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

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A survey of informal learning among 318 teachers and HRD professionals was conducted. Analysis of the data found that teachers rely to a greater extent on interactive informal learning activities while HRD professionals rely to a greater extent on independent learning activities. Data analysis also found that six environmental factors inhibit engagement in informal learning and seven personal characteristics enhance motivation to participate in informal learning. Implications for HRD theory, research, and practice are discussed.

Keywords: Informal learning, workplace learning, work environment

An important way that professionals develop their expertise is through informal learning in the workplace. Informal learning refers to activities initiated by people in work settings that result in the development of their professional knowledge and skills (Lohman, 2000). Unlike formal learning, informal learning can be either planned or unplanned and structured or unstructured. Examples of informal learning include talking and sharing resources with others, searching the Internet, and experimenting with new techniques. 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 importance of informal learning in cultivating professional expertise has focused greater attention on the interplay between informal learning activities, the environment where they occurs, and characteristics of those engaged in them (Billett, 2001). Recent studies have made important progress in developing greater understandings of the types of work-based activities associated with informal learning as well as personal and contextual factors that influence 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 participation in specific informal learning activities. This is a critical area of investigation because of the growing reliance on informal learning as a means of developing the knowledge and skills required to effectively handle increasingly complex and ambiguous problems in the workplace (Doornbos, Bolhuis, & Simons, 2004).

Theoretical Framework: Factors Influencing Participation in Informal Workplace Learning

Workplace learning involves both structured and unstructured on-the-job activities that result in the development of new capabilities required for effective work practice (Billett, 2002). Informal workplace learning, which is the focus of this study, is an aspect of workplace learning that specifically involves those learning activities that are initiated by employees in the workplace and result in the development of their professional knowledge and skills (Lohman, 2001). This form of learning is predominantly experiential, involving a dialectical process of action and reflection (Marsick, Volpe, & Watkins, 1999). In their model of informal workplace learning, Cseh, Watkins, and Marsick (1999) assert that this dialectical process is triggered by challenging work situations and involves a series of steps that closely resemble the steps of the problem-solving process. These steps involve framing the context, responding to triggers to a potential learning experience, interpreting the experience, examining alternative solutions, choosing learning strategies, producing alternative solutions, assessing intended and unintended consequences, and evaluating lessons learned. This model provides a useful blueprint of the cognitive activities involved in the informal learning process. However, it does not specify behavioral activities that are associated with the eight cognitive steps, nor does it speak to characteristics of work environments or of workers that influence engagement in those activities.

Several conceptual models have been recently constructed in an attempt to identify such activities and characteristics. With respect to activities commonly associated with informal workplace learning, Doornbos et al. (2004) assert that activities related to handling novel, ambiguous work problems typically promote informal workplace learning. Similarly, van Woerkom, Nijhof, and Nieuwenhuis (2002) posit that eight work activities promote informal workplace learning: reflection on oneself in relation to the job, learning from mistakes, vision sharing, challenging group think, asking for feedback, experimentation, sharing knowledge, and awareness of employability.

In addition to identifying activities associated with informal workplace learning, Doornbos et al. (2004)'s workplace learning model identifies six work environment characteristics that potentially influence participation in informal workplace learning (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 such work-related learning. van Woerkom, Nijhof, and Nieuwenhuis' (2002) report that participation in work activities associated with workplace learning is influenced by 10 job characteristics (workload, alternation, autonomy, task obscurity, information, participation, cooperation, communication, coaching, organizational climate for learning) and 3 worker characteristics (motivation, self-efficacy, and variety of experience).

Empirical studies have been conducted to examine some aspects of these models. For example, in a survey of 542 teachers in the Netherlands, Kwakman (2003) found 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 informal learning activities, with the personal characteristics influencing participation more substantially than either the task or work environment factors. Van Woerkom et al. (2002)'s survey of 742 educators found that of 13 job and individual characteristics studied, one was reported to be most potent in relation to promoting workplace learning—self efficacy.

Empirical studies such as these have helped to develop greater understanding of factors influencing participation in the 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: knowledge exchanging, in which teachers shared and reflected on others' practice and experiences; experimenting, in which teachers actively experimented with new ideas and techniques; and 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, lack of meaningful rewards for learning, and limited decision-making power (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 life-long learning, and love of content area (Lohman, 2003). The findings from this qualitative study have provided rich insights about the informal learning experiences of the teachers studied. However, the degree to which the findings apply to all public school teachers as well as other professional groups that, similar to teachers, are experiencing increasing levels of job intensification is unknown.

