	1	1	6	7												
Technology unavailable	1	4	7	1	1	7	7	14											

Note: Italics identify environmental factors inhibiting engagement in informal learning activities as reported by at least 10 percent of all respondents (*n* = 31).

Table 4. Comparison of the Extent to Which Four Personal Characteristics Enhance Respondents' Motivation to Engage in Selected Informal Workplace Learning Activities

Informal Workplace Learning Activities	Initiative				Self-Efficacy				Love of Learning				Interest in Profession			
	n	M	SD	t	n	M	SD	t	n	M	SD	t	n	M	SD	t
OVERALL RATINGS FOR ALL EIGHT INFORMAL LEARNING ACTIVITIES																
All respondents	310	3.8	0.86		311	3.5	1.03		311	4.1	0.82		313	4.1	0.72	
Teachers	164	3.7	0.86		162	3.5	1.02		162	4.1	0.84		164	4.1	0.72	
HRD professionals	146	3.9	0.81	−2.162*	149	3.5	1.03	0.121	149	4.1	0.80	0.513	149	4.1	0.72	0.051
RATINGS FOR EACH INFORMAL LEARNING ACTIVITY																
Talk with others																
All respondents	313	4.1	1.05		313	3.9	1.17		314	4.4	0.87		314	4.5	0.76	
Teachers	165	4.0	1.11		163	3.9	1.21		164	4.5	0.79		164	4.5	0.79	
HRD professionals	148	4.2	0.97	−1.056	150	3.9	1.13	−0.187	150	4.3	0.95	1.516	150	4.5	0.73	−0.200
Collaborate with others																
All respondents	313	4.1	1.02		313	3.9	1.14		314	4.3	0.9		314	4.4	0.78	
Teachers	165	4.0	1.06		163	3.9	1.16		164	4.4	0.78		164	4.5	0.80	
HRD professionals	148	4.2	0.97	−1.194	150	4.0	1.11	−0.409	150	4.2	1.01	2.225*	150	4.4	0.76	0.573
Observe others																
All respondents	313	3.5	1.18		312	3.4	1.27		313	4.0	1.07		314	4.1	1.00	
Teachers	164	3.3	1.26		162	3.4	1.32		163	4.0	1.07		164	4.0	1.05	
HRD professionals	149	3.7	1.04	−3.123*	150	3.5	1.21	−0.847	150	4.1	1.08	−0.494	150	4.2	0.95	−0.982
Share materials and resources																
All respondents	314	4.0	1.08		313	3.9	1.19		314	4.3	0.84		314	4.4	0.82	
Teachers	165	3.9	1.14		163	3.9	1.16		164	4.4	0.78		164	4.4	0.80	
HRD professionals	149	4.0	1.01	−0.955	150	3.8	1.21	0.560	150	4.3	0.90	1.166	150	4.4	0.83	0.098
Search the Internet																

	N	M	SD	t	N	M	SD	t	N	M	SD	t	N	M	SD	t
All respondents	313	3.6	1.26		313	3.2	1.34		314	3.9	1.12		314	4.0	1.08	
Teachers	165	3.4	1.30		163	3.1	1.33		164	3.7	1.19		164	3.8	1.17	
HRD professionals	148	3.9	1.14	−4.039*	150	3.3	1.35	−1.226	150	4.2	0.98	−3.666 *	150	4.1	0.96	−2.706*
Scan professional magazines and journals																
All respondents	314	3.4	1.23		311	3.2	1.31		314	4.0	3.03		314	3.9	1.13	
Teachers	165	3.2	1.23		162	3.1	1.28		164	3.9	4.10		164	3.7	1.18	
HRD professionals	149	3.7	1.16	−3.994*	149	3.2	1.34	−1.093	150	4.2	0.93	−0.809	150	4.1	1.02	−3.387*
Trial and error																
All respondents	313	3.6	1.27		312	3.3	1.32		312	3.8	1.17		313	3.8	1.24	
Teachers	165	3.6	1.27		163	3.4	1.36		163	4.0	1.13		164	4.0	1.15	
HRD professionals	148	3.5	1.26	0.161	149	3.2	1.27	1.496	149	3.6	1.20	2.375*	149	3.5	1.29	3.144*
Reflect on your actions																
All respondents	314	3.8	1.17		312	3.5	1.34		313	4.1	1.07		313	4.1	1.09	
Teachers	165	3.9	1.12		163	3.7	1.28		163	4.2	0.96		164	4.3	0.93	
HRD professionals	149	3.7	1.21	1.764	149	3.3	1.37	2.591*	150	3.9	1.16	2.665*	149	3.9	1.20	3.526*

