IMPROVING ORGANIZATIONAL LEARNING
AT THE SIERRA VISTA FIRE DEPARTMENT

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ABSTRACT

Issues that once were thought to be resolved continually confront the Sierra Vista Fire Department (SVFD). The problem was that solutions designed to resolve problems either did not work or created new ones instead.

The purpose of this research project was to determine if the SVFD could evolve into a learning organization capable of improving its collective ability to solve problems with permanent solutions.

Historical and action research methodologies were used to answer the following research questions:

1. What is a learning organization?

2. What characteristics or disciplines are essential for an organization to continually learn?

3. What characteristics or disciplines of a learning organization can be currently identified with the Sierra Vista Fire Department?

The procedures used for this research included a review of fire service literature, city of Sierra Vista documents, textbook, periodicals, and the Internet specific to organizational learning.

An informal opinion survey was designed to measure which characteristics of a learning organization currently exists within the SVFD and distributed to all full-time paid members.

As a result of this research, it was determined that a learning organization is one where every member participates in the creation of an organizational future by seeking out and mastering change.
It was determined that four general characteristics are found in all learning organizations: individual learning, team learning, a shared vision, and unrestricted communication throughout the organization. The survey results indicated that, while all four characteristics exist within the SVFD, marked improvement in team learning, developing a shared vision, and organizational communication must occur if the SVFD is to become a learning organization.

Several recommendations were made, including developing a shared vision, improving organizational communication, training for all personnel in active listening and effective feedback skills, consideration of creating a new management position responsible for organizational learning, and quantifying the change effort.
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INTRODUCTION

Fire service organizations are by their very nature change fragile. One only has to look at the organizational structures inherent within most fire departments to understand why. The command and control style of management so necessary for the effective mitigation of an emergency incident also happens to be the predominant style of managing the day-to-day operations of most fire service organizations. Command and control management can be characterized as one person having ultimate power and the final say as to what occurs within the organization, usually through the issuance of commands, making decisions about resources and promotions, and personal guidance of teams and resources.

In an information-based society, however, it is impossible for one person to be sole proprietor of the knowledge necessary to effectively manage their department respective to the external environment. As a result, the change process tends to be unilaterally designed with implementation of what is thought to be a permanent solution to the organizational issue encountered. Often times, however, the solution is not permanent. The situation or issue reoccurs, often accompanied by new problems created by the solution itself.

The problem for the Sierra Vista Fire Department is that many of the issues from the past continue to re-emerge. When they do, the solution initially offered to solve the problem is once again offered as ‘the fix’, despite the fact that is has already proven to be ineffective. As an organization, the Sierra Vista Fire Department does not appear to learn from past experiences regarding the same issues – an apparent organizational ‘learning disability’.

The purpose of this research project is to determine if the Sierra Vista Fire Department is capable of improving its ability to learn from past experiences with a goal of collectively improving our organizational ability to take effective action in order to achieve our strategic
intent. The term ‘learning organization’ has been used in management circles as a way to
describe organizations that have improved their ability to effectively learn from the past, solve
problems with permanent solutions, and create a desired future.

An historical research methodology was used to answer the first two research questions:

1. What is a learning organization?

2. What characteristics or disciplines are essential for an organization to continually
   learn?

Action research was then employed to answer the final research question:

3. What characteristics or disciplines of a learning organization can be currently
   identified within the Sierra Vista Fire Department?

**BACKGROUND AND SIGNIFICANCE**

The Sierra Vista Fire Department (SVFD) provides fire and emergency medical services
(EMS) for the 39,995 residents of Sierra Vista, Arizona (Cochise College Center for Economic
Research [CCCER], 1999). Operating out of two stations, the department employs five
administrative personnel, 36 full-time personnel, and 24 part-time paid personnel.

The city of Sierra Vista’s master plan allows for the addition of a third fire station by the
year 2003 (Vista 2010, 1999). This will necessitate significant organizational change specific to
resource acquisition, policy re-development, and promotional opportunity for the SVFD. In light
of the upcoming changes necessary to successfully expand service delivery, current operational
problems – such as controlling overtime costs, maintaining an adequate inventory of EMS
supplies, and successfully recruiting, hiring, and retaining part-time paid personnel – need to be
resolved in a timely and effective manner.
It is significant to this research that each of the three operational issues identified above are not new problems. In fact, each issue has been identified as a problem as early as 1995 (Sierra Vista Fire Department Staff Meeting Minutes, 1995-2000). Also identified in the document review are various solutions to each of the problems. For example, as early as 1996 overtime costs were addressed by asking each shift supervisor to account for specific activities on their respective shifts. The same requests were made in 1997 and 1999 (Staff Meeting Minutes, 1995-2000).

EMS supplies are frequently not available to be replaced on the medic units. When the issue is addressed at the management level, it is said to be a vendor issue. The supplies have been ordered, but it is the vendor that is slow to deliver. Personnel are directed to replace the missing items by removing them temporarily from reserve units until the shipment arrives. In addition, the EMS coordinator is asked to consider changing to vendors whose delivery capabilities meet our organizational expectations. Yet, the problem reoccurs the following year.

Perhaps most worrisome is the inability to recruit, hire, and retain quality part-time paid personnel. These employees serve not only as the hiring pool from which full-time positions are filled; they are also the buffer to the overtime problem, since their wages and benefit package are significantly less than a full-time employee, yet their operational capabilities are equal to a full-time paid firefighter.

