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ABSTRACT
        This document contains three papers on informal learning and
human resource development. "Workplace Learning Reviewed: Confronting the
Rhetoric with Empirical Research" (Rob F. Poell, Ferd J. Van der Krogt)
discusses the considerable discrepancy between theory on workplace learning
and actual workplace learning-related developments in organizations. It is
argued that research can contribute to reducing the distance between theory
and practice by documenting ways managers and workers can deal with the
diversity of views and interests in organizing multiple learning programs. "A
Study of Informal Learning in the Context of Decision-Making" (Andy R.
Walker, Victoria J. Marsick) reports on a case study of managers at the
divisional headquarters of a European pharmaceutical company. The study
examined how managers acquire informal learning while they are involved in
making decisions. "Learning Beliefs and Strategies of Female Entrepreneurs:
The Importance of Relational Context in Informal and Incidental Learning" (H.
Elizabeth Coyle, Andrea D. Ellinger) presents the findings of a small pilot
study of the informal ways in which female entrepreneurs learn when they
initiate their business ventures. The study demonstrated that female
entrepreneurs use learning strategies consistent with the research base on
informal learning and that relational context is very important to their
informal learning. Two papers include substantial bibliographies. (MN)

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Workplace Learning Reviewed: Confronting the Rhetoric with Empirical Research

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There is considerable discrepancy between theory on workplace learning on the one hand, and views and actual developments in organizations on the other hand. Theories and concepts in this area seem quite remote from the needs of managers and workers. Research can contribute to reducing the distance between theory and practice if it provides indications about the ways in which actors can deal with the diversity of views and interests in organizing multiple learning programs.

Keywords: Workplace Learning, Organizations, Training

An abundance of ideas is launched about learning and training of workers in organizations. There appears to be a large discrepancy, however, between the 'stubborn' reality in HRD practice and current theories about learning, training, and organizing. Descriptive and explorative research into HRD practice more than once concludes that training and intentional learning occur rather infrequently. Learning and development processes happen less systematically and less consciously than assumed. There is also evidence that learning opportunities are divided rather unequally across the workforce, with managers enjoying relatively privileged positions. Newer ideas about learning in the workplace are not as widespread as some theorists would like. Dankbaar's (2000) research into the characteristics of organizations and their human-capital policies provides telling illustrations of these discrepancies. He investigated a number of working hypotheses, which were based on a thorough examination of theory and literature. His conclusion, however, is that empirical research cannot confirm most of these theoretical expectations.

Problem Statement: Issues around Work and Learning Programs

The discrepancy between HRD theory and practice is manifest in a large number of issues. This paper will confront some of the prevailing theories and ideas about learning in organizations with the growing body of empirical research in that field. The review centers on topics that are relevant to the relationship between work and learning programs.

Theorists, policy makers, and HRD professionals pay increasing attention to workplace learning. Managers and workers in organizations, however, do not seem to take great interest in that topic. To them, learning often equals course-based training. Moreover, it is quite difficult to explain the exact relevance of learning to important organizational issues (e.g., quality, innovation, motivation, stress). Not only does training receive more attention in organizations than workplace learning does, the systematic integration of work and learning programs is not more than a remote perspective to many companies.

Theory places high demands on learning. It is not just about changes in knowledge and skills, but should also comprise reflection on underlying norms and values (Wenger, 1998; Wildemeersch, 1998). Organizational actors hold many different views on learning, most of which are far less profound (Bolhuis, 2000). This large variety is hardly reflected in the literature, however.

A third topic that is discussed extensively is the urge to increasingly organize work and learning in groups (e.g., Senge, 1990; Watkins and Marsick, 1993; Wenger and Snyder, 2000). Although these ideas are usually supported verbally, not many organizations are actually living up to them (Dankbaar, 2000). Moreover, many companies experience contrary tendencies. For instance, the commercial services sector is increasingly characterized by individualization, while the health care sector rather seems prone to standardization. Developments in work, organization, and learning are more varied than expressed in the HRD literature.

The last issue concerns the different views and interests that actors hold in organizational change and learning processes. This multiplicity is often considered to cause these processes to run less successfully. Subsequent interventions are aimed at bringing all actors in line. The question is justified, however, whether this is a realistic option in view of organizational complexity. Would it not be more worthwhile to look for strategies that take into

account the actual multiplicity?We refrain from arguing here that the advocated developments are not worth striving for. We do observe that these theoretical ideas are far from organizational reality, which makes their realization considerably more difficult.

The purpose of this paper is to outline a perspective for theory building and research that reduces the discrepancy between theory and practice. Of course there will always be a gap between theoretical ideas and practical realization, but currently the gap is definitely too wide.

The first part of this paper explores the available empirical research into the relationship between work and learning programs. After that, the possibilities offered by an actor-network approach are presented through a brief outline of its core ideas. To conclude, four crucial research themes will be put forward based on the idea of multiple learning programs. *(Note from the authors: Space constraints force us to present our literature review with only our key references. A fully referenced paper will be distributed at the paper session for those interested.)*

What do we know? Empirical Research into Work and Learning Programs

Recent years have seen an increasing amount of empirical research into corporate learning. We should like to bring forward four central topics from this research.

1. Tuning learning programs to the work and to the organization. This is a key topic in improving the quality of learning programs.
2. Work and learning in groups. This theme has become very popular for its perceived advantages in terms of results. Groups are often viewed as a good context for the integration of learning and work.
3. Learning programs in different work contexts. This topic is rather under-researched as yet, but may provide important clues for quality improvement of learning programs.
4. Views and perceptions of actors. This is a well-researched theme, although a broadening of its scope may be necessary for learning-program quality to improve.

In summary, these particular four topics were selected because they allow us to show that complete integration of learning and work is far more complicated in practice than is usually assumed in theory and, moreover, not always desirable in its pre-occupation with only one possible organizational form.

Tuning Learning Programs to the Work and to the Organization. The literature about the design of learning programs focuses strongly on procedures to tune the curriculum to problems and developments in the organization (Kessels, 1993; Bergenhenegouwen, Mooijman, and Tillema, 1998). Especially studies into the effectiveness of training in organizations pay a lot of attention to optimizing design instruments. For example, they emphasize conducting needs and task analyses, specifying learning goals, instructing trainers and coaches, and constructing evaluation instruments. Applying these instruments leads to a well structured and logically consistent design approach (Kessels, 1993). Many studies aim to further develop these methods and the underlying theories.

Empirical research shows that these methods are not used frequently in practice (Wognum, 1999). This is hardly surprising, since a great deal of implementation research has repeatedly indicated vast discrepancies between plans and practice as well. Moreover, the application of these methods does not contribute much to explaining training effectiveness (Kessels, 1993; Wognum, 1999; Van der Klink, 1999). Empirical research can find only modest support for the supposed impact of applying procedures and methods on the realization of learning effects.

Work and Learning in Groups. Groups and work teams have always been considered as contexts for employee development in literature on organizational development (French and Bell, 1995; Van der Zee, 1997; Brown and Keep, 1999). Over the last decade this topic has also become an object of concern in literature on the learning organization. Work is increasingly expected to be organized in teams. Furthermore, groups and work teams are increasingly considered to be strong learning environments (Watkins and Marsick, 1993; Tjepkema, Kessels, and Smit, 1999).

However, groups and teams as organizational forms turn out to be less prevalent in practice then predicted (Benders, 1999; Dankbaar, 2000). Moreover, empirical research provides little evidence for the high expectations concerning their performance, opportunities for participation, member satisfaction and motivation (Boot and Reynolds, 1997; Poutsma, 1998; Russ-Eft, Preskill, and Sleezer, 1997).

Primary production teams have not yet been well researched empirically (Hendry, 1996). There is more research about management teams (e.g., Burgoyne and Reynolds, 1997), interdisciplinary teams (e.g., Cooley, 1994), and temporary project groups or task forces. So far, however, empirical results sustaining the alleged learning potential of group work are scarce (Van Klaveren and Tom, 1995; Hoogerwerf, 1998; Van der Krogt, Vermulst, and Kerkhof, 1997; Willis and Boverie, 1998).

Learning Programs in Different Work Contexts. Two research traditions can be distinguished that deal with learning in different work contexts. The first one originates from a critique of the tayloristic organization. Other ways to organize work are sought, based on socio-technical design and semi-autonomous work teams. An important consideration is the limited learning potential of tayloristic organizations. Team work with relative autonomy is thought to offer considerably more learning opportunities. The second research tradition is concerned with knowledge work and knowledge-intensive organizations. The discussion here focuses on learning by well-educated workers, usually referred to as professionals. The core question is how to encourage these professionals to learn and make better use of their knowledge in organizational processes (e.g., Weggeman, 1997; Brugman, 1999). Interestingly, these two research traditions remain almost completely separated. It is still possible, however, to conclude that learning programs clearly differ from one work context to the other.

Few studies compare learning in different work contexts directly. Poell (1998) and Van der Krogt and Warmerdam (1997) found different learning practices to be related to different work contexts. Some research comparing tayloristic work vs. task groups shows different learning processes are associated with different work types (Davidson and Svedin, 1999; Onstenk, 1997; Agnew, Forrester, Hassard, and Procter, 1997). Comparing a range of single studies about learning programs in various occupations allows for the conclusion that they can be different (Warmerdam and Van den Berg, 1992; Feijen, 1993; Warmerdam, 1993; Verdonck, 1993; Osterman, 1995; Liebeskind, Oliver, Zucker, and Brewer, 1996; Dhondt, 1996; Onstenk, 1997; Filius and De Jong, 1998; Eraut, Alderton, Cole, and Senker, 1998; Grünewald, Moraal, Draus, Weiss, and Gnahs, 1998; Brugman, 1999; Kwakman, 1999; Whitfield, 2000).

Views and Perceptions of Actors. Recent empirical research tends to attach more importance to actor perceptions as an explanation for learning program effectiveness (Straka, 1999; Kwakman, 1999).

Wognum (1999) conducted an empirical study of 44 learning programs. She concluded that people's judgement about organizational alignment of an HRD intervention affected learning program effectiveness more profoundly than the actual alignment. Perceived alignment and perceived effectiveness were related, but actual alignment had little impact on effectiveness judgements.

Van der Klink (1999) studied the effectiveness of workplace training empirically. He found that training effectiveness is influenced much more by trainee characteristics than by the training itself. Trainee aptitude, experience, and motivation had the biggest impact on training effectiveness. Organizational characteristics, such as the behavior of managers and colleagues, were less influential. The characteristics of the training itself were found to have the least impact on effectiveness. Kwakman (1999) drew similar conclusions.