Note: Rating scale: 1 = Does Not Enhance My Motivation to Engage in the Learning Activity, 5 = Enhances My Motivation to Engage in the Learning Activity to a Great Extent.

HRD professionals reporting that initiative enhances their motivation to a significantly greater extent than teachers.

The mean scores for both professional groups on the degree to which the four personal characteristics enhance their motivation to engage in each of the eight informal learning activities were all above 3.0, indicating that both groups perceived that their initiative, self-efficacy, love of learning, and interest in their profession play important roles in motivating them to participate in all informal learning activities studied.

T-tests between the two groups on the degree to which each personal characteristic influences their motivation to engage in each of the eight informal learning activities were also conducted. The tests revealed that HRD professionals perceive that initiative enhances their motivation to observe others, search the Internet, and read professional magazines and journals to a significantly greater degree than teachers do. Only one significant difference was found between the two groups on self-efficacy, with teachers reporting that it enhances their motivation to reflect on their actions to a significantly greater degree than HRD professionals. Love of learning was found to enhance teachers' motivation to collaborate with others, experiment, and reflect on their actions to a significantly greater degree than HRD professionals, while it enhances HRD professionals' motivation to search the Internet to a significantly greater degree than teachers. Interest in one's profession was also found to enhance the motivation of HRD professionals to search the Internet as well as scan magazines and journals to a significantly greater degree than teachers. However, the same characteristic was found to enhance the motivation of teachers to experiment and reflect on their actions to a significantly greater degree than HRD professionals.

Analysis of the open-ended responses revealed three additional characteristics that heighten the respondents' motivation to engage in informal learning. As shown in Table 5, one additional characteristic is a commitment to continuous professional development. Commitment was expressed as the desire to learn from one's experiences, become a better problem solver, and continually improve one's performance. It was reported by 37 percent of the respondents (sixty-two teachers and fifty-six HRD professionals) as an attribute that promotes engagement in all eight informal learning activities identified in the survey.

A second personal characteristic reported by 20 percent (forty-two teachers and twenty-one HRD professionals) of the respondents was a nurturing personality. Expressed as being supportive of others and wanting to be a team player, nurturing was reported to promote participation in learning activities that involve interactions with others, such as talking, collaborating, observing, and sharing materials and resources.

A third personal characteristic was an outgoing personality. Expressed as the enjoyment of social situations and interactions with others, an

Table 5. Additional Personal Characteristics Enhancing Respondents' Motivation to Engage in Informal Workplace Learning Activities

Personal Characteristics	Talk with Others		Collaborate with Others		Observe Others		Share Materials and Resources		Search the Internet		Scan Magazines and Journals		Trial and Error		Reflect on Your Actions		Total Number of Responses		
	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Teachers	HRD	Total
Ambition	1	1	1	1	3	1	4												
Commitment to professional development	7	8	4	5	5	6	9	6	5	8	13	11	6	4	13	8	62	56	118
Creativity	1		1		1			1	2	2	4								
Curiosity			1		1						2	1	1	2	1	5	3	8	
Flexibility	1		1		1		1		2		0		4						
Integrity	1	0	1	1															
Introspective	1	1	1	1	2														
Learning style	3	3	0	3															
Listening skills	1	1	0	2	2														
Love of research process	1	4	2	5	2	7													
Nurturing	5	3	11	5	4	2	18	8	1	2	1	1	1	1	42	21	63		
Organizational skills	1	1	2	0	2														
Outgoing	14	13	6	10	1	4	3	21	30	51									
Technology skills	1	1	1	1	2														

Note: Italics indicate additional personal characteristics that promote engagement in informal learning activities as reported by at least 10 percent of the respondents (n = 31).

outgoing personality was reported by 16 percent of the respondents (thirty HRD professionals and twenty-one teachers) as an attribute that promotes their engagement in learning activities that also involve interactions with others.

