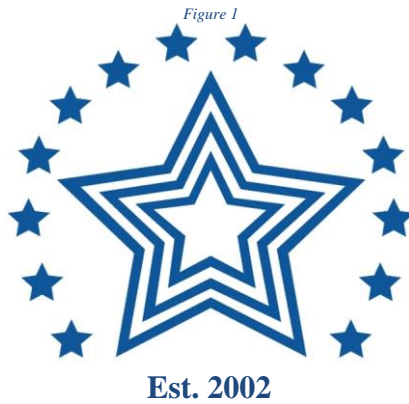


---

# Learning in the Wildland Fire Service



**December 2018**

---

**A publication of the  
Wildland Fire Lessons  
Learned Center**

---

---

This document was prepared by the Wildland Fire Lessons Learned Center and the contract consultant OMNA International, LLC.

It can be downloaded at the Wildland Fire Lessons Learned Center at: <https://www.wildfirelessons.net/viewdocument/learning-in-the-wildland-fire-servi>

Published copies of this document may be ordered from:

Wildland Fire Lessons Learned Center  
Attention: LLC Director  
3265 East Universal Way  
Tucson, AZ 85756

This publication “Learning in the Wildland Fire Service” is a companion effort to “Leading in the Wildland Fire Service” that was first published and circulated in 2007 by the National Wildfire Coordinating Group Training Working Team Leadership Committee, Wildland Fire Leadership Program, and Contract Consultant Mission-Centered Solutions, Inc.

This 2007 publication expresses the fundamental leadership concepts of the wildland fire service. It outlines the framework, values, and principles that guide wildland fire leaders in providing leadership across a broad range of missions. The concepts in this publication are universal to every person in the wildland fire service—from first year employee to senior manager.

“Leading in the Wildland Fire Service” can be downloaded at the Wildland Fire Leadership Development Program at <https://www.fireleadership.gov/> or <http://www.nwcg.gov/pms/pubs/pubs.htm>.

---

Figure 2



*This publication discusses and analyzes the fundamental learning concepts specific to the wildland fire service. It outlines the pillars, tenets, and framework that guide the wildland fire service across a broad range of missions.*

## Contents

Preface.....	5
A Complex System is Difficult to Predict.....	5
Fundamental Learning Concepts.....	6
No Black-and-White Answers .....	6
The Pillars and Tenets of Learning .....	8
Learning Pillars and Tenets.....	9
Healthy Learning Environments .....	10
Every Firefighter Learns Every Day .....	14
Building a Learning Organization.....	16
Training.....	16
Education .....	17
Experience.....	17
The Training and Education Continuum.....	18
Desire and Responsibility to Learn .....	20

Sharing Lessons Throughout the Organization.....	21
Learning to Learn from Accidents .....	22
Opportunities for Inquiry and Dialogue.....	24
Professional Reading.....	24
Simulations and Drills.....	24
Tactical Decision Games (TDGs).....	25
Sand Table Exercises (STEX).....	26
Staff Rides.....	26
Site Visits .....	27
Virtual Site Visits.....	28
Case Study.....	28
After Action Reviews (AARs).....	28
Lesson Identification.....	30
Summary on Learning Organizations .....	30
A Framework for Learning .....	34
Characteristics of Adult Learners.....	35
The Art of Teaching and Learning.....	41
Learning Environment and Climate .....	41
Tips for Unit Leaders .....	44
Framework for Learning Summary.....	49

**All photos in this document are courtesy of Kari Greer.**

# Preface

---

## ***Complex Adaptive System:***

*“Complex systems are systems whose behavior is intrinsically difficult to model due to the dependencies, relationships, or interactions between their parts or between a given system and its environment. Systems that are “complex” have distinct properties that arise from these relationships, such as nonlinearity, emergence, spontaneous order, adaptation, and feedback loops, among others.”*

## **Wikipedia**

Wildland fire is a phenomenon essential to nature’s design. Whether caused by natural force or human beings, fire can pose a threat to people and communities. The ultimate purpose of the wildland fire service is to protect life, property, and natural resources while engaging the forces of nature.

Most of us made a commitment to serve our communities, our states, or our nation. We willingly accepted this unique obligation to place ourselves at risk and to put the interests of others before our own.

We are asked to make tough decisions under a compressed time frame, given limited information, in a complex and high-risk environment. This operational environment routinely brings together people, machinery, and the powerful energy of wildfire in the close, three-dimensional space of the fireground and its associated airspace.

## **A Complex System is Difficult to Predict**

Wildland fire operations have inherent risks that cannot always be eliminated, even in the best of circumstances. Incident management and response is a competition between human beings and the forces of nature. Leaders struggle to manage the effects caused by wildfire and other natural and human-caused events.

The environment can rapidly and unexpectedly change from normal to emergency conditions through complexity: a condition on the

edge between order and disorder, between too fast and too slow, between too much and too little.

Within complexity, the smallest decision and action can have the most profound effect. Often these are life-or-death decisions.

*Learning is vital* to thriving in such a high-risk environment.

### **Fundamental Learning Concepts**

This book expresses the fundamental learning concepts specific to the wildland fire service. It outlines the pillars, tenets, and framework that guide learning in the wildland fire service across a broad range of missions.

The concepts in this book are universal to every person in the wildland fire service—from first time follower to senior leaders of leaders. This book serves the interagency wildland fire service interests by:

- ❖ Articulating a universal set of pillars and tenets to guide learning in the wildland fire service.
- ❖ Focusing leaders on building learning organizations in which the pillars and tenets are implemented daily.
- ❖ Providing a reference of learning practices and concepts for *students of fire*. (See “Student of Fire” sidebar on next page.)

### **No Black-and-White Answers**

There are no simple, clear-cut, by-the-book instructions for learning. We must take direct action to identify and make the best use of every opportunity for learning. This takes study and practice.

This book is your guide, but it does not state policy. It cannot provide black-and-white answers to the unlimited volume and variety of situations related to learning in such a complex operating environment.

## **‘Student of Fire’**

The Wildland Fire Service has not always used the term “Student of Fire.” This notion was coined by the late Paul Gleason, who also developed our LCES program.

When asked: “What do you want your legacy to be?”, Paul responded: *“I suppose I would want my legacy to be that firefighters begin to realize the importance of being a student of fire, and that I was able to help make that happen.”*

Being a student of fire means different things to different people. To many it’s that person who signs up for every training opportunity, is always reading incident and accident reports, never stops thinking about fire, and eagerly listens to war stories from old salts and newbies alike.

Ultimately, a student of fire is first and foremost a student. A student is always learning. A student never assumes they have it all figured out. A student looks for the lesson. A student is willing to question their own beliefs.

This is *humility*.

Are you a student of fire?

---

Figure 3



# The Pillars and Tenets of Learning

**Firefighters are to be both learners and teachers throughout their careers.**

---

*“Learning moments are so valuable. Teaching moments are so rewarding. Moments when we can do both at once—priceless.”*

**Dan Olsen, Forest Supervisor; Daniel Boone National Forest**

Learning is the activity or process of gaining knowledge, skill, or attitude by studying, practicing, being taught, or experiencing something.

A critical element for success in the wildland fire service is continual learning—a structured inquisitive mindset expected of all firefighters who always look for new opportunities to learn and share in a dialogue about learning with subordinates, peers, and senior leaders.

Within the core values and principles for the wildland fire service the duty to “be proficient in your job” and the duty to “develop subordinates for the future” emphasize that firefighters are to be both learners and teachers throughout their careers.

This book is structured around a set of learning pillars and tenets which support our core leadership values and principles. These pillars and tenets are a means of communicating “what right looks like” and illustrating effective learning in action.



## The three chief pillars of learning within the wildland fire service:

- ❖ **Inquiry.** We seek to understand.
- ❖ **Opportunity.** We create conditions for learning.
- ❖ **Dialogue.** We constructively exchange ideas.

