Principles of Human Performance

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Agenda

- Evolution of Managing Workplace Safety
- Human Performance Principles
- Human Performance Traps
- Fundamental Tools
- Situational Tools
- Steps for Implementation

Evolution of Safety

- 3 “E”s (Old School)
- Best Practices, Standards & Regulations
- Behavior Based Safety
- Safety Culture
- Safety Management Systems
- Human Performance (HU, HP, HPI)
3 E’s

• Engineering
• Education
• Enforcement

Best Practices, Standards & Regulations

• NFPA, NSC, UL, AIHCE, CPSC
• Williams-Steiger OSH Act of 1970
• OSHA – April 28, 1971
• State Regulations
Behavior Based Safety

Environment

Activator → Person → Behavior → Consequence

(Conditions and Circumstances that Influence your behavior)

20% Impact on your behavior

80% Impact on your behavior

Driving

Environment

Activator → Person → Behavior → Consequence

20% Impact on your behavior

80% Impact on your behavior

How’s the weather?
What are you driving?
Who are you with?
Where are you going?
Are you late?
Work or Personal?
What’s your personality?
How do you usually drive?
What condition are you in?
What’s your mood?

Speed/Reckless/Distracted
Drive Carefully
Something in-between

Accident
Ticket
Peer Intervention
Save Time
Have Fun
Arrive Safely
Nothing
Safety Culture Defined

The safety culture of an organization is the product of the individual and group
- values,
- attitudes,
- competencies and
- patterns of behavior
that determine the commitment to, and the style and proficiency of, an organization’s health and safety programs.”

Characteristics of a Strong Safety Culture

• The importance of leadership and the commitment of the chief executives.
• The executive safety role of line management.
• The involvement of all employees.
• Effective communications and commonly understood and agreed goals.
• Good organizational learning and responsiveness to change.
• Manifest attention to workplace safety and health.
• A questioning attitude and a rigorous and prudent approach by all individuals.
Safety Management Systems

- OHSAS 18001
- ISO 45001
- AGP, OPI, UKOOA, BSI, CIA, ECI, iChemE, HSE
- Invent your own!

Human Performance Justification

- The path of least resistance
- Normalization of deviance
- Resisters
  - Coaching
  - Barriers
  - Safest way to complete the task
- Organizational weakness
- Identify opportunities for improvement
Normalization of Deviance

“The gradual process through which unacceptable practice or standards become acceptable. As the deviant behavior is repeated without catastrophic results, it becomes the social norm for the organization.”

“The things are the way they are because they got that way” - Gerald Weinberg
Human Performance Principles

- **Principle 1 – Errors will happen - Expect Them**  
  People are fallible, even the best make mistakes
- **Principle 2 – Can recognize & anticipate - Use Tools and Practices**  
  Error-likely situations are predictable, manageable, and preventable
- **Principle 3 – Behavior is influenced - Lead by Example**  
  Individual behavior is influenced by organizational processes and values
- **Principle 4 – Performance & reinforcement - Feedback, coach & correct**  
  People achieve high levels of performance based largely on the encouragement and reinforcement received from leaders, peers, and subordinates
- **Principle 5 – Learn from mistakes - Investigate & Action**  
  Events can be avoided by understanding the reasons mistakes occur and applying the lessons learned from past events

Traps

- Time Pressure
- Distraction/Interuption
- Multiple Tasks
- Overconfidence
- Vague or Interpretive Guidance
- First Shift/Last Shift
- Peer Pressure
- Change or Off Normal Conditions
- Physical Environment

- Mental Stress
- Limited working memory
- Limited attention
- Limited resources
- Mindset
- Difficulty seeing own errors
- Limited perspective
- Susceptible to emotion
- Focus on goal
- Fatigue
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Fundamental Human Performance Tools

• Situational Awareness
• Self-Checking
• Procedure Use and Adherence
• Effective Communication
• Signature
Situational Awareness Tools

• Task Preview – S.A.F.E.R.
• Job Site Review
• Questioning Attitude
  • Stop, think, act, review
  • Stop when Unsure

Situational Awareness Tools

Task Preview - SAFER

• SUMMARIZE the Critical Steps.
• ANTICIPATE errors and relevant error precursor.
• FORESEE potential and worse case consequences...
• EVALUATE controls/barriers.
• REVIEW previous experience and lessons learned.
Situational Awareness Tools

Job Site Review – 2 Minute drill

• **EXPLORE** the work area. Look for potential hazards and identify whether conditions are what is expected.
• **TALK** with team members about the work, potential hazards and steps to mitigate the hazards.
• **ELIMINATE** the hazards. Install appropriate defenses or develop plans before proceeding.

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Situational Awareness Tools

Questioning Attitude

• **STOP, LOOK AND LISTEN** to identify uncertainties in the work area.
• **ASK** questions to identify knowns and unknowns
• **PROCEED** only if uncertainties have been answered with facts.
Situational Awareness Tools

STOP When Unsure

• STOP the activity
• PLACE the equipment or work site or task/activity in a safe condition
• NOTIFY your immediate supervisor.