Discussion

A survey was conducted to describe the factors that influence the engagement of public school teachers and HRD professionals in informal workplace learning activities. Analysis of the data found that teachers rely to a significantly greater extent on interactive learning activities, while HRD professionals rely to a significantly greater extent on independent learning activities. Both professional groups reported that a lack of time and a lack of proximity to colleagues' work areas frequently inhibit their engagement in informal learning activities. HRD professionals also reported that an unsupportive organizational culture, the unwillingness of others, and the inaccessibility of subject matter experts inhibit their engagement in informal learning, while teachers reported one additional environmental inhibitor: a lack of funds. Respondents indicated that seven personal characteristics enhance their motivation to engage in informal learning: initiative, self-efficacy, love of learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality.

This study had three limitations. First, HRD professionals were selected from an ASTD membership list. It is possible that individuals with ASTD memberships may have a greater commitment to their professional development than the general HRD population. As such, the findings of this study seem most appropriate for HRD professionals who are committed to improving their professional practice. This was not a concern with the teacher participants because the database from which they were selected contained a comprehensive list of public school teachers employed by school districts throughout the United States. A second limitation was the survey's response rate of 26.5 percent. The concern that the response rate may have limited the generalizability of the study's findings was investigated by comparing teacher and HRD respondents to their respective populations on known characteristics. The comparison showed that the two groups of respondents were highly similar to their experimentally accessible populations and, as a result, increased the confidence that the study's findings may be generalized to the populations of interest (Dooley & Lindner, 2003). Third, the survey instrument has been administered only to teachers and HRD professionals. As a consequence, the current study's findings appear most appropriate for these two populations, and future studies should be conducted to determine the degree to which the findings apply to other professional groups. Despite these limitations, the findings of this study have important implications for theory, practice, and research of informal workplace learning.

Implications for HRD Theory on Informal Workplace Learning. The findings of this study have two important implications for HRD theory on informal workplace learning. First, the preference of the two professional groups that was found for different types of informal learning activities extends Jarvis's theory of adult learning (1987a, 1987b) as it relates to the three responses (contemplation, reflective practice, and experimentation) to potential learning experiences associated with higher forms of learning. Specifically, this study revealed that teachers' responses to potential learning experiences involve their engagement in more interactive activities, such as talking and sharing materials with others, while HRD professionals' responses involve engagement in more independent activities, such as searching the Internet and scanning magazines and journals.

A second, related implication for theory development concerns the degree to which environmental and personal characteristics influence one's preference to engage in different types of informal learning activities. The study's findings, considered through the lens of McClusky's theory of margin (1984), may help to explain these learning preferences. The theory of margin asserts that engagement in growth-enhancing experiences is more likely to occur when the resources that people can call on to cope with their loads exceed the demands placed on them by themselves and society (Hiemstra, 1993). In this study, teachers reported that the lack of an important external resource, time, inhibits their engagement in five of eight informal learning activities to a significantly greater degree than HRD professionals. Teachers also reported that the lack of proximity to colleagues' work areas inhibits them from searching the Internet and reading professional magazines and journals to a significantly greater degree than HRD professionals. The lack of these necessary external resources (for example, computers and reading materials) in teachers' work areas, coupled with the intense lack of time, apparently propels teachers into using the most accessible and efficient activity, interacting with other teachers, when the need to learn something new at work arises.

