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ABSTRACT

This collection, which should be of particular interest to adult education teachers, trainers, and researchers, suggests new models for attaining learning management skills to facilitate on-the-job learning. In the introduction, Mark E. Cheren discusses the need for new models and terms and examines the concepts of learning management and situational learning. In her paper entitled "Developing Learning Skills," Sylvia Downs recounts her work in learning skills development in England and covers supporting research, learning blockages, categories of learning, and applications in commercial organizations. Howard S. Barrow's paper, "Learning Management in the Context of Small Group Problem-Based Learning," describes a problem-based learning method that was originally developed for medical students and practicing physicians. The approach enables professionals to monitor their own learning needs during the problem-solving process, thereby enabling the learner to become less dependent on the teacher (who becomes a facilitator of learning). In a paper entitled "Learning Management Skills Development as an Integral Part of Training and Development," Mark E. Cheren suggests several ways of developing learning management competence within the context of training and development activities such as orientation programs, courses and workshops, learning resource centers, and self-instructional materials. The organizational perspective on learning management in discussed by Robert Smith in a paper entitled "Learning to Learn in the Workplace." An appendix containing a working definition of self-directed learning and a list of 50 references are included. (SK)

Information Series No. 320

LEARNING MANAGEMENT

EMERGING DIRECTIONS FOR LEARNING TO LEARN IN THE WORKPLACE

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FOREWORD

The Educational Resources Information Center Clearinghouse on Adult, Career, and Vocational Education (ERIC/ACVE) is 1 of 16 clearinghouses in a nationwide information system that is funded by the Office of Educational Research and Improvement, U.S. Department of Education. This paper was developed to fulfill one of the functions of the clearinghouse—to interpret the literature in the ERIC database. It should be of interest to all educators concerned with learning how to learn and learning management, particularly adult education teachers, trainers, and researchers.

The profession is indebted to the four contributors to this compilation. Mark Cheren, who served as editor of the publication, is Assistant Professor of Management, Sangamon State University, and Coordinator, Center for Professional Development, Southern Illinois University (SIU) School of Medicine. Previously the Chief Administrative Officer of Campus-Free College. Dr. Cheren has also served as a consultant in continuing professional education, human resource development, and volunteer services management for a variety of institutions.

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Robert M. Smith is Professor of Adult and Continuing Education, Northern Illinois University. Dr. Smith received the Cyril O. Houle World Award for Literature in Adult Education for his book ***Learning How to Learn: Applied Theory for Adults***. He organized the first and second International Conferences on Learning How to Learn held in 1986 and 1987.

Recognition is also due to Mary Jane Even, Associate Professor of Adult Education, University of Nebraska-Lincoln; Dennis Campbell, Associate Professor of Logistics, Air Force Institute of Technology; and Judith A. Sechler, Program Associate, and Michael R. Crowe, Research Specialist 2, the National Center for Research in Vocational Education, for their critical review of the manuscript prior to publication. Wesley Budke and Susan Imel coordinated the publication's development, with editorial assistance from Sandra Kerka. Janet Ray served as word processor operator. Editorial review was provided by Judy Balogh.

Ray D. Ryan
Executive Director
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Vocational Education

EXECUTIVE SUMMARY

Virtually every person in modern society needs to take part in some lifelong learning activity, whether it be in a formal class related to a job or in a nonformal exploration of a personal interest. This increase in learning activity among a mostly adult, out-of-school population necessitates mass competence in learning how to learn or learning management, as it is termed in this compilation.

This need for competence in learning management among the general public suggests the need for new models of learning to learn and for new terminology that does not sound so much like the jargon that is currently used. Learning management must be made as easy to learn and as understandable as possible.

This compilation of papers suggests new models for attaining learning management skills to facilitate on-the-job learning. However, the techniques and perspectives it describes have implications for all learning projects, both formal and nonformal. This applicability is due to the fact that learning management skills are actually meta skills needed for all types of learning.

Sylvia Downs begins with an account of her work in learning skills development in England. Her clients have included technical college students, unemployed youth, and organizations. Downs traces the research basis for this work and describes the content of her courses in learning skill development, including breaking learning blockages, and dividing learning into categories the learner understands, using the MUD method (memorizing, understanding, doing). Downs shares her recent successes with these courses in private companies.

In the second chapter, Howard Barrows describes a problem-based learning method, developed originally for medical students and practicing physicians, that enhances learning management skills needed by most professional personnel. The approach enables professionals to monitor their own learning needs during the problem-solving process. Thus, the learner becomes less dependent on the teacher, who serves as a facilitator, and more dependent on himself or herself.

Mark Cheren suggests several ways to develop learning management competence within the context of training and development activities. His focus is on a self-assessment checklist designed for work-based trainers that is adaptable to all educators who serve working adults. The checklist covers various aspects of introducing learning management content into the curriculum, including orientation programs, courses and workshops, learning resource centers, supervisory training, and organizational climate, among other topics. Cheren compares in some detail the concepts of self-directed learning and situational learning.

Finally, the organizational perspective is discussed by Robert Smith. He describes the workplace as a setting for learning, mentioning such aspects as the organization's purpose and structure, climate, policies, and emphasis on applied learning. Smith examines generic and special competencies necessary for workplace learning. Some of the efforts currently in use to enhance these special competencies focus on increasing learner control, improving group functioning, and enhancing study skills.

Though each chapter stands on its own in describing some aspect of learning management, the compilation presents a full picture of some of the best new models and terminology. Further development is needed, however, to enable all persons to learn how to learn efficiently and effectively in all their endeavors.

Information on learning management may be found in the ERIC system using the following descriptors: Adult Education, Adult Learning, *Cognitive Style, *Intentional Learning, Job Training, *Learning Processes, *Lifelong Learning, Professional Continuing Education, Retention (Psychology), *Study Skills, *Schemata (Cognition), Teaching Methods. Asterisks denote descriptors having particular relevance.

INTRODUCTION

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Sangamon State University

About This Collection

Vocational educators and workplace educators have long recognized the importance of active learning, when active learning is defined as learning by doing. However, active learning has other meanings. To those educators concerned with the explicit development of lifelong learning competence in a world of rapid change, that is, those concerned with learning to learn and facilitating greater self-direction in learning, active learning has special meaning and significance.

A number of learning-to-learn experts gathered for two recent international invitational conferences convened by Robert Smith at Northern Illinois University. They reached a remarkable consensus to the effect that the defining essence of learning to learn is indeed to foster "more active and more self-conscious learning" (Smith, forthcoming).

From this perspective, workplace learning can be described as relatively active when individuals initiate and shape much of their work-related learning and development activity. Workplace learning can further be described as relatively self-conscious and reflective when individuals relate to the process of learning itself as something to be considered carefully, analyzed, and improved.

Unfortunately, to many educators and trainers, learning to learn is still something mysterious. They put it into a separate category of practice, one requiring special experts and special programs. This group views it as something very difficult to accomplish. The definitions articulated here and descriptive pieces such as the papers collected in this volume represent efforts to *demystify* the concept of learning to learn, or, as it is called in this volume, learning management. This compilation should reveal that although strengthening learning management competence is not necessarily easy, it is much easier than many have supposed and thoroughly in keeping with sound educational practices already in widespread use.

The collection includes Sylvia Downs' account of work she and her colleagues have done with learning skills development in England. They have worked with technical college students, unemployed young people, and entire organizations. Her treatment of learning blockages, variety and categories of learning mode, and error making contributes new tools and new potency to these areas.

Howard Barrows gives us a description of a unique problem-based learning method, which was initially developed for medical students and practicing physicians. This method fosters learning skills that are often sadly neglected but that turn out to be indispensable to professionals

in most fields of practice. Barrows' approach enhances a professional's ability to monitor his or her own learning needs during the hypothesis generating and testing and the information-gathering activities that lie at the core of professional reasoning and problem solving. There is insight here about what it means to make learning management enhancement a continuous activity, something that can and should be incorporated into one's work style. There is also a clear description of the tangible role educators can play to prepare individuals for this activity.

The third chapter, written by the compilation editor, suggests several ways to develop learning management competence within the context of routine training and development activities. It is structured around a self-assessment checklist for work-based educators that should prove equally interesting to school-based educators. Also of interest to school-based educators should be the sections on transitional structure, situational learning, and preparing students for workplace learning.

Finally, Robert Smith offers us a thought-provoking overview of some of the more important factors to consider when developing learning management skills in organizations. Smith catalogues characteristics of organizations as learning environments, looks at generic and special competencies necessary for workplace learning, and surveys some of the efforts currently underway to enhance these competencies.

The techniques and perspectives described in this collection have implications for mainstream educational practice as well as for learning on the job. The authors have shown a lack of regard for distinctions between the two domains. This is out of a strong shared commitment to the blurring of existing boundaries rather than the result of any lack of clarity of purpose or audience.

There is, moreover, a preference for what is practical, economical, useful, and efficient. Yet the essential sophistication of the learning to learn enterprise is not sacrificed. Taken together, there is much here that moves us far beyond learning-to-learn rhetoric. By participating in the activities described here, individuals are thrown into immediate, active, and powerful engagements with the enhancement of learning, learning process consciousness, and the skills of learning management.

A Need for New Models and New Terms

The term *learning management* is being introduced here for the first time. There are several reasons for its introduction at this juncture. First and foremost is an observation. People need help in learning to manage their learning because there is so much learning for each individual to manage and so much about learning to be managed. The development of skills involved with managing learning processes has moved from the periphery, where it languished for so long, to become a central issue for professional educators of every stripe.

We now understand that virtually everyone in society needs to enhance their learning process competence. This being the case, we need to rethink and repackage several sets of relevant skills in order to make their acquisition, enhancement, and use by the general public as convenient, efficient, easy, effective, and understandable as possible.

This suggests the need for new models and new terminology since many existing models and much existing terminology do not meet these criteria. A defining characteristic of a new generation of learning skills development tools, particularly when we talk with the public, should

be noticeable scarcity of confusing educational jargon. The language we use should make it clear that learning process competence is now one of the basic areas of skill that all people need to develop. A good analogy is with time management and stress management, both of which have come to be viewed in this way in just a few years. The models of interaction we describe should make it clear how learners and educators are supposed to work with one another, scrupulously avoiding internal contractions and overgeneralizations.

The fact that we are dealing largely with meta skills here, the skills of process within process and process interacting with process, makes it all the more important that we communicate in a way that is clear, accurate, inviting, and easy to understand. Unfortunately, much of the terminology we have been using does tend to get in the way for a great many people. Learning to learn and learning how to learn, for example, can imply that people do not already have a formidable array of learning process skills as a simple consequence of being alive. Instead, the phrases have the unfortunate implication that people are acquiring or need to acquire such competence for the first time. We know, of course, that this is inaccurate, not to mention insulting.

Similarly, since its introduction by Carl Rogers and others, self-directed learning as a term and as a model has tended to be a polarizing and confusing influence, even as it has moved us away from an exclusively teacher-centered and teacher-directed notion of education. To many students and educators, self-directed learning has been understood to refer exclusively to student control of learning, a "do your own thing" approach.

To others, self-directed learning has meant something much broader and much more complex, something akin to learning management or learning to learn, as used in this volume. Malcolm Knowles, Howard Barrows, and this author are among those who have attempted to share this broader view in our writing, teaching, training, and consulting.

However, the broad view has not been well or widely, which is to say popularly, understood. Most people fail to understand the more complex self-directed learning model, even when it is patiently and carefully explained (see the appendix for a good example). It is necessary to admit this and respond accordingly. The alternative is to continue with a painful and endless stream of redefinitions, explanations, and clarifications.

Further confusing the issue, self-directed learning has frequently been confused with independent study, a term itself widely misunderstood. However, study or learning that you do on your own may be directed by others or under your own direction or a negotiated combination of the two. Independent study (learning undertaken on your own and not as part of a group) is not the same thing as self-directed learning.

Adding to the confusion, adult educators have often equated self-directed learning with adult learning. This has conveyed the idea to millions (who hold the narrow view) that if they are truly adults, they are supposed to control completely and make informed decisions about all the learning they do. It has implied that sharing control, asking for help, and being willing to accept help in your learning are all signs of dependence, if not stunted development and maturation. On the other hand, many people who have been labeled as "not very self-directed" by educators or by themselves have retreated to a completely passive role, where existing strengths are needlessly masked, making progress in development efforts more difficult to achieve.

Does saying that adult learning is self-directed learning mean that learning in the workplace, where supervisors often have a large say, is (even if mutually and respectfully negotiated) not real adult learning? If we do not really mean *exclusively* self-directed, why call it self-directed?

This is not to advocate that we abruptly abandon the terms learning to learn and self-directed learning. Rather, we should gradually begin to replace these terms. As a first step, we should be searching for and using better terms in apposition as we gradually shape and broaden public understanding of what it really means for people to take charge of the process of managing their own learning throughout their lives.

Learning Management and Situational Learning

Learning management has the following points to recommend it as a contender for a position among such a new generation of terms and labels. First, managing is usually defined as working with and through others to accomplish a goal or objective. This accurately reflects the way we want people to pursue their learning and development activities. It conveys a variety of ways of usefully and effectively interacting with others, from controlling to persuading to guiding to collaborating to accepting guidance from a consultant. This contrasts sharply with the confusion about roles revolving around self-directed learning.

Second, learning management is a term of the workplace. The new center stage position of learning to learn means that we need to talk to people in terms appropriate to where most people spend most of their time—where they live—which is in the workplace.

Third, the corresponding terms of time management and stress management have popularly come to represent *abstract* sets of skills all people should and can have. That is a remarkable thing to have happened in such a short time. There is nothing inappropriate or unprofessional about hitchhiking on the clear meaning, popularity, and personal ownership associated with these related sets of skills.

Fourth, sociologists have worn themselves out telling us that workers generally (along with women, older people, minorities, and children), have become increasingly independent in recent years as they have been asked to assume more responsible roles in the workplace and in society. As a result, it can truly be said that people are increasingly wanting to and being called upon to manage themselves. Self-management is a strong and pervasive trend. Learning management is a significant aspect of self-management.