In his study of curriculum design strategies, Kessels (1993) pays a lot of attention to involving the various participants in the design and implementation of learning programs. He emphasizes the importance of realizing external curriculum consistency in order for learning programs to be effective. In other words, a learning program is more effective if managers, program designers, trainers and trainees share common opinions about its goals, strategies, and implementation.

Elements of a Conceptual Framework for Further Research

This review of empirical research shows some clear tendencies. The methods applied by training professionals do not contribute much to tuning learning programs to work, nor do they explain much of the variance in training effectiveness. Although most of the research in this domain focuses on the training professional, their actual impact turns out to be modest (certainly compared to the influence workers can exert in learning processes). An approach assuming that learning programs are organized by a network of actors, including training professionals and other actors, seems fruitful (Kessels, 1993; Van der Krogt, 1998).

Furthermore, there is little evidence to suggest that the organization of learning and work in groups is actually on the rise. The idea is supported, however, that social aspects of work are relevant to learning-program creation. There turns out to be a wide variety of social relations in organizing work and learning processes. Although individual learning and work frequently occur in contexts with other people, 'real' group work (cf. R&D teams) seems to be a highly demanding organizational form that is hard to realize for many companies (Poutsma, 1998). The diversity of relations among people in work configurations deserves more attention in further research, also in connection with learning-program creation.

In the same vein, the organization of work itself shows great diversity. One of the tendencies is increasing collaboration of workers, but developments towards individualization and standardization are also discernible (Den Boer and Hövels, 1999; Dankbaar, 2000). It could be worthwhile as well for further research to look into the significance of professions and craftsmanship in organizing work and production processes (Geurts and Hövels, 1994). There is a wide variety of developments in organizations, which should be examined in further research. Not all

organizations experience the same tendencies, for instance, the integration of learning and work, to the same degree (Dankbaar, 2000).

Although some empirical evidence suggests that different learning programs exist in different work contexts, the relationship between work type and learning programs is still ambiguous. Other factors also explain which learning programs are organized in different work types, for instance, the views and perceptions of actors. In short, the relationship is a highly ambiguous and complex one (Di Bella, Nevis, and Gould, 1996; Davidson and Svedin, 1999), deserving of further research.

Several elements of a conceptual framework for further research into the relationship between work and learning programs have thus been encountered. Other than instrumental approaches to study learning in work organizations are needed (cf. Kessels, 1996; Brown and Keep, 1999; Ellström, 1999; Koot and Verweel, 1999). Further integration of learning and work is one option, but other ways to tune learning to work should be allowed for as well. Organizational reality is too complex to be inspired by one single ideal. HRD professionals, managers, and workers all have their own ideas and interests. The way in which they organize their interactions when they create learning programs depends upon their particular organizational context. The actor-network approach that we would like to present next can be used as a framework for further research that allows for such diversity.

A Brief Outline of the Actor-Network Approach. The learning-network theory places great emphasis on networks of actors, who create learning groups and learning programs with each other (Van der Krogt, 1998; Poell, Chivers, Van der Krogt, and Wildemeersch, 2000). Relevant actors are workers, managers, HRD professionals, trade unions, workers' associations, external training providers, and so forth. These actors can organize learning-program creation in very different ways. It is a process that takes place in the context of the organization. Over the course of time, various worker training and learning activities have been conducted, thus gradually developing into a learning structure. Every organization can be characterized by a content and organizational structure, material learning conditions, and a learning climate. This learning structure provides the starting point for actors to undertake new learning activities. They form a learning group together and carry out activities to create a learning program.

Learning Programs in Contexts: Similarities and Discrepancies. Four types of context are distinguished in the actor-network approach, namely four types of work and four corresponding learning structures. Furthermore, four types of learning program are distinguished, that is, four different ways for actors to create a learning group and program. The relationships between contexts (work and learning structure) and learning programs is summarized in the matrix presented in Figure 1.

Contexts (Work and Learning Structure)	Learning Programs			
	Contractual, Individually oriented	Regulated, Task oriented	Organic, Problem oriented	Innovative, Methodically oriented
Individual work, Liberal learning structure	X			
Task work, Vertical learning structure		X		
Group work, Horizontal learning structure			X	
Professional work, External learning structure				X

Figure 1. Similarities and Discrepancies between Learning Programs and Contexts (Poell and Van der Krogt, 2000a)

Contexts are listed in vertical order, learning programs in horizontal order. The x-marks on the diagonal indicate the learning programs that correspond, theoretically at least, with their context. In these learning programs actors act according to the context. The unmarked combinations off the diagonal refer to discrepancies, that is, learning programs exhibiting characteristics that do not correspond with their context. Learning groups produce their own dynamics, because actors develop their own action patterns together. Thus learning groups and programs come into being that are specific to this set of actors and exhibit discrepancies with the context.

Multiple Learning Programs. This actor-network approach shows how similarities as well as discrepancies between work and learning programs can be expected. Work is influential, but especially actors can individually and

collectively leave their mark on learning programs. Learning actors give their own (joint) specific interpretation to work and learning structures. Moreover, the context is not all-determining and leaves room for the actors to act according to their own views and interests.

This complicated nature of the relationship between work and learning programs can be expressed in the basic assumption that learning programs in organizations have a multiple character. Learning programs are a reflection both of the context (including the work) and of the learning group (the specific set of actors). Furthermore, learning programs are partly a reflection of each of the actors, who have made their own specific contribution to creating the learning program. To summarize, three factors influence the content and organization of learning programs:

1. The context of work and learning structure, and their perception and interpretation by the actors.
2. The creation process by the learning group, producing the specific character of the actor configuration.
3. The views, opinions, and interests of the separate actors.

The model presented in Figure 2 relates these factors to each other. A more elaborate account of the actor-network approach is provided in Poell and Van der Krogt (2000a).
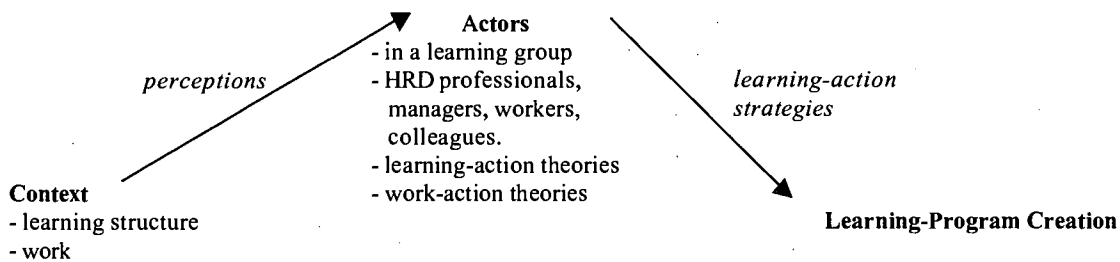

Actors
- in a learning group
- HRD professionals, managers, workers, colleagues.
- learning-action theories
- work-action theories

perceptions

learning-action strategies

Context
- learning structure
- work

Learning-Program Creation

Figure 2. Learning-Program Creation by a lLarning Group of Actors in their Context

Topics for Further Research into Multiple Learning Programs

Further research into work and learning programs from an actor-network approach should emphasize the following four topics:

1. *Actors:* research into the diversity of learning-action theories and strategies of various actors.
2. *Learning programs:* comparative research into the content and organization of learning programs.
3. *Contexts of learning programs:* research into learning programs in different contexts of work and learning structure.
4. *Research strategies:* action research and field experiments.

Empirical research along these lines will make it easier to bridge the gap between theory and practice concerning work and learning programs.

Learning-Action Theories and Strategies of Actors. Actors and the learning groups they create are at the core of the learning-network approach. They constitute an important factor in explaining the diversity of learning programs in organizations. How actors collaborate in a learning group is largely determined by their views, by the degree of similarity among these, and by the extent to which these change during the interaction process.

Recently, theory and practice have started paying more attention to managing diversity among actors in organizations (Glastra, 1999; Van der Zee, 1999; De Dreu, 1999). The idea is that variety is inevitable and can even be considered positive. The question is how to deal with this diversity, which is also relevant to learning-program creation.

The actor-network approach and the concept of multiple learning programs offer more room to observe inconsistency, tension, and conflict arising from learning-program creation. They also anticipate a large variety of possible learning programs. Of course there will also be consensus, but learning programs in organizations are not usually the object of complete agreement among actors.

The learning-network theory approaches actor views on the organization of learning programs as a type of action theory (cf. Van der Krogt and Vermulst, 2000). In the case of learning activities, these views are referred to as a learning-action theory. Research should focus on the differences and similarities among actors in terms of their learning-action theories, their perceptions of learning structures, and their learning-action strategies. This comprises describing the differences and similarities as well as analyzing their determinants and effects.

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Learning-Action Theories and Perceptions of Learning Structure. The first question would be in what ways actors perceive the learning structure of their organization and what dimensions they distinguish in the learning structure. Besides looking at the perception of the formal learning structure, it would be worthwhile to analyze the images that actors have of their learning opportunities in the workplace (Verdonck, 1993; Onstenk, 1997).

Research has shown clearly that managers and workers perceive the learning structure in the same organization differently (Den Boer and Hövels, 1999; Van der Krogt and Vermulst, 2000). In this connection the perceptions of HRD professionals are equally interesting, as well as how they differ from other actors' perceptions.

A related question is to what extent actor views and opinions on learning (that is, their learning-action theories) are related to their learning perceptions. It should be taken into account that managers and workers hardly think about training, let alone about learning. Nor can it be ruled out that they may be quite skeptical about the relevance of learning programs to their work.

Learning-Action Strategies. What do the various actors do in the process of learning-program creation? What differences and similarities are there between the learning activities of the various actors? How systematically do actors undertake these learning activities? To what extent can patterns be discerned in their actions, so that their activities can be regarded as learning-action strategies? (Tijmensen, in preparation).

It is entirely possible that learning activities of managers and workers show little coherence or system. HRD professionals and trainers are more likely to act according to systematic patterns when creating learning programs (Van der Krogt, Vermulst, and Ter Woerds, 1993). Furthermore, research conducted by Poell (1998) and Tijmensen (in preparation) shows that learning-action strategies of HRD professionals, managers, and workers do not usually correspond with each other.

Views and Strategies of Actors in Learning Groups. Actors form temporary collaborations (so-called learning groups) to create a learning program. An important question deals with the extent to which views and strategies of actors in the same learning group correspond. How do actors experience such differences and how do they react to these? Do they try to point out the differences and discuss them? How do differences and similarities between actors (especially their perceptions and strategies) influence the process and outcomes of learning-program creation?