Although these three operational issues are not the only problems resistive to the solutions imposed by SVFD staff, they are the most problematic against the backdrop of service expansion. The addition of a third station will surface operational issues yet to be identified. Those emergent issues will only be compounded by existing operational problems that have plagued the SVFD for years.
The *Strategic Management of Change* course at the National Fire Academy weaves a consistent theme of the criticality for each person within the organization to share responsibility for change management. Each individual must be capable of managing and implementing change effectively for themselves and others. Consistent with the course theme, this research paper seeks to determine if the SVFD has the capability to improve its ability to resolve old issues and build a responsive and resilient organization by helping each employee increase their capacity to change, grow, and thrive in an environment of continuous learning.

**LITERATURE REVIEW**

Argyris and Schon (1978) define organizational learning as the process of the “detection and correction of errors” (Argyris & Schon, 1978, pg. 117). In their view, organizations learn only through individuals acting as agents for the organization itself.

Supportive of the ‘individual must learn first’ viewpoint are Nolan, Goodstein, and Pfeiffer (1993):

> In a work that is constantly changing, there is not one subject or set of subjects that will serve you well for the foreseeable future, let alone for the rest of your life. The most important skill to acquire now is learning how to learn. (p. 101)

Inserted into an organizational perspective, individual learning is the prerequisite for what the authors identify as four fundamental disciplines necessary for organizational learning to occur: knowledge acquisition, information distribution, information interpretation, and organizational memory. Taking a behavioral perspective, Nolan et al. believe that learning occurs if, through information processing, the range of potential behaviors is changed.

According to organizational researcher Nancy Dixon (1993) individual learning is also important for organizational learning to take place. However, individual learning in and of itself
is not enough; it must be integrated into two other spheres of learning: team and system learning. Additionally, these three spheres of learning must overlap and occur simultaneously if the organization as a whole is to improve its knowledge management capabilities.

Dixon defines individual learning as occurring whenever a book is read, an experiment performed, or feedback is received (Dixon, 1993). She further states that team learning occurs whenever two or more individuals learn from the same experience or activity. This may involve new ways to address the team’s responsibilities, or simply some aspect of the interpersonal dynamics between members of the team itself. Finally, Dixon describes system learning as an organizational dynamic whereby newly developed systemic processes and structures are placed within the infrastructure of the organization for the sole purpose of obtaining new knowledge valuable for the accomplishment of the overall strategic intent.

Peter Senge (1990) defines a learning organization as one in which “people are continually learning how to learn together” (p. 36).

Senge identifies five ‘core disciplines’ required for organizational learning to occur. An in-depth examination of each discipline identified by Senge is relevant to this research and therefore included as part of the literature review.

**Systems thinking**

Contemporary systems thinking is the offspring of Jay Forrester’s term ‘systems dynamic’, which theorizes that the causes of many organizational problems are the policies designed to eliminate those problems in the first place (Forrester, 1964).

Senge (1990) defines system thinking as the ability to perceive the interrelationships and patterns within ‘the whole’, regardless if that ‘whole’ is a political, ecological, physiological, or
organizational system. The defining characteristic of a system, he argues, is that it cannot be understood as a function of its isolated parts for two reasons.

The first reason is that the behavior of the system doesn’t depend on what each part is doing but on how each part is interacting with the rest (Senge, 1990). Secondly, to understand a system we need to understand how it fits into the larger system of which it is a part.

Although Senge (1990) calls systems thinking ‘the fifth discipline’ of organizational learning, he clearly believes it is the most important characteristic of the five core disciplines when he asserts that “systems thinking is the cornerstone of how learning organizations think about their world” (p. 69).

**Personal mastery**

Senge (1990) defines personal mastery as the required discipline necessary for personal growth and learning. In essence, it is the ability to create and hold a personal vision of a desired future as well as a clear picture of current reality *simultaneously*. Several characteristics are common to people attaining a high degree of personal mastery.

First, people practicing personal mastery have an overwhelming sense of purpose and this vision is “a calling rather than simply a good idea” (Senge, 1990, p. 142). A second characteristic involving personal mastery is that change is something to be collaborated with, not resisted. A third trait of personal mastery is to be inquisitive. Other characteristics include a deep sense of self-confidence, an acceptance that learning is a lifelong process, and a feeling of connectedness to others and to life itself without sacrificing our own unique qualities.

Senge (1990) implies that the importance of the discipline of personal mastery to organizational learning is the ability of each individual to be loyal – not to the boss, rewards or
incentives, or longstanding attitudes about what is important – but to be loyal to the truth and to properly express that truth as each individual perceives it to be.

Mental models

According to Senge (1990), mental models are the images, assumptions, and stories carried in our minds of ourselves, other people, institutions, and every other aspect of the world as we know it. Human beings cannot cope in a complex world without a cognitive roadmap, and it is this roadmap – or mental model – that determines what we see.

Differing mental models explain why two people can observe an identical event yet describe it differently. Mental models also shape our response in a given situation. Senge (1990) cites the example that if we believe that all people are trustworthy, we may communicate more openly with new acquaintances than we would if we believed that most people can’t be trusted (p. 175).

Argyris (1982) asserts the most important tenet specific to mental models and their relationship to individual behavior is that people may not act consistent with what they say, but they will always behave congruently with respect to their mental models, or “theories-in-use” (p. 144).