*Why did that fire change direction so quickly? Why did that crew not sense the changing conditions, while the other crew did? What can I do to help my team find or create learning opportunities so we can better sense these conditions in the future? What motivates me to want to learn? How do I learn best? How about you, how do you like to learn?*

For each of these three pillars, in Table 1 (below) we identify the tenets that help us to understand and put into practice these pillars of learning. As you read through them, ask yourself if there are other ways you can think of to practice **inquiry**, **opportunity**, and **dialogue**.

Look for those opportunities, talk about them, then take action to help yourself and your team improve as students of fire.

---

## Learning Pillars and Tenets

### Pillars:

### Tenets:

#### Inquiry

**Be Humble** – Always allow for the possibility of improvement.

**Know the System** – Be able to articulate the formal and informal learning system around you and your part in it.

**Be Accountable** – Take inventory on *what* and *how* you are *teaching* and learning.

#### Opportunity

**Be Consistent** – Make learning part of everyday operations for yourself and your team.

**Create the Climate** – Make time for learning a part of all operations.

**Embrace Failure – Approach unintended outcomes with learning in mind.**

Dialogue

**Prepare – Study past operations, communications, decisions, and actions.**

**Listen – Practice listening, especially when it’s hard.**

**Initiate – Always bring up learning.**

---

## **Healthy Learning Environments**

Firefighters are both teachers and students in various learning environments throughout their time in the wildland fire service. Healthy learning environments can occur every day on the fireline, at the station, on the road, during off-duty activities, as well as in formal courses.

Here are some thoughts about how these pillars and tenets get played out in everyday environments:

***Inquiry – Think About the Whole Learning System.***

*Where does the majority of our learning take place? Is it in the classroom? Is it on the fireground? Is it in between the two?*

*How do you contribute? Have we capitalized on all the opportunities for learning? Is learning a part of everyday work?*

While an organization and its leaders are certainly responsible to create conditions for learning, it is each individual’s responsibility to ***think about how they are learning*** and seek any and all avenues to improve their knowledge and skill level.

---

## **An Informal Learning System**

How do the new folks learn to recite the 10 and 18? How do transfers from another crew learn what ratio is used for drip mix on this crew?

How such information is acquired is the informal learning system present within each crew, unit, district, forest, etc.

Start to identify how learning takes place in all the environments you operate in. Make an effort to improve what needs improving.

---

If you depend solely on a formal training system for your development, you will likely find the going slow and the range of topics to be limiting.

**“Certainty”** is the enemy of inquiry. Genuine inquiry requires **humility**—letting go of the notion that we already know what we need to know.

You are responsible for leading yourself first, building on the strengths you bring to the organization, and improving the weaknesses you have. Take inventory of your gifts. What do you do really well? What does your organization need you to do that you are not very good at? How do you learn best, and how can you better yourself so that you can provide more value to your team?

Know yourself and seek opportunity for self-improvement.

### **The History of the Leadership Curriculum**

It’s difficult to believe, but there was a time when the wildland fire service did not have any formal training courses focused on leadership. There was a course called “*Supervisory Concepts and Techniques*” which focused on how to be a good supervisor. But is supervising firefighters the same as providing quality leadership?

After the tragic loss of life on the 1994 South Canyon Fire, the fire community started to talk about things like “human factors”, “group dynamics” and decision-making. This created an environment in which fire leaders started to reach out to other leaders in high-risk endeavors (aviation and the military) to discuss other ways of doing business.

There were a multitude of efforts in the fire community to try something different regarding human factors and fireline leadership. Trial courses on human factors were developed and delivered at the local level. Articles were written and published in professional journals. NWCG approved a proposal to develop a course on human factors.

The combination of all of these individual efforts eventually led to the development of the “L-course” leadership curriculum that we use today. This was not a top-down nor a bottom-up effort. It was a

combination of both. The efforts of many provided the curriculum we use today.

This shows the power we have over our own learning system. We can change how we operate and how we learn.

### **Opportunity – *Create Opportunities for Firefighters to Teach and Learn.***

Following the 1994 South Canyon Fire tragedy, a major effort was set underway to improve how firefighters learned from our history. One of the proposed actions was to establish a national Wildland Fire Lessons Learned Center, which became a reality in 2002.

Over time, this organization developed a number of innovative products that advanced every wildland firefighter’s ability to look at our past and to learn. One of those products is the “Rapid Lesson Sharing” initiative that allows firefighters in any location to become a teacher and share their close call or best practice for others all across the country to learn.

#### **Rapid Lessons?**

In 2011 the Wildland Fire Lessons Learned Center (LLC) received an email from a helicopter crewmember. This crewmember had a story and a few lessons to share about loading external baskets.

As the LLC staff thought about what to do with this story and its lessons, a conversation about a new tool began to unfold. It was decided the wildland fire service needed a format to capture and communicate simple lessons for quick distribution. “Rapid” was a key focus due to the long timeframes associated with the publishing of typical reviews (FLAs, SAIs, etc.).

This new tool became known as “Rapid Lesson Sharing” (RLS).

The RLS continues to grow in use and scope, yet the elements of an RLS remain simple:

- ❖ What happened?
- ❖ What are the lessons?

The original intent remains: capture lessons succinctly and share them as quickly as possible.

At the crew or work unit level, leaders should *seek out existing opportunities for their team*. This can be as simple as utilizing a prescribed fireline preparation assignment for a wildfire LCES drill. Or enroute back home from a fire assignment, stopping by a historical tragedy fire location and doing a brief case study site visit.

### **Dialogue – Talk with Others About Learning.**

After the 2008 Dutch Creek Fire tragedy, many people were inspired to talk about how we handle our medical emergencies on the fireground. This spectrum of voices included family members, national fire managers, and field firefighters.

With persistence and time, this coalition—talking and learning to work together—significantly changed the protocols for how the wildland fire service deals with emergency medical situations today.

### **Bad Apples**

“When faced with a human error problem you may be tempted to ask: ‘*Why didn’t they watch out better? How could they not have noticed?*’ You think you can solve your human error problem by telling people to be more careful, by reprimanding the miscreants, by issuing a new rule or procedure. They are all expressions of the ‘Bad Apple Theory’ where you believe your system is basically safe if it were not for those few unreliable people in it. This old view of human error is increasingly outdated and will lead you nowhere.”

**Sidney Dekker**

The same approach can be used at the crew or work unit level to *discuss past operations and decisions*. The wildland fire service has normalized this through the adoption of the After Action Review process. Every day a crew or team can incrementally improve its performance if they are willing to make time to talk and learn from their pasts actions.

## **Every Firefighter Learns Every Day**

As a community of individuals and organizations who take on high-risk missions, we represent a complex-adaptive system of lifelong learners who value **inquiry**, **opportunity**, and **dialogue** in order to more efficiently and effectively adapt to rapidly changing environments.

Every firefighter is responsible for their own learning in order to improve themselves and their team. All are responsible for sharing their knowledge, skills, and attitudes with others.

The best teachers are scholars; the best scholars are teachers. Every firefighter learns every day.

### **How Did We Learn ‘Duty, Respect and Integrity’?**

We all know “Duty, Respect, and Integrity”. These values are taught to us from day one. But it hasn’t always been that way.

So where did our wildland firefighter values and principles come from? Some may assume that they have always been a part of the wildland fire service. This assumption is incorrect. Prior to the early 2000s we did not have a common set of values and principles to follow.

After the tragic loss of life during the 1994 fire season, in 1998 the “Wildland Firefighter Safety Awareness Study, Phase III” (Tri-Data report) was published. This report had hundreds of recommendations for the fire service. It was in this atmosphere that a Task Group set out to tackle leadership training in the wildland fire service.