Fundamental Human Performance Tools

Self Checking – S.T.A.R. Process

• STOP and focus attention on the objective
• THINK about the expected consequences
• ACT by performing the action in accordance with guidance document
• REVIEW the outcome and verify that it is the expected outcome.
Fundamental Human Performance Tools

Procedure Use and Adherence

• **COMPARE** the working copy to the controlled copy to be sure that it is the correct revision.
• **REVIEW** the prerequisites, instructions, hold points and conditions.
• **USE** the procedure for its purpose.
• **FOLLOW** the procedure as written without deviation.
• **STOP** if unsure.
• **REPORT** any problems, problems or deficiencies.

Fundamental Human Performance Tools

Effective Communication

• **Three Way Communication**
  • Sender states the message
  • Receiver repeats the message
  • Sender verbally acknowledges or corrects if necessary
• **Phonetic Alphabet**
• **Phonetic Numbering**
Phonetic Alphabet

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Fundamental Human Performance Tools

Signature

- **VERIFY** that the information that you have supplied is correct
- **SIGN** your name and write the date if required.
- **WRITE** your initials and date beside any handwritten changes in a document.

Conditional Human Performance Tools

- Flagging
- Placekeeping
- Turnover
- Pre-Job Brief
- Verification Practices
- Peer Coaching
- Post-Job Review
Conditional Human Performance Tools

Flagging

- **IDENTIFY** the component, file or equipment to be handled.
- **FLAG** the designated component.
- **PERFORM** the work.
- **REMOVE** the flag when work is complete

Conditional Human Performance Tools

Placekeeping

- **Black Out Steps** that do not apply and highlight steps that apply to the task.
- **Circle/Slash** method in procedure while work is being accomplished.
- **Re-read and verify** that steps have been completed.
Conditional Human Performance Tools

Turnover

- **Identify Specific Tasks** for the oncoming work group. Communicate status of work completed, schedule requirements or changes and any issues.
- **Discuss the Information** to be turned over. Ensure understanding.
- **Transfer Responsibility** to oncoming shift only if there is confidence in their ability to assume and perform the work.

Conditional Human Performance Tools

Pre Job Brief

- Task Purpose
- Review of Procedures
- **Task Assignments** – Roles and responsibilities
- Safety Hazards/Risk Mitigation
- Human Performance Tools
- Operating Experience
- Stop-work Criteria
- Questions and Concerns
Conditional Human Performance Tools

Verification Practices

• Concurrent Verification
• Independent Verification
• Peer Checking

Conditional Human Performance Tools

Concurrent Verification (1 of 2)

• **Performer** and **Verifier** are involved.
• **Both agree** on action to take, reference the procedure separately and agree on results to achieve.
• **Performer** Self checks component.
• **Verifier** Self checks component.
• **Both again agree** on action to take, reference the procedure separately and agree on results to achieve.
Conditional Human Performance Tools

Concurrent Verification (2 of 2)

- **Verifier** observes **Performer** before and during execution of action and confirms that **Performer** has completed the action correctly.
- The **Performer** completes the action.
- If the **Performer** does not follow the procedure or agreed upon action, the **Verifier** directs the **Performer** to stop work and notify the supervisor.
- After the action is complete, the **Performer** and **Verifier** separately confirm the consequence is correct.

Independent Verification

- **Performer** and **Verifier** are involved.
- **Performer** self-checks component, performs the action, confirms the expected results, and informs verifier that the task has been completed.
- **Verifier** self-checks the correct component or documentation and determines as-found condition.
- **Verifier** compares as-found condition with the guiding document and notifies the **Performer** is the condition does not agree with the expected result.
Conditional Human Performance Tools

Peer Checking (1 of 2)

• Performer and Peer are involved.
• Performer self-checks component or document.
• Peer self-checks component or document.
• Peer and Performer agree on the action to take and on which component or document.
• Peer observes Performer and confirms that the intended action is on the correct component or document.

Conditional Human Performance Tools

Peer Checking (2 of 2)

• Performer executes the action
• If the Performers action is inconsistent with the intended action, then the Peer stops the Performer.
• If the Performer’s action is consistent with the intended action, then the Peer informs the Performer that the correct action was taken.
Conditional Human Performance Tools

Peer Coaching

- **Performer** and **Peer** are involved.
- **Peer** sees **Performer** performing an unsafe behavior.
- **Peer** stops **Performer**.
- **Peer** coaches **Performer** on the correct behavior.
- **Performer** accepts the coaching and thanks **Peer**.

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Conditional Human Performance Tools

Post-Job Review

- Task Purpose Maintained
- Scope Changes?
- Task Assignments – Roles and responsibilities fulfilled?
- Effectiveness of Safety Hazards/Risk Mitigation
- Human Performance Tools Utilized? Any others beneficial?
- Was Stop-work Criteria Utilized?
- Questions, Concerns, and Improvements
- Condition Report Needed?
Steps to Implement Human Performance Tools

• Sell to Executives
• Educate Workforce
• Add to Vocabulary
• Adopt Practices
• Utilize Tools
• Proceduralize to Drive Accountability Where Possible...
• Quality Check
Questions?