Another group of professionals 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). 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.

If professionals rely on informal learning as a means of handling the increasingly complex and ill-defined nature of their work, and if recent studies of informal learning have provided greater insight into the informal learning activities that are used to learn informally as well as work environment and worker characteristics that influence engagement in those activities, then more must be known about the degree to which specific characteristics influence engagement in different types of activities. These enhanced understandings can be used to reconsider the design of work environments so that they are more conducive to informal learning as well as to rethink the design of professional development programs so that they further develop the ability of professionals to solve problems and learn independently.

Therefore, the purpose of this study was to describe the personal and environmental factors that influence the engagement of two professional groups in informal workplace learning activities. Because both public school teachers and HRD professionals continue to experience high levels of job intensification, these two professional groups were selected as the focus of this study. 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

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 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 in the field of HRD and, at the time of the study, its membership list contained records of 29,950 HRD professionals in the U.S.

A random sampling software program was used to randomly select 600 subjects from each database to participate in the study, providing a margin of error of ± 4. Two mailings of the survey were administered, producing a total of 318 responses for a response rate of 26.5 percent. The response rates for both professional groups was similar, with 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%). 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%) and female (46.7%). 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 masters degrees (54.7%), with this figure being slightly higher for teachers (58.4%) and slightly lower for HRD professionals (50.7%). HRD professionals worked in a range of industries, including manufacturing (11.2%), post-secondary education (11.2%), service (10.5%), technology (10.5%), healthcare (9.9%), finance (7.9%), transportation and public utilities (5.4%) and government (4.6%). In addition, 22.4 percent of the HRD professionals were independent consultants who 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, one teacher worked in a post-secondary institution, and one teacher worked in a services organization.

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 Instrument

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. The findings from a recent qualitative study of public school teachers were used as the basis for creating the questionnaire items designed to measure these three aspects of informal learning (Lohman, 2000, 2003; Lohman & Woolf, 2001).

As shown in Table 1, the first survey question asked respondents to rate the frequency with which they use the following 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 next five questions asked respondents to rate the frequency with which five environmental characteristics (lack of free time, lack of 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 so that respondents could share additional environmental factors that inhibit them from engaging in any of the eight informal learning activities.

Questions 8 through 11 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 additional personal characteristics that enhance their motivation to engage in any of the eight informal learning activities.

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

Table 1. Informal Workplace Learning Survey Items

Informal Workplace Learning Survey Items
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:
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 8 activities as those listed in #2 a -h]
4. How frequently does a lack of access to computer technology inhibit you from engaging in the following activities? [Survey contained same 8 activities as those listed in #2 a -h]
5. How frequently does a lack of monetary rewards inhibit you from engaging in the following activities? [Survey contained same 8 activities as those listed in #2 a -h]
6. How frequently does a lack of recognition inhibit you from engaging in the following learning activities? [Survey contained same 8 activities as those listed in #2 a -h]
7. Please identify any other aspects of your work environment that inhibit your from engaging in the learning activities listed below. [Survey contained same 8 activities as those listed in #2 a -h with a blank beside each activity for a response]
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 8 activities as those listed in #2 a -h]
9. To what extent does your perception of your professional capabilities enhance your motivation to engage in the following learning activities? [Survey contained same 8 activities as those listed in #2 a -h]
10. To what extent does your love of learning enhance your motivation to engage in the following learning activities? [Survey contained same 8 activities as those listed in #2 a -h]
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 8 activities as those listed in #2 a -h]
12. Please identify any other personal characteristics that enhance your motivation to engage in the learning activities listed below. [Survey contained same 8 activities as those listed in #2 a -h with a blank beside each activity for a response]

Two procedures were used to establish the validity of the instrument. First, a panel of experts, comprised of two educational researchers with extensive expertise in informal workplace learning and research design, examined the content and design of the informal learning survey. The panel recommended including an open-ended item in each of the three main sections to provide a mechanism for capturing additional information as well as recommended clarifying the stems of two items in the personal characteristics section of the survey. A field test was then conducted with nine graduate students in a training and development program at a mid-Atlantic university. Six of the field test participants had professional experience in HRD and the other three had experience in public school education. Participants were instructed to provide written and oral feedback on the clarity and structure of the survey items as well as on the degree to which the items comprehensively reflected the types of activities that they use to learn informally as well as personal and environmental factors that influence their engagement in those activities. Feedback from the field test resulted in the clarification of concepts in three survey items and the addition of extra lines and space for responses to the open-ended items.

