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On-the-Job Training and Mentoring Assessment Guideline

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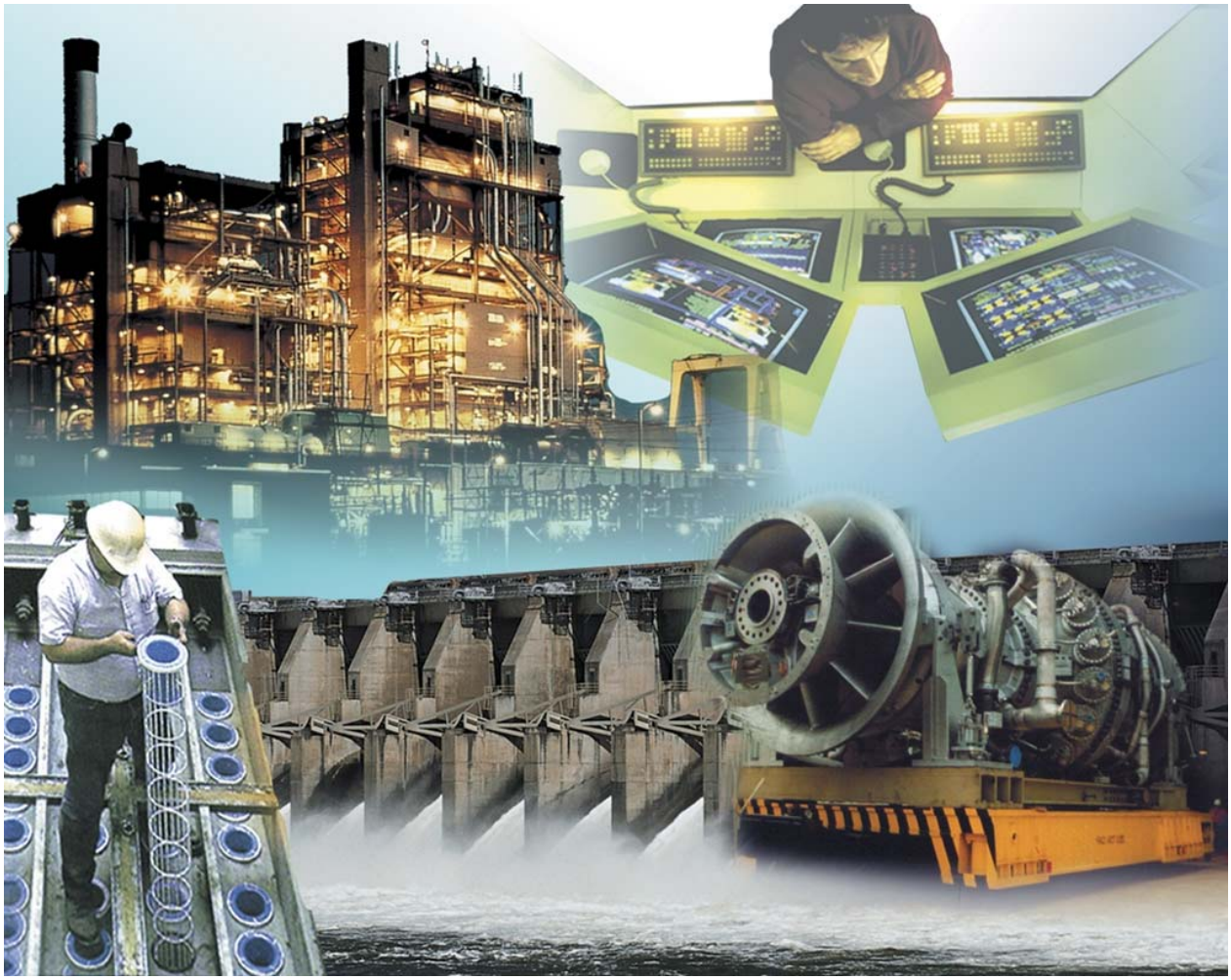

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Technical Update, December 2010

EPRI Project Manager

W. Crawford

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THE FOLLOWING ORGANIZATIONS PREPARED THIS REPORT:

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The Accuro Group, Inc.

Gawron Consulting, Inc.

This is an EPRI Technical Update report. A Technical Update report is intended as an informal report of continuing research, a meeting, or a topical study. It is not a final EPRI technical report.

NOTE

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The report is a corporate document that should be cited in the literature in the following manner:

On-the-Job Training and Mentoring Assessment Guideline. EPRI, Palo Alto, CA: 2010. 1019809.

REPORT SUMMARY

Background

Fossil generating plants face a significant challenge to train new operators as the aging workforce moves toward retirement. Because of this, plants are in various stages of readiness to train new operators. A significant portion of operator training is conducted on the job using an experienced staff member working alongside one or more newly hired operators. This mentoring and on-the-job training (OJT) are key parts of developing the skills and knowledge to effectively operate a fossil plant.

The existing training process and training materials need to be evaluated to determine whether the mentor has the necessary reference material and written documentation to guide the trainee. In addition, there may be a significant cultural difference between mentor and trainee. Most highly experienced operators are 50 years of age or older, while trainees are fresh out of technical school or the military or from related industry. Mentors and trainees are quite likely to view their jobs, plant hardware, training techniques, and electronic support equipment very differently. Under these diverse conditions, the ability to train future operating staff can be daunting and may result in ineffective qualification and the plant safety and operational consequences that can come from a poorly trained staff.

An effective mentoring program and the procedures and policies detailing the plan can provide the guidance and confidence needed for the employee, plant management, and the company to be prepared to operate safely and efficiently. A successful mentoring plan should as a minimum include an assessment of current practices, design and development of a practical strategy, implementation of that strategy, and an ongoing way to assess and adjust.

Objective

- To provide guidance that can be used by fossil generating facilities to assess and strengthen existing training and mentoring programs

Approach

This report was developed based on the authors' years of experience in electric generating plants and in performing assessments and evaluations of training, operations, and personnel. In addition, extensive experience exists in the field of education and by assessing learning styles and studying cultural diversity.

Several evaluation methods were used, including elements of on-site evaluations, personal interviews, and industry experience. Although physical facilities vary from company to company and from location to location, the primary objective of a mentoring program is to train operators as thoroughly and efficiently as possible for the safe operation of the plant.

Results

This report describes the elements of a comprehensive mentoring program, including the responsibilities of the technical mentor, the evaluating mentor, and the trainee, and the assessment and administration of the program. In addition, information is included that aids understanding of the cultural differences that may be detrimental to the relationship between trainees and mentors and inhibit the effectiveness of the knowledge transfer.

Using a systematic training approach, this guideline contains specific guidance on program planning, selecting mentors based on culture, performing mentoring sessions, applying the process, and evaluating the results.

The objectives of the guideline are divided into the various training and assessment elements for clarity and ease of use. For example, one objective of "Attributes of a Good OJT/Mentoring Program" is "The stringency of design activities should be based on the complexity and importance of performance to plant safety and reliability. The more important the activity is to personnel and plant safety and to equipment reliability, the more detailed the method and more rigorous the documentation must be."

To benefit from the use of these guidelines, it is necessary for management to support and participate in the planning and implementation of a mentoring program so that expectations are understood and applied and results are positive.

EPRI Perspective

This report provides a single organized outline for optimizing mentoring functions, elements of OJT training activities, industry best practices, and techniques for evaluating a structured training and qualification program.

Generating companies can compare their training and operations performance and tools for assessing training programs and culture against industry best practices in order to focus improvement opportunities where they are most needed.

Keywords

Mentor
Trainer
Trainee
Culture
On-the-job training
Assessment
Evaluation methods

ABSTRACT

This report provides a strategy and guidance for fossil-fueled electrical generating plants to establish solid on-the-job training (OJT) and mentoring programs that are endorsed and supported by management that places a high value on training and provides the time and resources to ensure the success of the program.

This guideline provides information on cultural differences that may have a detrimental impact on the OJT/mentoring process and assessment guidance to ensure that the learning environment is conducive for the effective, thorough, and efficient transfer of knowledge. Guidance is also provided to assess an existing training program against current industry standards to ensure that the necessary foundation exists to build a sound OJT and mentoring program.

CONTENTS

1
PURPOSE

This on-the-job training (OJT) and mentoring guideline provides assistance that can be used to develop an assessment guide for evaluating a structured OJT and Operator qualification program along with a cultural assessment guideline in order for fossil generating facilities to create processes to self assess both program and culture. Using a systematic training process, this document contains the methodology for how to evaluate appropriate personnel and assess program effectiveness as measured against current industry standards. This guideline can be used to reinforce excellent performance and determine areas for improvement.

2
DEFINITIONS

Apprentice – an individual being trained to become a skilled professional in a particular trade or craft.

Application – is the third level of learning and involves using facts in solving problems, the "skills."

Assessment – The process used to evaluate performance and the implementation of policies and procedures using accepted industry standards as the criteria and is used to determine areas for improvement.

Best practice – an activity that is being effectively and efficiently put into action and is as good as or better than any observed in the industry.

Comprehension – is the second level of learning and implies the understanding of the information. It is the growth in feeling or emotional areas, the attitude.

Generations –an identifiable group whose commonalities include sharing birth years and critical life events at key development stages.

Job performance measure (JPM) – A designated critical task that requires demonstration of task proficiency without coaching or assistance while under the direct supervision of a qualified individual. The trainee's knowledge, competency, and understanding of the mechanics of the task are measured to determine the trainee's readiness to perform the task independently.

Just-in-time training (JITT) – used to reinforce or recall existing knowledge,

skills, and behaviors necessary for complex jobs or tasks, or special evolutions. This training is typically conducted immediately prior to performing the actual evolution, and is particularly useful for non-routine tasks.

Job performance requirements – the knowledge and skills required to complete a position specific job.

Knowledge – is the first level of learning and is simply the acquisition of facts. It involves the cognitive (mental) skills.

Mentor – a more experienced or more knowledgeable employee who effectively communicates and transmits knowledge to employees who are less experienced and less knowledgeable.

Mentoring – considered to be a close learning or developmental relationship between an individual and a more experienced colleague in which the senior person transmits his/her knowledge and experience for the benefit of the junior colleague's career.

Needs analysis – a systematic method used to determine what training should be provided, based on a performance, job and/or task analysis.

On-the-job training (OJT) – provides realistic, hands-on experience for the trainee that is directly applicable to the job.

Organizational culture – workplace environment influenced by the employees' interactions with each other in the physical setting.

Performance-based training – an approach to training that focuses on skills and knowledge required for trainees to perform in the actual job situation.

Performance gap – the gap between required performance (based on pre-determined policies, procedures, guides, regulations, or management expectations) and the actual performance. There are two types of performance discrepancies: those that have occurred and are caused by something and those that may occur due to change or the presence of precursors.

Qualification standards – written statements of the knowledge and skill requirements that an operator trainee must possess to complete qualification. The standards separate the job into individual tasks that the trainee must successfully perform to demonstrate competency. Each task identifies the knowledge and skill required and the method for demonstrating competency.

Senior management – has direct oversight of the training program; focus is to ensure support of the operations training program through appropriate allocation of resources.

Systematic training – a performance-based training method that can be executed on different occasions by different people with consistent results and include these five steps: analysis, design, development, implementation, and evaluation.

Task – a specific unit of work having a definite beginning and end and two or more steps or elements. A task usually has a meaningful or useful outcome.

Trainee – the individual being trained. The person may be a new employee or may be an individual seeking a career/job change.

Training administrator – seeks to promote workplace norms of competence and quality in the learning environments for mentors and trainees; has the responsibility to provide the necessary workplace resources so that operation mentors can effectively guide the trainees.

Training setting – the physical location and/or environment in which training is conducted such as classroom, simulator, laboratory, self-study, or the physical plant.

3
GENERAL DISCUSSION

3.1 Development of the OJT/Mentoring Guideline

An OJT/mentoring assessment is a methodical process for analyzing existing training programs, the culture of the workers serving both as mentors and the trainees, and the relationship and effectiveness of how these elements function together. The outcome is an evaluation of how effectively a facility uses available personnel and resources and whether the results are successful. An assessment points out processes that are exemplary as well as improvement opportunities.

The information contained in this guide is supported by the authors' years of experience in electric generation facilities, performing assessments and evaluations of various departments in these plants, and as a member of oversight committees for several generating companies, as well as having been both an operator trainee and training manager. In addition, experience and training in teaching and learning styles provided valuable insight in the detailed study and extensive review of cultural assessment methodology as visits were made to various facilities.

The use of a systematic training process that includes a structured training program, OJT, and mentoring in conjunction with a good understanding of the cultural aspects and differences between the mentor and trainee were determined to be the most effective means of knowledge transfer and retaining industry information.

An existing EPRI document, *Updated Operations Assessment Guideline*, was referenced as a basis for performance objectives and criteria and can be used during a self assessment to evaluate training methods and effectiveness.

3.1.1 The Importance of a Mentoring/OJT Guideline

EPRI and Fossil Generation Operations identified the need for an OJT/mentoring assessment guideline. Problematic events across the industry included economic challenges, dwindling resources, and the progressive loss of knowledgeable personnel due to retirement. The demand for more efficient training and the measurable communication of "legacy knowledge" became necessary.

3.1.2 Why Is a Cultural Assessment Necessary?

There are few people who can honestly deny having prejudices against others who are different from themselves. Stereotypes persist because they contain some small element of truth. It is convenient to confine a group to a small box. And it is equally convenient for those stereotypes to consider themselves held back as a group especially if their perception is one of having no control.

Observation

Experienced workers often feel that some trainees have a sense of entitlement and want information to be "spoon-fed" to them. The perception is that trainees would rather sit at a computer than get out in the plant and learn "the way they should."

We often find that when we open ourselves up to the truth by meeting and getting to know people, we find out how limiting and destructive stereotyping can be. One of the most misunderstood prejudices is between the generations. "Never trust anyone over thirty" was the mantra of the young adults of the 1960s.

This generation gap has always been the case, but today it is amplified by extended life expectancy, the differences in accelerated technical changes, instant communications, experiences, and historical events that have shaped each group's reference points. As with any discussion of differences, there is a fine line between education and awareness and the reinforcing of stereotypes.

The age differences between personnel could span more than forty years and include four generations in the workplace. How do these individuals relate to each other? There may be educational differences, social differences, and differences in their use and familiarity with technology. Additionally, their communication skills and value systems may not be aligned.

The necessity to evaluate the potential differences between a trainer or experienced co-worker (mentor) and the trainee may point to an impact on training effectiveness. It is also important to determine if the mentor has the necessary attributes to be effective.

Is the mentor a documented worker, a supervisor or an expert at the designated task and has the right standards to ensure the trainee learns to perform tasks to the same high standards? Is the trainee prepared and ready to accept the information from that particular mentor? Does each one understand the unique generational differences of the other?