The Task Group presented their report in February 2001. A quote from this report states: “*Without common definitions and agreed-upon principles for leadership, how can people learn what to focus on in their own development or the development of their subordinates?*”

The report goes on to state: “*Leadership gurus in the private sector, such as Steven Covey, promote ‘principle-centered leadership’. All branches of the U.S. military have defined leadership ‘traits’ and ‘principles’. While the terminology may vary from one organization to another, many of the concepts appear to be fairly universal.*”

*Military organizations worldwide supply their leaders with a list of the leadership traits and principles that are valued by the organization. The wildland fire community owes its leaders no less.”*

This Task Group recommended the values of “Duty, Respect and Integrity” that we have today.

These values so dearly held in our hearts and souls are relatively new. The extent to which these values have been adopted and internalized shows how the fire service is capable of adapting and incorporating new concepts into our overall culture. We are more than capable of change (learning) if we embrace the process.

---

Figure 4



# Building a Learning Organization

Learning Defined  
Through: Training, Education, and Experience

---

*The whole idea is to get learners—both teachers and students—to consider all the many possibilities of a problem, then apply judgement based on experience to discuss and implement creative solutions.*

Every day presents new opportunities for inquiry and dialogue—new opportunities for learning. **Training, Education, and Experience** are the three interwoven elements of learning. We learn from all three, but learning is most effective when all three are artfully combined into a well-crafted opportunity that looks both backward into experiences of the past, and forward into possibilities for the future.

Whether you are teaching yourself or teaching others, try to combine all three elements to make your organization better through learning.

## **Training**

Training is an aspect of learning that sharpens body and mind. It should be designed as an edifying, confidence-building aspect of



both individual (personal) and collective (organizational) development.

In training, the answer is more important than the question. Often times the answer takes the form of action in response to a condition. Meeting and exceeding established tasks, conditions, and standards continually “raise-the-bar” in training.

In addition, accuracy (deviation from perfection) and precision (repeatability of effects) are both sharpened through training. Individual and collective safety is a product of demanding training that always raises the bar in both accuracy and precision.

### **Education**

Education is a mind and spirit broadening aspect of learning. It should be designed as a humbling aspect of development in which both teacher and student explore the vastness of knowledge and possibility—that which is known and that which is yet to be discovered.

In education the question is more important than the answer. The whole idea is to get learners—both teachers and students—to consider all the many possibilities of a problem, then apply judgment based on experience to discuss and implement creative solutions.

We educate to prepare firefighters for the uncertainties of future operating environments by allowing them to explore creative solutions in safe environments. This is where the possibility of empowering subordinate leaders and clear leader’s intent is often realized.

### **Experience**

Experience is the most memorable aspect of learning in body, mind, and spirit. It should be designed to incorporate elements of both education and training.

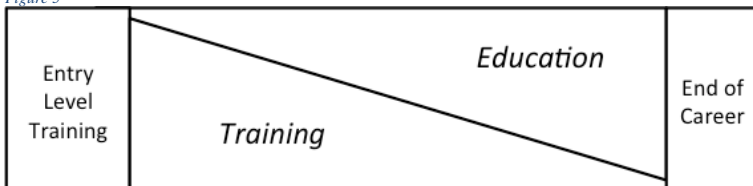
In our experiences—both crafted learning experiences and actual operational experiences—the interplay of questions and answers and problems and solutions produces tangible results. Results must be sensed, evaluated, and used to continually improve personal and organizational character.

## The Training and Education Continuum

Together, training, education, and experience affect individual and collective knowledge, skills, and attitudes.

The career-long journey of a wildland firefighter begins with an initial entry-level emphasis on training. Then, as the firefighter gains experience, the learning gradually shifts to an emphasis on education. We call this the “training and education continuum”. Learning should be designed as a blend of training and education appropriate to the level of student experience. Leaders at all levels should approach training and education with a sense of humility and gratitude.

Figure 5



### The Training and Education Continuum

**Entry-level firefighters get more training than education. But the balance gradually shifts over a career in wildland fire.**

Training and education are the two interdependent means to achieve learning required for operational demands. Each complements the other as they sustain the transformation along the continuum of professional development to produce technically and operationally proficient firefighters. These are firefighters who can think critically, apply sound judgment, stay humble, and make ethical decisions to solve complex problems in an environment of great ambiguity and uncertainty.

Training and education are mutually supporting efforts. The single most important aspect to understand about this concept is that experiences in any learning environment are comprised of an inseparable combination of both training and education that, together, build individual and organizational capability and competence.

---

***“Complexity – Characterizes the behavior of a system or model whose components interact in multiple ways and follow local rules, meaning there is no reasonable higher instruction to define the various possible interactions.”***

**Wikipedia**

---

As firefighters grow in both ability and maturity they begin to *sense conditions* and, on their own, *execute tasks* that meet their designated leader’s *standard of intent*.

In any learning environment, it is a blurring or blending that occurs where training, education, and experience meet.

In planning and conducting teaching and learning, *we target behaviors for change*. Yet we also recognize that whether we intended to train or intended to educate, we produce effects on both—in order to prepare firefighters to *thrive in the realm of complexity*.

---

**For Example: ‘What-ifying’**

We *train* to complete a 500-foot progressive hose lay on flat ground within 10 minutes.

We *educate* firefighters about pump theory and properly laying hose on a fire.

Then we *experience* that event for real. Afterwards, we inquire about how we could have done it better or faster. We talk about how to be more efficient and more effective in the future. Next, we create opportunities for more training or education, as needed.

We design learning experiences by “*What-ifying*” the conditions that we expect may occur in the future.

*What if the hose lay was up or down a steep slope? What if it has to be done in heavy thick brush? How do you react to a spot fire or slop-over behind the lead nozzle? What if a hose ruptures?*

---

---

Figure 6



## Desire and Responsibility to Learn

To be effective in this dynamic, high-risk occupation we must accept the perpetual cycle of acquiring, shaping, and honing knowledge and skills. The learning journey is never finished.

---

*“If you choose to lead others you will have a legacy. I suppose I would want my legacy to be that firefighters begin to realize the importance of being a student of fire, and that I was able to help make that happen.”*

**Paul Gleason**

Being a student of fire requires that you develop a thirst for lifelong learning and “cast your net widely” through inquiry to discover and take advantage of new opportunities to learn.

The **desire** to learn is something that may come and go along your journey. Learning is not always easy. It takes effort. It is sometimes painful. It is understandable that the desire to learn will wax and wane.

The **responsibility** to learn is a different matter; it does not go away. To be effective in this dynamic, high risk occupation we must accept the perpetual cycle of acquiring, shaping, and honing knowledge and skills. The learning journey is never finished.

The nature of our organization is such that everyone we train and educate is an adult learner. However, not all adult learners or learning environments are alike. Before attempting to design, develop, or implement training or education for firefighters, it is necessary to know more about who the students are and how they learn.

One of the factors that leaders consider when creating or implementing training and education is establishing who will learn. Entry-level firefighters learn in a very structured, teacher-centered environment because they lack experience or knowledge of the firefighting community.

Firefighting, all-hazards incident management, and the specific skills within those broad disciplines are all new to them. More structure must be provided for instruction to be efficient and effective.

At the same time, however, it is important to treat them like adults. They do bring life experience into the classroom and they will exhibit some characteristics of adult learners. Young firefighters will be more motivated and more apt to take responsibility for their learning if they are respected as adults.

By contrast, senior and mid-level firefighters bring a wide range of knowledge and experience into the instructional environment. As such, more learner-centered activities are needed to allow the students to use and build upon the knowledge and experience they already possess.

This section will discuss adult learning theories in broad terms and how they apply when designing, developing and implementing instruction for different populations of firefighting students.