Fifth, the nature of most work people do in the information age is sufficiently complex that organizations can no longer supply anything but a small part of the learning opportunities and learning resources people need in order to keep up with the demands of their work roles. People need to plan and organize the additional learning required, that is, in this day and age we are all forced to manage much of our own learning.

At the same time, the dominant theory of management in public and private sector organizations is situational management. Just so, a more appropriate model for learning may be a *situational model of how learning management roles should be played by learners and learning resource people alike.* The theoretical model *situational learning* and the down-to-earth descriptive term *learning management* have considerable symbiotic potential. This is because the situational learning model describes the precise nature of the partnership between learners and learning resource people in the enterprise of learning management. If both the term and the model are widely adopted, they would become mutually reinforcing. The situational management and situational learning models could be mutually reinforcing as well. The situational learning model is described in chapter 3.

Whatever one's preference in terms and models, the foregoing discussion helps to underline the growing importance of developing learning process skills as applied to the workplace. The following four chapters are intended to contribute to our understanding of how this is well accomplished.

DEVELOPING LEARNING SKILLS

Sylvia Downs
University of Wales Institute of Science and Technology

In this chapter, I describe the courses that were designed and the products that were developed to help young people and adults develop learning skills, rather than relating the work to academic theories or relevant literature. While acknowledging the debt I owe to these, I felt it best to concentrate on those aspects that might be of help to others in the design and conduct of courses. Some discussion of the underlying theories and associated references can be found in Downs and Perry (1982, 1985) and Perry and Downs (1985).

Supporting Research

During the early 1960s, learning tests (or trainability tests as they became known) were designed for selecting applicants where the existing methods were proving unsuitable (Downs 1985; Robertson and Downs 1979). It was noticed that the applicants who did better in the tests and their later training were those who were more enquiring and active in learning from the demonstrator of the task. At that stage, however, we were acting in the traditional mold of helping trainers to be better and measuring this by the success of their learners.

In 1979, we were given the opportunity to turn that approach on its head. The Further Education Unit (FEU) was set up by the British government in 1977 as "an advisory, intelligence and development body for further education." It covers technical colleges offering a wide variety of vocational courses such as catering, typewriting, bookkeeping, carpentry, and electrical and other trade skills, up to and including teacher certification in these skills. The colleges also run some academic courses up to university entry standard. The technical colleges, therefore, take students from adulthood down to 16 years old, that being the minimum age at which people can leave secondary or high school. The FEU was worried that many young people learn less effectively than they might and commissioned research to see what could be done. All our research background was industrial, which influenced us to investigate skills rather than style. In our background reading, we met a great deal that was of interest to educators but not to the learners our research was supposed to help, those who were politely termed low achievers. Apart from this group, our research included a group sitting for advanced level examinations ("A" level), a similar control group, and an adult group learning the teaching of a trade. All the work was carried out in technical colleges.

A course was designed and run for all but the control group, which had the following effects:

- The low achievers developed a greater number and wider range of relevant skills of learning and could apply these to new material.
- The "A" level group completed examinations at the end of their first year and after experiencing the "Learning to Learn" course, 45 percent achieved a grade A, compared with

26 percent in the control group; 35 percent grade B compared with 47 percent; and none failed compared with 7 percent. There was, therefore, a general improvement in results in the grades.

The following were the findings of the research for the low achievers:

- They began by demonstrating very few skills of learning.
- There was frequent confusion between memorizing and understanding so that they often tried to memorize what they should understand and understand what should be memorized.
- Nearly half the methods of learning stated were passive, as they indicated an apparent lack of conscious mental effort on the learner's part.
- Allied to a passive approach to learning, the group saw the responsibility for learning lying elsewhere, such as with the teacher or trainer.

Other findings included the following:

- Developing the skills of learning was helpful to all the experimental groups and not just the low achievers.
- The climate of teaching and the way teachers were trained prevented the development of the skills of learning. The main emphasis of teaching was on product, and the processes of learning were seen as outside their purview. Teachers were trained to take the active learning steps such as breaking the tasks down, marking them, planning the material, and solving their pupils' problems. These activities promote passive, dependent learners.

There is some evidence that the effect of this research still lingers in further education, although we would hardly claim that it changed the way teachers behaved to the extent we believed it should.

One possible cause for a lack of change is that people who teach do not know what helps to develop the skills of learning. In our next research for the Youth Training Scheme (YTS), therefore, we began with that possibility. The Youth Training Scheme had the problem of developing in a large number of young people, by means of a work-based learning environment, a foundation for subsequent employment, future training, and education. These young people did not have jobs and were to be taught largely by supervisors whose experience of teaching was often limited to how they themselves had been taught.

The researchers designed and conducted a series of courses aimed at changing the supervisors away from solely teaching product to developing learning skills while at the same time teaching product. Before these courses, a number of supervisors were systematically observed while they instructed their trainees, following which they were asked to select, from a number of statements, behaviors of instruction that were most likely to develop the skills of learning. Trainees were also asked to complete the same exercise, and the results showed that both supervisors and trainees could identify the kind of behaviors that helped develop learning skills, though the supervisors did not practice them nor did the trainees try to get them to.

These findings, together with material from the FEU and YTS courses, formed the basis of some of the content in our next research, which was to see what amendments might be necessary to our previous work to make it suitable for adults. Our scope covered adults who were employed but needed training or retraining owing to technological or organizational change, unemployed adults who were being trained or retrained in order to enter employment, and the long-term unemployed who were being given training that was not specific to any particular job.

The material in the courses differed according to the content of the general training so that, for instance, carpentry tasks formed the means of getting the message across to carpenters, whereas bricklayers had bricklaying tasks.

Some courses, such as those for trainers, used general topics such as origami as vehicles for the message. Some courses lasted 2 days, others 5, according to the amount of practice work introduced. All contained the following subject matter that had been developed, amended, and introduced at stages throughout the research: learning blockages and categories of learning (memorizing, understanding, keys to understanding, and doing). These topics are discussed in the following sections.

Learning Blockages

This session had two purposes. The first was to bring out the blockages course members suffer or know others to suffer, as it is very little use introducing people to the skills of learning if they have, for example, attitudinal blockages toward learning. The second purpose was to show that a great deal to do with learning, including dealing with blockages, involves joint responsibility of the learners and trainers. With blockages, this can be illustrated by a member of one group who complained about being overloaded with detail at the start of a course. On reflection, the group decided she could have asked the lecturer to go more slowly so that she could take notes—or even ask the lecturer to explain the purpose before going into detail.

The session on learning blockages began with course members, in pairs, listing the blockages from which they suffer or know others to suffer. These blockages were then considered in terms of what the learner could do about them and what the trainer could do to alleviate or prevent them. Course members then considered what learners could do to help modify the behavior of trainers if this induced blockages.

Categories of Learning

In the FEU research, a simple taxonomy that the low achievers could understand and use was needed. We wanted to separate things according to differences in the methods that would be used in learning them. The final outcome was MUD, standing for things that have to be *memorized* (facts), things that we need to *understand* (concepts), and things that we learn by *doing* (physical skills).

The group was divided into pairs, each of which was given a pack of 30 cards giving specific examples of things to be learned within the general classification of MUD. The pairs were asked to separate the pack into three piles according to the ways they would use to learn what was on each card. When the packs had been sorted, the pairs were asked to describe the ways of learning associated with each pile. As corroboration, one card was selected by the tutor from each section of MUD, and the group described the ways of learning associated with each of the three cards. This was then related to the three piles. At this stage, the group was warned that learning tasks often involve all three. In driving a car, for example, we must memorize road signs, understand road behavior, and practice steering. The effect of this session was that the group members began to think in terms of the processes of learning rather than the product; they determined or induced for themselves the simple taxonomy of MUD that gives them a means of analyzing what is to be learned in terms of how they should go about it, and they were given a framework for the rest of the course.

Finally, the role and effect of error making on learning were discussed. Memorizing entails the reproduction without error of the original material. Error, therefore, has to be avoided or corrected immediately when it occurs to avoid unlearning. Error making has an entirely different role in developing understanding owing to the fact that once error is realized we are forced to review and often extend our ideas.

Memorizing

In earlier experimental courses, Kim's Game was used as a medium for identifying ways to help in memorization. Twenty-four different articles were shown for 2 minutes and then covered up. Each group member then wrote down the items he or she could recall and also the ways used to memorize.

The group was then shown the 24 articles to satisfy curiosity, after which the objective of the session, namely the ways used to memorize, were listed and discussed. Where necessary, other methods were introduced by the tutor and discussed.

Finally, members of the group were asked to use different ways from those they originally used in memorizing something that would be useful to them in their other courses or at home. The use of these other ways was discussed, and the use of self-testing and part-learning was emphasized.

Understanding

Members of the group were referred to MUD and then introduced to five ways to help them develop understanding. These were referred to as keys to understanding and, like the taxonomy MUD, were designed to be easily used by a wide range of people. The keys are illustrated in exhibit 1.

Working in pairs, the group was then given a subject such as safety in the workplace to consider under each of the keys. Their ideas were written up and discussed, following which the pairs decided how they would implement safety and make action plans to carry out action on this subject. Feedback was collected and discussed.

Doing

The "doing" part of MUD was combined with sessions illustrating different training media. It was pointed out again that a great deal of learning involved all categories of MUD and that this was particularly true of practical tasks.

The group experienced learning to do things from a traditional demonstration, a questioning demonstration, written instructions, and by taking something apart and reassembling it. The group learned that the methods vary according to the training media used. The ways of learning involved were listed, and the advantages and disadvantages of each medium were explored. The group then decided what learners could do to overcome the disadvantages and not merely to accept them.

In the questioning demonstration, the demonstrator introduced the subject by a phrase such as "I will shortly demonstrate something that I expect you to do later without help. You can ask all the questions you wish before and during my demonstration, and I will answer them." He or she then said nothing more except in answer to questions. It has been found that those who ask more

EXHIBIT 1

KEYS TO UNDERSTANDING

Key 1 **PURPOSES**	Thinking of the PURPOSES of the whole of what one wishes to understand or the purposes of the parts that contribute to the whole. To do so, be prepared to define and describe what needs to be understood.
Key 2 **PROBLEMS**	Thinking of all the PROBLEMS associated with what one wants to understand, what could cause these problems to change, why and how, and what would be the effects of these changes.
Key 3 **COMPARISONS**	COMPARING and CONTRASTING with other experiences to identify similarities and differences.
Key 4 **VIEWPOINTS**	Imagining things from other directions or from others' VIEWPOINTS.
Key 5 **CHECKS**	Thinking of ways to CHECK one's ideas.

questions before any demonstration or learning period learn more. It seems that those learners, in formulating and asking questions, prepare themselves and actively learn by forming hypotheses and testing them out.

Throughout the sessions that explore the ways of learning, one important factor was continuously emphasized: the constant need to make ways of learning overt and then to practice them.

One of the key messages during trainer training was that certain training methods are effective in developing learning skills, but these must be practiced to work well. Being aware of the power of modeling, we used the following methods to influence trainers to follow our example:

- Few, if any, formal lectures are given; the group generates most of the concepts from prepared exercises and videos.
- The group works mainly in pairs, first, to generate more ideas and, second, so that no one person feels exposed.
- Views are not seen as right or wrong. All responses are recorded.
- Worksheets are used by the group but not collected, nor is any member of the group assessed.
- At the end of each session, there is a short pondering time during which members of the group record what they saw as the purposes of the session and what they have learned from it.
- The ponderings give a period for reflection and consolidation, following Kolb's Cycle of Experience, Reflection, Learning. At the same time, the feedback indicates to tutors any misconceptions, which are then discussed.

- At the end of most sessions, handouts are given and members of the group discuss their own findings and compare them with those on the handout. They are used as an indication of the extent to which the material already exists within the group. We need to show learners how much they can rely on their own resources by accessing, manipulating, and using all their previous knowledge and experience.

To conclude the description of the major sessions on developing skills courses, exhibits 2 and 3 provide a comparison of conventional training approaches with training to develop learning skills. This comparison is employed in sessions on curriculum design.

The course was conducted and evaluated with unemployed persons undergoing training and retraining with a view to taking up employment. Evaluation took the form of self-report assessments by course members 2 weeks after the course on what behavioral changes they had noticed in themselves and others. Thirty-six of 40 responses mentioned taking an active part in things and asking quesions; planning out jobs and thinking about each stage before beginning; solving problems for themselves; being much more aware of others and learning from them; and by one person, teaching his wife the concepts. Four respondents said they had not changed their behavior.

Instructors had taken part as course members on some courses, and 24 of 31 responses from learners indicated that the trainers had changed by spending more time on questions and being more approachable; inviting questions of themselves and others; allowing the learners to try things out for themselves and waiting for the learners to approach them if problems were met; and encouraging learners to think for themselves. Seven respondents said the trainers were good in the first place and they had not noticed any change.

The instructors thought that all their learners had changed by working better in a group, being more purposeful, communicating better, and asking intelligent, probing questions.

In a small experiment to assess the difference attributable to the course, two test papers of equal difficulty were drawn up by a craft instructor covering aspects of factual knowledge and understanding of basic electricity covered previously in an electronics course. Twelve people from that course were split into two groups, each of which took one of the tests. (group A took test X; group B took test Y.) These 12 then joined a course on developing learning skills, during which none of the test material was mentioned. At the end of the course, the two groups took the alternative test. The results, measured by a t test, were significant at the .01 level ($t = 32.27$), showing that the course had improved the ways of learning used by the course members, who were able to transfer these skills to other material.

Finally, a Ways of Learning Questionnaire, described later, was completed by one group before and after the course. Their resultant improvement in total ways of learning, total range of ways, and range of ways of understanding were all shown to be significant at the .001 level.