The objective of assessing cultural differences is to recognize teaching/learning dissimilarities and to provide an environment in which these differences can dissolve into a positive training environment. See Appendix G, Generational Overview.

3.1.3 Why Is a Training/Mentoring Assessment Necessary?

Effective OJT and mentoring must be built on a foundation of a sound, systematic training process based on a job and task analysis for each task to be performed by operators as a basis for both general and plant specific training. It is important to assess a station's training program, processes, and materials to identify differences and weaknesses that need to be corrected. Improvements to any program can be made by continually assessing the organization's strengths and always being on guard for improvement opportunities. Assessments also help to maintain the strengths and keep them from becoming complacent activities that may deteriorate over time.

Training today requires a different set of tools and processes to maximize the talents and potential of the generations currently in the workplace. In order to be successful, the training program will require new relationships, a shift from static structure, and the implementation of on-going mentorships.

3.2 How to Implement Successful Assessments

An environment of commitment on the part of management and staff is necessary in order for the assessment process to be successful. A workplace that supports self-assessment and the identification and reporting of problems, and encourages continuous improvement is an empowered workplace that positively impacts the company's bottom line.

In order to foster the atmosphere of commitment, there must be support and trust between management and staff. Workers must have confidence that their input into the assessment process will be respected and their suggestions considered whenever possible. There should never be the perception that participation in self-assessments will reap repercussions.

In order to get the maximum benefit from self-identification of problems, the company should have a program or process in place to document any problems, potential problems, or weaknesses and a means to track the actions needed to resolve them.

See Appendix A, Checklist for Assessing Current Training Programs.

4
EFFECTS OF CULTURE AND GENERATIONAL DIFFERENCES ON TRAINING

> Each generation imagines itself to be more intelligent than the one that went before it, and wiser than the one that comes after it.
>
> George Orwell

Training program success is dependent on good communications and respect between trainers/mentors and trainees and can lose its effectiveness and easily be diminished due to generational and cultural differences.

How do we define a generation? A generation is defined as an identifiable group whose commonalities include sharing birth years and critical life events at key development stages. Auguste Comte was the first of many philosophers to actually research generations leading to the continued effort of defining and classifying generational differences (Jaeger, 1977). One of Comte important findings was that conflict inevitably arises between aging generations and younger generations due to change (social, technological, cultural, etc.). Members of each generational group have historical and social life experiences that are established and relatively secure during their lives (Smola & Sutton, 2002). As a generation ages, there is a natural affinity, described as an "instinct of conservation," to resist change and innovation on many levels. These generational differences often lead to direct conflict between the two populations; conversely, it also leads to the identity of the emerging generation.

Now for the first time in the history of America's workforce, four generations are working side by side in the workplace. While the first reaction to the former statement may be a positive one, nothing could be further from the truth. Compounding generational concerns are that employee attitudes, values, and satisfaction can change during the lifespan on one's career (Rhodes, 1983). Based upon the diversity of generations working side-by-side, the workplace can be riddled with confusion, miscommunication, and misperception.

For instance, Operator Leon, age 56, is observed working beside Apprentice Jason, age 22. Both of these men have a lot to offer each other, but there are differences in how they relate to each other and how they communicate across generations. These differences can degenerate to resentment and disrespect. If this occurs, both the men and the company will lose. There must be a way for Leon and Jason to work amicably together and for Jason to benefit from Leon's vast knowledge acquired through his many years of experience for the good of everyone involved.

Research suggests that work values are significantly different from one generation to the next (Smola & Sutton, 2004).

Among the general population there are more 50-year-olds in America than any other single age group; the next largest age group is 20-year olds.

The younger generation was found to be:

- Less loyal to the company than their older employees
- Desiring promotion more quickly
- Less likely to see work as important
- More likely to leave employment for money

The older generation's views can be articulated as:

- More idealistic toward work
- Feeling strongly, correlating working hard with worth
- Working hard even when not being supervised

How does one measure a company's differences between these two age groups with respect to their attitudes, their expectations, and their beliefs?

4.1 Characteristics, Expectations, and Preferred Learning Patterns of the Generations

The U.S. Census Bureau defines the labeling of the generations currently in the work force as follows:

- Traditionalists – those born before 1946
- Baby boomers – those born from 1946-1964
- Generation X – born between 1964 and 1981
- Generation Y (often called Millennials) born since 1981.

4.1.1 How Do These Generations Perceive Themselves?

In a 2008 survey, "World of Work," conducted by the staffing agency Randstad, 86 percent of the members of the oldest generation described themselves as ethical, compared with 58 percent of Generation Y respondents. The Traditionalist generation perceives itself as patriotic and values team work to accomplish tasks. They are rule followers and have a respect for authority. They will have a keen awareness of values and morals that a company espouses to have in its mission. They will employ clear logical reasoning when accomplishing a task.

In this same survey, 78 percent of Baby Boomers described themselves as having a strong work ethic, as opposed to 53 percent of Millennials and 68 percent of those in Generation X. Baby Boomers are optimistic and often are high achievers. These adaptive employees value higher education as a means of learning new skills. They were willing to relocate from birthplace in the pursuit of career opportunity. Baby Boomers value success and workplace tenure.

Generation X perceives itself as being fiercely independent. They need to feel their work adds value to a company and its mission. They often seek constructive feedback and do well in work environments that recognize their achievements. They seek autonomy in their work and value their ability to be adaptive. While many are comfortable with directly reporting to a hierarchy, they do not necessarily value titles. Generation X seeks to balance their work environment with their personal lives.

Generation Y (Millennials) are the fastest growing segment of America's workforce. They are ethnically diverse and expect corporate environments to promote working in teams to accomplish tasks. They perceive themselves as hyper-communicators preferring to receive information quickly and from multiple media sources. Generation Y's are multi-taskers; that is, they process pictures, audio and video prior to text based resources. They learn information that is relevant, immediately useful, and in real time. They have a direct affinity for information that is both "play oriented" and "fun." These employees embrace change and challenge.

4.1.2 The Preferred Learning Patterns of the Generations

Learning patterns or learning styles have a rich research history with a variety of different models for categorization. For the purpose of this guideline, we have employed the ideas across many of these theorists, focusing on Fleming's VARK Model (Hawk & Shaw, 2007) which includes the following categories:

- Visual learners - seeing
- Auditory learners - listening
- Reading/writing preference learners
- Kinesthetic/tactile learners - experience (hands-on)

Traditionalists bring to the workplace loyalty, a respect for hierarchy, resistance to change, and a need for recognition. They want a training program to follow. They want to see training material with pictures of their peers performing important tasks. Traditionalists seek work place training approaches that address reading/writing and visual learning preferences. Traditionalists don't like playing games or looking stupid in front of anyone in the workplace.

Sometimes called the "Sandwich Generation," Baby Boomers find themselves caring for children and elderly parents. They are competitive, dedicated, and work well in teams. They require one-on-one time with their supervisor, but they want to be in charge of their own learning. Because Baby Boomers don't want to look bad in front of the boss, they may give "safe" answers instead of honest ones. They will sometimes tell the boss what they think he/she wants to hear. Baby Boomers seek work place training approaches that address visual and kinesthetic/tactile learning preferences.

Generation X'ers are flexible but want a balance between work and life. They want their independence and prefer informal training and self-direction in order to learn. Generation X'ers prefer work place training approaches that address tactile/kinesthetic and visual learning preferences. Because they grew up watching fast-paced children's programs, they do not want to be bored. This group typically retains information through visual presentations.

The Millennials began using computers and the internet from early childhood. This group wants to have fun at work and expects advanced technology. They crave feedback and recognition. Their learning style requires interaction with their peers, but they want structure and direction. Millennials prefer work place training approaches that address tactile/kinesthetic and visual learning preferences. They typically prefer hands-on and rapid-paced orientation with computer-based training. They want to know what is expected of them up front and "Will it be on the test"?

4.2 Information Retention

Learning is defined as "the process of gaining knowledge or skills acquired through instruction or study, or to modify behavior through exposure to a type of conditioning or form of gaining experience" (Shelly et al. 2008). There are many educational theorists who have prescribed different sets of principals over the last half century to accomplish learning and knowledge retention. The cognitive domain specifically sets forth a taxonomy that can be explained as knowledge, comprehension, and critical thinking.

Information is retained by seeing, hearing or doing. The following statistics are valid no matter the age of the student.[1]

In general, information is retained as follows:

- 10% of what we read
- 20% of what we hear (i.e., lecture)
- 30% of what we see
- 50% of what we see and hear (at the same time)
- 70% of what we say (discuss in detail, the reason why repeat backs are important)
- 90% of what we do (manipulating, hands-on)
- 95% of what we teach (knowledge transfer)

4.3 Levels of Learning

With command of information on how we retain information, we need to be aware of the levels of learning. In 1956 a committee of colleges, led by Benjamin Bloom, identified three categories of educational activities:

- Cognitive: mental skills (knowledge)
- Comprehension: growth in feelings or emotional areas (attitude)
- Application: manual or physical skills (skills)

The above are the three basic levels of learning now known as Bloom's Taxonomy of Educational Objectives. The first one must be mastered before the next one can take place.

Knowledge is the first level of learning and is simply the acquisition of facts. It does not require the student to understand or make use of those facts. He/she can name the fact and identify it. Evaluation of knowledge retention is the ability to memorize. We "know it."

Comprehension implies understanding of the information. It does not require the student to apply the information to any specific situation. With comprehension the student can describe, explain, and contrast information. Evaluation of comprehension requires the student to restate or explain the information. We "understand it."

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[1] Source: Thinking Maps, California State University, Northridge; College of Education, Elementary Education Department.

The **Application** Level of Learning involves using facts in solving problems. The student may need to assess, demonstrate, or perform. Evaluation requires the student to make choices and apply them to a given situation. We “can do it.”

This information and additional insight into the generational differences can be found in Appendix F, Cultural and Generational Differences.

5
ON-THE-JOB TRAINING/MENTORING

The electric generation industry is experiencing the loss of experienced personnel primarily through retirement. To replace them with experienced personnel would only be a temporary solution if the replacements are close to retirement themselves, and site specific training would still be needed. Hiring experienced workers from other industries would still require an extensive training program. Hiring entry level workers as replacements is a logical source of talent. However, this solution presents a problem. How can the company maintain safety and productivity with this loss of knowledge, skill and experience? How can we transfer knowledge before it goes out the door?

A successful OJT/mentoring program should as a minimum include an assessment of current practices, design, and development of a practical strategy, implementation of that stratagem and an ongoing means of assessment and adjustment. This guideline is a general overview of what constitutes a good training program. For more detailed information, see U.S. Department of Energy publications: DOE-HDBK-1078-94, *A Systematic Approach to Training*, and DOE-HDBK-1074-95, *Alternative Systematic Approaches to Training*.

Although some of the information in this guideline may be generic in nature, its purpose is to provide specific information in the planning, execution, and evaluation of an effective mentoring program. This guide addresses the responsibilities and qualifications of the mentors, the program's administrative requirements, mentoring styles, and ongoing guidance for the trainee.

5.1 Attributes of a Good OJT/Mentoring Program

A well-defined training program is the foundation of an exemplary OJT/mentoring program. Additionally, the program needs the support of management, adequate resources to implement the program, and a strategy for conducting the training.

5.1.1 Management Support

Management support is the key to a successful OJT/mentoring program. When management places a high priority on training, the time and resources needed are provided to ensure the success of the program.

Evaluation of the current training program for structured OJT and operator qualification will determine if the program creates a learning culture for the development of independent operators who are then capable of assuming the role of operating a safe and reliable plant.

An environment that sincerely seeks to examine existing training programs and attempts to implement positive changes to strengthen their program as a result of self-evaluation demonstrates their commitment to good training to the workers and has a better chance of successfully implementing the necessary changes. A management team that implements work place changes without input from those in that workplace and how they will be affected will have

limited success in getting workers' "buy in" of the changes. Encouraging self-identification of problems and fostering on-going improvements will lead to an effective training program and efficiency of operations, which in turn positively impacts the bottom line. Refer to Section 6.1.1, Management and Direction of Training, for a description of management responsibilities.

5.1.2 Resources

An effective OJT/mentoring program needs adequate resources for both the trainee and the mentor. These resources may include classrooms, adequate training materials, computer-based training, student study guides, milestone schedules for completion, task checklist, laboratory or simulator settings as well as prepared trainers.

Sufficient time and flexibility of scheduling are also considered valuable resources for an effective mentoring program.

Community resources could include a partnership with a local college for some of the fundamental training. Although this is not necessary for a good training program, adequate fundamental training for apprentices needs to be provided by the station in lieu of these outside resources. If outside resources are utilized, the station needs to maintain the ultimate oversight and responsibility of the training program.

5.1.3 Systematic Training Process

One-on-one dialogue is often the most effective method of learning. However, this casual method creates an unquantifiable technique which may lead to operators performing unskilled and unsafe practices if tasks are not understood and performed correctly. A systematic transfer of knowledge, wisdom, skills, and personal experience related to specific tasks can be achieved through the use of a systematic training approach.

A systematic training process is a performance-based training method that can be executed on different occasions by different people with consistent results and includes five steps:

analysis, design, development, implementation, and evaluation.

Lack of a solid learning strategy is a challenge to the mentoring process. Neither the trainee nor the mentor will have a clear picture of what training should look like, and a clear path to development is lacking. In such a case, the program will fail and management goals and expectations will not be met. Without a defined strategy, mentoring may be infrequent and inconsistent. This will breed lack of trust and destroy any relationship that may have developed between the mentor and the trainee.

5.2 Elements of a Systematic Training Process

Assessing an OJT/mentoring program uses the elements of a systematic training approach as follows:

- Analysis of tasks to be performed and identification of the knowledge and skills required to perform the task.
- Design the training. Determine what type of training will best address each element of the task: classroom, labs or mockups, computer-based training (CBT), or in-plant experience (OJT), and include student expectations and qualification goals. Establish a means to evaluate the employee's knowledge of the material after completing the training.
- Develop training materials:
    - Self-study materials, student study guides.
    - OJT/Mentoring materials or guidance.
    - Classroom material.
    - Mockups if possible for hands-on training.
    - Computer-based training.
- Implement training.
- Evaluate employee by:
    - Informal walkthrough on the specific task.
    - Formal, comprehensive walkdown or demonstration of proficiency through completion of a job performance measure (JPM).
    - Written exams/quizzes.

Final determination of task proficiency should require performing the task under supervision without assistance and demonstrating both knowledge and understanding of the task as well as the mechanics of how it is done and what can go wrong under both normal and abnormal conditions, and what to watch out for or be aware of that may indicate a problem. This is called a "job performance measure" in which knowledge and competency are measured to determine adequacy for independent work assignments.

Observation

Special projects and non-routine activities are sometimes performed in the plant without taking full advantage of the training opportunity they provide.