Another issue is to what degree actors change their learning-action strategies over time. Do actors adjust their strategies to other actors in the learning group? Especially relevant are the changes in the strategy of the HRD professional in reaction to the strategy of workers (cf. Poell and Chivers, 1999). Is there formative evaluation during learning-program creation? Does this evaluation have an impact on the differences and similarities between the actors? Do actors adjust their perceptions and strategies on the basis of formative evaluation?

Learning-Action Theories in Relation to Work-Action Theories. Workers learn about their work. This learning an be understood as the development of work-action theories. An interesting question, then, is whether the work-action theories of actors are related to their learning-action theories and strategies. Do actors look upon the organization of work in the same way as they look upon learning-program creation, or are these subject to different principles?

Organization and Content Profile of Learning Programs. An important assumption of the learning-network theory is that learning programs can differ strongly from each other in terms of their organization and content profile. Four ideal types of learning program have been distinguished, which can be presented graphically as four corners of a three-dimensional space. Figure 3 makes it plausible, however, that many other (hybrid) types of learning program can be organized.

Learning Programs Differ along Three Dimensions. The core question here is to what extent learning programs are similar to the ideal types. In other words, where in the three-dimensional space can a specific learning program be situated? For example, is it vertical rather than liberal? What elements of the different ideal types feature most strikingly in this particular learning program?

A second question concerns the relationships between the organization of learning programs and their content profile. For instance, do learning programs that deal with different themes also have a different organizational structure? Or can a particular content profile be connected to various types of learning group?

Learning Programs in Phases. Three phases can be distinguished in learning-program creation: orientation, learning, continuation (Poell and Van der Krogt, 2000b). An interesting question is how actors phase different learning programs. Do all phases actually occur? To which phase do the participants pay the most attention?
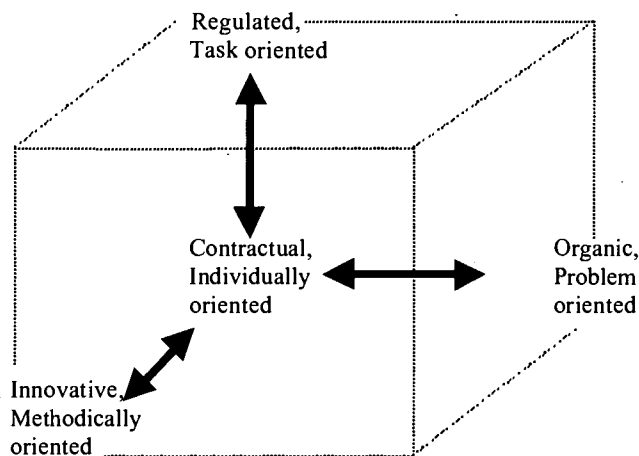
Figure 3. Various Types of Learning Program in a Three-Dimensional Space

Individual Learning Paths and Joint Learning Programs. Learning programs are created by learning groups of separate actors. The learning paths of individual participants are expected to gain momentum from participating in a joint learning program. The question, then, is to what extent joint learning programs influence individual learning paths. Also, how exactly do different types of learning program have an impact on these individual learning paths?

Learning Programs in Different Contexts. Learning programs can reflect the existing context or they can add to them. Learning programs can show similarities and discrepancies to the context in which actors create them. The matrix in Figure 1 presents the possible relationships between contexts and learning programs. The core questions here deal with the relationship between work and learning programs and with the relationship between the existing learning structure and learning programs.

Learning Programs in Different and Changing Organizations. Research in this area should tackle learning programs and learning groups in different types of occupation, including, for instance, skilled workers and professionals (Den Boer and Hövels, 1999; Kwakman, 1999; Tijmensen, in preparation). Learning-program creation supporting organizational changes is an equally interesting area of research (cf. Hoogerwerf, 1998). Especially topical are the ongoing attempts to organize work in groups, both from a socio-technical perspective and in more professional occupations (e.g., teachers, IT consultants, accountants, HRD professionals). This research could build on earlier work done on the organization of work-related learning projects (Poell, 1998).

Learning Programs in Relation to Existing Learning Structures. This research topic is concerned with the relationship between learning programs and the existing learning structure of an organization. Some work has been done to study the learning climate of an organization (Van Moorsel and Wildemeersch, 1998) or the learning potential of work (Onstenk, 1997). An interesting question could be whether, for example, centrally organized learning groups always create a controlling learning climate. And, for instance, does work with a high learning potential necessarily produce horizontal learning groups, or can it yield various types?

Action Research and Field Experiments. All topics that were mentioned can be analyzed using descriptive and explanatory research, both quantitatively and qualitatively. In order to develop strategies and methods for the various actors, field experiments and action research offer interesting opportunities (cf. Van der Krogt, 1997). The concept of multiple learning programs contains several dimensions that actors can explore to improve their learning strategies, paths, and programs. It brings ideas about adjusting learning programs both to the work context and to the specific learning group. It challenges all actors in a learning group to find a way for each of them to participate according to their own views and capabilities.

Various theoretically and empirically validated models have been developed for actor strategies in learning-program creation (Poell, Van der Krogt, and Wildemeersch, 1999; Poell and Van der Krogt, 1999; Poell and Van der

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Krogt, 2000b). Different actors, especially HRD professionals, learning workers, and managers, can use these models to gain insight into the learning strategy they tend to employ in practice. Working with the models also offers the opportunity to come to terms with the fact that various actors employ different learning strategies. Using the models as a frame of reference helps to facilitate a dialogue among learning-program participants. Furthermore, actors can use the models to think through different alternatives that are available in creating a learning program. During the course of a learning program, the models can also be used as a formative evaluation instrument. It can help actors in the learning group to figure out which options are available for the remainder of the learning program, both in terms of organizing the learning group and in determining the content profile.

Action research into this kind of field experiment enables organizations to organize their learning programs more systematically and to make their learning-action theories more explicit. At the same time, researchers (in a consulting or counseling role) can use these experiments to test the models, to further refine them, and to make them more concretely applicable. Testing is possible because actors use the theoretical models to develop better learning-action theories for themselves. Thus they develop new notions about learning-program creation and they are better able to tailor-make their own learning programs.

Especially action research seems suitable to get a grip on the phenomenon of learning-program creation, which is difficult to grasp and strongly depends on perceptions and interpretations of those concerned. At the same time, doing action research is crucial preliminary work to developing more structured and standardized diagnostic instruments and methodical support for learning-program creation. This can be done by refining the theoretical models on the basis of data collected in empirical case studies. The question remains, however, to what extent theoretical models should be made into standardized instruments (Poell, Van der Krogt and Wildemeersch, in press). If this exercise were taken too far, there could be a danger of losing sight of the crucial relationships between learning-program creation, the actors in the learning group, and the context of work and learning structure.

Summary

This paper started with the observation of considerable discrepancy between theory on the one hand, and views and developments in organizations on the other hand. The review of empirical research into workplace learning programs sustains that observation. Theories and concepts are quite remote from actual developments in companies and from the views and needs of managers and workers.

It is our belief that research into the four topics that were elaborated upon can contribute to reducing the distance between theory and practice. Multiplicity of learning programs should be a core assumption. Research should provide indications about the ways in which actors can deal with the diversity of views and interests in organizing learning programs. This should inspire them to make their own views and learning strategies more explicit and more attuned. Specific developments (e.g., towards group work or team learning) are not a priori more (or less) desirable than other possible lines of change. To conclude, multiple research strategies including action research and field experiments should be applied to produce more practically relevant knowledge.

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A Study of Informal Learning in the Context of Decision-Making

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People3

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> *The purpose of this study was to acquire greater insight into how managers acquire informal learning while they are involved in making decisions. Through better understanding of the parallel processes of thinking and action by which learning and decision-making occur, opportunities were found for the organization to better support and facilitate such learning in the future.*

Keywords: Informal Learning, Decision-Making, Experience

Problem and Purpose of Study

This case study was conducted among managers at the divisional headquarters of MedCo (pseudonym), a European based pharmaceutical company that manufactures and markets prescription drugs for pharmacies and hospitals. The market sector was changing rapidly as hospitals became units within large centralized purchasing structures. Contract and price negotiation was becoming centralized at more senior levels and companies like MedCo could expect up to thirty per cent of their business to be in question at the time of renegotiations. Profit margins and costs were increasingly squeezed to ensure that contract bids remained competitive. Simultaneously, the patent protection of some products was nearing an end. Retention of market share was dependent on innovative products, excellence in customer relations and new ways of doing business. The changing marketplace stimulated a need for a higher managerial capability to propose and implement ways of aggressively retaining market share. As a consequence, the Company judged employee ability and potential more critically while creating opportunities for those with aptitude and confidence to make fast, well founded recommendations and decisions.

Watkins (1995) has noted that there is an "increasing demand for learning at work, coupled with an emphasis on more informal, self-directed learning practices" in addition to the more formal training interventions. Volpe and Marsick (1999. p.4) define informal learning as "learning that is predominantly unstructured, experiential and noninstitutional". This study is based on the assumption that managers in today's rapidly changing organizations confront extensive opportunities for informal learning in the course of day-to-day decision making. Heirs (1986, p. 18) concluded that "the professional manager will now confront far more occasions when a right or wrong decision is crucial than were faced by a person in a similar position thirty or fifty years ago". These demands are attributed to the "accelerated rate of change" which "is bound to mean that there will be more make-or-break decisions to be made within the timeframe of one career". Heirs notes: "Paradoxically, the more pressing our immediate problems and the more rapidly the waves of crisis and change break upon us, the more we need to find the time and energy to raise our sights to look further ahead into the future" (ibid).

Heirs' description of the types of demands that managers face remains true in the new century. Wise and Morrison (2000) describe the business context. It is one in which to make "use of the internet to facilitate commerce among companies promises vast benefits: dramatically reduced costs, greater access to buyers and sellers, improved marketplace liquidity, and a whole new array of efficient and flexible transaction methods". However, the authors caution, "if the benefits are clear, the paths to achieving them are anything but." (p. 88) Although the context for managerial decision-making is constantly changing, the need for managers to make decisions by evaluating risk and projecting a future for which there is little or no historical data, remains an unresolved dilemma.

This study assumes that organizational support, through similarity of values (Klein and Sorra, 1996); alignment of role (Slappendel, 1996), and freedom to take innovative action (Watkins, Ellinger and Valentine, 1999), is conducive to effective decision-making and learning constructively from experience. It is also assumed

that decisions are based on making meaning of information, and personal and shared experience. It is through the lessons of experience and through dialogue with others that managers come to make use of information more effectively (Weick, 1995). If, as Ackoff (1978) writes, "to make a decision is to select a solution" (p. 193), the process of using information and past experience to understand a situation and create an actionable solution might be considered to parallel the process of learning.