Apart from the experimental courses, certain other products were designed and evaluated. The first of these was called the Job Learning Analysis (JLA). It provided, by means of systematic interviews, an analysis of jobs in terms of both their content and the associated learning needs. This process assisted in satisfying the research objective of helping employed adults who were being trained or retrained, which required some method of identifying the relevance of the content of training.

As an example, one British company used the JLA to compare the job being done with the training being given to senior engineers. It was found that the job consisted in the main of discretionary understanding, whereas the training consisted to a large extent of material to be memorized. As a result, the training school was reorganized and new training methods introduced.

EXHIBIT 2

HOW THE TWO APPROACHES DIVERGE

Conventional	Developing Learning Skills
1. Skills of learning are covert.	1. Skills of learning are made overt and discussed.
2. Concepts are explained by the trainer.	2. Concepts are developed by the learners..
3. Information is controlled by the trainer, with emphasis on convergent thinking.	3. Learning content is explored by both, with emphasis on divergent thinking.
4. The learner is receptive of information (passive).	4. Learner seeks information (active).
5. Mistakes are mostly avoided.	5. Mistakes in concepts are viewed as useful learning opportunities.
6. The trainer often poses questions and gives solutions.	6. The trainer poses problems and discusses the learner's solutions.
7. Measures and standards are primarily concerned with product.	7. Measures and standards are concerned with product and process.
8. The trainer checks and marks.	8. The learner can check and mark.
9. The concern is with what is learned, so product is all important.	9. The concern is with how and what is learned, so that product and process are both seen as important.
10. Individual differences are only seen in terms of success or failure.	10. Individual differences in learners are allowed for and explained through the teaching material.

EXHIBIT 3

HOW THE TWO APPROACHES CONVERGE

1. Trainers take overall control or supply guidance for the learning in terms of how, what, and where.
2. Learners are under the trainers' control or guidance.
3. Product learning is important.
4. Standards and measures are important.

Another product, referred to earlier, was the Ways of Learning Questionnaire. Respondents were asked 10 questions that dealt with memorizing, understanding and doing, such as "If you witnessed a car knock someone over and drive away, how would you remember the registration number and description of the car if you had no paper and pencil with you?" It was emphasized, verbally and at the top of each page in the questionnaire, that what was wanted was how one learned, not what was learned, where, or who taught it.

The questionnaire was designed to identify an individual's ways, strategies, or skills of learning so as to assess his or her strengths and weaknesses. It was evaluated by experiments, one of which involved 26 students who, before sitting for advanced level examinations, completed Ways of Learning Questionnaires. When their exam results were known, these were converted into points and compared, using a Pearson Product Moment Correlation, with total number of ways of learning (.715), range of different ways (.728), range of understanding ways (.626), points predicted by their teacher (.812), and their ordinary level examination results taken about 2 years before (.703). All of these were significant beyond the .01 level.

Sixteen different groups were assessed and profiled, ranging from unemployed young people and adults through trade categories to academic groups. The means of the group were calculated and showed that the unemployed groups used a very limited range of ways of learning (3.8 for young people and 5.3 for adults). The trade categories, such as carpenters, caterers, and hairdressers, showed a range from 7.1 to 9.7, and the academic groups had a mean range of 12.0 to 17.4.

The results were then presented so that any way mentioned by a member of a group was seen as available to the whole group. This approach altered the picture drastically. The young unemployed group still lagged far behind, with a range of 15 as a total, of which only 3 were understanding ways. Apart from that group, the range was from 30 to 41, with understanding ways ranging from 11 to 18. Therefore, although the majority within most groups did not record many ways of learning (for reasons surmised as poor learning experience, the kind of training given, limitations of the job, acceptance of the limitation of people in that job, or general social and cultural aversion to learning), a wide range of ways of learning was available and known within each group. It seems, therefore, that people have a great deal of hidden potential that could be developed to form the adaptable and responsible work force needed to deal with accelerating change.

Application to Commercial Organizations

Practically all of this work had been funded by the Manpower Services Commission and carried out in government training schemes and educational colleges. We wanted, however, to see if developing learning skills could be introduced successfully into commercial organizations to test whether workers could be helped in retraining through learning skills methods.

Two of the top 10 companies in the United Kingdom agreed to cooperate, and courses were designed and run for both. In one case, by using learning skills development material and techniques, the company successfully retrained the existing work force to operate a new computer-based factory that required totally different working methods and groupings.

In the other case, the company gave permission for the work to be published as a case study. After an initial 5-day training week, conducted by the researchers at the headquarters of one of the company's divisions, the company training staff used the concepts and material to introduce their own pertinent subject matter as a vehicle to develop ways of learning. This covered inductive training for graduates, supervisory training, training the trainers, computer-based training programs, other distance learning material, work-based projects, and direct courses on learning

skills development. The ideas permeated all their courses, spread from one location to another and outside the organization to church groups, local schools, other commercial organizations, and the trainers' own families.

Both organizations successfully used the concepts and materials of the research because both had needs that could be satisfied by learning skills development. One organization pointed out that there was always a danger that innovations such as learning skills development could be picked up as something new, tried briefly as the "flavor of the month," and then discarded for something else new. The organization had, however, thought out who acted as the main change agents within the organization, what changes they foresaw should be made and why, who needed to be involved as spheres of influence, and what content would help create the decided changes.

In both organizations, change agents experienced the course. They saw for themselves that developing learning skills changed the way people from the shop floor upwards behaved, how they went about learning new things, and how effective they were at it. The trainers saw both a new role and excitement in helping people to learn and in the energy that seemed to be released by the changes.

Conclusion

Although the two commercial companies can be considered successes, the great millstone of tradition is still with us, and not only is it hard to start, but it quickly stops again. At the beginning, I said I was not going to quote references, but the best description of the traditional trainee I have met comes from Knowles (1980a): "The minute they walk through a door labelled 'education' or 'training' they put on their dunce hat of dependency, sit back, fold their arms, and say, 'Okay, teach me!'" (p. 96). This is mirrored by the traditional teacher or trainer who is wedded to teaching product and anxious to practice his or her acquired skills of presentation and ability to ask probing questions aimed at developing understanding in the learner.

It is very difficult for these people to accept that learners, in developing learning skills, should rightly feel they have learned for themselves and can develop the ability to formulate and ask probing questions for themselves. It is just as difficult to accept an equal and balanced relationship with a common goal of transferring the skills of the teacher to the learner, to formulate and ask questions, to challenge, to decide, to discriminate, to compare, to look for other sources, to evaluate, and then to arrange and present. It is comforting to accept the passive role of the learner and say, as a teacher or trainer, that the class or group is not up to it and continue as before.

Against this, we have been heartened by what we have read of the work of others. Even though we have merely repeated what has often been done before, we are at least helping to turn the millstone. In that, we have also been fortified by random comments such as "When we started we was rubbish; now we know we ain't"; "Our management groups are now being trained in how to learn by a process worker"; "I never knew they had it in them"; and stories of the worker who had introduced the ideas to his workmates, who began looking things up, asking questions, and wondering why. Some see it as subversion, as did one supervisor who complained about the amount a worker wanted to know. We see it as a vital way to build a work force that is more self-reliant, purposeful, and able to cope with the changes that take place now and in the future.

LEARNING MANAGEMENT IN THE CONTEXT OF SMALL GROUP PROBLEM-BASED LEARNING

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"Give me a fish and I eat today; teach me to fish and I eat for a lifetime."

This often-quoted oriental proverb succinctly states the whole point and importance of learning management as a professional survival skill. The physician, for example, must be a continuing, self-directed learner in order to stay contemporary and to handle effectively the new, unexpected, perplexing, and unique problems that will continually confront him or her in practice. The acquisition of this skill as an almost reflex, lifetime habit is one of the major learning objectives of what, for lack of a better term, is commonly referred to as *problem-based learning*—a method of learning that is being adopted by the more progressive medical schools and encouraged within the profession itself.

Problem-based Learning

This method of learning involves small groups of four to seven students and a faculty tutor. The students work at carefully chosen, simulated problems characteristic of medical practice. In this process, they determine what they need to learn, within the context of the particular curricular unit they are studying, so as to understand and deal with that problem better.

In this student-centered method, the learners are progressively given more and more responsibility for determining their own learning needs and to satisfy them. What is learned in self-study is applied back to the problem with which they are working. The tutor uses maeutic or facilitatory teaching skills, guiding the learning process without dispensing information to the students or telling them whether they are right or wrong. The student is in an active learning mode, working in contexts characteristic of future medical practice, and becomes progressively less dependent on the teacher and more dependent on himself or herself for learning.

In this process, newly acquired knowledge is integrated from many disciplines or subjects in the mind of the learner and structured around the cues that occur in clinical tasks, ensuring better retention and application in subsequent clinical work. In addition, clinical reasoning skills, critical thinking skills, and learning management skills are acquired.

For the purposes of this chapter, the tutor's sequence of learning process tasks for encouraging the acquisition of learning management as a reflex habit are described as these occur within the context of problem-based learning. Details about the entire method, as applied to medical education, can be found elsewhere (Barrows 1985; Barrows and Tamblyn 1980).

Learning Objectives and Expectations

Before a task or problem is undertaken by the group, learning objectives are established. What is it the group should learn in the encounter with this problem? In the first years of medical school, the students are expected to emphasize form and function, understanding the underpinning of basic sciences to medical practice by identifying the basic mechanisms responsible for patients' problems. In the clinical years, patient diagnosis and treatment would be the usual objectives. The extent and detail of learning and the emphasis in particular disciplines needs to be established by the group. The need for learning cannot be fully recognized unless the expectations for performance with a problem are specified by the students. What is it they intend to accomplish as a group? If this procedure is carried into professional practice, the physician will always be aware of his or her goals in any patient encounter so that learning needs can be identified when some aspect of knowledge or ability falls short of expectations.

Self-Monitoring

As students reason their way through the problem (the tutor guiding them through the usual stages of the hypothetico-deductive process), they are encouraged to identify whenever they feel that their understanding, knowledge base, or reasoning skills seem inadequate. This is not a natural ability in many students by the time they arrive in medical school; therefore, the tutor has to model the process by sensing hesitancy, perplexity, insecurity, or confusion in students and asking whether there is something that needs to be learned and, therefore, written down as an issue for subsequent study. Eventually, this process becomes a habit as students learn to monitor their ongoing ability to work with the problem. As in all of the component skills to be described in learning management, they usually have to be modeled by the tutor first before they become adopted by the students, practiced first on each other ("Isn't that a learning issue for you [or us]?"), and eventually taken on as a personal habit ("I think that is a learning issue for me").

Formalizing What Needs to Be Learned

When the students have worked as far as is possible on the problem with their present collective knowledge and ability and have committed themselves to a decision about the nature of the problem and its management, they review the list of learning issues that have been written down and attempt to categorize and organize them into statements of needed learning—tuned to the objectives they had agreed upon previously. They can decide whether each will take on all the learning tasks defined or whether each will take on a specific one. When as physicians they are finished with a patient encounter, it is hoped that they will automatically develop a clear understanding of what learning is needed the better to care for their patients.

Selecting Learning Resources and Time for Study

The effective and efficient acquisition of knowledge and skills requires an awareness of a wide range of possible resources for learning and their particular advantages and disadvantages in terms of availability, accessibility, time, effort, cost, and value. The dimensions of value concern the depth and contemporaneousness of the information and its accuracy or reliability. All these need to be considered. The students are asked to identify the particular resources each plans to use to satisfy their identified learning needs as well as the rationale for the selection. Resources include medical faculty, expert practitioners, texts, monographs, reviews, journal articles, automated information systems, field trips, specimens, models, and so on.

The students have to determine how long it will take for the agreed-upon learning to be accomplished. A time is established for the group to reassemble around the problem or task.

Resource Critique

When students begin to apply what they have learned to the problem, they are asked to describe and critique the resources they actually used during their own study. They are not asked to describe what they learned, as that will be brought out in the context of reanalyzing the problem. Initially, students are frustrated by their inability to find the resource they need or to know how to use them best. They find some resources too detailed, others too superficial. Some faculty or experts are difficult to use as consultants. The complexities of an automated search can be overwhelming. Often, time was too short or the learning issues were not defined clearly enough for effective study. The tutor asks each student how he or she might have chosen and used resources differently as a result of this experience. The tutor also encourages members of the group to give each other advice on better resource selection and use.

It is important for the tutor to ask students how they know their information sources are accurate and reliable and how contemporary they are. The students are eventually expected to critique the accuracy or reliability of research reports, considering design, methods, and conclusions. As physicians, it is hoped that they will be able to access efficiently an appropriate information source in order to satisfy an identified educational need quickly.

Applying and Summarizing New Learning

When the students have returned from their period of study to tackle the problem again, they are now considered "experts," as they have satisfied their previously identified learning needs. They are asked to start with the problem from the beginning and compare, on the basis of their new learning, what they now realize they should have thought and done with what they had thought and done previously. In this way, they are actively applying what has just been learned to problem-solving work and correcting prior knowledge and reasoning. In this process, new questions might be raised that could lead to the identification of further learning issues and study.

At the completion of their work with a problem, the students are asked to integrate and summarize what they have learned and to discuss how this learning has extended their knowledge of the subjects or disciplines involved in their study and how it will help them with future related problems. This task, organizing what has been learned and putting that learning more firmly into their conscious minds, should better ensure that what has been learned will become available to them in the future as declarative knowledge that can be actively manipulated for future use.

Conclusion

These are natural stages in learning management and are often automatically, if not unconsciously, exercised by people adroit in self-managed learning. However, the process described allows each stage to be practiced and analyzed by the students. Although the tutor takes care to guide this process carefully in the beginning, because of its naturalness, students easily take over the process for the group and for themselves. One of the tutor's tasks in problem-based learning is to foster student responsibility for the learning process and to make himself or herself unnecessary.

The intent of this method is to encourage graduate physicians to do the following:

- Define their objectives in a patient encounter
- Monitor their ability to deal with the task before them as they are working
- Subsequently identify their learning needs
- Find appropriate resources to satisfy these needs efficiently and effectively
- Use them well
- Assess learning activities
- Apply newly acquired information back to the patient problem
- Consider what has been learned and its usefulness for future patient problems

This series of activities should become almost automatic and habitual in day-to-day activity.