5.2.1 Analysis Phase

Input for the analysis phase can come from a variety of sources but for the purpose of this guideline, the primary focus should be a detailed analysis of each task a worker will be required to perform and identification of the knowledge necessary to perform that task. Other sources may include new or modified equipment, new procedures and processes, revised documents and guidelines, modifications to the plant, industry operating experience, or other identified training needs.

Activities for the analysis phase are:

1. All tasks that are to be performed by operators are identified, both routine and those less frequently performed. Tasks should be broken down and categorized by operator positions and plant systems.

   A review of plant procedures, vendor manuals, and existing training materials is a starting basis to identify tasks. However, personal feedback from experienced operators is invaluable.
2. Each task identified is broken down into critical steps and learning objectives should be developed that clearly state the knowledge and skill requirements to perform all aspects of each task identified. Examples of knowledge requirements may include: plant equipment locations, system knowledge, process knowledge, equipment/tool usage, use of instrumentation, calculations, and a thorough knowledge and understanding of how to accomplish the task.

   Once the associated tasks are determined for a specific job, determine the elements of the job, knowledge and skills associated with each task selected for training. Development of a task-to-training matrix ensures adequate planning for needed training.

5.2.2 Design Phase

The product of the design phase is to determine the type of training or combinations of training methods needed to produce optimal results and refine the method to be used for evaluation when the training is completed.

Activities for the design phase:

1. Identify training needed to adequately address all aspects of the task to be performed.
2. Develop learning objectives that clearly state each aspect of the skills and knowledge needed to perform each task.
3. Identify the timing or training sequence and methods of training, such as classroom, CBT, self-study, just-in-time-training (JITT), on-job-training (OJT), mentoring, simulator training, and computer-based training (CBT).

4. Identification of who should conduct the training. This may be a designated trainer or a subject matter expert on the specific task or area of expertise.
5. Selection of the trainee.
6. Evaluation method to be used to determine whether the trainee's knowledge is adequate to perform the task independently.

The stringency of design activities should be based on the complexity and importance of performance to plant safety and reliability. The more important the activity is to personnel and plant safety and to equipment reliability, the more detailed the method and more rigorous the documentation must be.

5.2.3 Development Phase

The development phase of the mentoring process/program uses the output of the design phase to develop training information that will guide the mentor and trainee during the implementation of the training.

The necessary program elements identified in the design phase are used in the development phase to enhance the mentor's experience and to develop needed support materials.

The development phase activities include:

1. Determine the mentoring activities including the training setting.
2. Decide on the training methods.
3. Develop any necessary mentoring materials or training aids such as drawings, procedures, lesson materials, or mockups.
4. Arrange for or assemble any necessary support materials and equipment.
5. Develop trainee assessment/evaluation methods and materials.
6. Conduct a mock practice.

5.2.4 Implementation Phase

With the output of the development phase of the assessment, it is time to implement the program. The implementation phase of the process involves the following activities:

- Preparation for training.
- Conducting training.
- Evaluating training.
- Documenting training activities.

5.2.5 Evaluation Phase

The evaluation phase should include job and task analysis as a basis for general and plant specific training.

Criteria for evaluation must be established in order to institute consistency of training.

5.3 On-the-Job Training

On-the-job training and mentoring are based on the complexity and importance of performance to plant safety and reliability. Its basis is a solid training strategy.

On-the-job training is a training method that has the ultimate goal of providing the trainee an opportunity to perform a required job-related task prior to being given independent work assignments. OJT provides hands-on experience which is plant related and applicable to the trainee's job under direction of the mentor. This training is done using performance standards established by plant management. Evaluation of the trainee's achievement of the learning objectives and processes is essential to the mastery of the task.

This hands-on training is a fundamental skill which allows the mentor to point out both correct and incorrect behaviors at the time the behavior occurs. Demonstrating is the best method to secure cultural aspects of the industry and to reinforce doing what is expected on the job. This style can also take advantage of opportunistic moments that might occur without prior planning. Unplanned teaching moments can be valuable opportunities. The immediate follow-up of OJT by asking questions of the trainee ensures that learning moments are not lost.

Just-in-time training (JITT) is training that is conducted immediately prior to performing the actual task. This method can take advantage of opportunistic moments that might occur without prior planning. JITT is particularly useful for non-routine tasks and often involves use of the simulator. Examples of good use of JITT include training prior to a plant startup or a non-emergency swap-out of boiler feed pumps.

5.3.1 Conducting an OJT Session

A workplace mentoring session or OJT session is a training method that has the ultimate goal of providing the trainee an opportunity to perform a required job-related task under the direction of a mentor prior to being given independent work assignments. OJT provides hands-on experience which is plant related and applicable to the trainee's job. This training is done using performance standards established by plant management. Evaluation of the trainee's achievement of the learning objectives is essential to the mastery of the task.

These standards include effective mentor training; a review of work schedules to allow adequate time for training and minimizing distractions and interruptions; identification of a detailed list of operator tasks broken down into steps; determination that the skills and knowledge needed for each step have been identified; and a task-to-training matrix has been developed to properly plan the needed training.

5.3.1.1 Preparation

Preparation for OJT is setting the stage for the training. It is the mentor's responsibility to confirm that the trainee needs the training that is about to be presented and has completed any prerequisites that may be required for performance of the task. The mentor will have approved procedures, drawings, and other necessary reference material on hand.

It is important to begin by emphasizing safety concerns and how those concerns may impact the individual and the plant. Check the need for personal protective equipment (PPE) or other related safety equipment that might be needed in the plant.

Go over industry operating experience that may be relevant to the task. Tell the trainee what standards will be used to evaluate his/her performance.

Provide the trainee with reassurance helping to relieve any uneasiness and recounting his/her desire to learn.

Observation

In some cases, industry and plant operating experiences are rarely included in training materials which would enhance decision-making in the future.

5.3.1.2 Presentation

The mentor will begin the session with stating the objectives of the work to be presented. The ground rules will be communicated and any necessary cautions pointed out.

An explanation and demonstration of the task will take place. But first the mentor will explain the task and its purpose clearly and point out the presence of the proper tools, personal protective equipment (PPE), procedures, work packages, materials, etc. If possible, the mentor will demonstrate the task to the trainee in a step-by-step process and will repeat key information as well as discussing the potential consequences of performing the task improperly. The trainee will be checked to be sure the task is understood.

The use of self-checking and error-reduction techniques will be pointed out to the trainee and lessons learned from job-related operating experience will be discussed. Aspects of the task that the mentor knows about by personal experience, such as normal and abnormal conditions and results, likely scenarios if something abnormal occurs, possible causes, anticipated results, and possible solutions should be discussed. The mentor will reinforce prerequisite knowledge and skills and will explain any documentation requirements.

5.3.1.3 Practice

The trainee is now ready to practice the task. Be sure the appropriate tools and materials are available. Carefully observe the performance and coach the trainee as necessary. Have the trainee state the actions as he/she proceeds.

It is important that the mentor be respectful and positive during the process and not conduct conversations that are not relevant to the task. Questions need to be asked that encourage problem-solving and decision-making.

The experienced mentor can point out possible issues that could arise unexpectedly during the evolution and present possible solutions to those issues. Correct the trainee as needed and restate the proper action.

Feedback should be immediate and positive so as to emphasize acceptable performance. Reinforcement tells the trainee what was done correctly and why, but too much reinforcement may diminish the positive effects of the support.

The mentor should give the trainee pointers as to how his/her performance could be improved and provide encouragement for the trainee so that the next OJT will be even more successful.

Consideration should be given to cultural differences when communicating feedback to ensure the message is understood. See Section 6.5, Cultural/Generational Differences.

5.3.2 Mentoring

The objective of a mentoring program is to take the OJT process one step further by creating a learning environment that accelerates the training of operations personnel through the process of transferring knowledge from an experienced operator to a trainee. The trainee is then capable of taking on his/her intended role independently with a focus on the safe, reliable operation of the facility.

A successful mentoring strategy is designed to:

- Create a learning environment for the trainee taking into consideration the learning style and experience of the new employee.
- Secure a safety culture by emphasizing the importance of plant status and the value of completing each and every task safely as it was intended to be done.
- Accelerate a transfer of knowledge in a structured learning environment through the use of documentation, mentor's personal experiences such as normal and abnormal conditions and results, likely scenarios if something abnormal occurs, possible causes, anticipated results, and discussion of possible solutions, in addition to on-the-job training.
- Assimilate new employees onto the team by exposing them to their work environment, to the team, and to other work areas in the plant, in a structured manner.
- Enhance employee retention by establishing a sense of belonging to the group and advancing the trainees understanding of their role in the organization.
- Establish solid mentor-trainee relationships by developing trust, by enhancing trainee confidence, and by providing support and direction.

5.3.2.1 Role of the Mentor

A qualified mentor (trainer) knows the characteristics of successful OJT and adheres to the program's requirements. The trainer supports good plant performance, practices and operating policies and understands adult learning methods, learning styles, knowledge retention, and motivation and can maintain the role of a trainer.

The designated mentor adapts as the mentoring process evolves and as the trainee gains confidence and knowledge. The mentor should be able to ascertain the best mentoring style for a trainee by gauging the student's technical and personal knowledge and learning needs and then matching a mentoring style to meet those needs. The fundamental areas of trainee assessment are the knowledge gap, background and experience, and attitude and outlook.

Mentoring styles include 1) storytelling, which is informal and significant in emphasizing a point, 2) questioning, which prepares the trainee for challenges, 3) demonstrating, which allows for visual retention as well as capturing unplanned teaching opportunities, 4) simulating, which requires prior planning and allows for risk-free activity associated with an actual task, and 5) stop or waiting method, which prevents the beginning of bad work habits and slows the over-confident trainee who may have developed as a result of instant feedback via electronic media. An effective mentor combines any number of these styles as the learning/teaching situations evolve. See Section 6.5.3.2, Assessing Generational Differences.

5.3.2.2 Role of the Trainee

The trainee is an individual who is not qualified and has not been evaluated for the work assignment to be trained on. This may be the new employee's initial introduction to operations and to the industry. The trainee **must not** perform work in a plant setting unless under the direct supervision of a designated, qualified trainer including an experienced operator in the case of control manipulation.

Observation

In some cases, trainees are given credit for previous training or other work experience listed on resumes without validation of the information. This has resulted in trainees being placed further along in the program than they should be because they are lacking in the requisite knowledge expected at the point of training where they were placed.

As the above **Observation** indicates, it may be acceptable to waive training; however, the trainee should be able to demonstrate the task with proficiency prior to being allowed to work independently. This demonstration of proficiency should adequately verify the understanding of any math and physics requisite knowledge.

5.3.3 Effective OJT/Mentoring

Effective mentoring occurs when the session is structured and orderly. Absence of a solid learning strategy challenges the mentoring process. If neither the mentor nor the trainee has a clearly defined picture of the final results, they cannot be expected to meet management's goals. This lack of a plan leads to inconsistent contact between the participants, no specific training goals, and no defined relationship between the mentor and the trainee.

The ultimate goal of the mentoring process is to transfer knowledge from the ageing workforce to new operators. Currently, generating plants are in various stages of readiness to implement this transfer. Since a significant portion of operator training is conducted on the job using an experienced staff member working alongside one or more newly hired operators, the mentoring process and OJT become key elements of transferring skills and knowledge to safely and effectively operate a fossil plant.

Mentoring accelerates the transfer of knowledge by sharing unwritten information based on experience and sound judgment and by reducing the amount of time needed to acquire that knowledge.

Implementing a strategy for transference of knowledge may include meetings between the mentor and the trainee in order to set goals together that include training to be completed, the dates for completion, and standards for qualifications for independent work. The definition of expectations and the establishment of boundaries should also be included in the plan. Executing a plan includes continually evaluating and changing the plan as needed and meeting regularly to determine progress and to provide feedback.

5.3.4 Mentor Training

Mentoring is a process that can be learned and requires certain skill sets to be effective. To successfully transfer legacy knowledge, the mentor needs to develop an awareness of mentoring as a purposeful application of the teaching/learning process, specifically applicable to OJT.

Skill sets that can be learned include communication skills with the mentor learning to listen and ask appropriate questions, limit-setting with regard to such things as personal involvement and time constraints, and relationship building and taking responsibility for that relationship.

Local colleges may sometimes offer or are willing to develop mentor training that would address the necessary skill sets.

The areas of responsibility for the mentor can be divided into three basic areas: orientation which can range from plant site, to the job, or simply to a task; support which can include reinforcement and confidence in the task; and development of the opportunities for the trainee to acquire the knowledge and skills to become successful.

See Appendix D, Survey for Assessing Cultural Aspects of the Mentor.

Observation

In some cases, individuals involved in on-shift training as mentors do not receive any guidance or training on how to mentor most effectively.

6
ASSESSING EXISTING PROGRAMS

The purpose of this section is to provide a description of the necessary elements for a solid training program, upon which good on-the-job training and mentoring programs can be built. In addition, this section provides attributes of "ideal" OJT and mentoring programs, as well as characteristics of good mentors, trainees, and a culture that is conducive for optimum knowledge transfer. The guidance in this section is supported by assessment checklists and survey tools that are provided in Appendices A, B, C, D, and E of this Guideline, which are referenced in applicable discussions in this section. In addition, further detail is included in Appendix F on cultural and generational differences. The items included in this section and in the appendices are not all inclusive, while at the same time may be much more detail than is needed by some stations, and can easily be customized to meet each station's needs. Many items are subjective in nature, and do not lend themselves to being easily answered. These items should be considered collectively to determine if the described intent is being met.

6.1 Assessment of Training Programs

Assessment of existing training programs determines whether the necessary training program elements are in place to produce a successful OJT/mentoring program and assesses the cultural aspects for effective mentoring. Management must be totally committed to assessing the current training program for the assessment to be beneficial. If the company is not sincere in its efforts to scrutinize its own programs, then it is unlikely that personnel will take assessments and their findings seriously.

An environment that sincerely seeks to examine the existing program and attempts to implement positive changes as a result of self-evaluation will experience "buy-in" from plant personnel. A management team that implements work place changes without input from those in that work place is wasting resources. Encouraging self-identification of problems and fostering on-going improvements will lead to an effective training program and efficiency of operations which in turn positively impacts the bottom line.

In addition, an assessment must have the support of personnel at the outset in order to get honest results. Individuals must have the confidence to express opinions and make suggestions so that the resulting conclusions are sincere. There must be no distrust between management and personnel and no indication of repercussions. If such conditions exist then data will be skewed and the results invalid.

6.1.1 Management and Direction of Training

6.1.1.1 Objective

Station management places a high priority on training and provides necessary support and resources in order to achieve excellence in the transfer of knowledge.