### **Sharing Lessons Throughout the Organization**

Leaders evaluate performance at all levels to understand the causal factors of successes and failures. All those involved learn incrementally, applying today's lessons to the next assignment. This focus on continuous process and product improvement brings with it a responsibility to share lessons learned throughout the organization.

In a learning organization, leaders treat honest mistakes as opportunities to do better next time. Understanding that failure is a part of learning, they establish command climates in which young leaders are motivated by a desire to succeed rather than a fear of failure.

### **Learning to Learn from Accidents**

Accidents—and the reviews and investigations that follow—have been part of the wildland fire service since the time before the pulaski. And over the years, the focus and the tone of accident reviews have changed.

In the wake of the Thirtymile and Cramer fire investigations, a shift in post-accident reviews began to take shape. This shift was also occurring in other high-risk industries as well. We all want to figure out why our employees were hurt or killed and what—if anything—can be learned to prevent a similar occurrence.

Beginning with a firefighter entrapment review on the Balls Canyon Fire in 2005 and a Peer Review the following year on the Little Venus Fire in Wyoming, a fundamental change emerged in the way accidents are reviewed and lessons are captured. In 2007, the first Facilitated Learning Analysis (FLA) Guide laid the foundation for today's learning-focused accident reviews.

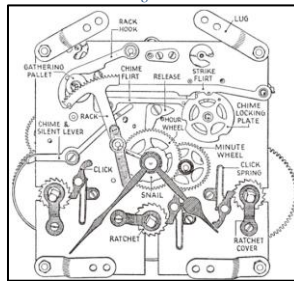
Prior to this effort, accident reviews tended to describe “errors” and what firefighters *should* have seen, understood, or done. This recent shift makes an effort to understand how those involved “made sense” of the situation given the information available at the time.

This view seeks to acknowledge and describe the conditions, pressures, motivations and restrictions present in the situation. In this view, a full accounting of the conditions allows for genuine dialogue regarding potential lessons and learning.

In a learning organization, every member of a team is responsible for leading themselves in learning and sharing what they know with their peers.

Firefighters are responsible to help their captains and chief officers design effective learning opportunities. Captains and chiefs are responsible for creating a command climate where learning is valued and learning initiatives from firefighters are encouraged.

Figure 7



## Clocks and Clouds

Philosopher Karl Popper mused that anything we study can be divided into two categories: clocks and clouds.

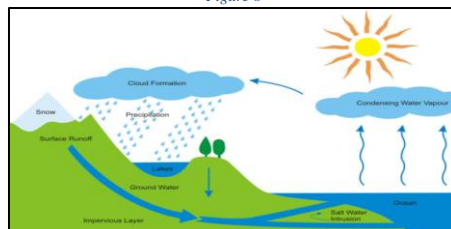
Clocks are easily broken down into individual parts, what each component does and precisely how changing that component will affect the clock's performance. When trying to find out why a clock is not working properly it is simply a process of finding the malfunctioning part.

In contrast, a cloud is made up of numerous components whose individual contribution is random and unpredictable. In describing the formation of a cloud, one can only describe the conditions leading to the cloud's formation without fully knowing exactly to what extent each component contributed.

Apply this analogy to reviewing incidents and accidents on the fireline. Are we dealing with clocks? Sometimes. Mark III pumps and aircraft engines are certainly "clocks". But looking at an entrapment scenario is much more like a "cloud".

When using past events to learn, thinking and talking about this distinction—of clocks and clouds—can be helpful.

Figure 8



## **Opportunities for Inquiry and Dialogue**

The following *opportunities for inquiry* and *dialogue* are the hallmarks of a learning organization. These are experiences that *you* can make happen, regardless of what position you hold in your organization.

### **Professional Reading**

Most successful organizations with sustained high-risk missions have professional reading programs. A key part of those programs is the recommendation that every leader read at least two books a year. Many corporations have required readings for their supervisors and managers.

For several hundred dollars, a fire organization can put together a good library and implement a reading program on their home unit.

*How many young firefighters know what happened at Mann Gulch or South Canyon? How many have read anything that discusses the principles of sound leadership? How many have read stories from other disciplines or endeavors that describe leaders in action?*

This is not busy work; this is not drudgery. Encourage specific reading within your organization that will provoke reflection, discussion, and debate. Read and discuss together with a view toward how you can apply lessons from the past in future operations.

### **Simulations and Drills**

Transfer of knowledge and skills from the learning environment to the job is most likely to happen when the conditions of learning best replicate what is being required on the job.

Students are more likely to remember when instruction is active and geared toward their learning style within the actual operating environment they work in—with all the variables of direct human interaction, field conditions, stress and fatigue.

Whenever possible, integrate learning objectives into live simulations and drills in which real people are put into situations



where they have to make decisions and communicate them effectively under true workplace conditions.

Live simulations are low-risk, educational or training experiences which substitute for some aspects of a real-world situation. Typically, these exercises involve people and equipment operating in a realistically simulated setting. Time is continuous, as in the real world.

The spectrum of live simulations ranges from several individuals running through a hose lay drill, to several crews doing a medic rehearsal, to Incident Management Team trainees running a theoretical fire in a full-scale role-play exercise.

Virtual simulations are a learning tool that utilize computer hardware and software in which students interface with trainers that resemble, to some degree, the equipment or situation that is to be encountered on the job—such as a flight simulator or virtual reality applications. These are also part of the simulation arsenal, though more difficult to support from a logistic and finance perspective.

Simulations are constructed based on verified models of actual systems and procedures. Simulations can be very simple and inexpensive drills at the tactical level or very complex and expensive full-scale role-play rehearsals at the strategic level. The approach taken depends on the degree of fidelity and resolution needed to achieve the learning objectives and outcomes relative to operation of the actual system.

## **Tactical Decision Games (TDGs)**

Tactical Decision Games are role-playing small group exercises designed to place individuals in some sort of decision space. TDGs are valuable because pattern recognition skills, decision-making skills, and communications skills, can all be practiced, refined, and improved.

TDGs are a simple, adaptable, and effective method of repeatedly challenging a firefighter with tactical situations that include limitations of time and information. By requiring a decision regarding the situation and the ability to communicate it in the form

of clear instructions, the firefighter will gain precious experience and skill in actual tactical decision-making.

There is no substitute for experience of the real thing, but that can be hard to come by and tragically unforgiving.

Because TDGs build experience in decision-making and communication, it is important to employ this process frequently at the crew or module level. Require people to actually make the communications as they would “for real”. DO NOT accept: “*I would tell them to...*” Require participants to actually make the communications through role playing.

In addition to developing individual decision-making skills, this practice will also allow crewmembers to learn about themselves, each other, and gain an understanding of how each crewmember thinks. Each game played, like every fire experienced, adds to collective experience.

## **Sand Table Exercises (STEX)**

Tactical Decision Games can be delivered using various table-top visual platforms such as: sand tables, solid terrain models, computer-generated terrain animations, terrain photographs, topographical maps, as well as sketch maps or even dirt, sticks, and rocks on the fireground.

The sand table platform has the additional advantage of being easily and quickly reconfigured for any variety of terrain representations.

The tactile component of these table-top platforms will generate a more engaging learning experience. Having a hands-on spatial frame of reference will also help participants suspend their disbelief and draw them into their role within the exercise.

## **Staff Rides**

The intent of a staff ride is to put participants in the shoes of the decision makers on a historical incident to learn for the future. Staff rides are conducted on the actual ground where an incident or event happened.

A staff ride is more educational than training, but normally combines both aspects as an exceptionally effective experiential learning event.

A staff ride consists of three distinct phases:

- ❖ A systematic *Preliminary Study* of a selected fire, battlefield, or other high-risk incident.
- ❖ An extensive *Field Study* to the actual site(s) associated with the incident.
- ❖ An opportunity for *Integration* of the lessons derived from the study and visit.