Mental models are usually tacit, existing below our conscious threshold and therefore often remain unexamined specific to their validity. Because of this, Senge (1990) believes the goal of the learning organization is to surface mental models of the entire organization that impede the ability to change in a positive and effective manner.

Shared vision

Senge (1990) offers a compelling descriptor of shared vision in the following passage:

Shared vision answers the question “what do we want to create?” Just as personal
visions are images people carry in their heads and hearts, so too are shared visions pictures that people throughout the organization carry. They create a sense of commonality that permeates the organization and gives coherence to diverse activities.

(p.206)

Senge (1990) states that the shared vision discipline is essentially focused around building shared meaning, defined as a collective sense of what is important and why. Furthermore, he contends that the idea that everybody has to be in agreement about the vision is ridiculous. If managers push for that agreement, they will probably attain it, but it will be superficial at best. In other words, in an organization of 100 people, there should be 100 visions. What matters most, Senge argues, is that the shared vision in some mysterious way connects the personal visions of each person within the organization. Furthermore, if this connection is to occur it must be centered on a concept that employees are truly committed to learn and work for rather than the desire to please upper management.

Stephen Covey (1991) hints at the mechanism of how this connection of the personal and organizational vision might occur when he states that “in the end, what happens to all those involved in the process of creating the vision is much more important than the actual document” (p. 185). Covey believes the interpersonal relationships resulting from the visioning process helps each person identify and communicate to each other what is most important on an individual basis.

Laszlo and Laugel (2000) clarify management’s role in developing a shared vision when they write that without an understood vision, every change management process devolves into an “anything goes” change program (p. 132). Their belief is that upper management plays the
critical role in articulating the organizational vision by listening to individual concerns and in constantly communicating a sense of direction.

**Team learning**

The final core discipline defined by Senge (1990) is team learning. While team learning may seem synonymous with team building, Senge stresses that the difference lies in the fact that, while team building focuses on the development of team processes, team *learning* is more concerned with the learning activity of the group itself and has as its goal the ability of developing the capacity to achieve a goal each member truly desires.

Senge (1990) contends that virtually all important decisions within organizations occur in a group or team setting. To that end, he minimizes the importance of individual learning as fundamentally irrelevant to the organization unless the individual learner has access to the skills necessary to transfer their knowledge into a group or team environment.

Senge, Kleiner, Roberts, Ross, and Smith (1994) found that one of the most critical skills necessary for transference of knowledge from the individual to team setting is the ability to hold skillful discussions through the concept known as dialogue, defined as “a sustained collective inquiry into everyday experience and what we take for granted” (p. 353).

Senge et al. (1994) stress that normal discussion and dialogue are not the same. Normal discussion has as its goal an implication of winning the interaction, with people defending their views while seeking to defeat one another. Conversely, skillful discussion or dialogue seeks to identify collective insights unattainable by the individual with a goal of identifying mental models that determine when individuals speak and why. The authors summarize the concept by stating that “in dialogue, people become observers of their own thinking” (p. 242).
Another recognized authority on the learning organization, Douglas Guthrie (1996) defines a learning organization as one where individuals within the organization are continually re-perceiving and re-interpreting their world as well as their relationship to it. He also stresses that built into the organizational structure is a system allowing institutionalized practices and models of behavior to be continually questioned and transformed. Because of this constant self-assessment, Guthrie believes that learning organizations are a continuous “work in progress without ever achieving permanency specific to organizational structure and process” (p. 2).

In agreement with other researchers, Guthrie (1996) recognizes the important role the individual learner plays in the overall context of organizational learning, believing that without individual learning, organizational learning cannot occur. However, he acknowledges the pivotal role played by an organization’s culture in both individual and organizational learning. Specifically, when an individual enters an organization for the first time, the ways in which they choose to carry out a task is predicated upon accepted norms within the organization itself. Deviation from the norm may not be accepted, creating a cultural gridlock where neither individual nor organizational learning can occur.

Guthrie (1996) offers a solution, however, for overcoming the cultural gridlock handicapping the transference of knowledge from the individual to the organizational domain and therefore minimizing organizational learning. He asserts that the flow of information between all levels of the organization specific to important issues affecting both the organization and the individual must be kept wide-open at all times and is a prime prerequisite of the learning organization characteristic known as team learning.

Guthrie (1996) builds upon Senge’s work of identifying characteristics of a learning organization. In addition to the core disciplines of personal mastery, mental models, shared
vision, and team learning built upon a systems thinking framework, he identifies two additional core disciplines: generative dialogue and the ability to live with a high degree of ambiguity.

Unlike Senge, Guthrie (1996) grants dialogue core discipline status by asserting that generative dialogue is the fundamental building block – the basic process – that allows the other core disciplines to occur, and that without it, a learning organization cannot exist.

The ability for management and workers to feel comfortable with a high level of ambiguity is Guthrie’s seventh core discipline (Guthrie, 1996). High levels of ambiguity result from an environment where organizational structure and processes are constantly evolving – a necessary component for organizational learning to occur. This must begin, Guthrie argues, in the leadership tier in order for the rest of the organization to feel comfortable with consistent change processes.