6.1.1.2 Description

Management at both the local and corporate level directs the approach to implementing an inclusive training program that is focused on a comprehensive succession plan. The plan consists of programs directed toward the design, development and implementation of a course of action to reach the desired outcome of that plan. Management determines the purpose and scope of the program. It is management's responsibility to ensure the training administrator and the line organization are working together with the necessary resources to accomplish the desired results. For example, is the training program informal with job shadowing as the main teaching tool? Or is the program formal and perceived to meet industry standards? Does the program achieve the desired outcome?

6.1.2 Policies, Programs, Processes, and Procedures Governing Station Training Program

6.1.2.1 Criteria

Effective policies, programs, processes, and procedures are established to provide direction of the following:

- Hiring practices: Candidates are required to pass a standardized aptitude test prior to being hired and are "on probation" for six months.
- Entry level requirements for each operator position/level: After completing a probationary period, new hires typically spend time at lower level positions.
- Candidate screening/interview process.
- Training requirements for each operator position/level: A skill-based qualification process is established that will identify Job Performance Measures (JPMs) for tasks which operators are required to perform to do their job. Operators are required to demonstrate competency on these critical tasks before performing the task independently.
- Placement of trainees with previous experience and/or training: Specific criteria must be met/demonstrated.
- Interface agreement established with local community college (if applicable) outlining responsibilities for each group.
- Transfer to Operations from other groups in the company.

6.1.2.2 Policies

The policies for training provide direction and course of action designed to influence and determine decisions or course of actions.

These policies explain what is to be accomplished and who is responsible for implementation and oversight. Policies are communicated, understood, and followed.

6.1.2.3 Programs

Training programs and requirements are defined for each operator position. Training for entry level trainees begins with fundamental training such as safety, basic plant operations, tagging, systems overviews, and equipment fundamentals. The difficulty and details of the training increase as the trainee gains time and experience.

6.1.2.4 Processes

Training processes are activities that enable the transfer of knowledge to trainees. This can be done through classroom instruction, laboratory simulation, CBT, self-study, OJT, mentoring, etc. These processes involve people, equipment, input materials, methods, and an environment that works together to produce output.

6.1.2.5 Procedures

Procedures establish specific requirements and instructions for the qualification process for new hires. Procedures define required training, and the processes necessary to demonstrate knowledge and skills needed to perform tasks independently.

Procedures must be:

- Valid and correct
- Current and user-friendly
- Understood and followed
- Revised when processes, systems, and equipment are modified or changed

Procedures provide information and instructions for the training and qualification process for each operator position.

Station Policy, Programs, Processes, and Procedures – How to Assess

1. Review station guidance related to hiring practices, entry level requirements, the screening process, training requirements for each level, placement of experienced new hires, and community resource agreements to ensure clearly defined guidance and expectations are provided.

2. Interview the Operations Manager and Training personnel to determine if the necessary guidance is provided, supported by management and followed.

6.2 Training Program Elements

Operators are trained and qualified to a high state of readiness to safely and effectively support plant operation of hardware and processes during both normal and abnormal situations.

6.2.1 Skills and Knowledge

Progression through the operations job classifications requires above-average capability and extensive training. Each job classification specifies prerequisite education and skill levels for the position. Operations job classifications and their associated risks are clearly defined and are the basis for each classification's duties, responsibilities, and subsequent training requirements.

6.2.2 Policy and Procedures Governing Training Program Implementation

The operator training program directly supports and is linked to the operations policies and procedures process. Operations policies and procedures are in place that establish job qualifications and prerequisites, instructor qualifications, and the training program process.

Policies and Procedures Governing Training Program Implementation

- Reiterates and assists in implementation of the company's hiring practices in regards to pre-testing, interviewing, and determining placement of individuals into the training program.
- Includes the training plan that defines training requirements for each operator position, how, when and where the training will be provided, expectations for trainees, mentors, on-shift trainers, and instructors, and a schedule outlining expected milestone completion for the three to four year apprenticeship or training program.
- Defines a basis for determining placement of new hires into the training program, and defines what skills will require proficiency to be demonstrated.
- Establishes qualification standards.
- Identifies instructional materials.
- Establishes the record keeping and documentation process for tracking progress and completion of training.

Policies establish the qualifications and selection process for instructors. Operations managers and supervisors are actively involved in determining training program content, establishing performance standards, and implementing the program in accordance with policies and the yearly operations plan. Shift supervisors, unit operators, and equipment operators, identify the requirements for the on-shift training process to ensure consistent conformance and performance of the training activities with the actual shift routines. Qualification standards are established. These standards are written statements of the knowledge and skill requirements that an operator trainee must possess to complete qualification. The standards separate the job into individual tasks that the trainee must successfully perform to demonstrate competency. Each task identifies the knowledge and skill required and the method for demonstrating competency.

Training Policy and Procedures – How to Assess

1. Verify that policy and procedures are implemented for training, qualification, and job assignment that outline the following:

- Reiterates and assists in implementation of the company's hiring practices in regards to pre-testing, interviewing, and determining placement of individuals into the training program.
- Includes the training plan that defines training requirements for each operator position, how, when and where the training will be provided, expectations for trainees, mentors, on-shift trainers, and instructors, and a schedule outlining expected milestone completion for the three to four year apprenticeship or training program.
- Defines a basis for determining placement of new hires into the training program, and defines what skills will require proficiency to be demonstrated.
- Establishes qualification standards.
- Identifies instructional materials.
- Establishes the record keeping and documentation process for tracking progress and completion of training

2. Verify that training and qualifications are adequate to support job assignments.

6.2.3 Systematic Training Process

A systematic training process is a performance-based training method that can be executed on different occasions by different people with consistent results and includes five steps: analysis, design, development, implementation, and evaluation. See Section 5.2, Elements of a Systematic Training Process, for the details of the process and its five steps.

It is necessary for a well-laid-out plan to identify specific requirements for each stage of the training process, i.e. the initial learning process, OJT/mentoring, and demonstrating proficiency prior to independent work. It is equally important that a mechanism be in place to ensure training is kept abreast of changes to plant systems, procedures, and processes. These changes should be reflected not only in on-site training but also at the local colleges if these community resources are used.

Training Process - How to Assess

1. Determine if specific training requirements have been established for each position in operations.

2. Determine whether a task analysis has been completed to identify all tasks required to be performed for each operator position.

3. Determine whether a knowledge and skill analysis has been completed for each task, and the necessary training identified to address the knowledge gap.

4. Determine if a process exists to tie task analysis knowledge and skill requirements to a training matrix that identifies what training is available to address each knowledge and skill needed.

5. Determine if job performance measures have been identified for critical tasks. These JPMs will be used to determine qualification readiness when performed without assistance or coaching under the direct supervision of a qualified person.

6. Evaluate the process for determining what type of training will be provided (such as plant classroom training, community college setting, computer-based training, OJT, or mentoring or any combination of these options), who will provide it, and a sequence for the training to be conducted.

7. Evaluate training lesson plans, student study materials, and other training aids for adequacy, accuracy, and ease of use.

8. Evaluate the progress of current trainees to determine if the process is being followed.

9. Discuss the training process with current trainees as well as experienced operators to solicit their opinions on the effectiveness of training and their readiness to perform their tasks safely and efficiently. Solicit improvement opportunities.

10. Evaluate the methods for evaluating trainee knowledge. This should include routine written and oral exams, periodic comprehensive written exams and oral boards, system walkdowns, or JPMs which are frequently established and used to measure adequacy of knowledge and competency prior to performing critical tasks independently.

11. Verify that a process is implemented to provide information and training on plant changes, new equipment, procedure changes, and industry events.

6.2.4 Training for New Hires

Training qualification requirements for all operations positions and shift supervisors are clearly defined. Also, this process includes training on new equipment, changes in the plant, and industry events. An overview of industry events could be covered at the shift briefing, but more detailed training for those directly involved may be required.

Training for New Hires – How to Assess

Determine if the following things are included in a program/process for entry-level operations trainees.

- Entry-level operations trainees are screened by education, work experience, performance evaluations, aptitude testing, and multiple interviews with managers and crew members within the department.
- Entry-level operations trainees receive classroom instruction, reinforced by hand-on dynamic learning activities and demonstrations guided by an established and proven syllabus that sequentially leads to the job position qualification.
- The progress and performance of entry-level operations trainees are measured by frequent evaluation. These should include routine written and oral exams, periodic comprehensive written exams and oral boards, system walkdowns, and requirements to demonstrate proficiency of tasks prior to performing work independently. Progression from the classroom to on-the-job training requires successful completion of all the examinations.
- On-the-job training on actual plant equipment requires supervision of qualified instructors during every phase of the training.
- Entry-level operators are instructed in making rounds.
- Instruction includes reading gauges, flow meters, sight glasses, charts, and graphs.
- Instruction includes checking equipment using touch, sound, and smell. Examples are laying hands on bearing caps to determine abnormal temperatures and vibration: listening for rubs, listening for steam leaks: smelling insulation burning, smoldering fuel, casing leaks, etc.
- Instruction includes corrective actions/preventive maintenance the operator can do, notifications to be made, Maintenance Work Requests to be initiated, and documentation required.
- Regularly scheduled emergency preparedness training and drills are required. Timely performance reviews of individuals and the crews are carried out through task evaluations, inspections, and formal operational readiness testing.

See Appendix A, Checklist for Assessing Current Training Programs.

6.2.5 Personal Accountability

Individuals who practice personal accountability exhibit defining characteristics that delineate how they relate to others in the organization. They recognize that their actions have impact on those around them and to the organization's objectives. Employees who are personally accountable are aware of the importance of correctly performing their jobs as they can see how it impacts the work of others. They take responsibility for their failures as well as their successes and accept criticism when it is appropriate. They do not make excuses or try to place blame on others.

In addition to individual accountability, trainees should hold each other accountable in an effort to help each other improve. It is important to not view constructive criticism as a personal attack.

Personal Accountability – How to Assess

1. Determine how individuals are held accountable.
2. Are expectations tied to periodic reviews?

Cultural assessments are based on the behavior patterns within a particular group and how that group reacts to groups different from themselves. Additionally, it is the intent of this section to address methods for bringing together individuals whose belief systems and behavior patterns may be in opposition to each other.

Have cultural attributes of the mentor and trainee been identified? How have the differences been considered regarding matching mentor with trainee? Does training for the mentor exist on site? Is there a plan in place to pair an appropriate mentor with a trainee? If the mentor - trainee match isn't productive, is there a plan to revaluate the placements?

For example, a baby-boomer (born between 1946 and 1964) traditionally wants to be in charge of learning process and will strongly correlate hard work with self worth. A boomer will choose to first communicate 'in person' and is generally resistant to technology integration. They enjoy one-on-one time with their supervisors and expect to be consulted for their experience when decisions are made. Generation Y workers (born after 1981) are less likely to see work as important. They have a strong desire to interact with their contemporaries and expect to work in team environments where their ideas are considered. When direction is provided from a supervisor, they desire more structure and direction and want to know what is expected up front. Generation Y employees choose to electronically communicate with their peers when access is available. They would first utilize online medium as a source of information rather than asking a peer or a supervisor. None of these characteristics are wrong. They are simply different.

6.3.1 How to Conduct a Cultural Assessment

"When you manage, you alter behavior; but when you're a mentor, you're altering beliefs," so explains Jay Doering, Vice President (retired), Exelon Corporation. "You help people adopt certain values and ways of thinking about things." Doering added.

Every work environment has policies and procedures that are vital to the success of a plant. 'Formal' Mentoring includes supporting and encouraging a trainee in order to pass along accumulated knowledge, develop skills, improve performance, and to maximize potential specific to a workplace. Often mentors will share information with their trainees, monitor the progress of the new employee, and assess their performance in a variety of different ways. 'Informal' mentoring leads to new employee assimilation into THIS workplace environment and adoption of THIS workplace's norms and values. Mentors model appropriate work place behaviors including effective communication with supervisors, understanding of hierarchy, and the 'do's and don'ts' of workplace culture. This is always the most difficult cultural assessment to address and plan out.

Typically, the less-experienced person is paired with an expert or more seasoned practitioner in a particular subject area. Mentors are often chosen for two reasons:

1. They have an expertise in their practice that is learned and transferable to another employee
2. They have a strong desire to share their craft with younger or new hires embracing the idea of molding or crafting newer employees entering the work force.

Effective mentors are chosen for both the attributes articulated above.

Companies invest heavily in the training and development of their personnel. Mentoring is a proven method of accelerating the transfer of knowledge, improving employee retention, putting individuals on the fast-track to succession leadership and promoting diversity. Mentoring also contributes to a more positive organizational climate and higher employee satisfaction and creates a learning culture that ensures success by having a well-trained work force.

See Appendix C, How to Assess Culture.

6.3.2 Changing Paradigms

Why would a seasoned employee who is nearing retirement want to become a mentor? This is where management buy-in becomes so very important. It is leadership that will convince 56-year-old Leon that he would make an outstanding mentor.

The first hurdle is to reassure the prospective mentor that he/she is not about to train someone as an immediate replacement. Many individuals have seen their peers who are nearing retirement get laid off by less than scrupulous companies. Often senior employees do not see mentoring as a responsibility. Leon does not want to be held responsible for advancing the careers of the next generation of employees. But did Leon learn his job the "hard way" or was he actually "mentored" by original equipment manufacturers?

Leon needs to know that only he has knowledge that must be transferred to a younger workforce and that he will leave a legacy at the company. He will neither be competing with the trainee nor the computer. The older worker needs to note the added strength to the organization when new employees are trained so the two can cover for each other. When all are performing at the top of their game, things go better for everyone. Human performance errors are less likely.

6.3.2.1 Management Responsibilities

Senior Management has direct oversight of the training program. Their focus is to ensure that the training administrator has support for integration of the operations training program through appropriate allocation of resources. In addition, Senior Management must ensure any generational and cultural differences, such as age discrimination, are not impacting the training process or knowledge transfer. It is management's responsibility to show the older worker why training new operators is an advantage, such as strengthening the organization so workers can cover for each other and also assuring that a well-trained worker will be a peak performer.

For cultural and generational differences, see Section 6.5, Cultural/Generational Differences, and Appendix G, Generational Overview.

The Training Administrator's role is to teach the value of mentoring to both the trainee and the mentor and to teach the workers to access the information and apply it to the situation. The trainee needs to be assured that the learning environment will have structure and that he/she will become empowered as knowledge is transferred.

A role of the training administrator is to promote workplace norms of competence and quality in the learning environments for mentors and trainees. Training administrators have the responsibility to provide the necessary workplace resources so that operation mentors can effectively guide the trainees. They represent the management buy-in and support of the training process. Training administrators are responsible for exhibiting ownership and oversight of the plant operations training process so that the mentor – trainee relationship develops in a productive manner. For instance, the training administrator may see it necessary to assign mentors from plant operations to the training process. Commitment requires support and the plant operators have to see the value in the training process to make it a priority.

The training administrator exhibits the following qualities and characteristics supporting a good mentor/trainee relationship.