The three research questions for the study were: (1) What strategies and activities led to informal learning as managers made and executed decisions? (2) How did the individual translate those strategies and activities into learning? (3) In what ways did the organization facilitate or impede learning? The questions allowed further research into the "pervasive theme" discovered by Marsick, Volpe and Watkins (1999) in reviewing studies of informal learning. The authors comment that in the work environment: "what appears to be most significant is how individuals in changing or challenging circumstances perceive their work context and how they subsequently decide what they need to learn and how they should go about learning in informal ways" (p. 80).

Theoretical Framework

A literature review was conducted to provide direction and a conceptual framework for the study. The areas examined were decision-making theory, informal learning theory and strategies, self-directed learning, and gender difference in learning. Others have researched informal learning (Zemke, 1985; McCall, Lombardo and Morrison, 1988) but none examined how middle managers learn through on-the-job decision-making.

The theoretical framework drew from models of decision making, learning from experience, and change processes. The literature profiles six "schools" of decision making: optimizing (e.g. Kepner and Tregoe, 1981), satisficing (e.g. Simon, 1965), incrementalism (e.g. Lindblom, 1959), intuition (e.g. Mintzberg, 1994), chaos (e.g. Wheatley, 1992), and phenomenology (e.g. Sloan, 1996). The classical school depicts decision-making in terms of an informed rational selection process. Satisficing offers a degree of rational pragmatism, accepting that there are limitations of resources, particularly time, to be deployed on the process and accessability to information. Incrementalism, while remaining a rational process, acknowledges the need for emotional security by offering additional opportunities for pragmatism. Commitment is only made to the extent necessary to take action, creating the option of determining next steps on seeing the outcome of a first stage. Intuition further acknowledges the need for emotional comfort by allowing emotional gut feel into the decision making process, attributing quality of decision-making to a complex multiplicity of past experiences and values that may not be open to rational consideration but which provide an emotional driving force for action. Chaos replaces mechanistic human determinism as the thrust for decision-making with an understanding of natural forces which will predetermine the likely success of different potential outcomes. Phenomenology relies on emotional and values-based criteria for selecting a course of action that meets the needs of the situation.

Decision-making, by virtue of its action-orientation, provides the opportunity for creating experiences that lead to informal learning. All find experience, planned or unplanned, action or interaction, to be the source of learning. Mumford (1993) suggests that work provides the experience from which learning is acquired. Kolb (1984) and Cell (1984) describe a cyclical process of learning through reflection. Mezirow (1990) also recognizes reflection as integral to learning but is more open to planning, action and reflection occurring simultaneously rather than in a linear cycle. In his view, it is through critical reflection, the questioning of assumptions, that new meaning is generated. All see learning as related to action. Cell emphasizes changes in beliefs as the outcome of learning whereas Mezirow and Mumford view action as the direct outcome of learning. Kolb includes in his definition of action, testing, or taking action in order to find out what happens and therefore in order to learn.

The Boud and Walker (1993) model of learning through reflective experience provides a basis for the range of types of learning found in the literature. The model acknowledges the non-linear iterative nature of the learning process and the importance of context as a trigger for and an influence on the nature of an experience. The key components of the model are noticing an instigator or trigger for action, arising from a gap between the desired state and current state. As preparation is made to take action, experience begins to occur through taking analysis of the milieu, past experience and knowledge of the learner, and skills and learning strategies that help assess and respond to a situational trigger.

During the experience, the learner is aware of a gap between expectations and actual occurrence. By noticing, the opportunity arises for intervention, taking action to remedy the gap, and at the same time, reflection occurs on how well the intervention working and if not, personal experience and skills are drawn upon to react and, if appropriate, redesign. After action has been taken, reflection occurs in the form of recalling the experience, making a

post-experience reevaluation with the benefit of insights into the outcome, and a review of both rational and emotional responses.

The Boud and Walker (1993) model provided a conceptual framework from which analytic categories were identified to assist with coding. Such key words were listed as "preparation", "data gathering", "prior experience", "experience", "reflection in action", and "critical reflection". These key words were integrated into a list of coding categories.

Methodology

The research design was a case study using qualitative data collected by interviewing a sample of managers at MedCo about critical incidents related to decision making and learning. Documents were also examined.

The sample of 26 was selected from among the 48 corporate senior management and their direct reports who were considered "satisfactory performers." For the 48, performance evaluation data were examined. It was assumed that satisfactory performers were more likely to be able to demonstrate success or achievement from learning that could be useful for sharing with others. As far as is possible in a predominantly white male environment of 40 to 45 year old managers, a mix of people of different gender (7 women, 19 men), age (between 32 and 53) and race (23 Caucasian, 2 African Americans and 1 Asian Pacific) were selected. The management sample consisted of either managerial professionals, qualified to Ph.D. or Masters degree standard, or managers who had learned their expertise on the job. The final sample comprised members of all the departments of the U.S. commercial headquarters: Communications, Finance, Marketing and Sales, Quality and Regulatory Affairs, Human Resources, Facilities, Information Technology and Logistics. The selected research candidates were then approached and asked if they would be willing to participate and all said they would. A letter was sent to each describing the process, and the terms of confidentiality including recourse to the university sponsor in an agreement form which each duly signed.

Managers were asked to identify critical incidents, that is, key decisions in which they had been involved and to discuss what learning they drew upon in making those decisions. Then they were asked to reflect on the decision and determine what they learned from making and possibly implementing the decision. This process provided a context for examining people's learning experiences (a decision they made), sources and strategies for learning (formal and informal), and reflection on the situation to consolidate learning to date.

The design originally included a separate critical incident questionnaire, but limited data collected in this way in the first two interviews prompted the researcher to incorporate the critical incidents into the interviews. Partially structured interviews were conducted at the headquarters location. Pilot interviews were first conducted at the same facility with members of a contracted facilities group in order to field test the research instruments. Interviews were taped for transcription and notes taken to identify contextual factors, body language, and other aspects not covered in the interview; on completion the tapes were transcribed and the transcripts provided the basis for analysis.

Data collected from the interviews were transcribed and reviewed to explore issues relating to learning that impacts decision making and learning arising from critical reflection on the decision making process. A coding process was developed to analyze transcripts. Themes were identified in the first round of analysis, including the two areas of coding which were anticipated: types of learning outcomes and methods of acquiring learning. These themes were broken down further against the categories determined in the literature along with the emerging themes and issues. Units of data consisted of one or more sentences taken from a data source, primarily the interview transcripts. The appropriate labeling codes, words or phrases, were placed in the margin of the document to indicate a relevant unit of data.

Interviewee responses, drawn from transcripts or critical incident responses, were inserted into an electronic index and then a search was conducted to identify the range of responses around a particular theme. Further analysis was conducted to determine whether there were similar responses according to other criteria, such as gender or decision type.

The data were synthesized by comparing and contrasting the data sources. The researcher sought to interpret the findings, in relation to the expectations suggested by the literature and according to trends manifested through the analysis. To synthesize, it was necessary to organize the data to reflect themes and patterns. For organizational purposes, each of the categories was sorted within the themes defined in the literature and transferred to a matrix or continuum, the most relevant of which are included in the interpretations chapter of this study. With the completion of the matrix or continuum, conclusions could be formulated and recommendations developed for current practice at MedCo for creating learning opportunities which may improve decision making, and for future research.

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Findings

Fifty-one critical incidents were gathered through interviews with twenty-six participants. In all of the narratives, the decision made by the individual was related to elements of the milieu or organizational context. His or her stated intention was uniformly to make a decision or get a result. Learning was generally a subconscious process that occurred in parallel. Learning involved a combination of affect, values and cognitive thinking.:

Eleven of the critical incidents examined reorganization decisions. Seven critical incidents examined the selection of a vendor through comparison with other vendors or in-house resources. Six of the critical incidents told of employee retention or termination decisions. Other decisions included personal career choices, cost cutting exercises, product launches, introductions of management information systems, pricing and other offerings to customers, and mergers and alliances. The "vendor selection" type of decision involved primarily cognitive and rational thinking on behalf of the proponent of the decision, but some challenging of others' paradigms to encourage them to let go of what seemed intuitively accurate. An example was one manager's decision to add employees to her facilities department, despite pressure from the organization to reduce numbers. Her rationale was that she could reduce costs and improve service standards. Through a substantive preparation process which included attending a national conference on the subject of outsourcing, she came to understand that senior management was only supportive of outsourcing because of an assumption that it was less costly than directly employing people. By contrast, practitioners in facilities management had little to say in favor of it. The manager gained the confidence to make the change from outsourcing to adding internal headcount and justified it by reducing cost and improving responsiveness. Like seventeen other participants, she demonstrated a preparation process that was reminiscent of the autonomous, goal-driven self-directed learner. By networking with others in facilities management, she had gathered supporting data that enabled her to question the assumptions that had led to outsourcing and make a persuasive case for change. Throughout the process, she reflected critically on the organization's position and by doing so, she was able to think creatively about other options, building for herself the case that she would use to sway a biased senior management perspective.

Seventeen decisions were more personal and autonomous, rather than organizational in nature. These included personal career choices, and recruitment and termination of employees. Three decisions were to terminate a subordinate and, in contrast with policy decisions, there was little intentional learning in preparation for the decision. In another two decisions, the task was to reverse the decision made by the immediate manager's boss to promote individuals beyond their level of competence. This left the immediate bosses with the chore of attempting to make a decision, to which they did not agree, successful while also trying to have the decision reversed.

Such decisions were clearly beyond the scope of rational thinking. Respect, fairness and "what if it were me?" considerations caused reevaluation before and after making the decisions. There was also anger and frustration which led to trust issues and conflict. A learning outcome for these managers was to understand better the relationship between their own style and behaviors with the outcome of the situation and to consider how to handle such situations differently in the future. An extreme response from one manager ensued from the emotional turmoil of trying unsuccessfully to acclimatize, and from later having to fire an individual appointed from outside the organization. He has not recruited externally since that incident of over fifteen years ago. In one case, a manager who was about to fire an employee described the value of having the human resources manager question his decision and encourage him to try more in terms of giving feedback, coaching, and providing more time for the individual to be successful. Although by doing so he did not change his mind, he was glad to have tested his supposition further and to have greater certainty that the decision was the ethically correct decision, and was implemented in a way that supported the value of fairness. On reflection, he realized that he needed to include values-based assessment of his actions in other decisions that he made.