Staff rides provide an opportunity to inquire and discuss both the art and science of firefighting. However, this requires maximum participant involvement before arrival and at the site to guarantee thoughtful analysis and discussion. Participants should also have enough fireground experience to have a context for understanding questions regarding leadership and decision-making. The study of leadership aspects in a staff ride transcend time and place.

## **Site Visits**

A site visit is different than a staff ride. A site visit will not have all three phases and is often an “opportunity” type learning.

It is a field study and visit conducted on the ground where an incident or event happened. It can provide opportunity to gain meaningful perspective and insight.

Site visits are often completed while in travel status home from an incident. Others are done on a local unit for new or visiting firefighters.

### **Magnets**

What draws us in? An open ridge that wouldn't take much to prep?  
A big box burn show off roads? A house we can save? Overtime?

What repels us? An unknown crew on the IAP? Certain fuel types?  
Certain regions?

There are so many situations and set-ups that draw us in, just as there are a multitude of scenarios that cause us to hesitate—just like the two sides of a magnet.

What are you and your crew’s magnets? This concept can be useful when reviewing past incidents.

## **Virtual Site Visits**

A virtual site visit follows the same methodology as a “live” or “in the field” event. But because travel restrictions may preclude a trip to the incident location, the terrain is replicated in a virtual environment.

## **Case Study**

A case study is an analysis of persons, events, and decisions that are studied holistically. While it does not need to be conducted at the site of the incident, it could include a visit to the incident location. Case studies are used to demonstrate a thesis or principle. They are usually led and require facilitation.

## **After Action Reviews (AARs)**

An After Action Review (AAR) is a professional discussion of an event—focused on performance standards—that enables firefighters to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses. It is a tool leaders and units can use to get the maximum benefit from every incident or project.

AARs are foundational to local unit learning. They provide an opportunity for dialogue and inquiry following every action and operation in which your unit participates.

Fire leaders walk the talk of a learning organization by scheduling routine debriefings to evaluate performance and apply the lessons learned.

AARs maximize learning from every operation, training event, or task. They represent a powerful tool for team and organizational learning.

AARs also allow people to share honest opinions and learn from each other. Fire leaders make sure that these debriefings focus on *what* instead of *who* and use them to improve weaknesses and to sustain strengths.

Most people (especially young firefighters) want to share their experiences. In order to get things started, try sharing with your crew your positive or negative thoughts related to the day's events.

Once you (the leader) have demonstrated that the AAR works and that it will be part of your team's Standard Operating Procedures, the discussion will become more open.

***Facilitating an AAR requires patience. Initially, it is necessary for the leader to set the tempo. The leader must be a part of the AAR and will have to occasionally accept criticism.***

The critical step is to tap into your crewmembers' emotions. Finding out what they did is not nearly as important as why they did it. Good active listening skills are essential. Do not immediately solve or correct the issue, but let it play out. Try to get to the root of the problem. Encourage everyone to speak their mind.

In order to maximize the AAR, the conversation must have a certain level of candor and allow individual emotions to surface.

Remember, this is not the time to reprimand, nor is it the time for personal disputes to dominate. Only issues that are related to the team's performance should be addressed.

Facilitating an AAR requires patience. Initially, it is necessary for the leader to set the tempo. The leader must be a part of the AAR and will have to occasionally accept criticism. This is important because the team will be looking for affirmation of the AAR process.

Some AAR tips:

- ❖ Hold an AAR with the involved personnel as immediately after an event as possible.
- ❖ Leaders ensure that there is skilled facilitation of the AAR.
- ❖ Make sure everyone participates.
- ❖ Pay attention to time. Set a start and ending time.

- ❖ Establish clear ground rules. Encourage candor and openness and ensure that all participants have equal ownership. Focus on improving performance. Keep all discussions confidential.
- ❖ End on a positive note.

## **Lesson Identification**

The intentional passing on of lessons observed from past fires and all-hazards incidents to the next generation of firefighters is a characteristic of a learning organization.

All the rules of engagement currently used by wildland firefighters have evolved from hard won lessons on the fireground. Developing staff rides from previous incidents and operations for such lessons is a valuable method of inquiry.

The wildland fire service has made notable progress in the realm of documentation and use of past incidents. There are a number of sources for information to develop such case studies. Most of the reports on past incidents are now readily available in digital format through an online database. There are several formal Lessons Learned Center products distributed on a regular basis. In addition, the “Facilitated Learning Analysis” (FLA) process now provides a methodology for learning from near-miss incidents. And the annual refresher training products include recent case study scenarios.

One significant benefit of case studies is that they can be utilized by individuals on their own as well as being part of more formal group or classroom settings. Examining lessons from our past to be better prepared for the future is probably one of the most powerful avenues for self-development available to wildland firefighters.

## **Summary on Learning Organizations**

All wildland firefighters need to undergo similar entry-level training and then career progression training and education designed and implemented as an acculturation process. This common lifelong learning experience provides all firefighters shared situational awareness, a proud heritage, a set of values, and a common bond of comradeship.

Basic individual skills are an essential foundation for fireline effectiveness and must receive heavy emphasis. All firefighters—regardless of their specialty—must be trained and educated in basic firefighting skills.

At the same time, organizational skills are extremely important.

***Leaders must establish concrete learning processes and practices, and reinforce the value of a learning culture. The next section of this publication helps you to do just that by establishing a framework for learning.***

These are not simply an accumulation of individual skills. To be sure, adequacy in individual skills does not automatically mean organizational skills are satisfactory.

Crews and teams must experience learning together so they can collectively improve their knowledge, skills, and attitudes that are in keeping with our leadership values and principles.

In a March 2008 article in *Harvard Business Review*, professors ask: “*Is Yours a Learning Organization?*” The authors propose that an environment to support learning has four characteristics:

**Psychological Safety.** To learn, employees must be comfortable expressing their thoughts.

**Appreciation of Differences.** Recognizing the value of different tactical and operational outlooks increases energy and motivation, sparks fresh thinking, and prevents lethargy and drift.

**Openness to New Ideas.** Learning is about crafting novel approaches. Learners should be encouraged to take risks and explore the untested and unknown.

**Time for Reflection.** When people are too busy or overstressed, their ability to think analytically and creatively is compromised. Supportive learning environments allow time for a pause in the action and encourage thoughtful review of the organization’s processes.

Finally, leaders must establish concrete learning processes and practices, and reinforce the value of a learning culture. The next

section of this publication helps you to do just that by establishing a framework for learning.

By discussing the pillars and tenets of learning—using the framework for learning, and implementing ideas about building a learning organization—wildland firefighters can significantly improve their individual and collective levels of competence and maturity.

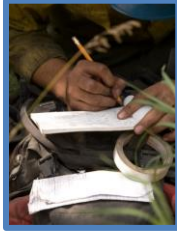
With competence and maturity comes an increased degree of safety. ***Learning is an essential duty*** for leaders at all levels, as we pass on our lessons learned to the next generation.

***Have Fun Learning Together!***

---



*Figure 9*



## **Notes**

---

Figure 10



## A Framework for Learning

---

Integrity is one of the wildland fire leadership values. One of its principles is “know yourself and seek improvement.”

There does not always need to be two people in traditional roles assigned as teacher and student for learning to occur.

Self-directed learning is one way to create, resource, and provide opportunities for yourself and others to teach and to learn. Seek out opportunities to teach yourself and then share what you’ve learned with your team.

Much of the learning we have experienced growing up as children was in the classroom using the classic teacher-student model. However, adults learn differently than children. Firefighters are adults.

In the classic model, the teacher was at the center of instruction and considered to have all the answers, while students were merely the passive receptors of what the teacher delivered. Little thought was given to the experiences and knowledge that students brought to the learning environment, especially what adult learners had to offer.