Attributes of an Effective Training Administrator

- Appropriate Placement - Supervises the process for identification and training of quality mentors in each facility.
- Effective Communicator - Works closely with mentor to facilitate trainee integration and relationship; needs to be well informed of the relationship process.
- Active Participant - Participates in Mentor-Trainee OJT and in periodic reviews of trainee progress supporting desired performance outcomes.
- Available as an Intellectual Resource - Is readily available to serve as an intellectual resource for mentor and trainee; needs to commit company time and resources for the relationship to flourish.
- Organizational Planning - Aligns workplace structures and resources to reinforce the outlined goals of OJT ensuring that the mentor has access to appropriate classroom space, training resources and expected technology integration needed by the newer generations.
- Inclusive environment - Involves mentors and trainees as part of the decision making apparatus for future training and development.
- Commitment - Leadership demonstrates commitment to continuous workplace improvement and professional growth of the mentor and trainee.

6.3.2.2 An Effective Mentor

An effective mentor will become respected and admired by the trainees he encounters. He will be recognized by the company for taking the opportunity to give back to his work community. And as a pensioned retiree, Leon will still be contributing to the company's success which in turn will continue to make his retirement financially sound.

Observation

In all cases, shift-trainers (mentors) appear to recognize the importance of good training and mentoring, and are willing to assist trainees.

6.3.2.3 Attributes of an Effective Mentor

A mentor is a more experienced or more knowledgeable employee who effectively communicates and transmits knowledge to employees who are less experienced and less knowledgeable. The workplace mentor is an employee in good standing and exhibits the following qualities and characteristics supporting a good mentor/trainee relationship.

Attributes of an Effective Mentor

The following attributes should be considered before assigning the responsibilities of mentorship to an individual:

- Intellectual Resource - Serves as an intellectual resource for workplace practices through sharing of expertise of the knowledge and performance through past effective workplace experience, is knowledgeable of the job at hand.
- High Standards - Work standards support company policies and procedures. Mentor will reinforce company and plant expectations for the conduct of high quality work.
- Good Communicator - Communication is a top priority. All parties have to communicate and problem-solve collaboratively to resolve issues and concerns arising from the workplace training environment. An effective mentor is confident and friendly; listens, understands, genuinely wants to help and consideration is given to cultural and generational differences when communicating. See Section 6.5, Cultural/Generational Differences.
- Effective Facilitator - Supervises and functions as a collegial coach and supervisor for site-based trainee. Available to spend time with the trainee, is patient in adjusting to the trainee's learning style and flexible when plans change, able to adapt.
- Conveys Accurate Information - Knowledgeable of the task to be performed. Ensures clarity in the mentor-trainee relationship so that knowledge transfer is effective and efficient.
- Builds Positive Workplace Climate - Assists in the development of a professional workplace culture and the emergence of a compatible and legitimate workplace environment. Tactful in dealing with negative feedback and is respectful of differences.
- Supportive Mentor - Offers suggestions and support for the trainee, incorporating relevant work place performance and practical methods of teaching.
- Eager Participant - Facilitates and participates in site meetings focusing upon workplace practices and the consequences of such practices in workplace environments.
- Astute Observer - Observes and evaluates the trainee's performance periodically during the process; records and analyzes performance data to improve the quality of workplace-based experiences.
- Continuing Evaluator - Validates the trainee's progress of the OJT process in both knowledge and current practice of assigned tasks relevant to the position, is encouraging and motivating.
- Accountable - Serves as a reliable source in evaluating the trainee's practical experience and assessing the trainee at gateway points in the OJT. Possesses high standards for performing work safely and accurately.

6.3.2.4 Mentoring: How to Assess an Effective Mentor

The necessity to evaluate the potential differences between a trainer or experienced co-worker (mentor) and the trainee may point to an impact on training effectiveness.

It is necessary to know the following when choosing a potential mentor:

1. What knowledge does the employee have that would qualify them as a good mentor?
2. What skills have they demonstrated in the workplace that would add value to their ability to disseminate knowledge to new employees?
3. What dispositions have been observed that would add value to their eligibility to serve in the important mentor role?

There are a few ways to understand and assess a good mentor. The first is to assess past job experience and performance. This information can be gleaned from peer employees, direct reports, and past performance assessments. The mentor must have evidence of modeling good workplace practice. The second is for an administrator to observe the potential mentor in the workplace. Does the employee exhibit the necessary qualities and characteristics to successfully mentor a new employee?

The most important means of assessing a good mentor is to interview the interested employee to determine if he/she has the necessary commitment to the OJT process.

Mentoring – How to Assess an Effective Mentor

1. Determine the qualifications of each skilled employee willing to serve as a mentor to training employees.
   a. What qualifications do you have to be a candidate in order to become a mentor?
   b. If so, why do you think you would serve as a good mentor?
   c. How would you design a training program to convey information from an experienced employee to a novice employee?
   d. What teaching strategies would serve the trainee best?
2. Determine if the skilled and experienced employee is willing to commit the time and energy needed to be an effective mentor.
   a. Do you have the time to devote to a trainee?
   b. How long should the mentoring process take?
   c. What value can you add to the mentoring process?
3. Discuss whether the identified employee is well versed on the parameters of the OJT program in place. Mentors should have a good understanding of the OJT being implemented.
   a. What do you know about the current training process?
   b. What would you recommend for improving the mentoring of new employees?
4. Determine if the identified employee is a good communicator and an effective problem-solver.
   a. Does the individual have an understanding of cultural and generational differences necessary for effective communication and knowledge transfer?
   b. What kind of communicator are you?
   c. How should trainees learn to problem solve unique solutions?
5. Determine if the identified employee has the experience and knowledge to be viewed as an intellectual resource by the company.
   a. What intellectual value would you add to the mentoring process?
   b. What is the best method you would employ to share the knowledge and experience you have?

6. Determine if the identified employee can efficiently and accurately convey static information from manuals to active performance in practice.
    a. If the trainee doesn't know or understand a solution, how would you best prepare the student to learn the new information and apply it to a problem?
    b. How would you best explain something new to a trainee?
7. Determine if the identified employee is capable of coaching a trainee through the rigors of the workplace environment.
    a. What important characteristics should a new employee have to be successful in the workplace?
    b. How would you model those characteristics to the trainee?
8. Determine if the prospective mentor has assisted in the development of a professional workplace culture.
    a. What value have you added to the culture of the workplace environment?
    b. What values should an employee have in order to maintain their performance on the job?
9. Determine if the identified employee can be trusted to meet deadlines and support a trainee to do the same.
    a. Have you consistently met deadlines for your performance?
    b. Is there a time that you can remember when you didn't? If so, explain what you've learned from the experience.
    c. Is there a time that you can remember when you didn't? If so, explain what you've learned from the experience.
10. Determine if the identified employee is capable of evaluating a trainee and providing the necessary feedback (difficult at times) necessary for improvement and growth.
    a. Are you comfortable receiving critical feedback?
    b. If so, can you explain when you received the feedback and if that feedback impacted your job performance?
    c. How would you provide the necessary critical feedback to a trainee?
    d. How would you expect them to react to the suggestions??
11. Determine if the identified employee can be accountable for assessing the progress of the trainee.
    a. How has your past performance been assessed?
    b. What would you change about the accountability and standards you've been held to?
    c. Are trainees being held to the same standards?
    d. What suggestions do you have for employees?

See Appendix B, How to Assess OJT/Mentoring.

6.3.2.5 Attributes of a Training Candidate

The younger worker needs to review the prism through which he/she sees the older worker. Does the trainee need to lower defenses and be willing to accept the knowledge transfer from the older worker rather than from a computer?

The trainee needs to recognize that the older worker has legacy knowledge that has not been captured with technology. The process of gaining information has not changed, only the delivery method is different. The computer cannot transfer the human element of the training process.

Observation

In all cases, trainees place a high value on the ability to job-shadow and they acknowledged the help and support typically provided from the on-shift trainers (mentors).

The personal characteristics of a qualified trainee can be found in Section 6.3.2.5, Attributes of a Training Candidate.

The workplace trainee is willing to be mentored and guided through the designed training process. The trainee exhibits the following qualities and characteristics supporting a good mentor/trainee relationship.

Skills of an Exceptional Trainee – Assessment Attributes

- Responsible for Personal Development - Delivers, analyzes, and reflects on effective workplace knowledge and skill development; candidate participates in classroom training, observations, mentor conferences and practical learning to improve workplace performance. Trustworthy.
- Willing to be mentored - Pursues understanding of the relationship between knowledge and practice and between workplace culture and the plant environment and is willing to learn from constructive criticism by the supervisor and mentor. Eager to learn.
- Agreeable to Being Coached - Understands and is instrumental in developing and utilizing feedback from the mentor focused on knowledge transfer and skill development. Appreciative of the mentor's time.
- Applies Assessment Data - Utilizes performance assessment data to inform effective workplace practices focused on positive outcomes related to job performance.
- Commitment to Excellence - Satisfactorily completes every stage of the OJT process to the best of his/her abilities and is willing to assume responsibility for workplace practice. Willing to take on challenges.
- Active Communicator - Actively participates as a team member in classroom learning environment and is well informed of workplace initiatives. Receptive to feedback and constructive criticism
- Life Long Learner - Trainee participates in targeted efforts to learn workplace skills and practices and continually improves performance based upon recent advances in industry. Brings a new perspective to the learning environment.
- Shares Skills Learned - Based upon their recent and up-to-date technology training, is willing to serve as an intellectual resource for more experienced employees concerning electronic communication and emerging access to web based resources.
- Accountability for OJT - Strives to meets the workplace eligibility requirements for active and effective participation in the workplace environment.

6.3.2.6 Mentoring: How to Assess a Training Candidate

There are a multiple characteristics that enable an organization to understand and assess a good trainee. The first is to assess a current readiness to be trained and a future willingness to improve performance. This information can be gathered from college preparation records, past performance if the employee was employed with the plant, and participation in classroom training. The employee will have demonstrated credible evidence that he/she can be trained. The second, when possible, is for an administrator to observe the trainee in the workplace. What is the reaction to criticism and suggestions for improvement? The critical characteristic in assessing a good trainee is to interview the individual to determine if he/she has the necessary commitment to the OJT process.

The trainee's attitude should be consistent with his/her experience. A novice is expected to lack confidence of the learning objective. Conversely, too much confidence may result in adverse results.

Mentoring - How to Assess a Training Candidate

1. Determine if the person is agreeable to be mentored by a senior employee.
   a. What qualities and characteristics do you desire in a good mentor?
   b. What communication skills are you willing to share with your mentor?
2 Describe the type of learning environment that promotes optimal learning for you.
3 Determine if the trainee is capable of receiving and acting upon constructive criticism and recommendations for improvement.
   a. When criticized for your performance, what is your reaction?
   b. When provided with suggestions for improvement, how would you respond in the workplace?
4 Determine if the trainee is willing to be coached and actively participate in the coaching process for knowledge acquisition and skill development.
   a. Would you be willing to be mentored by a senior employee? If so, what are your concerns and reservations?
   b. When in a classroom environment, are you more likely to participate in the classroom discussion or allow others to participate?
   c. What do you need in order to feel comfortable actively participating in your learning and training?
5 Determine if the trainee has an understanding as to what the assessment data (test results, observational, and performance-based) means to his/her progress through the OJT.
   a. In order to maximize your performance of a task, how would you like to be evaluated?
   b. Should your progress be judged as an individual or as part of a team?
   c. If you were observed in the workplace, what observations would your mentor likely see?
6. Determine if the trainee is committed to not only completing the OJT process, but able to assume responsibility for his/her learning.
   a. When given a task, do you need specific directions?
   b. Which workplace environment do you like better: an environment that more often requires collaboration with peers or an environment that more often requires individual work?
7. Determine if the trainee actively participates in classroom training and the mentoring relationship established with the mentor.
   a. When working with your mentor, what predictions will you make about the relationship?
   b. When working with your mentor, what limitations would you predict about the relationship?
8. Determine if the trainee is committed to their job performance and willing to continually pursue training on best practices in the workplace.
   a. Upon completing the OJT program, how do you plan to continue your growth and development as an employee?
9. Determine if the trainee is proactive about sharing the recent industry standards learned during training with his/her peers on his shift team.
10. Determine if the trainee is willing to take ownership for his/her accountability performing tasks in the workplace environment.

6.4 Assessment Results

The purpose of conducting assessments is to identify any programmatic gaps or other obstacles that need to be addressed in order to have effective OJT and mentoring programs that optimize knowledge transfer and learning. Assessment checklists and surveys included as appendices to this guideline can be useful tools to identify shortcomings or deficiencies. Identified deficiencies should be considered collectively and the determination made on how to address them. In some cases additional guidance may be needed; in others, training for mentors may be necessary. In yet other instances, if the deficiencies involving individuals are significant enough that they are not likely to be corrected, it may be necessary to not assign a particular individual responsibility for mentoring new trainees. The use of the checklists and surveys enables the training administrator to easily identify areas of weakness by a visual look at the areas of the checklist that are not being met, and taking actions to resolve them.

6.4.1 Using Results of Training, OJT, and Mentoring Assessments

This section describes common challenges that could negatively impact OJT and mentoring programs, and provides possible solutions to correct them. The mentoring program and its participants may possess all of the key features for success, but the potential for encountering obstacles is a challenge that must be dealt with and overcome. Major mentoring challenges include:

- Time limitations
- Faulty communication
- Lack of a training strategy
- Mismatch of the key players
- Cultural/generational differences

6.4.1.1 Time Limitations

Time limitations are a huge stumbling block for both the mentor and the trainee. The mentor has an existing workload, new work assignments, and now must spend time actually mentoring. Can the mentor find time in such a busy schedule?

This time element also impacts the trainee who has classroom training, new employee activities and perhaps job rotations. The level of the trainee's understanding of the mentoring process and the time he has to spend with a mentor adds to the time burden.

Some solutions to the time constraints may be effective time management. The mentor may need to plan his/her time more efficiently with the trainee in mind. Or supervision may have to help prioritize the workload to accommodate mentoring and more clearly define the expectations and objective of the program. Additionally, both the mentor and the trainee can look for learning opportunities during the normal work day.

Administrative leaders have to see value in the mentoring process. They have to provide time for the mentor and the trainee to both meet and develop a relationship. The relationship will add value to the company as the trainee learns the job skills necessary for workplace readiness.

6.4.1.2 Faulty Communication

Communication is an on-going process and a break-down may challenge mentoring efforts. When a mentor doesn't actively listen, the trainee can only infer that the mentor doesn't care or that he doesn't understand the trainee. If the mentor does all the talking in a one-way communication style, the trainee will feel unable to discuss problems and ideas encountered in training. Communication style will also sabotage the process if the trainee is not getting what is needed for growth.