However, the degree to which such interactions are possible was found to vary based on another external resource: the availability and support of colleagues in the work environment. This finding is consistent with the workplace learning models of Doornbos et al. (2004) and van Woerkom et al. (2002) and the findings from Kwakman's empirical study (2003) of informal learning in which collegial availability and support, as well as organizational climate for learning, are identified as factors influencing participation in informal learning activities. In the current study, teachers reported that because they lack sufficient time, proximity to others' work areas, and money for other types of learning activities, they rely extensively on interactive informal learning activities, such as talking and sharing resources with others. However, many HRD professionals reported that they turn to more independent learning activities because their organizational cultures and work colleagues were not supportive of collegial interaction and sharing.

Unquestionably, different types of environmental constraints inhibit the two professional groups from engaging in informal learning activities. However, as noted in McClusky's theory of margin (1984), the participants in this study indicated that one or more personal attributes act as personal sources of power that counterbalance environmental constraints, thereby providing them with sufficient motivation to engage in informal learning. Specifically, the current study corroborated aspects of the workplace learning models of Doornbos et al. (2004) and van Woerkom et al. (2002) in identifying seven personal characteristics (initiative, self-efficacy, love of learning, and interest in one's profession, commitment to professional development, a nurturing personality, and an outgoing personality) that enhance the motivation to engage in the eight informal learning activities studied. This investigation extends understanding in revealing that these seven personal characteristics are more likely to promote teachers' engagement in interactive learning activities, whereas they are more likely to promote HRD professionals' engagement in independent activities.

Implications for HRD Practice in Promoting Informal Workplace Learning. The findings from this study give rise to three important implications for promoting informal workplace learning. These implications require the involvement of human resource developers in decisions related to the design of workers' jobs and their work environments. First, human resource developers should advocate for building a greater amount of unencumbered time into a professional's workday. In the current study, both teachers and HRD professionals reported that a lack of time frequently limits their participation in informal learning activities. However, simply increasing unencumbered time may not be sufficient to foster informal learning. Control over free time is also a critical element in informal learning (Hargreaves, 1992). As a consequence, increased amounts of unencumbered time, with discretion over how that time is used, would provide professionals with greater opportunities for informal learning.

Second, human resource developers should strategically design work areas so that employees, especially those in their early stages of development, are located near colleagues in the same technical or professional areas. Strategically assigning work stations in this way should decrease the strength of two environmental inhibitors to informal learning (lack of time and proximity to others' work areas) and thereby promote collegial interaction and sharing (Dobbs, 2000; Leslie, Aring, & Brand, 1998).

A third recommendation for promoting informal workplace learning is to provide employees with access to adequate computer technology and the Internet. In the current study, teachers specifically reported that their lack of computer technology and proximity to others' work areas inhibits them from searching the Internet and reading professional publications in a timely manner. Access to these resources at the appropriate times and locations would help professionals communicate with others and gather information when the need to do so arises (Tobin, 1998).

Implications for HRD Research of Informal Workplace Learning. The degree to which the findings of this study apply to other professions needs to be examined. Therefore, an appropriate next step would be to replicate this study with other professional groups who are experiencing high levels of job intensification.

A second area for future research would be the design of an instrument for assessing an employee's inclination to engage in informal learning, as measured by the seven personal characteristics that were found to enhance motivation to engage in informal learning. This personal informal learning assessment could be used for performance coaching purposes to cultivate workers who are able to continuously learn and grow, even when adequate environmental resources are constrained.

A third area for future research is the creation of a diagnostic instrument for auditing an organization's work environment to determine the degree to which it supports informal learning. Based on this study's findings, the diagnosis should assess the degree to which an organization's culture, design, policies and procedures, and people support engagement in informal learning.

Unquestionably, the findings from this study showed that professionals participate in a variety of informal learning activities when the need to learn something new arises. Their selection of specific learning activities is strongly influenced by various environmental and personal characteristics. As jobs in today's organizations continue to intensify in scope and complexity, the ability to decrease environmental inhibitors to informal learning as well as enhance personal characteristics that promote informal learning becomes critical to cultivating workplaces where working and learning are integral and natural parts of the workday.

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