Sample data were used to calculate reliability coefficients for the 10 closed-ended items: Group 1–Informal learning activities, .63; Group 2–Environmental characteristic–Lack of free time, .79; Group 3– Environmental characteristic–Lack of proximity to colleagues' work areas, .84; Group 4– Environmental characteristic–Lack of access to computer technology, .93; Group 5– Environmental characteristic–Lack of monetary rewards, .94; Group 6– Environmental characteristic–Lack of recognition, .96; Group 7–Personal characteristic–Initiative, .89; Group 8–Personal characteristic–Self-efficacy, .93; Group 9–Personal characteristic–Love of learning, .85 ; Group 10–Personal characteristic–Interest in profession, .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. The questionnaire was printed on high-quality bond paper in booklet format. A participant code number was placed on the lower right corner of the last page of the questionnaire to maintain participant confidentiality and enable the researchers to track respondents and non-respondents. Two mailings were used to collect the data. The first mailing was distributed the last week of February 2004. Non-respondents were mailed a second packet six weeks later.

Descriptive statistics and t-tests were used to analyze the responses to the closed-ended items. Responses to the three open-ended items were recorded and tabulated. If more than 10 percent of the respondents ($n \geq 31$) provided the same response to an open-ended item, it was considered to be a noteworthy additional finding.

Results

Three research questions concerning the informal workplace learning activities of respondents were examined in this study. Although space limitations preclude presentation of the statistics in table format, a summarization of the study's key findings are presented in this section.

Q1: What activities do public school teachers and HRD professionals use to learn informally in the workplace?

The overall mean score for all respondents on the frequency with which they use all eight informal learning activities was 3.8 ($SD = 0.45$) on a 5-point scale. A t-test found no significant difference between public school teachers ($M = 3.8$, $SD = 0.48$) and HRD professionals ($M = 3.8$, $SD = 0.41$) 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, HRD professionals reported that they engage in three informal learning activities to a significantly greater degree than teachers: (a) observe others (HRD professionals, $M = 3.5$, $SD = 0.88$; teachers, $M = 3.1$, $SD = 1.03$; $t = -3.779$, $p < .05$), (b) search the Internet (HRD professionals, $M = 3.9$, $SD = 0.86$; teachers, $M = 3.4$, $SD = 1.07$; $t = -5.084$, $p < .05$), and (c) read professional magazines and journals (HRD professionals, $M = 3.7$, $SD = 0.90$; teachers, $M = 3.1$, $SD = 0.99$; $t = -5.297$, $p < .05$). Conversely, teachers reported that they engage in four activities to a significantly greater degree than HRD professionals: (a) collaborate with others (teachers, $M = 4.1$, $SD = 0.69$; HRD professionals, $M = 4.0$, $SD = 0.71$; $t = 2.056$, $p < .05$), (b) share materials and resources (teachers, $M = 4.2$, $SD = 0.69$; HRD professionals, $M = 4.1$, $SD = 0.65$; $t = 2.106$, $p < .05$), (c) engage in trial and error (teachers, $M = 3.5$, $SD = 0.89$; HRD professionals, $M = 3.0$, $SD = 1.18$; $t = 3.993$, $p < .05$), and (d) reflect on their actions (teachers, $M = 4.2$, $SD = 0.81$; HRD professionals, $M = 3.9$, $SD = 0.80$; $t = 4.242$, $p < .05$).

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?

The ratings of all respondents on the degree to which 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 informal learning activities. Specifically, a lack of time was found to inhibit teachers from engaging in informal learning ($M = 3.2$, $SD = 0.67$) to a significantly greater degree than HRD professionals ($M = 2.9$, $SD = 0.59$); $t = 4.657$, $p < .05$.

The degree to which each environmental factor inhibits 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 both 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.