Specific to how leadership might restructure the organization to foster a learning organization environment is Lawrence Willets (1996) notion of creating a position within the management team known as the chief learning officer, or CLO. The CLO would be responsible for the process of expanding the intellectual capital, or “quality of collective thinking” (pg. 1). One of the principle tasks of the CLO would be to align individual mental models with the corporate vision, which both Senge and Guthrie assert must occur if a learning organization is to flourish.

**Literature Review Summary**

Individual learning, defined as the ability to learn how to learn, is a pre-requisite to organizational learning. However, linkage from the individual learning domain to the organization appears difficult to accomplish, and for successful transference to occur, several factors must be considered.
Generalizing, Nolan et al. (1993) tell us that individual learning – or knowledge acquisition – is the first step of a four step organizational learning journey, with information distribution, information interpretation, and organizational memory completing the process. These authors believe organizational learning occurs when the information that is processed results in a change in the range of potential behaviors.

Dixon (1993) agrees that individual learning is important, but believes that in order for individual learning to create learning at the organizational level it must occur simultaneously with and seamlessly integrate with two other spheres of learning: team learning and system learning. As a definition, she states that only when new structures and processes have been created for the sole purpose of obtaining new knowledge has a learning organization been created.

Senge (1990) defines a learning organization as one in which people are in relentless pursuit of learning how to learn collectively – not just as individuals. He further stipulates five disciplines basic to all learning organizations: the ability for the individual to grow and learn at the personal level (personal mastery), developing awareness of the mental roadmaps each person carries in their psyche (mental models), acquisition of shared meaning through the merger of an individuals personal vision and a collective descriptor of what is important (shared vision), learning how to learn as a group or team through skillful discussions and dialogue (team learning), and last – but most important – the ability to assimilate each of these disciplines into a systems thinking viewpoint in which relationships between parts are fundamental – not the parts themselves.

Guthrie (1996) refers to the relationship that people must possess within an organization when he defines a learning organization as a group of individuals constantly re-interpreting their
world as well as their relationship to it. He stresses the impermanence of organizational structure required for organizational learning to sustain itself. Agreeing with other researchers, Guthrie believes in the importance of individual learning, but stresses that the organizational culture may handicap innovative behavior. He emphasizes the importance of intra-organizational communication in order to minimize these negative cultural influences.

In agreement with Senge on each of the five disciplines necessary for organizational learning to occur, Guthrie adds two others: generative dialogue and the ability to feel comfortable with constant structural chaos, a condition whose acceptance will only occur within the organization if modeled by upper management.

Finally, Willets (1996) offers a possibility on how to accomplish transformation to a learning organization environment with his idea of creating a new management position. Known as the chief learning officer (CLO), this person is tasked with improving the quality of collective thinking critical for organizational learning to take place.

**PROCEDURES**

This research employed historical research methodology to define the characteristics of a learning organization. Action research – in the form of an informal survey administered to SVFD personnel – was also utilized to identify existing learning organization characteristics inherent within the organization.

**Literature Review**

Documents from Cochise Community College’s Department of Economics for data regarding economic development were reviewed, as well as documents from the City of Sierra Vista specific to the community’s master plan objectives for the next ten years.
SVFD staff meeting documents from a five-year period (1995-2000) were also reviewed in order to identify recurring problems within the organization.

A review of the management literature specific to the concept of organizational learning was initiated at the National Fire Academy’s Learning Resource Center during June of 2000. A similar review of all literature specific to organizational learning was conducted at the Sierra Vista Public Library, including textbooks, periodicals, and reports from private research organizations.

The articles and books were analyzed with those most relevant to this research summarized and included in the literature review section.

**Use of the Internet**

An extensive search of the world-wide web (WWW) was employed during the literature review. Although much literature exists on-line specific to organizational learning, only two documents were found to be relevant to this research project.

**Opinion survey**

The second step in this process involved application of the philosophy and theory from the literature review to the problem being studied, specifically the Sierra Vista Fire Department’s ability to learn collectively as an organization. Action research was employed in the form of an informal opinion survey (Appendix A) that was developed predicated on the findings of the literature review. A total of 14 questions were generated. Question one was utilized to substantiate the research problem as identified in the introduction of this paper (Appendix D; fig d-1).

The survey instrument was administered to all full-time paid members of the SVFD (n=41) with 32 survey’s returned (78%).
Group comparisons were made between three distinct employee types: upper management, defined as battalion chief’s and above; middle management, defined as shift supervisors or captains; and non-management personnel, defined as driver-operators, firefighters, administrative assistants, and the fire marshall.

Questions two through 14 were sub-grouped under one of the four characteristics identified in the literature review necessary for a learning organization to evolve: individual learning, team learning, organizational communication, and shared vision.

The mean score was calculated for each learning organization characteristic as well as for each question (Appendix B) in order to compare responses between the three employee groups. Under the characteristic ‘shared vision’ question 12 was excluded from the overall score due to the fact that it measures personal – not shared – vision characteristics.

A bar graph was developed (Appendix C) to compare the relative strength of each learning organization characteristic found within the current organization as perceived by participants of the survey.

A comparison of the three groups (upper management, middle management, and non management personnel) was also graphed (Appendix D) specific to their responses to each survey question.

**Assumptions**

Three assumptions are connected with this research project. First, it was assumed that authors cited in the literature performed objective and unbiased research on their topics. Second, it was assumed that records gathered from Cochise Community College and the city of Sierra Vista were accurate.
Finally, it was assumed that all respondents to the survey did so in an objective and unbiased manner and did not discuss their biases before or while completing the survey instrument.