Problem-based learning, particularly the reiterative variety (Barrows 1986), parallels the behaviors expected of the successful adult problem solver as he or she faces the daily challenges and perplexities of life and career. The principal objectives of this particular educational method are for learners to develop effective and efficient reasoning and learning management skills while acquiring information structured in ways to ensure better retention and future application.

This approach to learning management requires the student to apply learning management skills continually throughout the curriculum with every task, situation, or problem encountered. In this way, students are expected to develop habitual, almost reflex, skill in continuing to learn the rest of their lives. This is in contrast to educational approaches that teach learning management skills as a one time or episodic endeavor in which the student is given a topic or problem for research and reporting.

No educational method for learning management will survive unless it can be reinforced by methods to assess student performance in learning management. Assessment is important not only to measure student progress but also to measure the effectiveness of the method. In the setting described in this chapter, the quality of individual student performance in learning management become obvious within the context of the small working group and should be a matter of periodic discussion by the group. Learning management can be assessed in a more formal sense by giving each student a problem (paper, computer, or human simulation of a patient problem) to analyze, evaluate, and manage. When that task is completed, they can be given time to carry out whatever study they wish. On return to the test problem, they are asked to correct their previous answers or discussions on the basis of what they have just learned through self-study.

LEARNING MANAGEMENT SKILLS DEVELOPMENT AS AN INTEGRAL PART OF TRAINING AND DEVELOPMENT

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Today, there are simply too many different competencies spread across too many fields for any one organization to expect that it can provide all necessary training for its staff internally through its formal training and development programming. This is a proposition most training and development professionals would accept easily. But where does that leave training and development practitioners? And what does that imply for professional educators working in secondary and postsecondary educational institutions who seek to prepare people for or enhance their effectiveness in the world of work?

In response to these questions, this chapter speaks primarily to educators who serve and support working adults. It closes with some specific recommendations to school-based educators preparing people for the world of work.

Posing the Problem

Another way to state this proposition about workplace learning and so pose the problem facing practitioners is to say that we need to look at the learning and development work that goes on in organizations as a whole. We should not limit our attention to what we can directly provide; we do not want to settle for responding only to the squeakiest wheels in our organizations. Thus, it follows that we should focus a good deal of attention on helping each staff member to improve his or her ability to manage an ongoing series of individually tailored learning experiences and formal development projects for himself or herself.

These experiences and projects may or may not include programs on the training calendar or formal courses at local schools and colleges. In fact, most staff should probably be doing more learning on their own than they do through formal education and sponsored training activities. The proportion of necessary self-initiated learning will in all probability increase steadily over the next several decades. On the other hand, even in sponsored and formally organized courses and programs, participating workers need to be encouraged to move from passive to active roles, where they operate out of a strong sense of their own felt priorities and style, and with a clear idea of how they hope to use what they learn on the job, given their organizational accountabilities. Learning time has become much too precious to waste in a passive stance.

To support the full range of learning and development activity required in today's and tomorrow's workplace and to help individuals operate in ways that tailor learning and development experiences to unique situations, we need to enhance their ability to learn how to

learn, that is, their learning management skills. Robert Smith suggests in his chapter that many organizations now work to enhance these competencies, but this is still a relatively small percentage of organizations. Of those who appreciate that it would be a "nice thing to do," many do little more than say they would like to see staff take primary responsibility for their own development. However, if you are reading this, whether teacher or trainer, chances are good that you are one of those who is already doing more than the average educator to help the learners you serve to enhance their learning management skills. Therefore, to help you assess what you already can do in this respect, to help you decide what you would like to learn more about, and to illustrate just how straightforward building the enhancement of learning management skills into the training and development routine can be, a self-assessment checklist is provided in exhibit 4.

Each area on the checklist is dealt with in the text that follows. Once you go through the checklist, you can skim or skip subcompetency areas where you feel comfortable and focus on one or more of those on which you would like to work. After the subcompetency areas have been discussed, there are sections on transitional structure and situational learning that suggest several ways of looking at and dealing with the learning management enhancement enterprise. These discussions may make it easier to craft helpful tools to use in any of the routine training and development activities you wish to strengthen with new or renewed learning management enhancement capability.

In the years ahead, we should see remarkable growth in the proportion of training and education resources invested in the enhancement of learning management skills. However, even modest efforts can proceed in a variety of ways. In the eight sections that follow, the relevant subcompetencies and performance criteria from exhibit 1 are repeated, followed by discussion of each area.

EXHIBIT 4

LEARNING MANAGEMENT: LEARNING HOW TO LEARN IN THE WORKPLACE

Professional Development Checklist

Competency Statement

Ability to design and implement an organization-wide personnel development support system intended to enhance and maximize learning management competence (learning how to learn competence), and an especially active and self-conscious approach to learning.

RATING SCALE

0--no knowledge
1--some knowledge
2--some knowledge and skill
3--moderate knowledge and skill
4--considerable knowledge and skill
5--outstanding knowledge and skill

Subcompetency Listing

_____ 1. Ability to design and implement a staff ORIENTATION program that enhances learning management competence.

_____ 2. Ability to build LEARNING MANAGEMENT SKILL DEVELOPMENT into all COURSES, WORKSHOPS, and PROGRAMS.

_____ 3. Ability to design a LEARNING RESOURCE CENTER that enhances learning management competence.

_____ 4. Ability to develop SELF-INSTRUCTIONAL MATERIALS that enhance learning management competence.

_____ 5. Ability to develop and field SUPERVISORY TRAINING in learning management enhancement and support.

_____ 6. Ability to develop and support PROBLEM-BASED LEARNING MODULES.

_____ 7. Ability to broaden considerably DEVELOPMENT PROJECT RECORDKEEPING.

_____ 8. Ability to develop a pervasive CLIMATE that fosters ACTIVE and SELF-CONSCIOUS LEARNING throughout the organization.

Performance Criteria

1. Orientation Program

   1.1 Places responsibility for development primarily on the shoulders of individual staff while at the same time preparing staff to take full advantage of the many components of the organization's development support system.

   1.2 Guides staff through an extended series of activities (during their first 6-12 months) that model the character and the variety of approaches to development you would like to see people pursue in their tenure with the organization.

2. Learning Management Skill (LMS) Development in All Programs

   2.1 LMS development is an explicit and comfortable part of all development activities.

   2.2 Instructional staff have been trained to play the correspondingly enhanced roles that result.

3. Learning Resource Center

   3.1 Is responsive to varying levels of learning management competence on a differentiated skills basis.

   3.2 Is staffed by specially qualified personnel, whose own development is aggressively supported.

4. Self-Instructional Materials

   4.1 Cater to a wide variety of learning style preferences.

   4.2 Consistently offer options for LMS enhancement activities in relevant areas. These may be bypassed or utilized at the participant's discretion.

5. Supervisory Training

   5.1 Prepares supervisors to support an active and self-conscious approach to learning, for example, to be able to negotiate equitably each of the major aspects of a development effort with staff they supervise.

   5.2 Prepares supervisors to promote and, where possible, assist with the enhancement of learning management competence.

6. Problem-Based Learning Modules

   6.1 Actively engage participants with ill-structured problems.

   6.2 Require extended inquiry and self-managed learning efforts.

   6.3 Promote recycling through problems so as to reinforce and make explicit acquired competence.

7. Development Project Recordkeeping

   7.1 Is responsive to an extremely wide variety of development activities.

   7.2 Is able to document several different components within a given development project or effort.

8. Climate

   8.1 Senior management sets an example with their own development and in the way they develop those they supervise.

   8.2 Organizational policies and procedures are congruent with the demands of a more active and more self-conscious approach to staff development.

In Orientation Programs

1. Ability to design and implement a staff ORIENTATION program that enhances learning management competence.

   1.1 Places responsibility for development primarily on the shoulders of individual staff while at the same time preparing staff to take full advantage of the many components of the organization's development support system.

   1.2 Guides staff through an extended series of activities (during their first 6-12 months) that model the character and the variety of approaches to development you would like to see people pursue in their tenure with the organization.

Orientation programs for new staff provide a good opportunity to communicate an organization's expectation that staff members take primary responsibility, considerable initiative, and an active role in shaping and tailoring all their learning and development activities. One way to convey this powerfully is in the packaging of the program. Call it a "self-managed orientation program" or give it some other label that conveys the message about individual staff responsibility for development. Repeat this message explicitly in the manuals prepared for participants and their supervisors and in any new staff seminars participants attend early in the program. Most important, convey it through the format and processes of the program.

In her chapter, Sylvia Downs described the approach she and her colleagues employed in learning skills courses to encourage people to think about and practice greater variety in the ways they learn things. Another way to expand staff members' repertoire of learning methods is to build considerable diversity of learning methods into an orientation program.

The combination of activities incorporated in an orientation program can give participants early experiences with some of the many different ways the organization would like them to go about their learning. Moreover, the learning outcomes and approaches suggested can promote particularly active, self-conscious, and reflective patterns of participation in each activity. A variety of discrete learning management skills can be deliberately and explicitly enhanced.

For example, a learning style interview can be included in an orientation seminar, and staff can be encouraged to negotiate opportunities to use the strengths of their learning style with supervisors, coaches, instructors, and other learning resource people. New staff can be encouraged to be proactive in asking questions during the 2-3 weeks of initial job and service induction that is part of a new job. Participants can be encouraged to keep a journal of their orientation experiences that includes reflections on their learning processes as well as on what they are learning, new questions that are arising, and options to be explored.

Though it requires some effort to do it well, one way to reduce the chances that any new staff will be "lost in the cracks" is to match new staff up with experienced staff members in a sort of buddy system or partnership experience. Partners from other departments can be assigned to all new staff for their first 6 months of employment. This provides extra support and gives a taste of some low key mentoring.

The partner role should not be something that is quickly, casually, and involuntarily assigned. Rather, volunteers should be carefully recruited and trained to be supportive to new staff, helpful in identifying problems, eager to suggest strategies for dealing with them, good referral agents to information and learning resources and, when possible, able to provide a different perspective on the organization than the one shared by those in the staff member's immediate work unit.

The kind of partnership just described is designed to complement the individual's relationship with his or her supervisor. Another version, one that could serve as a model for ongoing development support to any group of highly educated professional or technical personnel, pairs a new staff member with a professional colleague who plays a *primary* development support role. It covers the full range of development needs assessment, support for development project planning, help with troubleshooting during projects, and assistance with providing high-quality formative and or summative competency assessment.

In the latter model, the partner plays a stronger role as development consultant than does the individual's supervisor. The supervisor acts as a reviewer of well-developed drafts of development plans, development project evaluations, and career plans and makes suggestions for improvement with particular concern for unit and organizational priorities.

Another activity possible in longer orientation programs, those lasting 6-12 months, is the inclusion of one or more work-learning assignments in other departments. These can be offered as an option to all new staff, not just the fast trackers, to encourage use of (and for many to introduce) this approach to learning, to broaden their understanding of the rest of the organization, and to begin to suggest the breadth of possible future career options in the organization. Such work-learning assignments can be referred to as "helping hands assignments" or something similar in order to give considerable emphasis to the needs of staff in receiving placement sites and so maintain support for the activity.

It is smart to include a series of new staff interviews in order to emphasize how much can be learned by casual conversations and deliberate networking. Some names of people to be interviewed by the new staff member can be suggested by supervisors, and others can be identified by new staff members themselves. It is helpful to include sample questions and some tips on good interviewing in the description of this activity.

Outcome objectives should be identified for each activity in an orientation. These can serve as a guide to getting the most out of the activity and a check on whether additional effort or support is needed to complete the activity successfully.

Reading about the organization is included as part of many orientation programs. Since such materials are often quite dull, they may need to be revised to make them more readable and provocative of further learning. Participants can be encouraged to discuss these readings with their partners and urged to attempt to learn what important things may have been left out or are better explained from their partner's perspective.

Finally, information about the organization's development support system—the activities, systems, resources, and services intended to support job-related and career-related development efforts, from tuition reimbursement plans to little known opportunities flowing out of organizational headquarters—should be communicated orally and in writing early in an orientation program.

There are clearly rich possibilities for building learning management enhancement into new staff orientation programs.

In Courses and Workshops

2. Ability to build LEARNING MANAGEMENT SKILL (LMS) DEVELOPMENT into all COURSES, WORKSHOPS, and PROGRAMS.

    2.1 LMS development is an explicit and comfortable part of all development activities.

    2.2 Instructional staff have been trained to play the correspondingly enhanced roles that result.

Several ways to design learning management skills development into courses and workshops are discussed elsewhere in this collection. For example, a growing number of educators routinely build a short discussion of learning style or mode into their courses and workshops. The concept of MUD, described by Sylvia Downs in chapter 1, could be introduced in a workshop on effective meetings for a state agency. Asking people to think about how they have learned about effective participation in and leadership of meetings in the past (usually by observing and doing) can be a

fine way to start the workshop, a good lead into a description of techniques to be used during the workshop, and a good preparation for discussion of further "study" options participants might want to plan to pursue following the course or workshop.

Another approach to learning style simply asks people to list as many of the ways they learn most easily and effectively in schools, work settings, and in their personal lives as they can (Cheren 1977, 1979). This method includes questions about how they share their learning most easily and effectively, and about the extent to which they have negotiated or attempted to negotiate for the opportunity to export strengths from one context to another.

In his chapter, Robert Smith speaks of presenting short sessions on how to get the most out of this or that learning activity just before it is conducted. Combine this with the incorporation of two or more teaching/learning modes in a course for participants to choose among, and talk about learning style is converted into action. This provides a good opportunity for participants to choose whether to lead from their strength as learners or to extend their strength.