Four additional environmental factors were reported by more than 10 percent of the respondents ($n \geq 31$) in the open-ended item and were considered to be important additional environmental inhibitors to informal learning. First, an unsupportive organizational culture was reported by 21 HRD professionals and 10 teachers. 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 (29 HRD professionals and 7 teachers). Respondents reported that the unwillingness of others inhibits talking with others (6 HRD professionals and 3 teachers), collaborating with others (12 HRD professionals and 3 teachers), observing others (7 HRD professionals and 1 teacher), and sharing materials and resources (4 HRD professionals). A third environmental inhibitor, the inaccessibility of a subject matter expert, was reported by 23 HRD professionals and 8 teachers. This inhibitor hinders talking with others (9 HRD professionals and 1 teacher), observing others (9 HRD professionals and 4 teachers), collaborating (3 HRD professionals and 2 teachers), and sharing materials and resources (2 HRD professionals and 1 teacher). A fourth environmental inhibitor was a lack of funds. This inhibitor was reported by 31 teachers as compared to 7 HRD professionals. Teachers reported that a lack of funds inhibits them from observing others ($\underline{n}$ = 18) and from sharing materials and resources ($\underline{n}$ = 6). Five respondents from each group also reported that insufficient funds inhibit them from reading magazines and journals.

Q3: What personal characteristics enhance the motivation of public school teachers and HRD professionals to engage in informal learning activities?

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 ($\underline{SD}$ = 1.03) for self-efficacy to a high of 4.1 for both love of learning ($\underline{SD}$ = 0.82) and interest in profession ($\underline{SD}$ = 0.72). T-tests revealed one significant difference between the two professional groups on the degree to which each of the four characteristics influence their motivation to engage in all informal learning activities, with HRD professionals reporting that initiative enhances their motivation ($\underline{M}$ = 3.9, $\underline{SD}$ = 0.81) to a significantly greater extent than teachers ($\underline{M}$ = 3.7, $\underline{SD}$ = 0.86); $\underline{t}$ = -2.162, $\underline{p}$ < .05.

In addition, mean scores for both professional groups on the degree to which each of 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.

Analysis of the open-ended responses revealed three additional personal characteristics that heighten the respondents' motivation to engage in informal learning. The first characteristic was 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 (62 teachers and 56 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 (42 teachers and 21 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 outgoing personality was reported by 16 percent of the respondents (30 HRD professionals and 21 teachers) as an attribute that promotes their engagement in learning activities that involve interactions with others.

Discussion

This research study deepened present understandings about the similarities and differences of two professional groups with regard to factors that influence their engagement in various types of informal workplace learning activities. Specifically, analysis of the survey data showed 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 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.

Theoretical Perspectives on Promoting Informal Learning in the Workplace

The current study's findings corroborate the findings from Lohman's qualitative study regarding the reliance of professionals on the eight identified informal learning activities (Lohman & Woolf, 2001). The present study

extends understandings of this topic by revealing that teachers and HRD professionals prefer different types of informal learning activities. Specifically, teachers were found to prefer more interactive activities, such as talking and sharing materials with others, while HRD professionals prefer more independent activities, such as searching the Internet and scanning magazines and journals.

The study's findings concerning environmental inhibitors may help to explain these learning preferences. Teachers reported that the lack of 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 necessary learning resources 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 the availability and support of colleagues in the work environment. This finding is consistent with the workplace models of Doornbos et al. (2004) and van Woerkom et al. (2002) and the findings from Kwakman (2003)'s empirical study 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 indicated that because they lack the time, the proximity to others' work areas, and the funds, they rely extensively on interactive activities, such as talking and sharing resources with others, to learn informally. However, many HRD professionals reported that they use more independent learning activities because their organizational cultures and work colleagues were not supportive of such collegial interaction and sharing.

The current study also corroborated aspects of Doornbos et al. (2004) and van Woerkom et al. (2002)'s models in identifying four personal characteristics—initiative, self-efficacy, love of learning, and interest in one's profession—that enhance one's motivation to engage in all eight informal learning activities studied. The current investigation extends understandings in revealing that these four personal attributes 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 Promoting Informal Workplace Learning

The findings from this study give rise to three important implications for facilitating informal learning in the workplace. First, work areas need to be strategically designed so that employees, especially those in their early stages of development, are located near colleagues in the same technical or professional area. 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).

Second, a greater amount of unencumbered time must be built into a professional's work day. 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, 1991). 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.

A third recommendation for facilitating informal learning is to ensure that employees have 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).

Future 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. Another 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 employee selection and performance coaching purposes. 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.

Contributions to New Knowledge in HRD

An important contribution of the present study to new knowledge in HRD is the construction of a survey instrument for assessing informal workplace learning. A second contribution of the current study to new knowledge in HRD is greater understanding of the personal and environmental factors that influence informal workplace learning. These two contributions are important to HRD because they 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. Human resource developers can use this new knowledge to cultivate workplaces where working and learning are integral parts of the workday.

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