**Limitations**

Several limitations apply to this research. First, few research studies on learning organizations specific to the fire service were found in the literature review. A second limitation was the small sample size (n=32) of the survey. Specific to this limitation was that the upper management of the organization includes only three members; however, just two chief officers opted to fill out the survey form. A final limitation is the difficulty of objectively measuring some of the important characteristics of a learning organization – such as mental models – in the six-month time limit imposed on this research project by the National Fire Academy. Therefore, questions specific to the mental models of the members of the Sierra Vista Fire Department were not included in the survey instrument.

**Definition of terms**

*Upper management – battalion chief, assistant chief, and the fire chief.*

*Middle management – employees having the rank of captain.*

*Non-management – employees having the rank of engineer (driver-operator), firefighter, administrative assistant, and fire marshall.*

*Mental models – the ideas and beliefs we use to guide our actions and give meaning to our personal experiences with life.*

*Dialogue – the capacity of team members to identify and subsequently suspend their mental models in order to learn to think as one.*
1. **What is a learning organization?**

A learning organization is one where every member participates in the creation of an organizational future by proactively seeking out and mastering change. There is an ingrained philosophy for anticipating, reacting, and responding to change, complexity, and uncertainty with an overall result of increasing the organization’s ability to take effective action. Organizational structure is altered to accommodate and encourage the transference of individual learning into the organizational setting. Finally, a learning organization has leaders who create open and candid communication throughout the organization specific to the future that is desired. These leaders also demonstrate a personal commitment to becoming lifelong learners.

2. **What characteristics or disciplines are essential for an organization to continually learn?**

The literature review revealed several core distinctions fundamental to learning organizations that can be condensed into four basic characteristics.

First, the organization must have individuals who are continually seeking **new knowledge** and be willing to share this knowledge with the organization.

Second, transference of individual knowledge into the organization setting must occur in a team environment. Therefore, **team learning** is critical for a learning organization to exist. Skills for team learning include honest and open communication between team members, use of active listening and effective feedback skills, an ability to be open to innovative ideas, and allowing all within the organization to express their ideas in a forthright manner.
The third characteristic identified is the concept of **organizational communication** that allows knowledge to spread quickly and efficiently throughout the organization. Most employees are uncomfortable during periods of transition – which is the norm for the learning organization. Therefore, it is important for senior managers to communicate direction and progress while providing reassurance to the entire organization. Bottom-up communication may be more important than top-down in that it may eliminate minor lapses in communication that can turn into a major crisis. Furthermore, during times of change, information should be provided more frequently than usual, minimizing fear and the spread of false information.

The fourth and final characteristic of the learning organization is **shared vision**, which is an integration of each individual’s personal vision with the organization's picture of the future. Each employee must understand, contribute, and share in the organization’s vision, or that vision will not become reality.

3. **What characteristics or disciplines of a learning organization can be currently identified within the Sierra Vista Fire Department?**

Each of the four characteristics of a learning organization exists to some degree within the SVFD. **Individual learning** appears to be the most common characteristic identified, with an overall score of **3.80/5.00**, followed by **team learning (3.23/5.00)**, **organizational communication (3.11/5.00)** and **shared vision (2.89/5.00)**. These findings are summarized in Appendix C.

**DISCUSSION**

The key to solving the reoccurring problems plaguing the Sierra Vista Fire Department is to acquire new knowledge and apply it in a rational and cooperative manner. This is the conceptual foundation of the learning organization. Learning organizations consist of theory mixed with reality. Learning organizations require restructuring organizational hierarchies to
facilitate communication (Guthrie, 1996). Learning organizations require personal mastery – a synonym for personal transformation (Senge, 1990; Guthrie, 1996). Learning organizations require commitment, for without it, the hard work required to sustain organizational learning will never occur. In the absence of this commitment, fire service executives will instead continue to seek examples of learning organizations rather than actually creating one. Our industry – including the SVFD – changes primarily by reacting to events. Our ‘reference points’ are external and often based in the past. We are change-averse. By contrast, learning organizations are vision-led and creative. Their ‘reference points’ are internal and anchored in the future they desire to create. They don’t react to change; they embrace it. Therein lies the challenge: the United States fire service and the SVFD must develop a proactivity mindset anchored by the belief that we can create the fire service organization we truly desire.

The literature review yielded four general characteristics of learning organizations. I will now compare theory with reality as it relates to the perceptions of the members of the Sierra Vista Fire Department specific to individual learning, team learning, organizational communication, and shared vision.

**Individual learning**

Organizations can never learn unless an environment is created in which it members are capable of learning (Argyris & Schon, 1978). The individual learning environment at the SVFD is fostered by a city-wide policy to pay 80% of all costs associated with higher education in an employees related field.

Questions two through five (Appendix B) focused on individual learning and, overall, received the highest score of any characteristic within the SVFD (Appendix C). Upper management personnel tend to take advantage of educational opportunities offered by the
department (Appendix D; fig. d-3) more than other personnel – not surprising, since degree requirements have been a recent mandate for upper management positions. Non management personnel appear to the group most strongly encouraged by their immediate supervisors (middle managers) to take advantage of educational opportunities (App. D; fig. d-4). An interesting finding (App. D; fig. d-5) is that the middle manager group rated their supervisors lowest of any group specific to coaching and mentoring individual learning.