At the other extreme from the more autonomous, personal decisions were those of a broader policy nature. A common policy decision was reorganization. Four critical incidents reported mixed views when considering its implementation. Five incidents described sales reorganization issues that emanated after a successful planning process that examined such facts as quantitative data that helped determine how to realign sales people with major customers geographically. The restructuring was agreed upon through a lengthy consensus-building process, involving the key people in the organization. There were some differences in values between those who preferred total confidentiality to those who would have liked more openness, but these differences were less problematic than the post-decision problems on implementation. One participant felt that there was no alternative to how the implementation occurred although he accepted that business might have been lost through lack of training of the sales force in their new customer-aligned roles. Two others held strong opinions that the problem had been flagged,

ignored and resulted in backtracking and unnecessary loss of business to the competition. The planning process had been similar to that of the classical optimizing approach, having involved a task force and multiple data collection and evaluation. The missing link was that people who had not worked with large accounts before lacked the experiential basis to realize the scope and the nature of giving this task to sales managers and representatives.

By attending to feelings on reevaluation, varying degrees of disappointment were expressed, but those who foresaw the problem wished that they could have communicated it in a way that would have had more influence. It was apparent that an optimizing approach to decision-making had been impossible because facts did not provide the intuitive insights of experience. The managers' own conclusions were that learning in this context of larger-scale change inevitably required experience that would normally have been gained in their environment through a pilot program or a work assignment in the area of lower expertise. Without that, they had to take the higher risk and discomfort of learning through trial and error.

From the findings it was clear that decisions ranged the spectrum from serious micro, individual decisions to broader wider impacting macro-decisions primarily on the deployment of corporate resources.

The first research question (What strategies and activities led to informal learning as managers made and executed decisions?) highlighted an array of innovative but subconscious learning strategies and activities. The personal decision was more likely to raise conflicting emotions in reconciling personal values of right and wrong with achieving a desired goal. The learning experiences in these cases were through observation, situation analysis, trial and error, seeking advice from mentors, dialogue, reflecting critically on assumptions, and learning from mistakes. The policy decisions involved asking and listening, data gathering from books, networks and the internet, making presentations, comparing options, conceptualizing, task force consensus building, strategizing, data analysis, experimentation, project-scoping, innovative "skunkworking", constructive feedback, and seeking expert advice.

In response to the second research question (how did the individual translate those strategies and activities into learning?), there was also a difference in emphasis between the stages of learning in a personal decision and a policy decision. The personal decisions received less attention in terms of preparation. Those who were aware of de-emphasizing preparation in favor of action, attributed it to not having to explain the decision to others. In the policy arena, managers were more likely to prepare, get others' buy in and make a persuasive business case to gain approval of their preferred course of action. However, preparation was only as effective as the prior experience and insights that a manager brought to the situation. Effectiveness was assessed through the ease with which adjustments could be made during implementation, and the combined fulfillment of rational business needs with moral and emotional needs. In both cases, learning occurred through the execution and experience of making and implementing the decision. This learning was on two plains. One was that of result achieved versus that anticipated. A gap was a trigger for learning by reflecting on what was going wrong and incrementally attempting to remedy the situation and more substantively, determining what would be a more appropriate action in future similar situations. The other plain was the contextual learning, frequently arising through attention to feelings, about systems, individuals, roles, values, and organizational culture.

The third research question (in what ways did the organization facilitate or impede learning?) was answered both directly as participants discussed their more general perceptions of the organization, and also indirectly as they discussed the impacts of organizational culture upon their decision-making incidents. In direct response, some wished for more training programs and international communication from which to learn, while others felt that they could learn more through the opportunities that the organization provided for improvement, innovation and extension of personal responsibilities. Indirect responses showed that the female participants found that they had more to learn about how to be assertive, gain confidence and ensure that senior management listened to them. The Marketing and Sales group seemed most cohesive in their understanding of the expectations of the organization. They were the longest-serving team and perceived by others to have power. They described some mature approaches to managing consensus, creating buy-in among their subordinates and making the case for change. Others showed more conflict and difficulty in reconciling corporate demands with the constraints they perceived of working in a more matrix-type structure. These organizational experiences were formational for new and experienced managers, alike. A common theme was that the organization was not going to change its culture and so survival and personal growth would require the individual to adapt and if necessary, conform.

Interpretation

The findings were examined using the Boud and Walker (1993) model of reflective learning from experience, both intentional and incidental. The model incorporates three stages of learning: preparation, experience and reflective processes.

Preparation was most frequently described in a way that fitted more with intentional learning. In the critical incidents depicting policy decisions and in many personal decisions, participants described themselves or observed others preparing to make a decision and later preparing to implement it. They sought to learn enough through data gathering to confirm a hypothesis based on past experience or create options emanating from the situation analysis. Information gathering was found to take the form of a goal-directed learning exercise. Prior learning was drawn upon, primarily intentionally where similar experiences had been encountered, but also incidentally, where the lessons were now drawn from multiple, cumulative and unrelated experiences. Incidental learning at the preparation stage provided the basis for adaptability, and the capability to react and create a new path as circumstances changed. Intentional and incidental learning were often iterative, each providing an outcome that provided the basis for higher capability and a richer learning experience.

New areas of learning emerged and this was more prevalent during the *experience* than it was during preparation. Such learning was more incidental in nature. The task of differentiating intentional informal learning from incidental learning proved challenging. The two occurred simultaneously and learners were rarely conscious of seeking to learn or acquiring learning. Their mission was task related: to gather information to make a decision and to achieve a result, attributed to the organization's need for outputs but not to learning, as such.

Experience often led to a process of noticing that a discrepancy existed between what was happening versus what was expected or what could be. In turn, this led to action. The experience stage was not easily differentiated from the previous stage of preparation. It was found that the activities involved in preparation were themselves an active experience. Participants described ways that they reacted to new information, and these reactions were reminiscent of reflection in action, checking that the planned or prescribed approach was still appropriate. If not, they described how they found another method, as a means of ensuring responsiveness at times of change.

Adaptability was a skill that grew with new experience. Incidental learning contained more elements of surprise and risk in reaction to an unexpected trigger. Intentional learning, although goal-directed was not a controlled process. Outcomes might differ from the plan and this provided the basis for double loop learning where the context and the what and why came in to more question than the how.
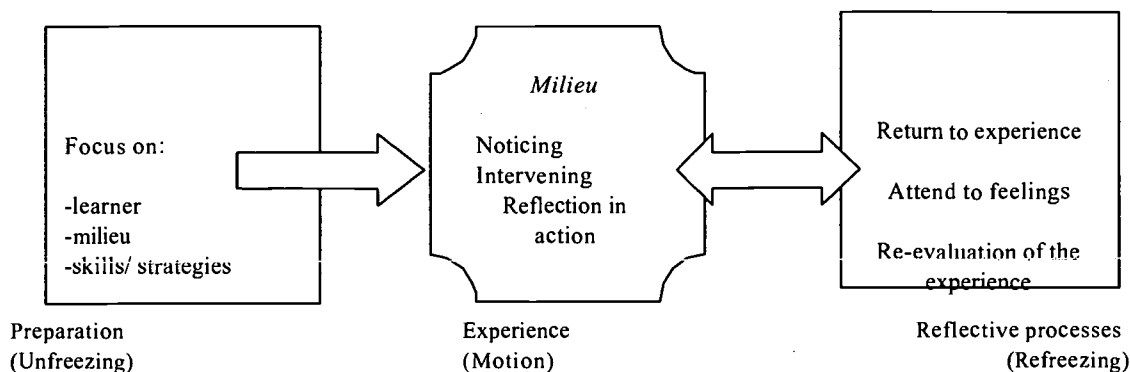
Throughout the decision making process, the implementation process, and also after the event was completed, *reflective processes* were at work. For some this was an intentional process with clear methods of analysis and evaluation. For others, it happened in response to feedback that there was something right and learning was reinforced, or something was wrong and something new was learned at the time and more frequently in retrospect with the benefit of hindsight. In such cases, the new perspective was one that could be taken forward as an experience in itself. Reflection involved attending to feelings and from this, new mental models were formed. The reframing of how the world operated and how to interact more appropriately with the world often led to recognition of, and shifts in, personal values and priorities. From these came revised formulae for handling similar experiences in the future.

Linking Decision Making to Learning from Experience

Parallels can be found between the Boud and Walker (1993) three-stage model and the Lewin (1951) model of change. Lewin focused primarily on the stage of organizational change, i.e. "unfreezing", "moving" and "refreezing". These stages are inserted into the Boud and Walker (1993) model and shown in Figure 1. In this study, Lewin's model of change was used to relate the change process of decision-making to the learning process. In the learning process, Boud and Walker (1993) found that reflection occurred in preparing for a situation, during the experience itself, in making meaning of the experience, and when determining future action. It was not always a conscious process; it balanced rational with affect, and there were barriers to learning and to acting upon learning. Cell (1998, p. 40) refers to "received learning" or beliefs that form a lens by which we react to new circumstances. It occurs at the time of the reflection on prior experience that is described in the preparation stage of Boud and Walker's model and Argyris et al's (1985) "dynamic model", similar to the reflection in action process described in the literature review.

Argyris et al (1985) describe unfreezing as the notion "that existing theories or skills must be brought to awareness and unlearned before new ones can be learned" (p. 270). Unfreezing may include preparation and goal definition. Moving is a process of action and creates an experience; and refreezing in a new state provides a basis for reflection.

Figure 1: Boud & Walker's Model of Learning from Experience Linked to Lewin's Model of Change

Focus on:

-learner
-milieu
-skills/ strategies

Milieu

Noticing
Intervening
Reflection in
action

Return to experience

Attend to feelings

Re-evaluation of the
experience

Preparation   Experience   Reflective processes
(Unfreezing)   (Motion)   (Refreezing)

Lewin provides a link between the stages of decision-making and the stages of learning. The types of decision-making discussed in the first section of this literature review all result in some degree of change or retention of status quo as described in the Lewin model. The factors underlying the change process- depicted in Boud and Walker's model as the "milieu"- include the nature of the decision, the organization's propensity for risk, the relevance and amount of information known, the numbers of people involved, and whether cognitive, or affective, including issues of morality and emotional concern.

Preparation In the context of decision-making, unfreezing was most commonly the stage of preparation for an experience, although as discussed above, it was an experience in and of itself. The more rational decision-making models described in the literature (Kepner Tregoe, 1981) were seen to be in use in policy decisions, where "unfreezing" the situation occurred through analysis (defining

and simplifying the issue), and creativity (generating potential courses of action). "Unfreezing", in policy decisions, was the stage of drawing on relevant prior experience and gathering data. It was the response to a trigger that helped to identify either a problem or an opportunity. Appropriate past experience was recalled, both intentionally and intuitively, as a means to benchmark the new situation with others. Such experience might be task-oriented and draw on expertise in a system, such as a software program, or process, such as reorganization. It might also be people-oriented and involve the transfer of past experience of dealing with people.