In addition, instructors and facilitators should routinely indicate that participants are primarily responsible for what they get out of a learning experience, and they should encourage participants to take a wide variety of initiatives to maximize the outcomes of their learning experiences. This will come across credibly and be much more effective if illustrations are given. For example, it is possible to ask participants the following questions:

- Before this course (workshop), how many of you talked about this development effort with your supervisor and co-workers? If you did, did you come to a consensus about priorities? Did you agree on how new or enhanced competence will be applied?

- During this course (workshop), please ask questions about assumptions. Make all kinds of requests: requests for clarification, requests for additional or different kinds of examples, requests for more or less practice, requests concerning logistics, requests concerning content emphasis, requests for variation or changes in teaching mode, and so on, if these would help improve your understanding or competence.

- [Later during the course] Have you been reminding yourself about your priorities and emphasizing them in the questions you ask yourself and me and in whatever notes you take?

To deliver on the expectations raised by this sort of encouragement, instructors need to be particularly skillful and creative negotiators and to become much less infatuated with the "sanctity of the design." In most cases, instructor training in these areas will need to be added to the overall instructor training program.

At the same time, when instructors encourage participant initiative in this way they should encourage realism by indicating that they will try to remain open minded, responsive, and willing to negotiate, but that they reserve the right to exercise their best professional judgment in each instance.

Downs, Smith, and others have mentioned the option of including among training and development offerings an entire course in self-managed development or learning management that is open to all staff. Smith's (1982) design in *Learning How to Learn* is a good example. Such a course should deal with both job- and career-related development, if at all possible, so as to illustrate the relationship between these two efforts and to tap the motivating impact on participants of developing a stronger sense of direction through career planning activities.

It is also helpful in such courses to emphasize the leverage that can be gained if people tie their development planning and their development efforts to the individual and unit objectives and accountabilities specified for them in yearly performance appraisal and unit and organizational planning cycles. This is highly effective when seeking cooperation and assistance from others in the organization for development activities.

It is possible to include in the design of all courses the kind of pre- and postcourse collaboration concerning development activities, between participants and their supervisors that are implied in the first set of questions of participants listed earlier. Develop routine procedures for this, such as pre- and postcourse assessments, priority setting, and application planning meetings. Short briefing sessions to prepare supervisors for the more involved role implied here and well-designed precourse preparation packets are both needed to change a well-ingrained habit of casual referral to training programs into a habit of thoughtful preparation and followup. Finally, in wrapping up courses and workshops, summarize learning issues as well as content.

In Learning Resource Centers

3. Ability to design a LEARNING RESOURCE CENTER that enhances learning management competence.

   3.1 Is responsive to varying levels of learning management competence on a differentiated skills basis.

   3.2 Is staffed by specially qualified personnel, whose own development is aggressively supported.

Many organizations are renaming their libraries and calling them learning, development, or professional development resource centers or just plain resource centers. Such a center requires certain features if it is to enhance learning management competence.

First, in addition to the critical career planning materials increasingly found in such centers, which are intended to assist people with career-related development project planning, it is important to provide as many different kinds of competency assessment lists, instruments, and activities as possible. This supports both job-related and career-related development projects. People need help in differentiating a skill or knowledge area so that they can decide which subskills to address at a given time and so that they can identify, often with the help of their supervisor, which of these are high-priority items.

In addition to books, self-instructional materials of all sorts should be available in such centers. Although the number and proportion of such materials is increasing, a new variety of self-instructional material should be provided. Namely, we need to develop and place in such centers a diverse array of self-instructional materials for enhancing specific learning-to-learn and learning management competencies.

Perhaps the most important single change we can make is to staff development resource centers with personnel trained to enhance and develop learning management competence. It should not be a primary role of such personnel to order and catalogue materials, though this may be part of their job. Rather, their primary role should be to help personnel plan development projects and to help them spot skill deficiencies and learning blocks that have or may keep them from successfully completing the projects they undertake.

In Self-Instructional Materials

4. Ability to develop SELF-INSTRUCTIONAL MATERIALS that enhance learning management competence.

    4.1 Cater to a wide variety of learning style preferences.

    4.2 Consistently offer options for LMS enhancement activities in relevant areas. These may be bypassed or utilized at the participant's discretion.

In the preceding section on learning resource centers it was mentioned that self-instructional units for developing a wide variety of current and future job-related skills and for developing discrete learning management skills should be easily accessible to staff. Such materials should be selected and well labeled to accommodate varying learning styles in order to facilitate easy user selection, such as between methods that emphasize reading about, hearing about, viewing about/observing, or doing.

Ideally, we will see the day when the enhancement of specific learning process skills will not only be available as separate self-instructional packages, but most self-instructional packages will also include optional segments (for those who need and want to use them) that enhance this or that learning process skill related to successfully completing the learning and development activities used in each of the packages. Modest efforts of this kind have begun to be made in self-instructional career development materials (Cheren 1981c, 1985).

In Supervisory Training

5. Ability to develop and field SUPERVISORY TRAINING in learning management enhancement and support.

    5.1 Prepares supervisors to support an active and self-conscious approach to learning, for example, to be able to negotiate equitably each of the major aspects of a development effort with staff they supervise.

    5.2 Prepares supervisors to promote and, where possible, assist with the enhancement of learning management competence.

Supervisory training should intrinsically encourage and support an active, self-conscious approach to learning in participating supervisors, and, at the same time, it should encourage and prepare supervisors to enhance these capacities in the staff they supervise. This can be built into aspects of all supervisory, management, and executive development activities and entire courses in development consultation for supervisors can be added to the training calendar and to collegiate offerings (Cheren 1981a,b,d).

Supervisors should be given a healthy supply of development project planning forms and know how to help staff think through answers to the questions they raise about what is to be learned, generally and specifically, how it is to be learned, resources to be used, and so forth. They should be trained, for example, to avoid projecting their own learning style preferences onto others. They should be encouraged to refer staff to others for additional help with development planning, whenever needed. Expertise for this type of assistance in the organization should be clearly identified.

Formal educational institutions, particularly innovative educational institutions, may be particularly well suited to provide this sort of training to supervisors in organizations. The care and thought that has gone into training faculty in how to support individualized academic planning for students can be translated into what amounts to paraprofessional educational consultant training for supervisors.

Work by this author (Cheren 1981a,b,d), work that Sylvia Downs and Robert Smith describe elsewhere in this volume, and work that Malcolm Knowles, Bo Hardy, and Roger Harrison have all done as part of their international consulting activities provide examples of training supervisors for their development consultant roles. Hardy's work was interesting in the extent to which it separately and simultaneously trained staff members and their supervisors to work with each other around learning management competencies and issues.

With Problem-based Learning Modules

6. Ability to develop and support PROBLEM-BASED LEARNING MODULES.
   - 6.1 Actively engage participants with ill-structured problems.
   - 6.2 Require extended inquiry and self-managed learning efforts.
   - 6.3 Promote recycling through problems so as to reinforce and make explicit acquired competence.

Although this could be looked at as just one more methodology available to trainers and teachers, it is worth special emphasis. The kind of reiterated or closed loop problem-based learning that Howard Barrows described in chapter 2 is especially powerful in its capacity to provide an active, involving setting in which to identify, support, and develop various aspects of learning management competence.

The connection between work-related learning, one's capacity to monitor continuously, identify precisely, and respond competently to one's learning needs, on the one hand, and one's capacity to handle ill-structured problems as these present themselves in one's work, on the other hand, is now increasingly appreciated. Smith describes this connection in his chapter. It may be implicit in the current widespread interest in the development of critical thinking skills, and in the strong response to Schoen's (1983, 1987) pointed analysis and recommendations in *The Reflective Practitioner* and *Educating the Reflective Practitioner*.

Howard Barrows (1986) has described how his particular approach to problem-based learning pushes participants to the extreme end of the case- or problem-focused continuum. In so doing, it much more dramatically prepares people to function in their professional roles than the conventional case- and problem-based methods in widespread usage. It is possible to include this approach or at least aspects of this approach to training and educating for problem solving in nearly any course or workshop.

In Development Project Recordkeeping

7. Ability to broaden considerably DEVELOPMENT PROJECT RECORDKEEPING.

   7.1 Is responsive to an extremely wide variety of development activities.

   7.2 Is able to document several different components within a given development project or effort.

One of the most difficult aspects of moving to much greater emphasis on the enhancement of learning management competence in an organization is to document the impact of such activities, both on the performance of personnel and on organizational performance. For this reason, broadened recordkeeping should be undertaken as much for the benefit of the organization as for the benefit of the individual staff member.

The message here is to include descriptively titled development projects as the usual item in training records, not the names of the courses that may or may not be a component part of a given project, or at least not exclusively so. Most development projects should include several components. If at all possible, these should be succinctly described or at least listed. Detailed assessments can also be included in the file for all major or particularly significant efforts.

Revising training record forms and accompanying instructions and emphasizing the desirability of a variety of approaches in each development effort during orientation, in courses, at the resource center, and in supervisory training should begin to move organizations in this direction. Once training professionals are willing and able to document the whole range of development efforts that staff initiate—not just the narrow band of prepackaged courses in their training calendars and local technical school and college catalogues—the number of efforts staff document *and in which they engage* should increase. This, then, becomes a significant indicator of increasing effectiveness. Assessments for such projects should also begin to include participant and supervisor assessments of impact on performance on the job. Of course, the process of documentation itself can promote further study, reflection, and inquiry.

In the Climate of the Organization

8. Ability to develop a pervasive CLIMATE that fosters ACTIVE and SELF-CONSCIOUS LEARNING throughout the organization.

   8.1 Senior management sets an example with their own development and in the way they develop those they supervise.

   8.2 Organizational policies and procedures are congruent with the demands of a more active and more self-conscious approach to staff development.

Robert Smith covers this issue well in chapter 4. It is worth emphasizing here the importance and reinforcing power of statements and examples provided by senior management to new staff and continually to all staff concerning their commitment to a more active and self-conscious style of learning and to the enhancement of learning management competence throughout the organization.

Thinking about the impact of organizational climate and Smith's discussion of ways to affect climate suggests the need for broad-based consulting to organizations concerning the overall enhancement of learning climate and learning support activities. Malcolm Knowles recently

described such a piece of work during a "Learning to Learn in the Workplace" workshop in Dekalb, Illinois. It combines several of the elements discussed previously.

Knowles was brought in as a consultant by the Dupont Corporation. He posed two diagnostic questions to the group with which he first met, which included key management personnel:

1. What learning resources are you now using?
2. How could these be better utilized?

The group identified five resources they considered to be critically significant to learning and development efforts then currently undertaken by Dupont personnel:

1. Scheduled activities (courses, workshops, information sharing meetings, and so on.)
2. Line managers and supervisors as a resource
3. Media center
4. Other individuals with knowledge
5. Community resources

In response to his second question, they identified the following things that could be done to improve or use each better:

- Scheduled activities
  - —Use less pedagogical design (and more andragogical design).
  - —Provide instructor retraining.
  - —Increase rewards for participating in these activities in the organization's reward system.
- Linemanagers and supervisors as a resource
  - —Change job descriptions to include teaching and learning activities.
  - —Strengthen review system in relation to these functions.
- Media center
  - —Get more people to use it. (Mostly technical staff currently use it.)
- Other individuals with knowledge
  - —Survey all staff to find what knowledge they would be willing to share and what they would like to acquire (data bank).
- Community resources.
  - —Identify the feasibility of and establish an inventory of community resources, including retirees; update it regularly.

Knowles indicated that these recommendations were in fact implemented and that as far as he knew they were being maintained in grand style, with considerable evidence of positive impact on staff development activity within the organization.

The preceding discussion should suggest a number of ways to make the enhancement of learning management skills a routine matter. In addition, when designing tools, activities, structures, and systems that build the enhancement and further development of learning management competence into the fabric of a training and development operation, two theoretical constructs may prove useful. These are (1) transitional structure and (2) situational learning.

Transitional Structure

Educators, generally, have underestimated what is required for people to move from passive, dependent roles as learners to active managers of their own development. It is not a simple role change, one that can be accomplished with a new outlook and new terminology.

We are moving from contexts characterized by considerable external structure (laws, rules, requirements, and so on), external skills (such as needs assessment, curriculum planning, course design, resource assessment, and negotiation skills), and an external, usually institutional context for decision making, to the development of considerable internal structure, that is, structure internal to the individual, along with internal skills, and an internal context for decision making.

To facilitate the very considerable self-development and skills development required, the last thing needed is to drop all external structure abruptly, though this has frequently been done under the banner of educational reform in the past, both by would-be Deweyites and more recently by many late 1960s and early 1970s reformers. If anything, more structure is needed, but of a very special kind. This new kind of structure can be described as "transitional structure" (Cheren 1978, 1983).

The fixed, traditional structures of the past tended to maintain dependency despite their intended purpose, which was to prepare people for independent, adult functioning. In contrast, both the purpose and impact of transitional structures are one and the same. Step by step, skill by skill, individuals are prepared, encouraged, persuaded, and sometimes seduced into taking more and more responsibility for their learning and development activities and more emotional responsibility for their lives.

Transitional structure is flexible structure, capable of being gradually reduced as internal structure, internal skills, and a stronger internal context for decision making are developed within the individual. It is differentiated structure. It meets the individual where he or she is, providing more support in this area, somewhat less in another, none in a third, and so on. It is open to negotiations that can be initiated from either side when more or less support is needed in a given aspect of a particular learning or development effort or a longer program of study and development. Howard Barrows' description of the weaning process orchestrated by tutors in problem-based learning groups is a good example of how transitional structure can be flexibly and unobtrusively provided by a skilled, well-prepared educator.

The forms, rules, and procedures of many of the better nontraditional (open-system) collegiate programs and institutions frequently reflect tangible and explicit manifestations of transitional structure. For example, such institutions allow students to assume an increasingly stronger role in their curriculum planning and development as they are found able to handle such responsibility. Facilitators and monitoring committees gradually but steadily reduce their input in such situations.