Summarizing, the characteristic of individual learning is identified as an important precursor to organizational learning. Within the SVFD, individual learning is recognized as important, encouraged, and supported by almost all members.

**Team learning**

The characteristic of team learning is the discipline of group interaction whereby individuals transfer their knowledge, perspectives, and personal experience into a meeting where the collective wisdom can be brought to bear on critical organizational issues. But a meeting where team learning occurs has a significantly different personality than most meetings. It symbolizes a time for dialogue – a thoughtful exchange about the issues that matter most – not discussion or speeches. It symbolizes a time of unrestricted participation, not a polite reply to the boss. Team learning encourages participants to challenge conventional wisdom because only then will the organization’s knowledge emerge through the ‘making sense’ of multiple mental models (Senge, 1990; Senge, Kleiner, Roberts, Ross, & Smith, 1994). Team learning within the SVFD scored a 3.23/5.00 (Appendix C) and was second only to individual learning as the most frequently encountered learning organization characteristic.

A not-so-surprising finding was the fact that new employees appear constrained when attempting to offer new and innovative solutions in accomplishing tasks (App. D; fig. d-6).
Furthermore, this is a belief that is shared to a greater degree by non managers and middle managers than upper-management.

One possible explanation may be that upper management is not as intimate with the day-to-day activities involved in shift work as are middle managers and non managers and subsequently not able to observe new employee interaction with their crews.

SVFD personnel perceive they are capable of speaking honestly and openly about issues (App. D; fig. d-7). What is interesting is that non managers and upper management perceive they can speak more honestly and openly than do the middle managers. This may reflect an unwillingness by middle managers to speak ‘their truth’ in one type of meeting that is exclusive to the non management personnel: staff meetings, in which upper management and middle management meet in order to disseminate information. While this is only conjecture, it warrants further investigation because middle managers are a pivotal group in the successful operations of the SVFD.

All groups believe that information offered in the team setting (App. D; fig. d-8) tends to be distorted and improvement in key communication areas – such as active listening and effective feedback – would be of positive benefit.

In summary, new members employed by the SVFD should be encouraged to offer more input on how to improve day-to-day activities – which is probably true of the fire service in general. Not all members of the SVFD feel comfortable speaking openly and honestly in a team environment, and there is a need for improved communication skills when in a team setting.
**Organizational communication**

Learning organizations can maximize team learning while minimizing negative cultural influences with a steady and accurate flow of information from upper-management (Guthrie, 1996).

Similarly, a key ingredient in establishing a shared vision is upper management’s ability to understand that communication must be a two-way street as well as an appreciation that well-informed team members are the most motivated and capable achievers (Laszlo and Laugel, 2000).

Within the SVFD, the characteristic of organizational communication received a rating of 3.11, second only to shared vision as the learning organization characteristic most lacking within the department (Appendix C).

Upper management issued identical ratings to the three questions in this category (App. D; figures d-9; d-10; d-11).

Although non-management personnel feel they have sufficient input into issues important to their daily activities (App. D; fig. d-10), they perceive having less input on issues important to the organization (App. D; fig. d-11). Similarly, they feel their supervisors could do a better job of keeping them abreast of information important to them personally (App. D; fig. d-9).

Middle managers rate their supervisors low specific to their supervisor’s ability to keep them informed on issues important to them personally (App. D; fig d-9). They also feel their supervisors should allow more input on issues important to their daily activities (App. D; fig d-10) and on issues important to the organization (App. D; fig d-11).

In fact, overall middle managers rank the characteristic of organizational communication lower than any other characteristic (Appendix C).
It is unclear as to why middle managers rate organizational communication lower than any other group. However, it is clear that this group feels that communication within the organization could be substantially improved.

**Shared vision**

A compelling vision that connects with what employees deeply care about is a powerful ingredient for change (Laszlo & Laugel, 2000). It seems ridiculous to have one group of an organization develop the vision and expect another group to implement it. Although vision must start with upper management, everyone must be able to provide input if the vision is to achieve commitment from all. Furthermore, organizational vision must somehow align the personal visions of all members in order to be effective.

This fact is critically important to the SVFD because having a personal vision of the future and what they would like to accomplish in their careers is the highest ranked question in the survey (App. D; fig d-12). It appears almost everyone has a clear idea on where they are going in their careers.

However, as a characteristic, shared vision is the lowest ranked (Appendix C) of the four traits necessary to create a learning organization. Furthermore, there is a clear disparity between upper management, middle management, and non-management personnel in an understanding of the organizational vision and how that vision complements each individual’s personal vision (App. D; figures d-13 and d-14 respectively).

With the exception of upper-management, this survey indicates a sense of ‘destination’ does not appear to exist within the lower ranks of the SVFD. One of the causes may be a lack of organizational communication, addressed in the previous section of this discussion.
Summarizing this section, the four characteristics of learning organizations – individual learning, team learning, shared vision, and organizational communication – are present to some degree within the SVFD. Improvement in three characteristics – team learning, shared vision, and organizational communication – will need to occur if the SVFD is to improve its problem solving abilities.

RECOMMENDATIONS

This research has determined that an organizational philosophy and culture can be developed having as its principle strategic priority the continual acquisition, interpretation, and application of new knowledge and whose goal is the achievement of results all members have agreed upon as important. Organizations capable of doing so are called learning organizations.