Fortunately, over the past 50 years we have seen rapid growth in adult learning theory and the adoption of new techniques as described earlier for the training and education of wildland firefighters.

## **Characteristics of Adult Learners**

*It is far better for firefighters to learn how to overcome their anxieties in the safety of a simulation exercise, rather than for the first time out on an active fireline.*

Most adults have developed a sense of self that they expect will be respected and appreciated in a learning environment. These and many other characteristics have been found to be somewhat universal among adult learners.

The following characteristics should be studied and carefully considered when creating learning opportunities for firefighters:

- ❖ They prefer self-direction.
- ❖ They have experience that should be used and built upon.
- ❖ Their readiness to learn depends on their needs.
- ❖ Their orientation to learning is life or problem-centered.
- ❖ They often learn best in small groups.
- ❖ They need a supporting and challenging environment.

**Self-Direction.** Adults avoid, resist, and resent situations where they are not respected as adults. They desire to be treated by others as capable of self-direction.

- ❖ Adults need a learning climate that provides them with a sense of acceptance, respect and support. Criticizing or judging adult learners can quickly shut down the learning process. When necessary, those in the role of teacher must correct the adult learner in a supportive and respectful manner.
- ❖ Anxiety, fear, and lack of confidence are emotions that can negatively affect a student's ability and willingness to learn. Well designed and delivered instruction that considers the potential for anxiety can reduce or eliminate fears. At times there is a need for time-pressured

simulations or assessments that purposefully raise the level of anxiety. This is by design with the goal of lowering fear and building confidence, yet the stress and anxiety should still be considered. It is far better for firefighters to learn how to overcome their anxieties in the safety of a simulation exercise, rather than for the first time out on an active fireline.

- ❖ Students and teachers have a shared responsibility for learning. The teacher provides the atmosphere, resources and guidance the students require for success; the student is responsible for the learning.
- ❖ Teachers take on the role of facilitator, mentor, or coach, providing scaffolding (providing supports and gradually taking them away as students progress) and “just-in-time” assistance to guide students in their quest to build knowledge and gain skills. Activities that have students reflect upon their learning and self-evaluate can be very effective for adult learners because it gives them “ownership” of the problem and the solution.

**Learner Experience.** Adults have had a great deal of previous learning, comprised of formal education, training, culture, reading, and life experience. Based on this prior learning, adult learners formulate assumptions about the world. Their assumptions can either help or hinder the learning of new material.

Learning new concepts is more difficult for students whose assumptions differ from what is being taught. Adults enter the learning environment with a wide range of experiences. The older the learners, the more experience they have and the more varied the group—some good, some bad. A more experienced learner may have a learned skill that needs to be corrected to meet agency or local policy (such as a new hire from the logging industry on starting and use of a chainsaw).

People attach more meaning to what they gain from experience than what they acquire passively. Thus, during the instructional process, it is critical that teachers and curriculum designers consider and make use of student experiences.

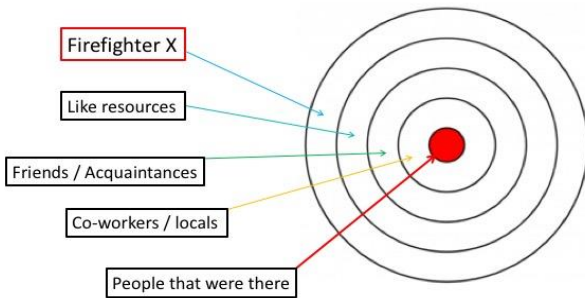
As lessons from past fires and incidents are passed on through training and education, those people most closely affected by incidents are most likely to learn from them. The likelihood of a lesson influencing our behavior is greatly increased by how personal the source of the lesson is. We strive to increase the likelihood of learning for those farther removed through personalizing learning experiences.

The “Bull’s Eye” chart (below) developed by the Wildland Fire Lessons Learned Center plots the likelihood of learning from past events. The likelihood of learning diminishes as we move out from the center.

We seek opportunities to move Firefighter “X” closer to the Bull’s Eye through impactful connection. Simulations and staff rides often have the power to personalize events and lessons to create a connection with the lessons available. These efforts help to move “Firefighter X” closer to the bull’s eye.

---

Figure 11



### **The Likelihood of Learning from Incidents**

**We must create personal connections to increase the likelihood of “Firefighter X” learning from an incident or accident. We must capitalize on those with an existing connection to pass on lessons.**

---

*“All history is remembered history. The action of the individual only gains historical significance through individual relation to the life of a social group.”*

Paul Tillich, ‘Theology of Peace’

---

Giving veterans of a fire the opportunity to share their learning experiences with others brings healing to the entire community.

The telling of stories about individual and collective experience is one of the most impactful additions to any learning environment. Through the telling of stories, individual and collective learning and healing occurs as memories are physically recreated in the mind of each learner.

Instructional techniques that can be used to capitalize on student experiences and storytelling include: problem solving, case studies, small and large group discussions, role-playing, staff rides, and simulation exercises.

- ❖ Effective questioning techniques provide one method to uncover student experiences that may have a bearing on a lesson. Allow students to provide real-world examples to help anchor and solidify instruction.
- ❖ Group and individual projects involving real-world problems can be used to allow students to apply what they have learned and to hone their problem-solving skills.
- ❖ Exposure to multiple perspectives and experiences challenges students to question their previous assumptions. Learning is accomplished through the evaluation of differing experiences, judging best and worst practices, and creating synthesis born of collective experience.

**Readiness to Learn.** Adults are motivated to learn when they feel the learning is relevant to their jobs or their personal lives. They need to know why information or skills are important to them, what they can anticipate learning, and how it will be taught. It is important to provide this information in the introduction to the lesson.

Conversely, adults are not usually motivated to learn what they will have little or no use for. However, there are times when firefighters must attend training regardless of their motivation to do so.

The implication for leaders and curriculum developers is that they must know their audience to ensure that they can choose subject matter and appropriate delivery methods and also effectively explain their relevance.

Learner attitude is a choice. It is often contagious. If the learner has a poor attitude and chooses to not learn or participate, the teacher must address this situation before it propagates throughout the class.

**Orientation to Learning is Life or Problem-Centered.** Training and education must be attuned to the concerns of the students. Adults are motivated to learn to the extent that they perceive the new knowledge or skills will help them perform tasks or deal with problems that they confront in their daily lives.

Learning themes should include materials that address real life concerns. Staff rides, simulations, and practical applications using realistic settings provide a problem-centered orientation. Those who are teaching can also demonstrate the relevance of concepts by relating them to the experiences of their students.

**Small Groups.** Research on adult learning has shown that most adults learn best in small groups. This makes students responsible not only for their own learning, but for the learning of the group. Students who grasp concepts faster help those who do not, and the collective experience of the group adds to the process of learning.

Furthermore, small groups allow students to hear and consider multiple perspectives and present their ideas to the group. Small groups (6 to 15 people) provide enough diversity of thought without letting students hide in the group. Strive to keep small groups within those bounds.

**Supportive and Challenging Environment.** Being openly criticized by the one teaching is a sure way to stop the learning process. Teachers must provide and maintain a learning environment that assists students in meeting goals and objectives.

Leaders must educate, train, and supervise newly assigned teachers in order to help reduce this barrier to learning. A true leader and teacher will inspire learners, not manipulate them.

Teachers of adults must become proficient in the use of constructive feedback and positive reinforcement. Teachers can remove or lessen anxieties by clearly spelling out, up front, expectations for participants and establishing group norms. For example, letting participants know that active participation is encouraged, divergent opinions are welcomed, and that you are there to help them learn.

Furthermore, teachers must learn how to be effective facilitators, encouraging groups to discuss their solutions to problems and facilitating the interaction between group members, the groups themselves, and the class as a whole.