This way of defining *transitional structure* immediately poses some questions. What are the *internal skills* of learning management? What is *internal or self-developed structure?* What constitutes *an internal context for decision making?*

In his chapter, Robert Smith describes several ways of looking at and categorizing learning to learn, that is, learning management competency or skill listings, the *internal skills of learning management.* Another way to group these skills is as follows:

- Self-assessment competencies
- Career research and planning competencies
- Development project and program planning and implementation competencies
- Competencies for the effective use of peer and expert support (Cheren 1979)

Whatever framework we choose to organize our thinking about the broad areas of skill involved in learning management, it should above all else make sense from the learner's point of view.

Internal or self-developed structure is anything a learner initiates or arranges that helps him or her prepare for and/or engage in a development project successfully. A detailed time line for planning, implementing, applying the results of, and evaluating a development effort; a network of mentors; a learning support group; a set of procedures developed for putting together a career development plan or negotiating a work-learning experience with one's supervisor—these are all examples of structures that individuals can develop for themselves that tend to replace the externally developed and provided structures of more dependency-oriented education and development enterprises.

One of the single best predictors of success in individualized, open-system educational programs is the extent to which the individual has a strong sense of purpose, a sense of direction. An *internal context for decision making* relies heavily on such a sense of purpose and direction as expressed at best through a set of well developed career and life plans. These, in turn, depend heavily on one's sense of self, interests, strengths, preferences, values, and goals. Again, this is the engine that powers a more active and self-conscious approach to learning. An internal decision context also includes such things as development planning heuristics or rules of thumb and one's personal futures forecast information.

This author listed and described facilitation competencies for program advisors in individualized collegiate programs (and by extension development consultants in other contexts) for Campus-Free College (Cheren 1977). They address the development of internal skills, structure, and decision contexts.

Situational Learning

Many have called into question the suitability of the self-directed learning model as a model for workplace learning, where the role of supervisors is obviously so great and the importance of negotiations and shades of gray so apparent. The pages of the *Training and Development Journal* and *Training* have included several articles to this effect.

As replacements, Mouton and Blake (1984) have offered up *Synergogy*. Argyris and Schoen (1978) have offered us double loop learning, and so on. Another possibility is "situational learning," a model of adult learning that may be particularly well suited to the workplace. It is intended to complement the descriptor "learning management," which is both a label for a given genre of learning and development activities from the individual's perspective, and a label for the associated package(s) of competencies, but not a model of learner and learning resource interaction.

Situational learning is a model intended to describe and illuminate the kind of interaction among individuals, particularly learners and learning resource people, wherein an active and self-conscious style of learning flourishes (Cheren 1983). It is at once broader and simpler than other models currently in play, and it has the significant strength of deriving from and closely corresponding to the prevailing school of management theory, contingency management or, more popularly, "situational management." Kenneth Blanchard, who with Paul Hersey helped make situational management a watchword, put forth a broadly stroked situational approach to the support of learning in *Leadership and the One Minute Manager* (Blanchard, Zigarmi, and Zigarmi 1985).

Blanchard suggested situational learning as an approach that managers could use to support the development of the staff they supervised. The model encourages flexibility in the amount of direction and support given to the learning efforts of various people and also with the same person in various areas of their work and at different points in time. What this author advocated in 1983 and extended in a recent paper presented to the Midwest Association of Business Administration (Cheren 1987) is that as professional educators we need a finely tuned approach.

We need to take a situational approach to assessing and negotiating the amount of direction, structure, support, and guidance that we provide relative to the separate aspects of each development project, not just to a given area of a person's work and learning, broadly considered. Specific, down-to-earth aspects of development projects need to be addressed, such as the following:

- What is to be learned? Generally? Specifically?
- How is this learning to be used?
- How is the learning to be accomplished?
- How is the learning to be consolidated, demonstrated, or shared?
- How, if at all, is the learning to be assessed?
- How, if at all, is the learning to be documented?
- What is the time limit, or schedule, for the effort?

These individual aspects need to be approached with varying degrees of support and interaction. Participation, collaboration, and/or control of decision making needs to be worked out with respect to each aspect. Who will perform each function needs to be considered, negotiated, and delegated as a separate issue, with concern for efficiency and effectiveness weighing heavily. Just because a learner knows how to perform a function does not mean he or she should do so.

The situational model is perhaps best illustrated by a series of scenarios of development projects undertaken wherein differentiated assessment of skills, needs, time and resource availability, and so on are illustrated as situation responsive variables having a differential

impact on the various aspects of development efforts. Space does not permit inclusion of such a series here, but a chart comparing major features of the self-directed learning model and the situational learning model is included in table 1.

Preparing Students for Workplace Learning

Although the preceding was written primarily from the perspective of those serving working adults, many of these activities and approaches can be used in classes intended to prepare students for the world of work. By so doing, they will be much more realistically and effectively equipped for the kinds of learning they will need to do in the workplace. To the extent that students need opportunities to apply what they are learning in the way of newly developing learning management skills in and out of the classroom, application to their roles as "workers" in school, as workers (paid or unpaid) out of school, as participants in extracurricular activities, and as friends and family members is desirable.

In addition, it should be helpful to begin to use the language of workplace learning in schools alongside school-based terminology, sometimes using the one, sometimes the other, and often using the two in apposition. For example, learning contracts and learning project descriptions in schools are similar to development project plans in the workplace. Curriculum plans and career plans perform similar if distinct functions.

The point is to build much greater continuity in learning experiences and learning management skills development across these two settings. This linking of workplace learning and schooling should extend beyond nomenclature to procedures, particularly assessment procedures. To the extent that we can replace letter grades with assessment against specific functions, objectives, and standards corresponding to the three, four, or five tier ratings systems (usually extending from unsatisfactory to outstanding) of workplace performance appraisals, we can better prepare students for the results orientation and accountability of the workplace. As is done in the workplace, departure from the norm, that is, above or below a rating of "satisfactory" performance, should be documented with brief descriptive phrases along with supporting evidence.

Finally, just as in the workplace, courses designed to enhance learning management skills can and should be offered to students preparing for the world of work. Some key elements to include at the secondary and postsecondary levels would be self-assessment exercises, initial career planning activities, the enhancement of self-image, exploration of individual potential, several kinds of positive reinforcement, training in educational and workplace development planning, training in negotiations with learning resource people, exploration and application of learning style, short- and long-term goal setting, and effective organizing skills. What is remarkable about this kind of course is the extent to which students are able to apply what they learn, initiating and succeeding in negotiations with the instructors of their other courses to change their other courses, tailoring them to their personal interests, goals, and learning styles (Cheren and Feldman 1972).

Conclusion

Improving our ability to develop learning management competence in staff members by working through the eight areas specified in the Learning Management Professional Development Checklist—orientation programs, courses and workshops, resource centers, self-instructional materials, supervisory training, problem-based learning modules, development

TABLE 1

SELF-DIRECTED LEARNING/SITUATIONAL LEARNING COMPARISON CHART

	Self-Directed Learning	Situational Learning
Ease of understanding	Difficult to understand	Relatively easy
Decision making	Up to learner	Learner/others/or negotiated
Performance of functions	Not specified implied: learner	Learner/others/or some combination
Negotiations	Importance generally understated	Highly significant and stressed in model
Control	Theoretical bias toward learner	Decided on basis of ease, efficiency, and effectiveness
Seeking help	Tendency to avoid if assessed as self-directed learner; tendency to overuse of assessed as weak in self-directed learning	As needed and practical
Role description	Static, nondevelopmental	Highly flexible, developmental
Assessment of process skills	Tends to be global	Differentiated by aspect

recordkeeping, and the climate of the organization—will enable us to establish support for the learning management efforts of staff as a routine activity in our organizations. This may well come to be seen as the single most important action training and development professionals and school-based educators take to support the learning of those in the workplace. This will support and enhance all the learning staff do, not just the part the organization can provide directly or reimburse.

Developing a deeper understanding of what is involved in facilitating the transition to greater learning management competence; what is meant by internal skills, internal structure, an internal context for decision making, and the subtle uses of transitional structure; and what happens when learners and learning resource people are operating out of a situational model of learning and development—these things should establish new relevance for educators who are in or serving the workplace and bring renewed significance to the services they provide.

LEARNING TO LEARN IN THE WORKPLACE

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"The most important skill to acquire now is learning how to learn." (Naisbitt and Aburdene 1985)

People learn in and through organizations whose primary purpose is not educational. They have done so for thousands of years; they do so today—in banks, construction crews, hospitals, farms, factories, and stores. Some of what is learned in the workplace results from organized educational (or training) efforts. Much of it is derived from day-to-day activity on the job. The enhancement of successful learning in the workplace requires (1) understanding the organization as a setting for learning, (2) identifying useful learning-related competencies or proficiencies, and (3) providing organization members with opportunities to develop and apply the skills and insights requisite to learning with greater confidence, efficiency, and reward.

The Workplace as a Setting for Learning

Though many people are self-employed, most work for and with others within an organizational structure. There are many ways to define or describe "organization." It can be seen as the sum of the behaviors of all participating members, as a total system of social and cultural relationships, or as a formalized, intentional structure of roles and positions. It is generally agreed that an organization is a complex system with its own values, culture, policies, and procedures. Organizations that employ people exhibit immense variety with regard to purpose, size, and activity—to the extent that one might question the viability of concepts such as learning and learning to learn in the workplace. However, employing organizations do possess some common characteristics and factors that clearly affect the nature and quality of learning that occurs in and around them. Those that follow have been identified and verified through conversations with training and development specialists, reading, observation, and interviews with employees of medium-sized manufacturing corporations.

Purposes and Structure

Human organizations represent means to ends—mechanisms to serve purposes and achieve goals and objectives. At one level, the purpose of a given organization often appears deceptively simple and clear: to manufacture and sell widgets, to move freight from one place to another, to heal the sick. Actually, the members also constantly seek to fulfill a variety of personal purposes and needs as they contribute to achieving the organization's purposes; organizations exist in tension between individual and collective goals and purposes (Lawrence and Lorsch 1969, pp. 2-3).

To work toward common goals, people require a structure of roles or positions. These positions vary widely as to attendant activities, the specialization and expertise involved, and the rapidity with which they require modfication and updating. Some organizations, especially highly bureaucratic ones, have many hierarchical layers or departmental levels. Others—a consulting firm or a local church, for example—may operate in a lateral or collegial fashion. These kinds of variables impinge on such learning-related matters as communication, coordination, staffing, and orientation as well as the resultant mix of formal and informal learning. We need to understand exactly how.

Some organizations, or enterprises as very large entities are often called, are highly decentralized. Others are highly centralized. Still others occupy the middle ground. The extent of centralization can be expressed in terms of geographical patterns, managerial responsibility, and procedures for planning and evaluation. Formal educational programs range across a continuum of centralization, with implications flowing as well from the way programs are funded, planned, delivered, and evaluated. Notwithstanding the complexity of this matrix, one tendency we observe with some confidence is that when organizational structure maximizes participation, human interaction, and flexibility in carrying out roles, the possibilities for learning through day-to-day activity are maximized.

Organizational Climate

Though it cannot always be readily perceived, each organization has a climate, a peculiar set of environmental factors and intangibles affecting how people interact and how they learn as well. Organizational development experts speak of creating a climate for change—bringing about some new perceptions, expectations, and attitudes that pave the way for more direct interventions and experiments with new ways of operating. They also speak of taking the temperature of an organization and refer to the culture of the organization (Deal and Kennedy 1982). Factors involved include the extent of formality, rigidity, and "people-centeredness."

The notion of the open versus the closed organization is a useful one when assessing the climate for learning. Bennis and Nanus (1985) describe an open organization as follows:

> An open organization is one that is designed to have constant, intense interactions with its external environments and to respond quickly and flexibly to new information. [People share] . . . alertness to change, a search for new challenges and options, and respect for innovation and risk-taking. (p. 211)

Comparable is Knowles' (1980b) contrasting of the innovative with the static organization. The former is flexible, people-centered, experimental, collaborative, participative, caring, and mistake-accepting; the latter may be legalistic, repressive of feelings, reserved, and formal with narrowly defined roles and a low tolerance for ambiguity. Much of the extensive literature on management and leadership style makes reference to the kind of climate or environment that one style versus another tends to foster and in which one style or another tends to flourish.

Every workplace represents a social system with a unique climate in which people act, interact, and learn. It "provides an environment that either facilitates or inhibits learning" (Knowles 1980b, p. 66). Environment also affects the application of what is learned. If a person returns from a seminar advocating a participative approach to management and seeks to implement that approach in a rigid, authoritarian, suspicious, punitive environment, the results may prove far worse than having provided no training at all. The climate in many organizations

probably discourages intellectual pursuits at breaks and mealtimes. In the context of continuing education for professionals (e.g., social worker, nurse, teacher), Houle (1980) stresses the importance of an "institutional climate that formally encourages and provides education for professionals engaged in it." An educational climate is fostered by provision of a wide variety of resources for learning, systematic use of collaborative problem-solving by teams of appropriate specialists, and the creation of "an atmosphere of all-encompassing mutual growth and stimulation" (pp. 115-116).

Policies

As they think and decide and act, organization members are guided by principles, rules, understandings, and norms. Policies function to limit an area within which a decision is made: they help preclude repeated analysis and provide managers and supervisors with structure for planning, delegating, and controlling. Some policies are "official" and available in print; others are more informal and ad hoc. Policies can pertain to all levels of organizational structure and get established at a variety of levels, but the most central and far reaching tend to be established by persons of high status, such as board members and upper management, often in an interactive process with labor unions or participative employee groups.

Learning in the workplace is clearly affected by a policy such as "promotion from within." Where such a policy holds, the organization would be likely to encourage and support financially participation in outside educational offerings and to devote considerable resources to fostering the development of supervisors and managers.

Another example that relates to staffing concerns the amount of specialized expertise normally maintained in the organization. If a company's policy calls for a lean organization, constant pressure is put on employees to learn and to take on new tasks.