The purpose of the research project was to determine if the Sierra Vista Fire Department is capable of improving its ability to learn from the past with a goal of collectively improving its organizational ability to take effective action in order to achieve its strategic intent. To that end, the following recommendations are offered.

The SVFD should undertake the task of developing a shared vision of the future it desires to create. It should be an inclusive process allowing input by as many personnel as possible.

The SVFD’s upper and middle managers should allow more input on key organizational issue as well as on issues impacting personnel on a daily and personal basis. This could be accomplished through regularly scheduled and formalized meetings whereby every member of the organization is invited to attend.

All members of the SVFD should be trained in using the fundamental skills of dialogue – such as active listening and effective feedback – in order to improve learning while functioning in a team environment.
The SVFD should consider the creation of an additional position within the management team known as the chief learning officer. This person would be trained and skilled as a facilitator capable of educating personnel in understanding the characteristics of dialogue, how to improve team learning, and uncovering and interpreting individual mental models with a goal of alignment with the organizational vision.

A final recommendation is that the SVFD should quantify efforts to become a learning organization by periodically administering this survey – or one similar to it – to discern the impact of the recommendations chosen for implementation.

Learning collectively will not be easy. However, by choosing to improve its organizational learning capabilities, the SVFD will be capable of creating permanent solutions for many of the problems it currently faces.
REFERENCE LIST


APPENDIX A
Survey Instrument

Please rank each question from 1 – 5 based on your experiences with the SVFD.

1. I work in a climate that supports and recognizes the importance of learning.

   1---------2---------3---------4---------5
   Not at all    Very much so

2. My supervisor encourages me to take advantage of educational opportunities.

   1---------2---------3---------4---------5
   Not at all    Very much so

3. I take advantage of the educational benefits offered by the SVFD.

   1---------2---------3---------4---------5
   Not at all    Very much so

4. New employees (less than 1 year in the organization) are encouraged to offer new and innovative approaches to accomplishing tasks.

   1---------2---------3---------4---------5
   Not at all    Very much so

5. I have a clear understanding of the SVFD’s vision of the future.

   1---------2---------3---------4---------5
   Not at all    Very much so

6. My personal vision and the SVFD’s vision compliment one another.

   1---------2---------3---------4---------5
   Not at all    Very much so

7. My supervisor takes on the role of a coach, mentor, and facilitates my learning.

   1---------2---------3---------4---------5
   Not at all    Very much so

8. I feel my supervisor keeps me well-informed on issues important to me.
9. I feel that I have adequate input on issues important to my daily activities.

1---------2---------3---------4---------5
Not at all    Very much so

10. I feel that I have adequate input on issues important to my organization.

1---------2---------3---------4---------5
Not at all    Very much so

11. When I participate in meetings or on committee’s (staff meetings; health, fitness, welfare committee, Xmas Drive committee, etc.) I “tell it like it is.”

1---------2---------3---------4---------5
Not at all    Very much so

12. During meetings or while serving on committees, group members try to avoid distortion of information and use communication skills such as active listening and effective feedback.

1---------2---------3---------4---------5
Not at all    Very much so

13. Some of the negative issues our organization has dealt with in the past seem to re-occur (excessive overtime, retention of reserve members, etc.).

1---------2---------3---------4---------5
Not at all    Very much so

14. I have a personal vision of my future and what I would like to accomplish in my career.

1---------2---------3---------4---------5
Not at all    Very much so
APPENDIX B

Survey Results

This survey was developed and administered to all full-time paid members of the SVFD. Of the 41 surveys distributed, 32 (78%) were returned.

SVFD = all full time paid personnel
41 surveys distributed
N = 41 (78% response)

The mean score for each question was calculated. Each survey was coded in order to compare data between three distinct groups within the organization: upper management (battalion chief and above), middle management (captain or shift supervisors) and non-management personnel (driver-operator, firefighter, and administrative assistant).

UM = upper management  MM = middle management  NM = non-management
3 surveys distributed  6 surveys distributed  32 surveys distributed
N=2 (67% response)  N= 6 (100% response)  N= 24 (75 % response)

Question one was used to identify the problem our organization is facing. The remaining thirteen questions were categorized into the four characteristics of a learning organization as identified in the literature review: Individual learning, team learning, organizational communication, and shared vision.

1. Some of the negative issues our organization has dealt with in the past seem to re-occur (excessive overtime, retention of reserve members, etc.).

   1---------2----------3----------4---------5
   Not at all    Very much so

   CUMULATIVE = 131/32 = 4.09    UM = 8/2 = 4.0    MM = 27/6 = 4.50    NM = 96/24 = 4.00

   INDIVIDUAL LEARNING (3.80)

2. I work in a climate that supports and recognizes the importance of learning.

   1---------2----------3----------4---------5
   Not at all    Very much so

   CUMULATIVE = 116/32 = 3.63    UM = 8/2 = 4.0    MM = 19/6 = 3.16    NM = 89/24 = 3.70
3. I take advantage of the educational benefits offered by the SVFD.