Additionally, curriculum developers and teachers must strive to create learning environments that build upon the experience of the students and *challenge them to go beyond what they know* or can do.

Two approaches to creating such an environment are “without the information given” (WIG) and “beyond the information given” (BIG). “WIG” environments provide the students with little guidance. This forces them to discover on their own solutions to the given problem. “BIG” environments provide the students with a scenario and a possible solution, but they must delve deeper and find other, better solutions. Scaffolding, mentoring, and coaching are other effective instructional techniques.

In both the WIG and BIG approaches, students are required to make decisions and communicate action in the absence of all the information they think they need.



## **The Art of Teaching and Learning**

*“Tell me and I will forget; show me and I may remember; involve me and I will understand.”*

Unknown – Perhaps Confucius

For any learning opportunity, use these basic tenants:

- ❖ Determine your objectives. It is better to express them behaviorally if you can.
- ❖ Determine what your students already know. Only teach the things they need to learn.
- ❖ Try to avoid lecturing. The demonstration or the use of visual aids is much more effective.
- ❖ The students have to DO to learn. Hands-on is best.
- ❖ The student and the teacher should both agree that the objectives have been met. If not, repeat the cycle.

## **Learning Environment and Climate**

*What is the learning climate of your unit  
and how do you contribute—  
whatever your position?*

The firefighter’s operating environment makes the best learning environment. Therefore, if possible, get firefighters out in the woods, in the grasslands, in the neighborhoods. Hike the hills, keep them moving and exposed to changing environments to stimulate thought and learning. When possible, let the outdoors be your primary “classroom.”

That said, there are still times when firefighters will find themselves learning indoors. No matter what or where the classroom, manage the environment and create a good climate in your organization to provide the best possible learning opportunity.

A good learning environment is characterized by: open communication; mutual trust and respect; freedom to raise issues and engage in debate; clear and obtainable goals, objectives and teamwork. What is the learning climate of your unit and how do you contribute—whatever your position?

**Learning Climate.** The most important learning climate is the daily working environment and a positive climate for learning set by organization leaders.

**Environmental Management.** This is about setting the environmental conditions and tone for a consistent focus on learning wherever the learning is planned to occur: in a lecture hall, a discussion room, around a sand table, on a staff ride of an old fireground, in the field scouting a new area, in a bus, or out on the fireline. To do so we must consider our tenets of interaction with learners first, engage learners, and react to distractions or interruptions in ways that keep the focus on learning and the needs of the learner.

**Environmental Layout.** Physically organize the learning environment so that the teacher can reach and see every learner. Tactical Decision Games (TDGs), discussions, After Action Reviews, etc., should be formed in a horseshoe with the learners oriented away from distractions. During classroom projects or group work, the faculty members should be able to reach every learner by using an interior loop which allows free access to all. When possible, arrange learners so their back is to the sun, even if that means the teacher is facing the sun. Oftentimes there is opportunity to use the slope of a hill to position the learners with a good view of the teacher and the terrain being discussed.

**Preparation Time.** This is crucial to creating an effective learning environment. Preparation for a scheduled class begins weeks or months prior to presenting the class. Don't think you can just show up at 0700 for a 0700 class. Teachers must arrive early and allocate time for personal reflection and preparation. Ensure you have all the tools you need to teach: perhaps a stick to point with, some rope and objects to make a terrain model, a map large enough for all to see, a compass to verify direction, markers that work for the dry-erase board.

Is the lighting just right so students can see what you show? Is there a generator running or is the AC too noisy? Is there an HDMI cable available to the projector from your computer? Are your PowerPoint slides formatted for 3:4 or 16:9 projection? Do the speakers work for playing your DVD?

Most importantly, what will you say when you begin? Where will you say it from as you start teaching? Once all that is done, greet the students as they arrive and remember as many names as you can.

**Distractions and Interruptions.** These can interfere with learning. Often, such interferences result from teacher or learner behavior that either through intent or thoughtlessness interferes with instruction or learning, threatens or intimidates others, or oversteps the standards of civil conduct.

*For Example: The well-intentioned bus driver on a staff ride or field trip who keeps the bus running while the group is discussing something on the side of the road. While trying to maintain a comfortable environment inside, the driver thoughtlessly causes disruptive noise and fumes that interfere with the intended learning outside the bus.*

Some distractions or interruptions will be unavoidable and will have to be mitigated to the best of the teacher's ability. A good command presence, speaking with a clear and projecting voice will help. But the amount of time in a noisy distracting environment should always be kept to a minimum.

**Learners Who are Not Engaged.** Learners who are not actively engaged in learning during instruction can interfere with learning in the environment and climate. Learners must become actively involved and must not lapse into the role of passive spectators. Faculty may inadvertently support distraction or interruption by allowing a shift or loss of focus on the learning or topic. Often this happens because of a poor professional example by the teacher, lack of prevention skills, ineffective reaction to interference as it occurs during instruction, or poor time-management skills.

If there is an isolated individual not engaged, there can be numerous reasons, including: choice, distracted by a personal matter, or even a disability such as poor hearing. The teacher will need to determine how to reengage the individual. This applies especially to self-directed learning when you find yourself not engaged and actively applying the pillars of learning. Take corrective action to reverse your own lack of engagement in learning.

## Tips for Unit Leaders

Both formal and informal learning occurs at the small-unit or team level. Leaders must first shape their thinking about how they interact with their people as learners, then consider the goals of all learning (learning outcomes, not just content or objective specific learning). Finally, leaders must consider the standards of instructional morals, ethics, and professionalism.

Specific skills or best practices are at our disposal which enable us to tend to all the learners within the environment and climate that we create in ways that keep them engaged on the task and focused on the learning.

When adult learners are engaged and focused, they are less likely to be distracted or interrupt the learning of others. Here is a checklist of best practices:

- ❖ **Serve as a Good Role Model.** A leader has considerable influence on the student's motivation, through the example given. Show them the proper way to complete a task, wear a uniform, or treat learners in order to **PRACTICE WHAT YOU PREACH.**
- ❖ **First Impressions and Command Presence.** As a leader you have one opportunity to give a first impression to the learner. This can be completed by being early, organized, prepared, focused, presentable, and engaging to the learners as they arrive. The leader's command presence sets the tone for the class environment and demonstrates leading from the front. As a leader, it is okay to not know an answer to a learner's question. Such questions need to be properly addressed and followed up on. *For Example: "That is a great question. I don't know the answer. I will find out and get back to you".* It is imperative that this is followed up on. Demonstrate confidence without arrogance. And remember, when in charge, *be in charge.*
- ❖ **Time Management.** Manage the time available against the time needed for various learning tasks. Mismanagement of time is critical due to the impact that this imparts onto the learners and possibly the teacher to follow. Start on time and end a few minutes early.

- ❖ **Smoothness.** Keep your lesson presentation or execution moving smoothly and seamlessly through well-orchestrated transitions to ensure that learners are not abruptly directed from one element or activity to the next. This minimizes distracting or disturbing incidents and keeps learners engaged and focused. For example, smoothness encompasses transitions between slides in a presentation, concepts in a lecture, and movement from one stand to the next during a staff ride.
- ❖ **Classroom Structure.** Avoid time-wasting through well-planned structures that prompt learners to action with minimum required time or communication. These structures may be opening routines in lessons or field routines such as the conduct of operations briefs. *For Example: The leader may give the order: “Conference Group Leaders, take charge of your group. See you all at Stand 3 at 1300.”*
- ❖ **Group Alerting.** Use effective systems for gaining attention and clarifying expectations without unnecessary and time-consuming direction and explanation.