Similarly, if organizational policy calls for steadily developing new products or services, the pressure to learn is greater than when policy merely requires reiteration of the already existing. Other policies with implications for education and learning, often ignored, involve work patterns, such as the number of shifts each day, overtime, and length of the work day and work week. For example, many community (and some organizational) resources and programs are not likely to be available to the person who works from 3:00 in the afternoon until 11:00 at night.

Policies specifically governing education of members shape the extent to which resources are assigned to that activity, the kinds of outside offerings, if any, approved for financial or released time support, the extent to which education is generated in house or obtained from vendors, and the educational goals and target audiences.

The Centrality of Problem Solving

To function in an organization in anything but the most simplistic way is to solve problems. Problem solving is embedded in work life, and learning processes are often embedded in problem-solving and related decision-making processes.

In addition to reflective and critical thinking by individuals, organizations draw on a variety of methods and strategies to facilitate problem-posing, problem-solving, and action-related outcomes. Of these, the small group meeting is probably the most ubiquitous. Small groups are

assigned many names—committee, team, circle, cell, task force, huddle, work group, and board, to name the most common—and obviously serve a variety of purposes. Many groups have problem identification and solving as their reason for being. Quality circles may be the best known contemporary example. Others serve multiple purposes, but their members find it necessary to solve problems and learn as they pursue such tasks as making policy, implementing a new procedure, or developing long-range plans.

Some problem-solving groups are ad hoc, informal, established as needed, often in an unself-conscious way. Convening them seems a natural thing to do because of circumstances—a bottleneck, a challenge, an emergency, and so forth. Others come into being at the water cooler, at lunch, or at the work-station in day-to-day interaction. A manager converses with two secretaries as to how to improve the physical layout of an office. A hospital administrator, a head nurse, and a technician confront an equipment breakdown. A physician consults with a colleague in connection with a diagnosis. When a new product goes "online," engineers go to the site, observe the process, and interact with machine operators and the supervisor in order to correct errors and to smooth out the production process while minimizing the chances of injury, breakage, and inefficiency. The interaction can be primarily a learning experience for those involved.

The writer was sitting in a company cafeteria one midafternoon when he noticed a small group of male and female employees at an adjacent table. They were engaged in animated conversation about packaging a small product. One, with a container sitting next to his coffee cup, may have been a vendor or consultant. The others were supervisors and technicians from several departments. Their conversation was peppered with candid suggestions, questions, and explanations, all delivered in a nonthreatening way. Some random comments were noted: "Why don't we try X? . . . That won't work. I'll tell you why. . . . Here's an example of what goes on now in assembly and packaging." The container occasionally came into service as a visual aid. The atmosphere was one of spontaneity, inquiry, and information sharing—all clearly directed toward problem solving and apparently mutually motivating to the participants.

Problem solving is a key element in the individual's fulfilling of a role in an organization. It constitutes "a way of thinking in relation to role" (Knox 1977, p. 444). The ultimate test of many workers' success—especially those with technical and supervisory responsibility—is the ability to solve problems or to diagnose them as unsolvable. In turn, problem solving is a major motivator and most highly valued learning experience for the professional (Houle 1980, p. 107).

Problem solving's centrality to learning in the workplace surfaced in other connections during interviews conducted in the just-mentioned corporate setting. The chief executive officer was asked if he believed that the company represented a good learning environment. He replied quite affirmatively. When asked for elaboration, his first and most strongly expressed point was "because we identify our problems."

In order to get insight into the type of off-the-job learning in which people engaged, an hourly machine operator was asked if he undertook learning projects at home. He could not identify any. Eventually, he enthusiastically described a part-time job in which he and another man dismantle and move heavy machinery. As he talked, the problem-solving nature of this work and its learning component began to emerge. He described in detail how the two of them had devised a way to move, with a minimum of equipment, a very heavy obsolete electrical generator from the basement of an old building. It must have been a formidable and dangerous task, and was clearly accomplished through creativity and trial and error. "Figuring out" how to do such tasks obviously appealed to him even more than his regular job, company-provided training, or the job-related courses he periodically takes at his local community college, although he expressed no dissatisfaction with these activities.

Emphasis on Application of What Is Learned

A farmer is alleged to have turned down a well-meaning cooperative extension agent's invitation to an educational event by stating that he wasn't farming "half as well now as I know how." The farmer's statement highlights the gap between knowledge and application. To a greater extent than school and college learning, learning in the workplace tends to be application oriented and usually the more immediate the application the better. In addition to the centrality of problem solving, this tendency is expressed in the content and methods of much if not most in-house education and in policies affecting support for participation in off-site educational offerings.

In fact, the lion's share of corporate training is directed to changes in employee performance. If a health worker knows the history of his or her profession, the probability is great that he or she learned it in preservice rather than inservice education. Much of the education designed or paid for by organizations is based on approaches directed toward change in specific on-the-job behaviors. Hence the popularity of such phrases and techniques as task analysis, behavioral objectives, programmed learning, mediated learning, performance-based learning, competency-based education, and so on. Educational evaluation trends reflect this orientation through emphasis on impact evaluation and performance evaluation.

Yet with all this focused intent, the farmer's lament is all too commonly heard from those within organizations. As a result, organizations have been especially active in seeking to make practical applications of research on the phenomenon of transference—usually referred to as transfer of training or of learning. Transference researchers seek to understand how (and under what conditions) what is learned in one context transfers to another context.

Despite nine decades of systematic inquiry, this complex matter remains far from being completely understood, but much practical information has emerged. The literature contains relevant material directed toward trainers and human resource developers. Journals frequently publish articles that introduce the transfer concept, explore the facilitator's role in the process, and describe techniques (e.g., simulation) and relevant factors (e.g., workplace climate) (Kelly 1982; Zemke and Gunkler 1985).

From the point of view of learning to learn, the fostering of transfer skills can be assumed to be of especially great interest to educators and managers with responsibilities relating to learning in the workplace. The capability to transfer learning has more than once been termed the most powerful capacity one can possess. In her comprehensive monograph, Kirby (1979) shows how learning style and its diagnosis together with coming to understand oneself as learner play crucial roles in "transfer-skills acquisition." Much of the learning-to-learn literature deals directly or indirectly with the acquisition and application of learning-process related understandings and skills.

Organizational Learning

Organizations can be said to learn—to change, adapt, and transform themselves (Argyris and Schoen 1978). Purists may say that only the individual learns, but the notion of organizational learning has utility, providing a concept for thinking and communicating about learning and learning to learn in a specific context and to identify a context that is palpably different from school learning:

> Organizational learning is the process by which an organization obtains and uses new knowledge, tools, behaviors, and values. It happens at all levels in the organization—among individuals and groups as well as systemwide. Individuals learn as part of their daily activities, particularly as they interact with each other and the outside world. Groups learn as their members cooperate to accomplish common goals. The entire system learns as it obtains feedback from the environment and anticipates further changes. At all levels, newly learned knowledge is translated into new goals, procedures, expectations, role structures, and measures of success. (Bennis and Nanus 1985, p. 191)

Bennis and Nanus go on to describe military organizations and corporations as prime examples of organizational learning and state that some organizational learning occurs whenever a group of people is engaged in a common enterprise. They state that organizations learn by (1) reinterpreting the organization's history—drawing lessons from previous experiences; (2) experimenting—for example, testing hypotheses, market research, holding hearings; (3) observing the experiences of other organizations; (4) analytical processes—modeling, simulating, trend analysis; and (5) education and training. They also call attention to the importance of "unlearning," defined as "discarding old knowledge when actions by the organization clash with changed reality in the external environment" (p. 201).

The Importance of Innovative and Double-Loop Learning

Many contemporary organizations function in such unpredictable and fast-changing environments that learning for "what has been" or "what is" falls far short of their requirements for effective functioning. They are being called on to step up efforts directed toward learning that can "bring change, renewal, restructuring, and problem reformulation." One term for the kind of futures-oriented learning that emphasizes preparedness to act in new situations is "innovative learning" (Botkin, Elmandjra, and Malitza 1979). Botkin et al. contrast it with "maintenance learning," the "acquisition of fixed outlooks, methods, rules for dealing with known and recurring situations" (p. 10). Bennis and Nanus (1985) strongly endorse innovative learning and urge the leaders of organizations to redesign the organization for flexibility, less shock from change, and greater receptiveness to learning by making them open, anticipative, and participative.

The maintenance/innovative distinction has a clear parallel in that of "single-loop" and "double-loop" learning. Argyris and Schoen (1978) describe double-loop learning as involving the questioning and modification of underlying norms, policies, and objectives. In contrast, single-loop learning involves detecting and correcting weaknesses and errors so as to enable the organization to carry out its present policies and move in the direction of known objectives. Again, both types of learning are acknowledged to be useful, but the need for expanding and improving double-loop learning is stressed. "Deuterolearning" or learning how to learn is described as learning related to being able to distinguish between and carry out effectively both kinds of learning (Argyris and Schoen 1978).

Thus the nature and quality of learning in the workplace are affected by organizational purpose, structure, policy, procedures, and climate. The learning that takes place usually results from deliberate educational offerings, conducted on and off site, as well as from a wide variety of day-to-day planning, problem-solving, and decision-making processes. Workplace learning tends to be performance or application oriented. Organizations can be said to learn and to unlearn. They do so through various mechanisms of which educational programming is but one. They need to pay more attention to the concepts of organizational, innovative, and double-loop learning.

Improving the quality of learning in the workplace requires taking these factors into account, fostering a climate for learning, and making provision for acquisition of the requisite competencies and capacities where they are lacking.

Identifying Competencies

A wide range of understandings, attitudes, and skills affect what, when, where, how, and how efficiently we learn. Some of these competencies are clearly generic. They are useful in any setting or context for learning. Other competencies are particularly useful or essential for effective workplace learning. Both kinds are identified in this section together with some desirable skills for learning in the community that surrounds the individual's place of employment.

Generic Competencies

Research and development about learning to learn has included efforts to identify the more essential general proficiencies for becoming a skilled learner. One such effort (Smith 1982) divided competencies into basic skills (e.g., reading); general understandings (e.g., that adulthood is a prime time for learning); and self-knowledge as learner (e.g., the characteristics of one's personal learning style). To these were added method-specific competencies essential for learning in the classroom, the small group, and on one's own (classroom, collaborative, and self-directed learning). Fifteen experts on learning to learn, at a recent international conference on the subject, identified 22 generic competencies for learning. These were divided into the following categories: *cognitive* (e.g., relating and organizing new information, problem solving, retaining and recalling information, transfer skill); *personal understanding* (e.g., of self as learner, sense of purpose and direction in life, confidence); and *interpersonal* (e.g., collaborative inquiry, giving and receiving feedback, use of peer and expert support) (Smith, forthcoming).

There seems to be growing agreement that the keys to learning to learn more effectively are (1) increased understanding of self as learner; (2) increased capacity for reflection and self-monitoring of the process as one goes about tasks and activities directed toward learning (such as when notetaking, meeting with a mentor, studying, locating community resources); and (3) more realistic understanding of the nature of knowledge (such as its structure, assumptions, limitations, validation processes). A variety of methods can be employed to foster these competencies. The first two, especially relevant to learning in the workplace, are usually approached by diagnosing learning style and feeding back the results to the individual; having people keep logs and journals as they learn; assigning retrospective reports after learning episodes have taken place; providing exercises to help people reflect on the purpose of the strategies they employ; conducting critiques to analyze the process dimension of such an activity as group discussion; and making relevant theory inputs through lecture, assigned reading, and so forth (Gibbs 1981; Smith 1982).

Workplace Learning Competencies

For optimum learning at work, the employee needs to be able to use the organization effectively as a collection of resources for learning. Usually present in the organization are a variety of learning aids in the form of courses and seminars, materials for individual study or reference, internal consultants, peers, clients, and potential mentors. Some large organizations contain comprehensive "learning centers" that offer the individual multimedia materials collections, needs analysis assistance, learning style profiling, and assistance in carrying out

personal learning projects or taking advantage of educational offerings sponsored or supported by the organization (Long, forthcoming). Such a resource is only valuable if a member is motivated to access it and becomes skilled in adapting it to his or her purposes.

As organizations increasingly engage in innovative and double-loop learning, they need to pay more attention to the process requirements of this kind of learning and the attendant competencies needed by the participant. The planning, conducting, and evaluating of innovative learning calls for creativity, maturity, and collaboration of a high order. The leaders in organizations and participants in various meetings need to learn to admit errors, acknowledge uncertainties, and accommodate multiple realities and ambiguities. They need to know how to foster learning in a climate of trust where problem posing becomes as important as problem solving and examining one's underlying assumptions and biases becomes acceptable (Bennis and Nanus 1985). Competency acquisition in this context becomes as much or more a matter of bringing about changes in appropriate values and attitudes as in specific learning skills.

Off-Site Learning Competencies

Organizations also have a high stake in the quality of members' learning away from the work site. What is learned at home or in the community may be directly and indirectly related to job performance and job satisfaction. Such a policy as tuition reimbursement for job-related college courses is usually aimed at job performance maintenance or enhancement. However, the worker is a "whole person" with needs for learning related to self-expression, personal growth, parenting skill, renewal, and mental health—all of which relate in turn to the quality of communities in which organizations function and the long-term development of employee potential both on and off the job. Thus, helping organizational members to use the learning resources of the community also becomes a good investment.

Employees can be helped to understand the wide variety of credit and noncredit education and so-called cultural programs available through postsecondary schools, recreation centers, museums, libraries, planetaria, and the like. They can come to appreciate the value of learning exchanges, bookstores, government agencies, free universities, learning networks, and tutors as sources for acquiring and sharing new knowledge, skills, and appreciations. They can be helped to make better decisions when planning and conducting their own learning projects or paying others for services rendered to themselves or family members.

Competence in learning on the job and competence in learning off the job are obviously interrelated. The person who has come to enjoy learning and problem solving and has acquired learning management skills is positioned to build learning (and positive responses to change) into the way he or she works and uses leisure as life unfolds. Employing organizations have an opportunity and a need to foster such competence. The following section describes some specific efforts in this connection.