To counteract faulty communications, create an environment that encourages two-way exchange. Repeat back the trainee's statement, or use open ended questions and give feedback to encourage active listening. Encourage the trainee to initiate discussion which helps build self-confidence and problem-solving skills.

A coaching plan is a proven resource to better develop positive communication patterns during the mentoring process. As provided, it serves as a vehicle to support effective communication between the mentor and the trainee. It also serves to highlight any potential differences between the mentor and the trainee. The structured process will provide documentation serving as evidence that communication has taken place and has been effective.

If conflicting communication styles persist, adapt to the needs and personality of the trainee and then adjust to the preferred style as time goes on.

Gen Xers and Millennials can work many tasks at the same time and have the ability to shift quickly from task to task. Many may expect to be mentored while they are doing others things online. Baby boomer mentors should be open to using tools such Instant Messaging (IM) as a communication method if they want to meet a young trainee "where they are."

6.4.1.3 Lack of a Training Strategy

Lack of a solid learning strategy is a challenge to the mentoring process. Neither party has a clear picture of what training should look like and no path to development. In such a case, the program will fail and management goals and expectations will not be met. Without a defined strategy, meetings will be infrequent and inconsistent. This will breed lack of trust and destroy any relationship that may have developed between the mentor and the trainee.

To solve the strategy challenges, the mentor and the trainee need to meet to set goals together. They need to define relationship goals, set expectations and key milestones, and delineate boundaries. Develop a coaching plan and keep to it all the while assessing the plan for necessary changes. The two need to meet regularly to discuss progress and provide feedback.

6.4.1.4 Mismatch of Key Players

A mentor may have all the right qualities and the trainee may possess the attitude and capabilities for the job, but the two individuals might not be a fit due to any of the following.

Mentor and Trainee Attitude and Job Capability Considerations

Differences in work goals and needs:

- Personality differences
- A difference in work ethic
- Limited availability
- Lack of follow-up and feedback
- Lack of personal commitment to the program
- Poorly defined program goals
- Lack of organizational skills
- Lack of trust Misplaced guidance as to the program's intent
- Perception that mentoring is a "quick fix"
- Lack of motivation on the part of either participant

It is important to identify any obstacles to the success of the program and make adjustments as needed.

6.4.2 Using Cultural Assessment Results

Cultural assessment results are of value to the training coordinator when considered with the described generational differences in mind (see Appendix F). The accumulated data needs to be considered holistically instead of in part and in parcel. For instance, prior to pairing Operator Leon as a mentor to Apprentice Jason, the training administrator should consider both the demographic profile of the operator population as well as the readiness of each participating mentor and trainee as a predictor for success. The results on the established checklists and surveys will serve the training administrator well when pairing of mentors and trainees. The data is vital to establishing and monitoring a coaching

relationship between these two individuals. Explicitly discussing the survey results with the mentor and the trainee will serve to break down some of the generational differences that serve as barriers to successful mentoring. Follow these steps:

1. It is imperative to use the demographic data of the organizations as a roadmap for establishing who within the organization is available to be a mentor (see Appendix C).
2. The training administrator should deeply consider the results of the mentor readiness survey to determine if the operator is a good candidate to be a mentor (see Appendix C).
3. The training administrator should deeply consider the results of the training candidate readiness survey to determine if the trainee is a good candidate to be a mentored (see Appendix C).
4. After establishing a pool of mentors and trainees using the above information, pair the individuals based upon results found in the cultural aspects surveys of mentor (see Appendix D) and trainee (see Appendix E).
5. Explicitly discuss the results on the mentor survey and trainee survey with the mentor and trainee.
6. The training administrator should use the survey results to ground the mentor and trainee information collected in the explanation provided on cultural and generational differences (see Appendix F).
7. The training administrator should ask the mentor to complete the first coaching plan with the trainee.
8. The training administrator should monitor the relationship periodically to adjust for success completion of the OJT program.

6.5 Cultural/Generational Differences

Cultural Assessments are conducted to gather relevant information about the dynamics of a workplace environment.

6.5.1 Generational Differences Defined

A gap between generations has always been a source of discord with its labeling of the various age groups and the lack of acknowledgement of positive attributes across the generational lines. The differences among the four generations who are encountering each other in the work place are amplified by advances in technology, instant communication, life experiences and events that have shaped the characteristics of the various groups. As with any discussion of cultural and generational differences, there are many areas that need to be addressed. In addition to age differences, there may be socio-economic differences; differences in ethics and education; and a gap in understanding the differences in each others' value systems.

Cultural Assessment Procedural Outline

- Training administrator gathers demographic information about the present workforce in the plant conducting the cultural assessment
- Training administrator conducts an employee survey to gather employee-specific information
    - Operators, including potential mentors, are surveyed
    - New employees, including trainees, are surveyed
- Training administrator conducts employee interviews to probe employee-specific information
    - Current, and potential mentors, are interviewed
    - New employees, including trainees, are interviewed

6.5.2 Gathering Demographic Information

Demographic data is collected to describe the characteristics of a population. Common demographic information that can be collected to represent a profile of a population includes: race, gender, age, income, disabilities, employment status, etc. The purpose of gathering the demographic information of the workplace population will be to better understand the background of the facilities workforce. Since demographic information can change over time, the information collected represents a static profile of the workforce at the specific time and place the data was collected.

Cultural assessment data should originate with the training administrator. The training administrator should work with human resources to gather the data needed to begin the cultural assessment. While the information will be gathered with the intent of describing the generational cohorts of the operators in the workplace, it is also useful for establishing mentoring relationships to have the demographic data for each individual operator and trainee participating in the training program. The types of data important for establishing cohort membership are the following: gender, age, education, race, years of employment with current plant, years of employment in industry, and mentoring history.

Establishing Demographic Profile of Operator Population

- What is the age distribution of the current operator population?
- What are the highest levels of education completed in the operator population?
- How many years has each operator been employed at the current plant?
- How many years has each operator been employed in the industry (work history at other plants)?
- What is the mentoring history (if any) of experienced operators?

The demographic information will assist the training coordinator in establishing information about the operator workforce. The demographic profiles of each operator will support the development of mentoring relationships within the training program by the following:

1. Establish the demographics of the organization to determine representation.
2. How many traditionalists does the organization currently employ?
3. How many baby boomers does the organization currently employ?
4. How many Generation X'ers does the organization currently employ?
5. How many Millennials does the organization currently employ?
6. Establish the demographics of the Mentors to determine representation.
7. Establish the demographics of the Trainees to determine representation.

See Appendix G, Generational Overview.

6.5.2.1 Gathering Employee Information

Surveys are used to collect information about characteristics in a population. Surveys focus on individual's response (opinion) to a prepared statement. Those responses can be accumulated (in a spreadsheet) and analyzed for repeating patterns or emerging themes. Depending on the need, surveys can be structured or self-directed for a population of individuals. Surveys solicit data from a population, and the accumulated data can be used to create an organizational plan going forward. The data collected is grounded in the opinions and responses of the respondents and is considered authentic.

Two surveys are included in this report (see Appendix D and Appendix E).

The two surveys are to be employed by the training administrator to further solicit information and opinions directly from the plant operators and the apprentices involved in the training program.

The advantages of using a survey to gather data are numerous.

- It is an easy way to reach a large number of operators.
- Surveys can reach a large number of people in a relatively efficient amount of time.
- Operators can complete the self administered surveys when they have the time.
- Surveys can easily solicit information about respondent opinions, beliefs, values and attitudes.

Survey integration should originate with the training administrator. The training administrator will work with operators and trainees to gather the data needed to begin the survey. While the information will be gathered with the intent of soliciting the opinions of the operators in the workplace, it is also useful for establishing mentoring relationships in order to have the survey data for each individual operator and trainee participating in the training program. The types of data important for establishing cohort membership are the following: learning styles, communication differences, training program, enthusiasm, workplace climate and culture.

6.5.2.2 Surveying Mentors

The initial survey should be administered to the plant operators in the workplace. Data collected from the survey can be accumulated and analyzed to yield information about each mentor's generational differences, learning styles, the training program and workplace climate and culture. It is important to understand that each survey can be utilized as a plant specific useful tool. The survey adds additional insight to the cultural assessment; results from the survey questions can be modified to meet the specific needs of the plant's training program.

See Appendix D, Assessing Cultural Aspects of the Mentor Survey.

6.5.2.3 Surveying Trainees

The second survey should be administered to the trainees in the workplace. Data collected from the survey can be accumulated and analyzed to yield information about each trainee's generational differences, learning styles, the training program and workplace climate and culture. It is important to understand that each survey can be utilized as a plant specific useful tool. Each survey adds additional insight to the cultural assessment; results from the survey questions can be modified to meet the specific needs of the plant's training program.

See Appendix E, Assessing Cultural Aspects of the Trainee Survey.

6.5.3 Where to Begin

Often a mentor's vast amount of knowledge overwhelms the trainee. The mentor needs to figure out where to begin, what needs to be said and what doesn't need to be said and how to organize needed information into manageable bites. This last part could be a challenge when designing mentoring with Millennials, who prefer to get information in concise forms without a lot of background and history.

Observation

In all cases, trainees like being mentored by some of the more experienced operators that are good mentors and value the personal experience that they are able to gain from the seasoned operator. Trainees are aware that much of this knowledge will go away when the senior individuals retire.

6.5.3.1 Assessing Mentoring Readiness

Assessing Mentoring Readiness

- Does the mentor believe in the mission and values of the company?
- Is the mentor invested in the OJT program?
- Should mentors model appropriate workplace behavior?
- Is the mentor an example for new employees?
- Is the mentor open to developing new workplace skills and supportive of recent initiatives?
- Is the mentor accountable for his/her workplace actions?
- Is the mentor willing to following procedures established in the training procedures?
- Does the mentor demonstrate the ability to communicator with trainees, peers and direct reports?
- Is the mentor a team player and willing to collaborate of project tasks?
- Is the mentor capable of providing constructive criticism to trainees that is open and honest?
- Is the mentor willing to answer questions and provide explanation when asked?
- Is the mentor patient?
- Can the mentor mediate conflict when it arises?
- Is the mentor committed to developing a culture of safety?
- Does the mentor recognize contributions when value is added to a workplace task?

6.5.3.2 Generational Differences

Generation Y (the Millennials) were born after 1981 and have just entered the workplace. Their work experience can range from entry level workers who are recent college graduates to individuals who may have been in the work force for 10 years or more. To design training for this group, it is important to consider the values and ethics of this generation and how their principles impact their occupational choices.

Considered to be a coddled group, the Millennials were brought up to believe that everyone wins. Their world has always been diverse and it is difficult for them to understand why they have to sit through a lecture on the subject of diversity. Because of technology, their attention span is short and they have no concept of delayed gratification. Their world exists in short sound bites.

For the Millennials, their choice of a company is one where supervision has an open door through which they can walk and be heard whenever the need arises. This group wants clear goals and direction. They want to see the company's "big picture". A relationship with their supervision is important to them but they are not in awe of the title. They want to be respected for their knowledge but have a sense of privilege as well as a feeling of being indispensable. Yet, this group will seek guidance in areas of career development.

Millennials are a high tech generation with many of them creating current technological applications. They carry smart phones and text incessantly. These are the true multi-taskers. As children, they juggled sports and school with their social lives.

Teamwork is at the center of their driven lifestyles. If they want to accomplish a task, they will form a team and make the effort a collaborative one. They will date in groups in order to socialize rather than pairing up. But with project work, they will accept guidance which is important as this group will go off in an irrelevant direction without accounting for the goal.

This need for guidance by the Millennials may not sit well with the Gen Xers who are independent and resistant to interference. They don't want anyone "looking over their shoulder."

The Gen Xers will not waste time complaining about their boss. They will simply send out a resume and take the best offer that comes in. The move can be a lateral one as long as it is a move. The Xers are eager to learn new skills which keep them employable.

Millennials are responsible for the explosion in distance learning. They are a source of popularity of social network, instant messaging, texting, blogging, and emailing. And they expect these elements in their training programs. If the course is to be taught in person, they want mixed methods of delivery. They will search the web for more information and will share it with their peers through a social network page or their own web site which they likely created themselves. Their assignments will be turned in via email and they will prefer to take the quiz online.

All Millennials are fairly new to the professional setting. And have need for a mentor.

They will relish the personal attention. But because they appreciate organization, their training needs to be more formal. Job shadowing may frustrate them. Group mentoring may work well since they can react to each other as peer mentors.

In summary, select a high performing Traditionalist or Baby Boomer and pair him/her with a high potential Gen Xer or Millennial. The transfer of knowledge can take place when management can introduce flexibility of schedules and job sharing into the mix. Openly solicit these individuals. Let the personnel on site know that management is looking for just such individuals.

6.5.3.3 Cultural Differences and Learning Styles

Traditionalists – those born before 1946

- Visual learners – need to see and touch handbooks
- Prefer independent learning environments
- Enjoy working in a hierarchy with defined roles and responsibilities
- Have to have workplace structure; don't always respond well to teams

Baby boomers – those born from 1946-1964

- Visual and auditory learners
- Prefer one-to-one learning environments
- Enjoy working in teams with structured roles and responsibilities
- Don't often want to "think outside the box" for fear of looking bad in front of the boss and peers

Generation X – born between 1964 and 1981

- Combination of visual and kinesthetic/tactile learning styles
- Prefer informal training learning environments
- Enjoy working in teams with structured roles and responsibilities
- Don't enjoy training programs that are static presentation of content; need to actively integrate the content

Generation Y (often called Millennials) born since 1981

- Quick combination of visual, auditory, and kinesthetic/tactile learning styles
- Prefer hands-on and rapid-paced orientation with computer-based training
- Enjoy interaction with their peers, but they want structure and direction
- Want to know what is expected of them up front and "Will it be on the test"?

See Appendix G, Generational Overview.

6.5.3.4 Coaching Plan

An integral part of the trainee's development is the mentoring he/she receives from the mentor. Generational differences can be a true obstacle to successful communication between both partners. In order to overcome those differences, there needs to be a mechanism to address those differences in a format that supports effective collaboration and planning. To document the trainee's progress and grow a healthy relationship with the mentor, it is recommended that the training include a coaching plan (UNCW Watson School of Education, 2010).

The coaching plan is an active process that requires the trainee to identify areas of strength and weakness as well as focus on areas of growth. One coaching plan can be accomplished over two meeting cycles: the pre-conference and the post-conference.

The coaching plan can be integrated employing time frames that support the training program. Some integration examples could include a weekly assessment, a bi-monthly time frame assessment, or a monthly assessment.

Under the supervision of the mentor, the characteristics of the pre-conference coaching plan should include the following:

- Trainee areas of strength discussed
- Trainee focus for growth and development
- Strategies to be used to accomplish the growth and development
- Identify the kinds of data needed to document the progress

The trainee uses the information to improve job performance over the course of the integration cycle. Upon completion of the integration cycle, the trainee returns to the original plan to reflect upon his/her performance. Documentation for the growth and development should be presented at the post conference meeting between mentor and trainee.