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\[ \text{CUMULATIVE} = \frac{121}{32} = 3.78 \quad \text{UM} = \frac{8}{2} = 4.0 \quad \text{MM} = \frac{25}{6} = 3.83 \quad \text{NM} = \frac{88}{24} = 3.67 \]

4. My supervisor encourages me to take advantage of educational opportunities.

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\[ \text{CUMULATIVE} = \frac{134}{32} = 4.18 \quad \text{UM} = \frac{8}{2} = 4.0 \quad \text{MM} = \frac{22}{6} = 3.67 \quad \text{NM} = \frac{104}{24} = 4.30 \]

5. My supervisor takes on the role of a coach, mentor, and facilitates my learning.

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\[ \text{CUMULATIVE} = \frac{116}{32} = 3.63 \quad \text{UM} = \frac{7}{2} = 3.50 \quad \text{MM} = \frac{17}{6} = 2.83 \quad \text{NM} = \frac{92}{24} = 3.83 \]

**TEAM LEARNING (3.23)**

6. New employees (less than 1 year in the organization) are encouraged to offer new and innovative approaches to accomplishing tasks.

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\[ \text{CUMULATIVE} = \frac{98}{32} = 3.06 \quad \text{UM} = \frac{7}{2} = 3.50 \quad \text{MM} = \frac{15}{6} = 2.50 \quad \text{NM} = \frac{76}{24} = 3.17 \]

7. When I participate in meetings or on committee’s (staff meetings; health/fitness/welfare committee, Xmas Drive committee, etc.) I “tell it like it is.”

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\[ \text{CUMULATIVE} = \frac{120}{32} = 3.75 \quad \text{UM} = \frac{8}{2} = 4.00 \quad \text{MM} = \frac{18}{6} = 3.00 \quad \text{NM} = \frac{94}{24} = 3.92 \]

8. During meetings or while serving on committees, group members try to avoid distortion of information and use communication skills such as active listening and effective feedback.
SHARED VISION (2.89)

9. I have a personal vision of my future and what I would like to accomplish in my career.*

1---------2---------3---------4---------5
Not at all          Very much so
CUMULATIVE = 146/32 = 4.56  UM = 10/2 = 5.00  MM = 26/6 = 4.30  NM = 110/24 = 4.58

10. I have a clear understanding of the SVFD’s vision of the future.

1---------2---------3---------4---------5
Not at all          Very much so
CUMULATIVE = 90/32 = 2.81  UM = 9/2 = 4.50  MM = 17/6 = 2.83  NM = 64/24 = 2.67

11. My personal vision and the SVFD’s vision compliment one another.

1---------2---------3---------4---------5
Not at all          Very much so
CUMULATIVE = 95/32 = 2.97  UM = 9/2 = 4.50  MM = 15/6 = 2.50  NM = 71/24 = 2.96

* This question not included in the overall ‘shared vision’ category scoring, since it measures personal – not shared – vision.

ORGANIZATIONAL COMMUNICATION (3.11)

12. I feel my supervisor keeps me well-informed on issues important to me.

1---------2---------3---------4---------5
Not at all          Very much so
CUMULATIVE = 87/32 = 2.71  UM = 7/2 = 3.50  MM = 12/6 = 2.50  NM = 68/24 = 2.83

13. I feel that I have adequate input on issues important to my daily activities.
14. I feel that I have adequate input on issues important to my organization.

1---------2---------3---------4---------5
Not at all                      Very much so

CUMULATIVE = 93/32 = 2.90   UM = 7/2 = 3.50   MM = 15/6 = 2.50   NM = 71/24 = 2.96
APPENDIX C

Characteristics of a Learning Organization Within the SVFD

*Very strong*

- Individual Learning: 3.80
- Team Learning: 3.23
- Organizational Communication: 3.11
- Shared Vision: 2.89

*Very weak*
Q1: “Some of the negative issues our organization has dealt with in the past seem to re-occur (excessive overtime, retention of reserve members, etc.).”
Figure D2: Individual Learning

*Very much so*

Q2: “I work in a climate that supports and recognizes the importance of learning.”
Figure D3: Individual Learning

**Very much so**

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<td>Non Managers</td>
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**Not at all**

Q3: “I take advantage of the educational benefits offered by the SVFD.”
Figure D4: Individual Learning

Very much so

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Not at all

Q4: “My supervisor encourages me to take advantage of educational opportunities.”
Figure D5: Individual Learning

**Very much so**

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**Not at all**

Q5: “My supervisor takes on the role of a coach, mentor, and facilitates my learning.”
Q6: “New employees (less than 1 year in the organization) are encouraged to offer new and innovative approaches to accomplishing tasks.”
Figure D7: Team Learning

Very much so

Not at all

Q: "When I participate in meetings or on committees (staff meetings, health/fitness/safety committee, Xmas drive committee, etc.) I 'tell it like it is'."
Figure D8: Team Learning

Very much so

Q8: “During meetings or while serving on committees, group members try to avoid distortion of information and use communication skills such as active listening and effective feedback.”
Q9: “I feel my supervisor keeps me well-informed on issues important to me.”
Figure D10: Organizational Communication

Very much so

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Not at all

Q10: “I feel that I have adequate input on issues important to my daily activities.”
Q11: “I feel I have adequate input on issues important to my organization.”
Figure D12: Shared Vision

Very much so

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Not at all

Q12: “I have a personal vision of my future and what I would like to accomplish in my career.”
Figure D13: Shared Vision

*Very much so*

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<td>2.81</td>
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*Not at all*

Q13: “I have a clear understanding of the SVFD’s vision of the future.”
Figure D14: Shared Vision

Very much so

Not at all

Q14: “My personal vision and the SVFD’s vision complement one another.”