Enhancing Competence

We can assume that people stand to acquire zest for learning and accumulate appropriate learning-related competencies in an organization that demonstrably rewards learning, in which the leaders vigorously continue to learn, in which a climate conducive to learning is maintained, and in which a variety of resources and opportunities for learning are available. In addition, many organizations make provision for deliberate training efforts to foster competence in learning. This activity is directed toward a variety of competencies and delivered in a variety of formats.

Increasing Learner Control

Rapid change and obsolescence, expansion of knowledge bases, and rising costs of conventional education and training all combine to encourage efforts to stimulate interest in and increase the amount of learning that individuals do outside of groups and classes (so-called independent or self-directed learning). Considerable information about this kind of activity has emerged from action and research in the past two decades. Its processes are becoming understood. Key problems commonly encountered by the learner have been identified (Rymell and Newson 1981) along with many of the requisite competencies. Resources are available for assessing current disposition toward "self-directedness" (e.g., a self-directed learning readiness scale). A few tested training formats are described in the literature (Knowles 1980a; Long, forthcoming; and Smith 1982).

Sinclair and Sherman (1984) present a case study of a comprehensive management development program based on self-directed principles. The program involved 3 weeks of residential learning with peers and a staff of skilled facilitators. Those who (voluntarily) participated worked on content needs, interests, and objectives of their own choosing. Activities included large- and small-group meetings, individual consultation with staff, and individual reflection and study. A great deal of planning and action during the workshop was devoted to preparing the individual to learn with a self-directed approach and to staff and peer support for efforts to do so. Learning how to learn was a stated major goal. Very positive overall evaluation by the participating managers was reported. It is worth noting that the successful implementation of the design was largely credited to the "appropriateness" of the workshop staff.

Smith (1982) describes a four-module (12 contact hours) workshop designed as an introduction to self-directed learning. A variety of resources and activities are used, including lecture, written reports, process exercises, reading, the planning and implementing (between sessions) of individual learning projects, and consultation by the trainer. A similar training design is described by Knowles (1980a), one he reports using to help implement long-term supervisory or management development programs. Knowles' *Self-Directed Learning* (1975) is a popular resource for enhancing self-directedness with many useful exercises. Knowles (1987) places considerable emphasis on the usefulness of learning contracts and of peers and support groups in supporting efforts to learn and learn to learn better in this fashion.

The competencies that these kinds of training efforts are designed to foster include planning skills (need identification, objectives clarification, identifying resources), skills for conducting the learning activities (using a resource person or a learning center, obtaining useful feedback), and evaluation skill (identifying criteria, obtaining evidence). Participants are encouraged to place more value on what they have learned independently, to broaden their awareness of resources, and to be able to distinguish when alternative approaches to learning might be preferable. Knowles (1980a) states that self-directed learning by managers is especially appropriate in relation to performance that involves judgment, insight, creativity, problem solving and self-confidence. Other workplace learning competencies mentioned in the literature include establishing a useful personal learning environment at work and at home (Schoen 1983) and negotiating skills that enable people to legitimize self-directed learning, receive rewards for it, and obtain needed expertise within the organization (Cheren 1983 and contributions to Smith, forthcoming).

Improving Group Functioning

The organization member who takes part in collaborative learning and problem solving on or off the job typically lacks some of the process skills for such activity. At the least a brief refresher is often in order. The broad goals of this kind of activity include understanding of certain concepts: teamwork, group norms, feedback, leadership, participation, consensus. Also included is instilling or sharpening appropriate group member skills. The latter include active listening, staying on task, supporting others, asking useful questions, giving and receiving feedback. Formats are usually based on practice sessions with trainer-led critiques and exercises focused on a specific understanding or skill (e.g., the power of the group in problem solving, how to listen for understanding). The literature and quantity of training material available for this kind of activity is far more extensive than for self-directed learning (Smith 1982, 1983).

Organizations in which formal groups (committees, quality circles, teams, and so forth) are important structural elements obviously have much to gain by improving member performance. Many provide training for increased competence. (Most in the quality circle movement would include this kind of development activity as part of the definition of a "true" quality circle.)

To the extent that it can be assumed to transfer, such training also better equips the organizational member to gain from and contribute to collaborative learning when away from work—for example, in college, in the service agency, or in a study group. What about improving people's competence to take part in the interactions of a highly informal nature that lie at the heart of work organizations? Are such interventions appropriate and feasible? Here the matter becomes less clear cut.

Earlier in this chapter, in connection with the centrality of problem solving in workplace learning, reference was made to ad hoc groups called into being for brief periods of time when decisions have to be made and new conditions confronted. Even briefer episodes take place almost continually as people interact. Merrell (1979) refers to some of these processes as huddling. He claims that huddling is usually responsible for accomplishing the most significant work in organizations. Huddling is defined as a "temporary, intimate, work-oriented encounter between two or more people." It is subtle and unobtrusive, a "fragile social web" with clear, efficient, results-oriented communication in which authority comes from assertiveness (pp. 6-9).

Merrell includes suggestions for improving huddling processes and becoming proficient: understand the history and environment of the organization and the network of informal relationships that exist, avoid being standoffish, get out among people, fit in, don't overrely on the telephone, don't waste people's time, use appropriate vocabulary. Other matters treated include suggestions to managers who wish to encourage huddling and overcome or avoid some attendant problems.

Huddling constitutes a potentially useful resource for anyone seeking to experiment with deliberate enhancement of proficiencies related to informal interactions in the workplace. However, a plausible case can be made for the possibility that direct, deliberate interventions into these processes should be avoided—that high quality in these "fragile social webs" stands best to be fostered indirectly, perhaps by careful hiring and orientation, enlightened educational policies, sound leadership in a climate that fosters individual growth on and off the job, and effective functioning in the formal and more visible groups established to accomplish the organization's purposes.

Enhancing Study Skills

Much workplace education, especially that which is technical in nature, calls for the individual to take in new information, to relate it to previously acquired information, and to retain and apply it. This requires employing a complex set of internal cognitive processes and personal strategies. Effectiveness and efficiency are aided by careful educational design and appropriate delivery together with what is variously labeled study skills training, preparation to receive information, instruction in metacognition, learning strategy pretraining, and teaching people how to think. This kind of training seeks improvement in information processing, concentration, comprehension, retention, and application. Training is often tied to a particular educational event, for example, better notetaking and "exam-taking" when a course involves lectures and tests. Advocates of this kind of training see it as a way to maximize the results of educational programs, reduce learning-related stress, and enhance people's skills and confidence for further learning (Albrecht 1981; Carlisle 1985; Diekhoff 1982; McIntyre 1982).

A comprehensive and apparently well-evaluated case example of training along these lines is provided by Carlisle (1985). A 6-month educational program for entry-level technicians at a nuclear power station was designed. The first phase of the program consisted of a 4-day study skills course (32 contact hours). The use of study skills was also "encouraged and evaluated" as the program unfolded.

The information presented to trainees included the concepts of short- and long-term memory, the importance of a positive attitude toward learning and of greater self-awareness as one learns, the characteristics of effective learners (e.g., active, goal-oriented), the PREP Study System (preview, read, examine, and prompt), a notetaking system, mnemonic devices, and a series of learning strategies for prompting recall of information. Among the activities in which trainees engaged were the following: a collaborative exercise to surface people's assumptions about factors that lead to satisfactory and unsatisfactory learning (adapted from Gibbs 1981); personal goal setting and contracting to meet those goals during the course; concept mapping and other techniques for making relationships and categorizing material (e.g., forming analogues and metaphors); and practice in identifying and writing various kinds of test questions.

Other techniques are described in the literature. One is the "course completion map" that "charts the targeted rate of progress through a course as well as the actual progress." For concentrating and learning to cope with distractions, "self-coaching" statements can be useful. For example, one can exhort oneself to stay on task for another half-hour. Relaxation techniques and mental imagery strategies can be taught for self-motivation and improving concentration. Trainees are taught to begin a session by picturing themselves studying and learning successfully. Reading for comprehension can be fostered by assisting the individual to think clearly about purposes for reading, understand different approaches to reading, and employ flexibly such techniques as scanning, rereading, and paraphrasing (Diekhoff 1982).

The literature on thinking and fostering the ability to think is vast. Albrecht (1981) provides a good overview of the subject from a learning-to-learn orientation as he speaks of increasing classroom brainpower. He includes suggestions for designing training activities and suggestions for further inquiry. Finally, he moves in the direction of a largely unexplored area, the deliberate enhancement of competence in double-loop or innovative learning. He envisions using a training program on thinking as a part of some larger program aimed at a specific need:

Suppose we find, for example, that our managers want to foster innovation among their employees but don't seem to know quite how to go about it. We might introduce them to the competence category of idea production and teach them skills under this category which they could then teach to their employees. We might focus especially on teaching the managers to use cognitive skills of suspended judgment and divergent thinking as they listen to suggestions, concerns, and new ideas from their employees. This will probably improve the communication process and encourage staff members to generate more new ideas as they see their efforts affirmed and rewarded. (p. 42)

Conclusion

The workplace is potentially as central to lifelong learning as schools, colleges, and other educational providers. Organizational climate, purpose, structure, and policies affect workplace learning. Some specific competencies are especially useful for workplace learning. They derive from the nature of organizational learning, the centrality of problem solving, the emphasis on immediate application of what is learned, and the interrelatedness of on- and off-job learning. A growing number of organizations find it useful to identify and foster these competencies deliberately. A relevant body of information and experience is emerging for those who undertake this important responsibility and challenge.

SOME IMPLICATIONS

Sylvia Downs has suggested that learning blockages, categories of learning, and error making are essential in any effort to enhance workplace learning competence. She has shown convincingly that the same procedures can be applied in the schoolroom and the workroom.

Howard Barrows has shown us the importance of learning how people reason and learn most effectively in the performance of their work roles. He has given us a powerful process for preparing people for or enhancing their workrelated reasoning and learning activities.

Mark Cheren has attempted to show how the enhancement of learning management skills can be built into every aspect of the training and development routine. New terms and new models have been called for, with learning management and situational learning proposed as possible entrants to such a field.

Robert Smith has described some of the rich complexity of organizational life as it bears on learning within the organization. He has given us a large agenda for the years ahead, pointing both to areas we need to understand better and the impressive range of skills we need to help people develop.

Overall, many things begin to emerge as obviously important, useful, and easy to include, once one decides that the development of learning management competence is a high priority for the workplace and for students preparing for the workplace. We want and need staff in today's organizations to get precisely what they need from formal education and training offerings, to be willing and able to learn on their own, to learn from each other, and to go out and raid the world for what they need to learn in order to bring the results of such efforts to every aspect of the organization's functioning through aggressive and creative applications. We need workers to be active, reflective, and self-reflexive practitioners and learners. Building the enhancement of learning management competence into every aspect of education and training may help to bring this about.

APPENDIX

A WORKING DEFINITION FOR SELF-DIRECTED LEARNING

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There seems to be considerable confusion about what *self-directed learning* is or is not in the recurring discussions of the Educational Policies Advisory Committee of the Southern Illinois University School of Medicine. As a term, self-directed learning implies that the student has the responsibility to determine what he or she needs to learn and how he or she will learn it. It is in contrast to teacher-directed learning, the more characteristic type of learning in medical school, where the teacher determines what the student should learn and what resources should be used (modules, textbooks, assigned readings, lectures). This is a working definition that describes the components of self-directed learning.

1. When the student is working with a task, perplexing situation, or problem (usually one that has been assigned), the first component in self-directed learning that should occur is the ability to sense how well he or she is equipped to understand and carry out what has to be done, and how well he or she is doing. The student should recognize if he or she has the knowledge and skills needed for the task. Without sensitive and well-developed *self-assessment* skills, there will not be the awareness and the motivation that is needed to carry out self-directed learning.

2. The next component is the student's ability to define clearly what further learning is needed, that is, what new information, skills, or experiences are needed to understand and deal with the task, situation, or problem at hand. This can be called the *definition of learning issues*.

3. Following this, the student should be able to determine the most effective learning resources for satisfying the defined learning needs. There are a wide range of resources to be considered, such as faculty, experts, peers, easily available texts or references, library resources including automated information resources, audiovisual resources, courses, visits, and so on. The student needs to be able to determine the most effective, efficient, and feasible resource. This component is *resource identification*.

4. Concomitant with the previous component must be the ability to assess the value, contemporaneousness, credibility, and accuracy of information acquired from whatever resource is chosen. An important aspect of this ability is the assessment of the design and conclusions of reported research results. This component, the *resource critique*, should be applied to all resources, printed, or automated, and the comments of colleagues and faculty.

5. The student should also have a *personal reference system* that allows him or her to store newly acquired information in a way that allows it to be retrieved again when needed.

6. The final component of self-directed learning is the ability to apply newly acquired information back to the task, perplexing situation, or problem that stimulated its need. It is not enough just to know new facts—they have to be used.

Self-directed learning is not learning directed by the teacher that may require that students carry out the assigned readings on their own time. This is also teacher-directed learning. Self-directed learning implies that students have determined on their own what needs to be learned and how to learn it to accomplish a task, handle a situation, or solve a problem that has been assigned by the teacher.

Self-directed learning teaches students survival skills for their careers as physicians, where it will be necessary continually to update their knowledge and skills to handle new, unique, and unanticipated problems in their practices and to keep contemporary in their chosen field of medicine. Faculty will not always be around them to provide what is needed to learn. With self-directed learning built into the curriculum, students can learn to develop these component skills in an efficient and effective manner under the guidance of faculty.

Self-directed learning implies a continuing behavior that is expected of the student in future work in the practice of medicine. We want the student to be aware of personal inadequacies in dealing with a patient problem when in practice and to be able quickly and effectively to gain the facts or skills needed. We want to be sure the physician then applies that new learning in his or her patient work.

Any educational method developed to teach self-directed learning needs to address all the components outlined for self-directed learning. The method also needs to require the student to develop self-directed learning as a recurrent habit in his or her daily educational work. The occasional assignment of a topic to be researched in the library does not fully address self-directed learning.

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