"Preparation" was the most cognitive stage in terms of learning. Affect, where it was expressed, was defined in terms of values and emotions gained through past experience. Affect was more prevalent in personal decisions which impacted subordinate and boss relationships. The most common source of learning personal values, cited in fifteen of the interviews, was "upbringing" or learning from family and parents. For example, one participant used the word "sensitivity" to describe her preferred approach to people decisions - an ethical and empathetic way of communicating in difficult situations.

Learning was mostly intentional at the preparation stage. The data gathering techniques employed were inclusive of the characteristics of self-directed learning: highly goal-directed and mainly autonomous, but involving others as resources for information and analysis and approval of ideas. Autonomy was enhanced through what Cell (1998) describes as a "transformative understanding of ourselves" where individuals "make it part of their second nature to be aware of, critique, and enhance our basic cognitive and emotional beliefs in light of our experience" (p. 215). In this way, self-directive learning can be seen to be more than preparing for the decision but a process of self-enlightenment undertaken through the experience itself.

Experience An iterative process could be found to take place between intentional learning and incidental learning during the experience stage. For example, "testing" was described in terms of intentional learning for example as a pilot program with a customer (Frank), introduction of a new computer system to test reactions (Jay and Colin), or testing a "hypothesis" when seeking reactions to organizational proposals (Simon). Then, as the idea was tested, learning became more incidental as experimentation and trial and error occurred in reaction to others' ideas, feedback from the customer or unexpected problems.

Implementation also required more intuitive decision-making, making choices that felt right in order to effect the decision successfully. Reflection in action was prevalent in responding to counter proposals, questions, criticism, action and reaction in response to the dynamic characteristics of an evolving understanding of the situation. Many sub-decisions had to be made to fit with the overall direction of a broader decision, as multiple ongoing activities took place simultaneously. Schön (1987) focuses primarily on professional design work, such as architecture, as a context for reflection in action. This study showed that the process is equally prevalent in situations of decision-making, or convergent thinking, as it is in the more divergent process of creative design.

Re-evaluation and attending to feelings In reviewing a decision, the rational combined with affect to provide a more holistic perspective. Where a decision had not gone as expected, fundamental, almost natural laws, such as the need to build consensus and acquire buy-in to the proposal prior to either recommendation or implementation, resembled the natural forces at work in chaos theory. New perspectives, usually of the dynamics of interacting with people, were gained and incorporated into the way that individuals looked at new situations or described what they would do differently with the benefit of hindsight. Where the approval process and implementation had gone well, attention was paid to the people factors, such as communication, consensus building and trust. Methods of dealing with people issues were either confirmed or learned, and even when expectations had been met, the learner found that he or she should not be tempted to overlook or take shortcuts around these issues in future decision-making.

Reevaluation was rarely conducted formally and so it was personal reflection, or the research interview itself, that prompted reevaluation. When it was conducted, it was either in response to an unexpected problem that arose or justification that an insurmountable factor such as inaccessible information held by a customer, or satisficing, the trade off of meeting the conflicting needs and resource constraints of different constituents, had diluted the desired impact. When more reflective processes of reevaluation took place, usually when the decision was more personal and made by the individual with minimum involvement of others, conceptualization about what happened and why led to generalizations about how to deal with similar situations. As a result, values were confirmed or determined.

Attending to feelings, while an important aspect of reflecting on an experience, was not
confined to the reevaluation stage. It was evident at every stage of the learning process. The nature of the critical incident questioning was designed to encourage participants to talk about affect as part of the decision-making and learning processes.

Conclusions

Managers in MedCo were clearly involved informally in self-directed learning activities that helped them to determine which choice to make and to substantiate their case. However, learning could be enhanced if it were consciously recognized, rewarded, and resourced. Further learning — leading to better quality decisions — could be achieved by having access to senior managers as sponsors of the decision-making processes at the outset of the process. Senior managers could then stimulate analytical and creative thinking in addition to the reflective thinking that naturally occurs when reviewing a proposal after the work has been done. A by-product would be less likelihood of defensiveness and broader ownership of the proposal through breadth of involvement. In turn, the organization would become more of a natural learning environment.

Early in a manager's career, he or she can take career-limiting actions because the primary source of learning is through trial and error. Organizations can minimize this risk by complementing informal learning with more systemic approaches to creating learning opportunities. The creation of a culture, reinforced by senior management, that tolerates mistakes and encourages trial and error in favor of shared learning would help to reduce the unproductive energy invested in political maneuvering.

Contribution to Knowledge about HRD

This study sheds light on informal learning through decision making among managers. It links literatures around learning, decision making and change. Given the dynamic and seemingly uncontrollable scenario in which managers find themselves, organizations benefit if they better understand such learning and build on it to develop their managerial ranks. Key to this enhanced understanding is the implication of what might be called the "multi-plexity" of learning. Just as Boud and Walker's reflective learning model incorporated a more iterative perspective than the linear cycle in Kolb's (1984) model of learning from experience, this study shows that multiple learning occurs simultaneously, to the point that any form of conceptualization is inadequate. The subconscious nature of informal learning means that complex interactions between current experience and past experience occur within a dynamic context. Practical, in the moment, learning that causes the individual to determine options and select a course of action takes place simultaneously with longer-term planning and more strategic learning, usually without awareness that such thinking is occurring.

Reflection, usually a subconscious thinking activity, is simultaneously a rational and emotional experience. It is backward-looking but at the same time, it is a means of preparation for future action. Reflection is the evaluation, against practical consequences and personal value constructs, of past and present experience in relation to anticipated future outcomes. These considerations are made against the interventionist backdrop of multiple social contexts. There is a complex structure of layer upon layer of considerations and dimensions that in parallel lead to the making of a decision and its by-product, learning. The multi-plexity of the subconscious learning activity and its interaction with the more apparent decision-making process, provides benefits for practitioners in the field of HRD, particularly those involved in executive coaching. Learning can be facilitated through an active attempt to enable the decision-maker to use his or her thinking about the decision to create potential learning by surfacing more fully the multiple variables that are in play. By encouraging individuals to review the rational and non-rational constituents of important decisions, the HRD practitioner can enable the individual to surface and make meaning of past learning, and review how it may be applied to the new situation.

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Learning Beliefs and Strategies of Female Entrepreneurs: The Importance of Relational Context in Informal and Incidental Learning

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This paper reports the findings from a small pilot study that was designed to investigate the informal ways in which female entrepreneurs learn when they initiate their business ventures. The Marsick and Watkins (1997) model of informal and incidental learning served as a guide for this research. Findings suggest that female entrepreneurs employ learning strategies consistent with the research base on informal learning, however, the notion of relational context is extremely important. Implications for research and practice are provided.

Keywords: Female Entrepreneurs, Informal Learning, Women's Workplace Learning

During the past two decades, female-owned businesses have been initiated at twice the rate of male-owned businesses (Buttner & Moore, 1997). As female entrepreneurship has emerged as a viable force in business communities across the United States, research on this particular population has increased. However, much of the research on female entrepreneurs to date has focused on the requisite traits and behaviors for success (Buttner & Moore, 1997; Hisrich & Brush, 1987; Olson & Currie, 1992), and the strategies female entrepreneurs have learned to overcome obstacles during the transition phase of starting their new business ventures (Carter & Cannon, 1992; Olson & Currie, 1992). Only a limited number of studies have focused on how female entrepreneurs learn during the daily operations of their business ventures and the types of learning strategies they use to support the growth and success of their businesses. These studies have broadly explored the learning experiences of female entrepreneurs uncovering the importance of relationships in their learning (Brush, 1992; Chaganti, 1986; Wells, 1998) and the types of collaborative learning resources they rely upon in their learning (Chaganti, 1986; Helgesen, 1990; Kamau, McLean, & Ardishvilli, 1999). While these studies offer valuable insights into the learning experiences of female entrepreneurs, the particular aspect of informal learning has not been fully explored for this population.

With the limited research available on female entrepreneurs' learning, from a broader perspective, the women's workplace literature provides another avenue for exploring women's learning within an organizational context. The findings from a number of studies indicate that women's learning in the workplace is characterized by networking (Helgesen, 1990), peer collaboration (Fletcher, 1999), and mentoring (Bierema, 1995) These studies shed light on the importance of relationships and on the strategies often chosen specifically by women as they learn corporate culture. However, these studies often define learning more broadly, may focus on formal learning experiences rather than on how informal learning unfolds for women in the workplace, and include women employed within corporate settings as opposed to self-employed women.

Since many scholars acknowledge that the majority of learning occurs informally in the context of work (Marsick & Watkins, 1990, 1997), examining how informal learning occurs for female entrepreneurs offers a promising avenue for deepening our understanding of female entrepreneurs' learning in the workplace. Informal learning in the workplace describes learning from experience that occurs outside of structured, institutionally sponsored, classroom based settings (Watkins & Marsick, 1992). It has been explored within the fields of business, industry, education, and the health care (Carter, 1995). However, it has not been examined in relation to female entrepreneurship.

Despite the emerging research on female entrepreneurs' learning, women's workplace learning, and the established base of literature on informal learning in the workplace, an understanding of how female entrepreneurs learn informally in their particular workplace settings has not been completely explicated. Therefore, the purpose of this pilot research is to deepen our understanding of female entrepreneurs' informal learning.

Conceptual Framework

The Marsick and Watkins (1990, 1997) model of informal and incidental learning served as the conceptual framework undergirding this pilot study. Marsick and Watkins (1997) characterize their informal and incidental learning model as a problem-solving approach that is not straightforward or prescriptive. For Watkins and Marsick (1992), informal learning may be planned or unplanned, may or may not be designed or expected, but usually incorporates a degree of consciousness about the learning that is taking place. Throughout the process, there is a presence of action and reflection. Incidental learning is considered a special category of informal learning. It is often unintentional, and a by-product of informal learning.

Marsick and Watkins contend that the cycle is embedded with sub-surface beliefs, values, and assumptions that guide action at each stage. In this model, informal and incidental learning are influenced by how people frame a situation as a problem that is typically a non-routine problem. As they frame it within their context based upon their beliefs and assumptions that are often unconscious, they consider strategies for solving that problem. Watkins and Marsick (1992) suggest that strategies for informal learning often include self-directed learning, networking, coaching, mentoring, performance planning systems used for developmental purposes, and trial and error.