*Example #1: Show an instructions slide on a screen in a lecture classroom that prompts learners to begin work on a warm-up problem while they are taking their seats.*

*Example #2: On a staff ride, gather the whole class into large-group sessions in the field before breaking into small groups for discussion. Then reform occasionally as a large group by alerting the group to established times and locations for large-group sessions.*

- ❖ **Momentum.** A lesson should gain and maintain momentum to help keep learners on track. Move at the right pace for learners without wearing them down. Plan for sustained learning throughout the day or night, but also sense when it’s time to take a break.
- ❖ **Satiation Avoidance.** See to it that learners are not overexposed to a particular subject as they will eventually become “full” and need to move onto another topic or activity. A good rule of thumb is about 20 minutes to a topic after which a break is in order or a smooth transition to a new topic.

- ❖ **Audience Awareness.** Leaders of learning need to know what is going on in all parts of the learning environment at all times. This situational awareness is essential to detecting learners with questions, unmet needs, or those slipping from engagement in the task or slipping in focus on the learning. Reading the audience helps feed this awareness, knowing which learners are engaged or when the group is approaching satiation. Eye contact, body language, and tone of voice from learner responses all provide input beyond just what teachers see across the whole of the classroom. *For Example: The “aware” leader notices that several learners are puzzled by the last example used, or that some learners in the back have tuned out and are staring into space, or one is always on their cell phone. The leader then takes action to get learners back on track, such as changing the location or position of the classroom in order to focus on a map or a terrain model.*
- ❖ **Overlapping.** Leaders who manage their learning environments effectively are able to attend to two or more events simultaneously. Prevention and reaction to misbehavior takes constant focus on the learners, the learning environment and the curriculum to be instructed—all while facilitating the lesson to keep learners engaged and focused. A leader presenting a concept is capable of answering a learner’s question while moving through the classroom to non-verbally prompt others to reengage in the lesson is an example of using the overlapping technique.
- ❖ **Attention.** Keeping learners engaged means holding them accountable (being in the moment, alerting them to the exam and to the operational fireline connection), indicating and making the relevance meaningful to them, and providing them prompts and the means to actively take notes. The relevance in particular is essential: Do not underestimate the power of purpose. Tie all instruction back to the fireline with the life-and-death decisions they will face in the realm of complexity.
- ❖ **Challenge.** Effective leaders challenge their learners with manageable difficulties. Start the lesson with a question,

problem, or puzzle that challenges prior knowledge and experience and engages learners immediately. Guided discovery!

- ❖ **Provide Efficient Help.** Give learners a visual alert with any instructions and also when helping individuals. Be positive, be brief, and be gone. For example, for a TDG the map graphic and instructions are written on the dry-erase board and then read to learners with the scenario. Questions from learners about what is required are directed to the visual alert on the board. Questions from learners on their ideas are given brief positive comments with rapid identified areas for improvement and then the teacher quickly moves on. This forces learners to engage and not to rely on the teacher for extensive assistance.
- ❖ **Adaptive Execution.** Effective leaders are adaptive in their ability to adjust instruction to best support the learners. If learners are approaching satiation on a topic, the leader adapts the plan to transition to a new topic while being sure to follow-up on the part missed later in the lesson. Adaptive execution is not about changing the curriculum for the needs of the learner, it is about changing the instruction to *meet the needs* of the learner. Such changes are departures from the norm and may take the form of additional questions to the learners, analogies, examples, in the moment sequencing changes, etc.
- ❖ **Positive Reinforcement.** When learners perform or behave as we expect or desire, the leader should provide positive reinforcement such as incentives or appreciative praise. This makes learners more interested in doing the right thing. In essence, we need to “catch” adult learners “being good.”
- ❖ **Give Recognition.** When students do something worthy of recognition, leaders need to give positive feedback to the student. Such recognition makes the student feel alive, important, and significant.
- ❖ **Stimulate Cooperation Among Students.** Modern society places a lot of emphasis on competition. While competition with the self can lead to improved performance as students strive to do their best, competition against others can result in negative perceptions of the self, especially if it isolates a

person. With cooperation, everyone can experience the success of the group and no one is viewed as the “winner” or the “loser”.

- ❖ **Consider Mastery Learning.** Mastery is defined in terms of a specific set of major objectives that students are expected to exhibit by subject completion. Using this approach, a learner’s performance is measured against objectives rather than against the performance of other students. Students learn at different rates, therefore the teacher sets expectations for each individual. This allows time for learning to vary, so all—or almost all—students achieve the desired level of mastery.
- ❖ **Have High but Reasonable Expectations for Learners.** There is a considerable amount of research that suggests that learners perform up to the expectations that leaders have for them. Learners grow, flourish, and develop better in a relationship with someone who projects an inherent trust and belief in their capacity to become what they have the potential to become.
- ❖ **Recognize Potential in Students.** Behavioral scientists have concluded that humans function at 10 percent or less of their potential. Negative views of self certainly stand in the way of releasing the potential of learners.
- ❖ **Provide Examples and Analogies.** Providing a variety of examples and analogies when teaching concepts or skills will help solidify the key elements of the material and can further motivate students to learn. “*The strength of the pack is the wolf and the strength of the wolf is the pack.*” Metaphors matter because they are memorable. Alliteration helps, too.
- ❖ **Recognize Individual Differences.** Some people learn at a slower pace than others and some require different stimuli to become motivated to learn. The leader must establish an effective student-teacher trust relationship. It is important that the teacher does not create barriers, but builds a rapport with the students and shows empathy and genuine concern for their learning.
- ❖ **Provide Feedback through Active Listening.** Learner performance improves when the leader provides meaningful



feedback on performance. Provide written comments on student assignments about the strengths and weaknesses of their ideas and concepts. But be cautious with praise. If it is used too often, or inappropriately, it can have a negative effect on the motivation of adult learners. Timely and constructive comments about performance provide recognition of their efforts and help to correct errors. Used appropriately, feedback should clearly specify the action being reinforced and should be believable.

*Examples:*

*“Good point!” “Outstanding!”*

*“So, based on that direction from you, Mary, this is what I would do... What would you do, Joe?”*

*“Bill, that’s a good idea! Let’s discuss what might happen if you implemented that concept.”*

*“Thanks, Jim. That reminds me that we should always think about second and third-order effects. Can anyone think of any unintended consequences that might occur after that decision?”*

*“Tell me more about that.”*

*“I like that, thank you! What are the risks?”*

## **Framework for Learning Summary**

Despite our attempts to reduce learning into a predictable process, the entire framework for learning is a chaotic environment which is difficult to predict. The smallest changes or actions can have the most profound consequences. As a leader in wildland fire, you are well-prepared to thrive in this environment. YOU make a difference.

Within the core values and principles for the wildland fire service, the integrity to know yourself and seek self-improvement, seek responsibility, and take responsibility for your actions and set the example, all seem so easy to understand that many people don’t give this enough thought. Start thinking about that.

***Inquire*** about that. Integrity has everything to do with establishing a framework for learning within yourself and within your organization.

As a leader and a lifelong learner, you have a ***duty*** to ***respect*** yourself and your sisters and brothers in the wildland fire service by working together to build-up your individual and collective ***integrity***.

This publication may help you find ***opportunities*** to ***dialogue*** and employ this framework to build a learning organization that does just that.

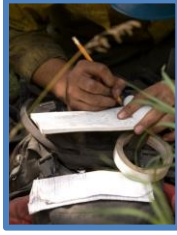
---

**Please provide your comments/feedback on this publication to the Wildland Fire Lessons Learned Center by going to:**

[https://docs.google.com/forms/d/1TnoNsmeAwqnDbDzotkQdVbo5Uw0K3\\_idFOpitUJRzw/edit](https://docs.google.com/forms/d/1TnoNsmeAwqnDbDzotkQdVbo5Uw0K3_idFOpitUJRzw/edit)

---

*Figure 12*



## **Notes**