Under the supervision of the mentor, the characteristics of the post-conference coaching plan should include the following:

- Results and implications for growth and development
- Recommendations for the trainee
- Set goals and new focus
- Reflections on the growth and development

7
INDUSTRY BEST PRACTICES

The process for training and qualifying operators is important for any company to maintain and develop the talent that they have “in-house”. With the potential for approximately 50% of the operators eligible to retire within the next five years or so, the stations participating in this guideline recognized the need for a strong training program for operators.

The following information was gathered from both observations obtained in preparation for this guideline as well as from years of experience in the industry.

7.1 Industry Best Practices

- Prospective candidates are required to pass a standardized aptitude test prior to being hired, are “on probation” for six months, then typically spend time at lower level positions. Each of these aspects can be done individually or in conjunction with the others. These practices all provide management an opportunity to evaluate the individual’s potential and provides the individual worker experience, exposure to the plant operation, and a familiarity with plant components, making the transition to training and plant operations easier.
- A well-thought-out, structured plan is developed to train and qualify apprentice operators. The plan involves a specified number of hours of training on specific topics and objectives either on site or in conjunction with the local colleges. Further learning takes place during on-shift training with the “Shift Trainers” or mentors. Some training is available on line, making it easier for apprentices to access training materials and testing from home.
- Apprentices are provided a task list of job performance measures (JPMs) that include knowledge and skills that must be accomplished with demonstrated proficiency. The expectations are clearly defined as to what is to be accomplished during each year of the trainee’s apprenticeship to ensure adequate progress is made. When all requirements for an assigned work station have been certified by a qualified person, a work station examination is given prior to becoming fully qualified to work independently.
- Policies and procedures define a basis for determining placement of new hires into the training program, and defines what skills will require proficiency to be demonstrated
- A skill-based qualification process is established that will identify JPMs for tasks which operators are required to perform to do their job. Operators are required to demonstrate competency on these critical tasks before performing the task independently.
- A database is used to track employee training, both historical and future needs. All employees know where they stand in terms of training and professional development. This information will be invaluable in succession planning.
- Instructors/training coordinators are aware of the needs of each apprentice and are very motivated to help them in any way possible, especially during the first year when there is a considerable amount of one-on-one time spent with new apprentices in training.

- Apprentices value being mentored by some of the most experienced operators that are good mentors and appreciate the personal experience that mentors are able to relay. Trainees are aware that much of the legacy knowledge will go away when these individuals retire.
- Apprentices place a high value on the ability to job-shadow and acknowledge the help and support typically provided from the on-shift trainers. Questioning is always encouraged.
- Shift-trainers (mentors) appear to recognize the importance of good training and mentoring, and are willing to assist apprentices. Apprentices receive steady and consistent feedback on their progress.
- Experienced operators are assigned systems or tasks to become the designated subject matter expert. These individuals are then the responsible mentors for trainees to go to for qualification on a given system or task.
- Training is conducted either by CBT, self-study or in classroom during "Shop week," which occurs every fifth week. **All** operators are expected to complete 20 courses per year. Ten of the courses are designated mandatory courses and 10 are "electives" to address self-identified weaknesses or areas of interest to the operator.
- "Tool Box Training" is often used to provide updates on changes to procedures, new equipment or processes.
- English, technical writing, and study skills are embedded in training provided at local colleges to help the trainees learn to write clear problem statements, work orders, etc., in conjunction with the technical training they receive.
- Annual requalification training is required to ensure knowledge and skills competencies and to verify understanding of operating principles and procedures.
- Lesson materials, training aids, associated paperwork, and other tools used by trainees and mentors are readily available in a computerized database.
- A website was developed by several experienced operators, and continues to be expanded. Among other things, this website includes detailed descriptions of plant systems and equipment, describes normal and abnormal operations, likely scenarios if something abnormal occurs, possible causes, anticipated results, and possible solutions. Information is articulated that is not captured in other station procedures and would likely be lost with the retirement of seasoned operators.

  Information on the website is easy to use and a wealth of information, not only to apprentice operators, but to seasoned or experienced operators as well, particularly for infrequently performed activities. Feedback from operators indicates that this tool is often used; as one person stated, "It is a lifesaver."

  In order to fully benefit from the website, all plant equipment was either labeled or re-labeled. System schematics have been posted to the website to support the system descriptions and operation.
- Trainees and mentors are provided a mechanism to provide feedback on the training process and the trainee/mentor relationship.

7.2 Observations of Continuing Development

- New employee training consists of a variety of teaching methods and training settings, with opportunities for hands-on or in-field dynamic learning activities.
- Trainees observe/experience as many startups, shutdowns, outages, and other non-routine or infrequently performed activities as possible. Simulator/labs, mockups, or dynamic learning activities are also used to demonstrate some of the above activities.
- Training is provided to mentors which includes suggestions on how to best assist the trainees in maximizing the value of their training. Mentors have good leadership and excellent communication skills, as well as the "desire" to train others in order to be most effective.
- On-going communication of plant modifications to the college in order for the training to simulate identical plant conditions.
- Industry and plant operating experience is captured and included in training materials to ensure it is addressed in future sessions and the "lessons learned" from others' experiences are available to the staff.

7.3 Community Resource Observations

- Although the facilities visited for this report had good working relationships with their local colleges, that resource is not a necessary component for a solid OJT/mentoring program. Some colleges are willing to develop and offer mentoring training in order to help get OJT/mentoring programs off the ground.
- Establishing an Intern program is an opportunity to recruit, evaluate, and hire new talent.

See Appendix H, Facility Visits.

A
CHECKLIST FOR ASSESSING CURRENT TRAINING PROGRAMS

Note: This checklist is a working document and is not all inclusive. Items can be added or deleted as needed.

Station Policy, Programs, Processes, and Procedures – How to Assess					
	Description	Yes	No	N/A	Comment
1.	Did you review station guidance related to hiring practices?				
2.	Did you review station guidance related to entry level requirements?				
3.	Did you review station guidance related to the screening process?				
4.	Did you review station guidance related to training requirements for each level?				
5.	Did you review station guidance related to placement of experienced new hires?				
6.	Did you review station guidance related to community resource agreements to ensure clearly defined guidance and expectations are provided?				
7.	Did you Interview the Operations Manager and Training personnel to determine if the necessary guidance is provided, supported by management and followed?				

Policies and Procedures Governing Training Program Implementation – How to Assess					
	Description	Yes	No	N/A	Comment
1.	Do the policies and procedures reiterate and assist in implementation of the company's hiring practices in regards to pre-testing, interviewing, and determining placement of individuals into the training program?				
2.	Do the policies and procedures include the training plan that defines training requirements for each operator position?				
3.	Do the policies and procedures define when and where the training will be provided?				
4.	Do the policies and procedures include expectations for trainees, mentors, on-shift trainers, and instructors?				
5.	Do the policies and procedures include a schedule outlining expected milestone completion for the three to four year apprenticeship or training program?				

6.	Do the policies and procedures define a basis for determining placement of new hires into the training program, and define what skills will require proficiency to be demonstrated?				
7.	Do the policies and procedures establish qualification standards?				
8.	Do the policies and procedures identify instructional materials?				
9.	Do the policies and procedures establish the record keeping and documentation process for tracking progress and completion of training?				

Training Policy and Procedures – How to Assess					
	Description	Yes	No	N/A	Comment
1.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that reiterate and assist in implementation of the company's hiring practices in regards to pre-testing, interviewing, and determining placement of individuals into the training program?				
2.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that include the training plan that defines training requirements for each operator position, how, when and where the training will be provided, expectations for trainees, mentors, on-shift trainers, and instructors, and a schedule outlining expected milestone completion for the three to four year apprenticeship or training program?				
3.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that define a basis for determining placement of new hires into the training program, and define what skills will require proficiency to be demonstrated?				
4.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that establish qualification standards?				
5.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that identify instructional materials?				
6.	Did you verify that policy and procedures are implemented for training, qualification, and job assignment that establish the record keeping and documentation process for tracking progress and completion of training?				
7.	Did you verify that training and qualifications are adequate to support job assignments				

Training Process – How to Assess					
	Description	Yes	No	N/A	Comment
1.	Did you determine if specific training requirements have been established for each position in operations?				
2.	Did you determine whether a task analysis has been completed to identify all tasks required to be performed for each operator position?				
3.	Did you determine whether a knowledge and skill analysis has been completed for each task, and the necessary training identified to address the knowledge gap?				
4.	Did you determine if a process exists to tie task analysis knowledge and skill requirements to a training matrix that identifies what training is available to address each knowledge and skill needed?				
5.	Did you determine if job performance measures have been identified for critical tasks?				
6.	Did you evaluate the process for determining what type of training will be provided, who will provide it (plant classroom training, community college setting, computer based training, OJT, mentoring, etc. or any combination of these options) and a sequence for the training to be conducted?				
7.	Did you evaluate training lesson plans, student study materials, and other training aids for adequacy, accuracy and ease of use?				
8.	Did you evaluate the progress of current trainees to determine if the process is being followed?				
9.	Did you discuss the training process with current trainees as well as experienced operators to solicit their opinions on the effectiveness of training and their readiness to perform their tasks safely and efficiently?				
10.	Did you solicit improvement opportunities?				
11.	Did you evaluate the methods for assessing trainee knowledge? Did this include routine written and oral exams, periodic comprehensive written exams and oral boards, system walkdowns, or JPMs which are frequently established and used to measure adequacy of knowledge and competency prior to performing critical tasks independently?				
12.	Did you verify that a process is implemented to provide information and training on plant changes, new equipment, procedure changes, and industry events?				

Training for New Hires – How to Assess					
	Description	Yes	No	N/A	Comment
1.	Are entry-level operations trainees screened by education, work experience, performance evaluations, aptitude testing, and multiple interviews with managers and crew members within the department?				
2.	Are entry-level operations trainees receiving classroom instruction, reinforced by hand-on dynamic learning activities and demonstrations guided by an established and proven syllabus that sequentially leads to the job position qualification?				
3.	Is the progress and performance of entry-level operations trainees are measured by frequent evaluation? Do these should include routine written and oral exams, periodic comprehensive written exams and oral boards, system walkdowns, and requirements that demonstrate proficiency of tasks prior to performing work independently?				
4.	Does the progression from the classroom to on-the-job training require successful completion of all the examinations?				
5.	Does on-the-job training on actual plant equipment require supervision by qualified instructors during every phase of the training?				
6.	Are entry-level operators instructed in making rounds?				
7.	Does instruction includes reading gauges, flow meters, sight glasses, charts, and graphs?				
8.	Does instruction includes checking equipment using touch, sound, and smell? Examples are laying hands on bearing caps to determine abnormal temperatures and vibration: listening for rubs, listening for steam leaks: smelling insulation burning, smoldering fuel, casing leaks, etc.				
9.	Does instruction include corrective actions/preventive maintenance the operator can do, notifications to be made, Maintenance Work Requests to be initiated, and documentation required?				
10.	Are regularly scheduled emergency preparedness training and drills required?				
11.	Are timely performance reviews of individuals and the crews carried out through task evaluation, inspections, and formal operational readiness testing?				

B
HOW TO ASSESS OJT/MENTORING

Note: This checklist is a working document and is not all inclusive. Items can be added or deleted as needed.

Checklist of the Attributes of an Effective Training Administrator					
	Description	Yes	No	N/A	Comment
1.	Does the training administrator supervise the process for identification and training of quality mentors in each facility?				
2.	Is the training administrator an effective communicator? Does the training administrator work closely with the mentor to facilitate trainee integration and relationship? Is the training administrator well-informed of the relationship process?				
3.	Does the training administrator participate in Mentor-Trainee OJT and in periodic reviews of trainee progress supporting desired performance outcomes?				
4.	Is the training administrator readily available to serve as an intellectual resource for mentor and trainee? Has the training administrator committed company time and resources in order for the relationship to flourish?				
5.	Is the training administrator an organized planner? Has the training administrator aligned workplace structures and resources to reinforce the outlined goals of OJT ensuring that the mentor has access to appropriate classroom space, training resources and expected technology integration needed by the newer generations?				
6.	Does the training administrator establish an Inclusive environment? Does the training administrator involve mentors and trainees as part of the decision making apparatus for future training and development?				
7.	Is the training administrator committed to the program? Does the training administrator's leadership demonstrate commitment to continuous workplace improvement and professional growth of the mentor and trainee?				

Checklist of the Attributes of an Effective Mentor					
	Description	Yes	No	N/A	Comment
1.	Does the mentor serve as an intellectual resource for workplace practices through sharing of expertise of the knowledge and performance through past effective workplace experience? Is the mentor knowledgeable of the job at hand.				
2.	Does the mentor have high standards? Does the mentor's work standard support company policies/ procedures? Will the mentor reinforce company/ plant expectations for the conduct of high quality work?				
3.	Is the mentor a good communicator? Communication is a top priority. All parties have to communicate and problem-solve collaboratively to resolve issues and concerns arising from the workplace training environment. Is the Mentor confident and friendly; listens, and understands? Does the mentor genuinely want to help and give consideration to cultural and generational differences when communicating?				
4.	Is the mentor an effective facilitator? Does the mentor supervise and function as a collegial coach and supervisor for site-based trainee? Is the mentor available to spend time with the trainee, is patient in adjusting to the trainee's learning style and flexible when plans change, is able to adapt?				
5.	Does the mentor convey accurate information? Is the mentor knowledgeable of the task to be performed and ensure clarity in the mentor-trainee relationship so that knowledge transfer is effective and efficient?				
6.	Does the mentor build a positive workplace climate? Does the mentor assist in the development of a professional workplace culture and the emergence of a compatible and legitimate workplace environment? Is the mentor tactful in dealing with negative feedback and respectful of differences?				
7.	Is the mentor supportive? Does the mentor offer suggestions and support for the trainee, incorporating relevant work place performance and practical methods of teaching?				

How to Assess an Effective Mentor – These considerations can be answered through personal knowledge, direct observation, or interviews with potential mentors.

	Description	Yes	No	N/A	Comment
1.	Determine the qualifications of each skilled employee willing to serve as a mentor to training employees. a. Do you have the qualifications to serve as a mentor to training employees? b. If so, why do you think you would serve as a good mentor? c. How would you design a training program to convey information from an experienced employee to a novice employee? d. What teaching strategies would serve the trainee best?				
2.	Determine if the skilled and experienced employee is willing to commit the time and energy needed to be an effective mentor. a. Do you have the time to devote to a trainee? b. How long should the mentoring process take? c. What value can you add to the mentoring process?				
3.	Discuss whether the identified employee is well versed on the parameters of the OJT program in place. a. Does the experienced employee have a good understanding of the OJT being implemented? b. What do you know about the current training process? c. What would you recommend for improving the mentoring of new employees?				
4.	Determine if the identified employee is a good communicator and an effective problem-solver. a. Do you have an understanding of cultural and generational differences necessary for effective communication and knowledge transfer? b. What kind of communicator are you? c. How should trainees learn to problem solve unique solutions?				
5.	Determine if the identified employee has the experience and knowledge to be viewed as an intellectual resource by the company. a. What intellectual value would you add to the mentoring process? b. What is the best method you would employ to share the knowledge and experience you have?				