The Marsick and Watkins model, however, was not empirically tested here, but rather was used as a boundary for this study. Specifically, findings associated with female entrepreneurs' learning strategies were examined in relation to the model.

Review of the Literature

The following relevant literature informs this pilot study: female entrepreneurs' learning, women's workplace learning, and informal and incidental learning literatures.

Female Entrepreneurs' Learning. Some evidence exists in the female entrepreneur learning literature that female entrepreneurs create knowledge within the context of connectedness to self and others and choose learning strategies that reflect the importance of these relationships within their learning. Wells' (1998) study of eighteen female entrepreneurs revealed that learning most frequently occurred in the context of informal networks and in mentoring relationships. The entrepreneurs in Well's study learned "with others and from others" (p. 129). They further described their learning as continuous, self-initiated, and as "unplanned, spontaneous, and informal, truly 'just in time'" (p. 129). Chaganti (1986) uncovered the use of collaborative learning through a team approach in decision-making by the female entrepreneurs in his study, and Kamau, McLean, and Ardishvillie (1999) noted that the female entrepreneurs in their study utilized intuition during decision making, particularly during the emergent phase of their business ventures. Additionally, Brush's (1992) review of fifty-seven empirical studies of female entrepreneurs suggests that the female entrepreneurs viewed their business ventures within a cooperative network of relationships. Brush proposes a new model of work and learning for this population that incorporates the integrated nature of their learning.

Women's Workplace Learning. Women's learning in relationship with others and their selection of collaborative strategies for learning have also emerged in a number of women's workplace learning studies. Female engineers in Fletcher's (1999) study employed "fluid expertise" where knowledge "shifts from one party to the other, not only over time but in the course of one interaction" (p. 64). In her study of female executives, Bierema (1995) discovered that the women learned organizational culture through networking, peer support, and mentoring. Hosking, Dachler, and Gergen (1995) uncovered a relational model of female leadership in organizational settings that emphasized a process of multiloguing (multiple discussions with others), negotiating, and networking. The importance of relationships and intuition when making business decisions has also emerged. Helgesen (1990) noted that women managers trade ideas with people, seek out lots of information, and let it "jell" before coming to a decision. Women's workplace learning literature offers additional insights that suggest the importance of relationships for women in their learning, and the variety of learning strategies they use within organizational settings.

Informal and Incidental Learning Research. The Marsick and Watkins (1990, 1997) model of informal and incidental learning has been empirically tested and used in more than 20 studies investigating informal and incidental learning (Marsick & Watkins, 1997). In an extensive review of the informal and incidental learning literature, Carter (1995) identified nine studies that had been conducted to explore informal learning in business, industrial, and educational settings and six studies that had explored informal learning in the health care field. In these studies, senior level managers, human resource professionals, chemists and engineers, health care managers, paramedics, community college faculty members, and non-profit employees comprised the respective samples. Interviewing, the critical incident technique, observation, and document analysis represented the primary methods of

data collection in these studies. Overall findings from these studies suggest that more than half of the major learning modalities for the participants in these studies included networking, mentoring, and learning 'through supervisors.' Learning through 'relationships' was another significant method of informal learning, yet it was unclear what the category of relationships included. Cseh's (1998, 1999) more recent research, focused on managerial learning, also lends support for many of the learning strategies that have been identified in prior research. Cseh's research and Watkins and Cervero's (2000) research on learning opportunities within a certified public accountancy practice also point to the importance of context as it relates to informal and incidental learning. However, Marsick and Watkins acknowledge that while context is implicit in their model, its pervasive influence on the learning process has not been that evident and additional research is needed.

In summary, despite the emerging research on female entrepreneurs' learning and women's workplace learning in general, and the extensive exploration of informal and incidental learning in a number of settings, there is a growing need to better understand how informal learning occurs for female entrepreneurs within their workplace contexts. Although the Marsick and Watkins model has been explored in many different settings, it does not appear that female entrepreneurs have been studied using this model as a guide. Therefore, female entrepreneurs represent a unique platform upon which to study informal and incidental learning.

Research Methodology and Research Questions

A qualitative naturalistic design was employed for this small pilot study. The primary research questions addressed in this study were: (1) What strategies do female entrepreneurs employ in their learning?; and, (2) What are the learning beliefs of female entrepreneurs that influence their learning?

The Critical Incident Technique (Flanagan, 1954) and semi-structured interviews were the primary methods of data collection. The Critical Incident Technique is an effective way to engage participants by encouraging them to recall specific critical situations that have been either highly effective or highly ineffective. For the purposes of this study, participants were asked to recall specific critical incidents that reflected their learning

Table 1. Participant Demographics and Background

Participant Name	Current Business	Number of Employees	Previous Number of Businesses Owned	Education
Elaine	Day Care; Training & Consulting	0 0	2	B.S. Management Associate in Child Development
Carrie	Travel	9	0	B.S. Education M.S. Spanish
Lisa	Business & Technology Consulting	4	0	B.S. Business Administration
Linda	Manufacturing of Small Paper Conversions and Small Paper Roles for Business; Marketing Consultant	32 0	2	B.S. Theater
Marsha	Production of Marketing and Public Relations Materials and Consultation on Advertising and Public Relations; Freelance Journalist	0 0	0	B.S. Journalism

during the transition period of business start-up, while learning on the job, and while learning how to overcome the obstacles and barriers they face. Additionally, employing open-ended questions during the semi-structured interviews allowed the women's own descriptions of their beliefs about their learning and the types of learning strategies they employed to emerge from their narratives.

A purposeful sampling strategy was selected for the study to obtain information-rich cases (Patton, 1990). Names of possible participants were obtained from a regional female entrepreneur business organization, through a regional network established for independent trainers and business consultants, and through snowball participant referrals. Five participants, ranging in age from forty to fifty-two and representing a variety of business ventures, were selected that met the criteria of having operated their business for at least three years within the south central region of a state located in the Eastern part of the United States. Table 1 presents the demographic information for each of the participants in the study. Pseudonyms for each of the participants have been used to ensure confidentiality.

Face-to-face interviews were conducted with each of the five women on-site at their respective business locations. Interviews, approximately 60-90 minutes in length for each participant, were tape recorded and transcribed verbatim. Participants reviewed the transcripts and follow-up interviews were conducted to ensure authenticity. The transcripts were analyzed using thematic coding (Bogdan & Biklen, 1992). Using the Marsick and Watkins model (1990, 1997) as a general guide, the data was first sorted into two main categories that represented the women's beliefs about their learning processes in general and the specific strategies they used as they learned. Within these broader framework categories, sub-categories were then determined through further thematic analysis of the data. Data collection and analysis were conducted rigorously to ensure trustworthiness (Lincoln & Guba, 1985; Marshall & Rossman, 1995). Due to the small, purposeful sample size, however, the findings associated with this study are not intended to be generalizable.

Results and Findings

Three main themes emerged from the data that offer insight into the beliefs that framed female entrepreneurs' informal learning, the types of knowledge that these women valued most, and the strategies they employed to solve problems and make decisions in their business ventures. Table 2 presents the themes and sub-themes. Each theme will be discussed and illustrative quotations will be provided in the sections that follow.

Table 2. Summary of Themes Emerging From the Data

Beliefs Undergirding Informal Learning
Continuous and central to growth and vitality
No learning obstacle is too difficult too overcome
Learning is self-initiated and self-determined
Knowledge Valued
Knowledge produced through informal networking was the most highly valued
Informal Learning Strategies
Informal networks
Trial and error
Application of past learning to current learning problems
Mutuality of mentoring relationships
Intuition

Female Entrepreneurs' Beliefs About Learning. Three themes emerged within this broader category of beliefs about learning: *Learning is continuous and central to growth and vitality, No learning obstacle is too difficult to overcome, Learning is self-initiated and self-determined.*

The first theme in this category reflected the women's beliefs that learning was a *continuous process central to their sense of vitality, being, and growth.* Elaine noted, "...when you stop learning you stop living. My mother used to tell me that everyday you're gonna learn something new and every now and then I have to...I have to think only one thing – learning to me is an ongoing process. It's keeping from being stagnate..." Learning for Carrie was also vital to her sense of being. She said, "Learning is a very important thing to me... ...I think it's the one point...if you stop learning you might as well stop doing." This belief was echoed by Linda who stated, "...the day I stop learning is the day you can put me six feet under."

The women approached their businesses and learning with a belief that *no obstacle is too difficult to overcome*. This also held true when they were faced with obstacles in their learning. The women's resilience and perseverance in their learning was captured in Lisa's comments when she stated, "...you are never too old to learn. Learning comes in all fashions and you learn from the moment you are born right through your next life and your next life. It never stops. And you keep learning until you get it right. ...So, I think overcoming obstacles is all about identifying contingency plans and maintaining a positive outcome. There's a lesson to be learned somewhere and if you can, if you come across a barrier that you didn't have before, once you get over that barrier or remove that barrier, uh, you're smart the next time and you know that up front."

The final belief that framed the women's learning was that they determined when they learned and the type of resources utilized to support their learning at that particular moment. For the female entrepreneurs in this exploratory study, *learning was self-initiated and self-determined*. Sometimes their learning was very focused, goal directed, and "in the moment" and sometimes it was unplanned, unexpected, and serendipitous. Always, though, the women depicted themselves in charge of their learning. Linda described how she researches information when faced with a new learning problem in her business. She acknowledged, "...I can do a lot of it [internet research] and plan with new options because the one problem with letting somebody else do the research in answer to a question is that some of the things that you find out, that are not directly related, trigger other thoughts. But at the same time, it takes an awful lot of patience to do it." As evidenced by Linda, the women in this study also recognized that taking charge of their own learning provided creative business solutions that they might not have thought of otherwise.

Most Prevalent and Valued Informal Learning Strategy. While the women turned to multiple sources to seek out information, i.e., reading, the internet, and occasionally courses and seminars, connecting with others through the creation of *informal networks produced knowledge that was the most highly valued by the women* and was the *most frequently cited strategy for learning*. While the women perceived a need for involving themselves in formal networks for marketing, visibility, and establishing credibility, it was the informal networks uniquely carved out by each of the women that they turned to most often. They created informal networks with colleagues, customers, and family to discuss business problems that arose "in the moment." Carrie explained, "...women's business clubs are nice, and they're good for marketing and they're good for, um, learning about what's going on in business. The biggest thing to me, the most helpful thing is talking to other people who are in business. ...I talk a lot [with my husband] about the daily decisions and ...talk with friends who have businesses. I think you just fill up a capacity of learning things, so to speak, experience, um, that you can make those decisions." These female entrepreneurs also highly regarded the advice obtained from these informal networks to guard against possible pitfalls and potential mistakes and to obtain input when making decisions. Elaine sought out the opinions of colleagues before starting her day care business. She stated, "That was a lot of my research [when starting my business]. ...asking them [other day care owners] what would be the one thing you'd change if you could start again. What was the biggest mistake, you know, what...what do you regret?" ...the most day to day training that I get is just picking up the phone and talking to another provider and networking, knowing that you're not alone." Finally, the women not only valued the knowledge gleaned from the informal networks that they crafted in their lives but also relied on these networks for emotional support to continue their business ventures during difficult times. Elaine described the support she has received from colleagues, friends, and family. She acknowledged, "...I don't think I'd be where I am. I think I might have thrown in the towel a lot earlier and...and not stuck with it. Um, the fact that I've had the support from other women. Even if it's a pat on the back or...or just simply, you know, you're doing a great job when I needed to hear it. That a...without us supporting each other...we're not gonna continue in this, uh, industry as self-employment for women."

In addition to the beliefs that framed their learning, placing a high value on the knowledge produced during informal networking, and using *informal networks as a learning strategy*, the women also cited *trial and error*, *application of past learning to current problem-solving*, *mentoring*, and *intuition* as further learning strategies.

Other Learning Strategies Employed. The women cited *trial and error* as a strategy that helped them move through frustrating learning moments resulting in creative solutions to solve the problem at hand. They also recognized that this learning technique often produced "incidental" or other types of learning as a "by-product" of the learning that would not have occurred had they not used this strategy. For example, Elaine acknowledged, "I tried something and it didn't work. So I'm gonna go back and try something else and I'm gonna take part of what worked and part of what didn't and come up with another and it's all part of the journey. And that if I hadn't made this mistake I wouldn't necessarily be steered off in another direction for something that might work better." Lisa also described how she used the strategy of trial and error in her learning. She noted, "...it's a kind of a lot of analysis. I do a lot of thought process too in my head, sometimes to the point that I go way down to, ah, too much of a detail level. But I do a lot of what if's and I wonder what that meant and I wonder what the outcome of this will be and I wonder if I change this part what will happen here." Linda described how trial and error unfolded as she

learned in her manufacturing business, "And one of things that I pride myself on is I, also gets me into trouble, because I equivocate a lot of back and forth... because I start seeing this ramification – oops! Well, now how do I counteract that, then I have to start back up here, and then I go down this path. Then I'm sitting, okay, I can't decide which path is the better path."

The women also employed the strategy of *applying past learning to current learning dilemmas* and experienced a measure of pride when they were able to do so. They recognized the similarities between the current problem and connected to their own learning repository of knowledge through a process of reflection and action. Elaine described how she used this strategy when dealing with a child in her day care program that was presenting some challenging behaviors. She stated, "And sometimes I think you learn lessons and you don't realize you've learned them until after the fact. ...then not too long in the future, I find myself almost in that same situation and I say, oh, now I know what I was to learn six months ago. I just didn't know I learned it until now." "I took a course when I was in restaurant management on how to deal with upset public and I fall back on that quite often. Especially when I...I have an unruly student... you know, I fall back to those techniques and I still have that... that's probably the one course that I've gone back to and refer to more than anything else."

Turning to *mentors* was another strategy utilized by the women to solve a problem and for encouragement. Marsha explained, "...I found some really good [mentoring] relationships and there was one, in particular, who, uh, who gave me really good advice and...there's not many people you want to go to and say should I take this job, should I do this. But he was the type of person that encouraged you to do that and made me take risks that I probably would not have done." A notable feature of these women's experience of mentoring was the *mutuality* involved in the sharing of information and in the learning exchange. Lisa described how this occurred in her relationship with her two business partners. She acknowledged, "...I think one of the best things I did was go into business with two people who I consider to be smarter than myself and...and it constantly sets the bar to stretch to their level. Um, so everyday I learn from them and, uh, they're my mentors. And I believe that they would say that I'm their mentor in other areas...we learn from each other." The women not only sought out mentors for decision making and to solve a learning issue that arose in their own business ventures, but also learned while mentoring others as well. Learning within mentoring relationships was considered a two-way street. Lisa described how mentoring other entrepreneurs solidified her own learning. She stated, "Well, the whole mentoring process is a validation of your knowledge because I think...there are those points where you have to recheck your confidence in yourself and what you're doing. And when you're able to help somebody start up a business and they see the first real value in the time that you spend with them building on those and getting successes from that...it revalidates your approach and your belief in yourself."

Finally, *intuition* emerged as a learning strategy frequently utilized by the participants of the study during decision making and in bringing seemingly disparate pieces of a learning dilemma into a congruent whole. There was a high degree of reliance on and confidence in the knowledge that the strategy of intuition produced. Lisa described how this strategy worked for her. "...I call it the gut meter and I watch how much it's spinning and I go with my gut very much. ...and I'm usually pretty right. You know...I think the confidence is pretty high in that area." Linda explained how this strategy produced positive results in her marketing endeavors by stating, "...I guess marketing is my gift. We all have a gift of some variety and I have an intuitive sense about what will work and what won't work for, uh, various companies or various situations. ...what makes me good at marketing is taking diverse pieces of information and almost intuitively putting them together into their ramifications."

In summary, informal learning was viewed by the female entrepreneurs in this study as an ongoing process central to their sense of vitality, being, and growth. These entrepreneurs also believed that no obstacle was too large to overcome producing a fastidiousness and resilience in their learning endeavors. Finally, these female entrepreneurs also believed that they were in charge of their own learning choosing when to learn and what resources to tap.

In terms of informal learning strategies, the female entrepreneurs carved out informal networks to connect with colleagues, customers, and family producing knowledge that was regarded by the women as the most valued learning resource. In addition to relying more heavily on informal networks rather than formal networks, the women also employed trial and error, application of past learning experience to current learning dilemmas, mentoring, and intuition as tools for learning. By creating learning connections with others and by cementing learning connections within themselves, they guided themselves through multiple pathways of learning producing knowledge that was vital to their success.

Conclusions and Recommendations

The themes relating to female entrepreneurs' beliefs about learning as being continuous and a vital part of their being and growth mirrors the findings in the female entrepreneur learning literature that characterize learning as ongoing and central to their well-being (Wells, 1998). The participants' beliefs that they self-initiated and self-determined their learning reflects Wells' (1998) conclusion that the women in her study were "owners of their learning" (p. 127).

The high value placed on knowledge produced through informal networks and the importance that informal networks play as the most frequently cited learning strategy offers support for the Chaganti (1986) and Wells (1998) studies. This pilot study also supports Brush's (1992) call for a new model of work and learning for female entrepreneurs that incorporates an integrated perspective on learning reflecting the collaborative network of relationships evident in their learning processes. Additionally, this research confirms the broader women's workplace learning literature that reflects the sharing of knowledge through "fluid expertise" (Fletcher, 1999, p. 64), the reliance on networking, peer support, and mentoring (Bierema, 1995), the collaborative nature of women's leadership styles in the workplace that emphasizes multiloguing and networks as a learning resource (Hosking, et. al., 1995), and the seeking out of information from others before coming to a decision (Helgesen, 1990).

The learning strategies of female entrepreneurs in this pilot study occurred informally in their work settings and included networking, applying past learning to current learning dilemmas, mentoring relationships, using trial and error, and intuition. Incidental learning occurred most often during trial and error methods of learning. The women always described themselves as their own guides in their learning proceeding in a self directed manner. These findings confirm the basic tenets of the Marsick and Watkins (1990, 1997) model of informal and incidental learning regarding learning strategies, and lend support for the prior research that has examined learning strategies.

The overall findings from this research, however, suggest that informal networks play a more significant role in female entrepreneurs' informal learning as a learning strategy than perhaps reflected in the overall strategies associated with the informal and incidental learning literature and the conceptual model guiding this study. Additionally, the mutuality of mentoring relationships, described by the participants in this study, represents another informal learning strategy that is a slight departure from how mentoring is typically conceived within this literature. It may be worthwhile to examine these strategies further to determine if the Marsick and Watkins' model should be extended or re-conceptualized specifically for female entrepreneurs. In fact, subsequent to the analysis of the data from this pilot study occurring in the Spring of 2000, Fenwick and Hutton (2000) drew a similar conclusion based on their ongoing study of the informal and incidental learning of ninety-five Canadian female entrepreneurs. Fenwick and Hutton's emerging findings suggest that relationships play a central role in the informal and incidental learning described by the women in their study, and they contend that current models of experiential and informal learning in the workplace may not fully reflect the relational context described by the women. The findings from this pilot study and Fenwick and Hutton's (2000) subsequent findings support Cseh's (1998), and Cseh, Watkins, and Marsick's (1999) earlier call for further examination of the role that context plays in informal learning.

In summary, the findings of this study support and extend the emerging literature base in female entrepreneur learning and in women's workplace learning that describe the importance of relationships and collaborative approaches to learning. It also confirms the literature on informal and incidental learning that indicates that the majority of workplace learning occurs informally and incidentally. The Marsick and Watkins (1990, 1997) model of informal and incidental learning includes a number of strategies employed by the women in this study and embeds the notion of context in the informal learning experience. However, the model may need to be expanded to reflect the central importance of relationships embedded in these participants' beliefs, values, and assumptions, and to emphasize the role that relational contexts play when selecting informal networks and mentoring relationships to advance their learning. Finally, integrating the intuitive learning connections made by the women during decision-making and when fitting together the pieces of their learning into a congruent whole may also be an area that can be more fully explicated to determine if and how it fits within the Marsick and Watkins model.

How This Research Contributes to New Knowledge in HRD

The findings of this pilot study offer additional insights into the role that relational context plays in informal learning for this particular population of female entrepreneurs and provides a more differentiated understanding of their use of networking, mentoring, and intuition as learning strategies during informal learning. Using a gendered perspective to frame a larger scale study investigating the relational contexts that female entrepreneurs bring to their selection of learning strategies might prove to be a fruitful avenue for advancing our understanding of the notion of context embedded in the informal and incidental learning model. Finally, from a practice perspective, the findings

from this study may inform training and educational programs designed by government and private organizations to support the successful start-up and growth of female entrepreneurs ventures to increase the likelihood of female entrepreneurial success.

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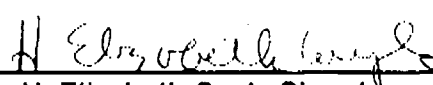## ONLY ONE AUTHOR IS REQUIRED TO SIGN THE FORM.

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