6.	Determine if the identified employee can efficiently and accurately convey static information from manuals to active performance in practice. a. If the trainee doesn't know or understand a solution, how would you best prepare the student to learn the new information and apply it to a problem? b. How would you best explain something new to a trainee?				
7.	Determine if the identified employee is capable of coaching a trainee through the rigors of the workplace environment. a. What important characteristics should a new employee have to be successful in the workplace? b. How would you model those characteristics to the trainee?				
8.	Determine if the prospective mentor has assisted in the development of a professional workplace culture. a. What value have you added to the culture of the workplace environment? b. What values should an employee have in order to maintain their performance on the job?				
9.	Determine if the identified employee can be trusted to meet deadlines and support a trainee to do the same. a. Have you consistently met deadlines for your performance? b. Is there a time that you can remember when you didn't? If so, explain what you've learned from the experience. c. Is there a time that you can remember when you didn't? If so, explain what you've learned from the experience.				
10.	Determine if the identified employee is capable of evaluating a trainee and providing the necessary feedback (difficult at times) necessary for improvement and growth. a. Are you comfortable receiving critical feedback? b. If so, can you explain when you received the feedback and if that feedback impacted your job performance? c. How would you provide the necessary critical feedback to a trainee? d. How would you expect them to react to the suggestions?				
11.	Determine if the identified employee can be accountable for assessing the progress of the trainee. a. How has your past performance been assessed? b. What would you change about the accountability and standards you've been held to? c. Are trainees being held to the same standards? d. What suggestions do you have for employees?				

Checklist of the Skills of an Exceptional Trainee – Assessment Attributes					
	Description	Yes	No	N/A	Comment
1.	Is the trainee responsible for personal development? Does the trainee deliver, analyze, and reflect on effective workplace knowledge and skill development? Does the candidate participate in classroom training, observations, mentor conferences and practical learning to improve workplace performance? Is the trainee trustworthy?				
2.	Is the trainee willing to be mentored? Does the trainee pursue understanding of the relationship between knowledge and practice and between workplace culture and the plant environment and is the trainee willing to learn from constructive criticism by the supervisor and mentor? Is the trainee eager to learn?				
3.	Is the trainee agreeable to being coached? Does the trainee understand and is instrumental in developing and utilizing feedback from the mentor focused on knowledge transfer and skill development? Is the trainee appreciative of the mentor's time?				
4.	Does the trainee apply assessment data? Does the trainee utilize performance assessment data to form effective workplace practices focused on positive outcomes related to job performance?				
5.	Is the trainee committed to excellence? Does the trainee satisfactorily complete every stage of the OJT process to the best of his/her abilities and is willing to assume responsibility for workplace practice? Is the trainee willing to take on challenges?				
6.	Is the trainee an active communicator? Does the trainee actively participate as a team member in the classroom learning environment and is the trainee well informed of workplace initiatives? Is the trainee receptive to feedback and constructive criticism?				
7.	Is the trainee a life long learner? Does the trainee participate in targeted efforts to learn workplace skills and practices and continually improve performance based upon recent advances in industry? Does the trainee bring a new perspective to the learning environment?				
8.	Does the trainee share skills learned? Based upon their recent and up-to-date technology training, is the trainee willing to serve as an intellectual resource for more experienced employees concerning electronic communication and the emerging access to web based resources?				
9.	Is the trainee accountable for OJT? Does the trainee strive to meet the workplace eligibility requirements for active and effective participation in the workplace environment?				

Mentoring – How to Assess a Training Candidate – These considerations can be answered through personal knowledge, direct observation, or interviews with potential trainees.

	Description	Yes	No	N/A	Comment
1.	Is the candidate agreeable to be mentored by a senior employee? a. What qualities and characteristics do you desire in a good mentor? b. What communication skills are you willing to share with your mentor?				
2.	What type of learning environment promotes optimal learning for the candidate?				
3.	Is the candidate capable of receiving and acting upon constructive criticism and recommendations for improvement? a. When criticized for performance, what is the candidate's reaction? b. When provided with suggestions for improvement, how does the candidate respond in the workplace?				
4.	Is the candidate is willing to be coached and actively participate in the coaching process for knowledge acquisition and skill development? a. Is the candidate willing to be mentored by a senior employee? If so, what are the concerns and reservations? b. When in a classroom environment, is the candidate more likely to participate in the classroom discussion or allow others to participate? c. What does the candidate need in order to feel comfortable actively participating in learning and training?				
5.	Does the candidate have an understanding as to what the assessment data (test results, observational, and performance-based) means to his/her progress through the OJT. a. In order to maximize the performance of a task, how would the candidate like to be evaluated? b. Does the candidate want his/her progress be judged as an individual or as part of a team? c. If the candidate were observed in the workplace, what observations would the mentor likely see?				

6.	Is the candidate committed to not only completing the OJT process, but able to assume responsibility for his/her learning? a. When given a task, does the candidate need specific directions? b. Which workplace environment does the candidate like better: an environment that more often requires collaboration with peers or an environment that more often requires individual work?				
7.	Does the candidate actively participates in classroom training and the mentoring relationship established with the mentor? a. When working with a mentor, what predictions does the candidate make about the relationship? b. When working with a mentor, what limitations does the candidate predict about the relationship?				
8.	Is the candidate committed to his/her job performance and willing to continually pursue training on best practices in the workplace?				
9.	Upon completing the OJT program, how does the candidate plan to continue his/her growth and development as an employee?				
10.	Is the candidate proactive about sharing the recent industry standards learned during training with his/her peers on his shift team?				
11.	Is the candidate willing to take ownership for his/her accountability performing tasks in the work place environment?				

C
HOW TO ASSESS CULTURE

Establish Demographic Profile of the Operator Population

- What is the age distribution of the current operator population?
- What are the highest levels of education completed in the operator population?
- How many years has each operator been employed at the current plant?
- How many years has each operator been employed in the industry? (work history at other plants)?
- What is the mentoring history (if any) of experienced operators?

Cultural Assessment Procedural Outline

- Training administrator gathers demographic information about the present workforce in the plant conducting the cultural assessment
- Training administrator conducts an employee survey to gather employee specific information
  - Operators, including potential mentors, are surveyed
  - New employees, including trainees, are surveyed

See Appendix D, Assessing Cultural Aspects of the Mentor Survey, and Appendix E, Assessing Cultural Aspects of the Trainee Survey.

- Training administrator conducts employee interviews to probe employee specific information
  - Current, and potential mentors, are interviewed
  - New employees, including trainees, are interviewed

Assessing Mentor Readiness – Consideration should be given to the following.					
	Description	Yes	No	N/A	Comment
1.	Does the mentor believe in the mission and values of the company?				
2.	Is the mentor invested in the OJT program?				
3.	Does the mentor model appropriate workplace behavior?				
4.	Is the mentor an example for new employees?				
5.	Is the mentor open to developing new workplace skills and supportive of recent initiatives?				
6.	Is the mentor accountable for his/her workplace actions?				
7.	Is the mentor willing to follow procedures established in the training procedures?				
8.	Does the mentor demonstrate the ability to communicate with trainees, peers and direct reports?				
9.	Is the mentor a team player and willing to collaborate on project tasks?				
10.	Is the mentor capable of providing constructive criticism to trainees that is open and honest?				
11.	Is the mentor willing to answer questions and provide explanations when asked?				
12.	Is the mentor patient?				
13.	Can the mentor mediate conflict when it arises?				
14.	Is the mentor committed to developing a culture of safety?				
15.	Does the mentor recognize contributions when value is added to a workplace task?				

Assessing Training Candidate – The following aspects should be established through personal knowledge, direct observation, or interviews with potential trainees.					
	Description	Yes	No	N/A	Comment
1.	Determine if the person is agreeable to be mentored by a senior employee. a. What qualities and characteristics does the Trainee desire in a good mentor? b. What communication skills is the Trainee willing to share with the mentor?				
2.	Describe the type of learning environment that promotes optimal learning for the Trainee.				
3.	Determine if the trainee is capable of receiving and acting upon constructive criticism and recommendations for improvement. a. When criticized for performance, what is the Trainee's reaction? b. When provided with suggestions for improvement, how would the Trainee respond in the workplace?				
4.	Determine if the trainee is willing to be coached and actively participate in the coaching process for knowledge acquisition and skill development. a. Would the Trainee be willing to be mentored by a senior employee? If so, what are the Trainee's concerns and reservations? b. When in a classroom environment, is the Trainee more likely to participate in the classroom discussion or allow others to participate? c. What does the Trainee need in order to feel comfortable actively participating in learning and training?				
5.	Determine if the trainee has an understanding as to what the assessment data (test results, observational, and performance-based) means to his/her progress through the OJT. a. In order to maximize the performance of a task, how would the Trainee like to be evaluated? b. Does the Trainee prefer progress be judged as an individual or as part of a team? c. If the Trainee were observed in the workplace, what observations would the mentor likely see?				
6.	Determine if the trainee is committed to not only completing the OJT process, but able to assume responsibility for his/her learning. a. When given a task, does the Trainee need specific directions? b. Which workplace environment does the				

	Trainee like better: an environment that more often requires collaboration with peers or an environment that more often requires individual work?				
7.	Determine if the trainee actively participates in classroom training and the mentoring relationship established with the mentor. a. When working with a mentor, what predictions will the Trainee make about the relationship? b. When working with a mentor, what limitations would the Trainee predict about the relationship?				
8.	Determine if the trainee is committed to their job performance and willing to continually pursue training on best practices in the workplace. a. Upon completing the OJT program, how does the Trainee plan to continue growth and development as an employee?				
9.	Determine if the trainee is proactive about sharing the recent industry standards learned during training with his/her peers on his shift team				
10.	Determine if the trainee is willing to take ownership for his/her accountability performing tasks in the workplace environment.				

D
ASSESSING CULTURAL ASPECTS OF THE MENTOR SURVEY

Date_____

Generational Differences

Which generation best describes me? (Check one)

___ Traditionalist – those born before 1946

___ Baby boomer – those born from 1946-1964

___ Generation X – born between 1964 and 1981

___ Generation Y (often called Millennials) – born since 1981

Learning Styles

What learning styles best fit me? (Check all that apply)

___Auditory learner ___Visual learner ___ Kinesthetic/tactile (hands-on) learner

___ Lecture (large groups) ___ Independent learner ___ One-on-one explicit instruction

___ Small group instruction ___Computer-based training ___ Peer coaching

Questions

1. Are there generational differences between the mentor and trainee?	**Yes / No**
• If so, please list the differences you've observed in the workplace.	
2. Are there communication differences between workplace employees?	**Yes / No**
• What communication recommendations would you make to improve the workplace environment?	

3. Do you feel that the training program adequately prepares apprentices?	**Yes / No**
• What recommendations would you make to improve the current training program?	
4. Is the amount of time trainees spend in the classroom adequate to learn the knowledge needed?	**Yes / No**
• Do trainees spend enough time learning the skills needed to perform operator tasks?	**Yes / No**
5. Are trainees adequately exposed to the existing workplace climate and culture?	**Yes / No**
• How are new employees different from experienced employees?	
6. Are you willing to follow the training procedures established in the training program?	**Yes / No**
7. Would you consider yourself to be enthusiastic when assigned a trainee?	**Yes / No**
8. Are you willing to take the time to model effective plant skills to the trainee?	**Yes / No**
• To be an effective mentor, what strategies would you use to convey knowledge and skills to trainees?	
9. Is the current training program accomplishing the succession goals of the organization?	**Yes / No**
• Should mentors be required to attend up-to-date simulation training?	**Yes / No**

E
ASSESSING CULTURAL ASPECTS OF THE TRAINEE SURVEY

Date_____

Generational Differences

Which generation best describes me? (Check one)

___ Traditionalist – those born before 1946

___ Baby boomer – those born from 1946-1964

___ Generation X – born between 1964 and 1981

___ Generation Y (often called Millennials) born since 1981

Learning Styles

What learning styles best fit me? (Check all that apply)

___Auditory learner ___Visual learner ___ Kinesthetic/tactile (hands-on) learner

___ Lecture (large groups) ___ Independent learner ___ One-on-one explicit instruction

___ Small group instruction ___Computer-based training ___ Peer coaching

Questions

1. Are there generational differences between the mentor and trainee?	**Yes / No**
• If so, please list the differences you've observed in the workplace.	

2. Are there communication differences between workplace employees?	**Yes / No**
• What communication recommendations would you make to improve the workplace environment?	
3. Do you feel that the training program adequately prepares apprentices?	**Yes / No**
• What recommendations would you make to improve the current training program?	
4. Do the trainees see the operating mentors as knowledgeable?	**Yes / No**
5. Do you feel that the content covered during the training program is planned appropriately for learning?	**Yes / No**
• Do trainees spend enough time learning the skills needed to perform operator tasks?	**Yes / No**
6. Do you spend enough time learning the skills needed to perform operator tasks?	**Yes / No**
7. How do new employees learn differently from experienced employees?	
8. Have you been appropriately exposed to the existing workplace climate and cultural?	**Yes / No**
• What do you value from a workplace culture that is different from what more experienced employees' value?	
9. Do you have one mentor to report to or multiple mentors assigned to you?	**Yes / No**

10. Would you consider yourself to be enthusiastic about your mentor?	**Yes / No**
11. Do you feel that you will be adequately prepared to assume shift duties at the end of the training program?	**Yes / No**
• Explain what information and experiences would better assist you to get ready to assume those duties.	

F
CULTURAL AND GENERATIONAL DIFFERENCES

> "Each generation imagines itself to be more intelligent than the one that went before it, and wiser than the one that comes after it."
>
> George Orwell

How do we define a generation? A generation is defined as an identifiable group whose commonalities include sharing birth years and critical life events at key development stages. Auguste Comte was the first of many philosophers to actually research generations leading to the continued effort of defining and classifying generational differences (Jaeger, 1977). One of Comte important findings was that conflict inevitably arises between aging generations and younger generations due to change (social, technological, cultural, etc.). Members of each generational group have historical and social life experiences that are established and relatively secure during their lives (Smola & Sutton, 2002). As a generation ages, there is a natural affinity, described as an "instinct of conservation," to resist change and innovation on many levels. These generational differences often lead to direct conflict between the two populations; conversely, it also leads to the identity of the emerging generation.

Now, for the first time in history of America's workforce, four generations are working side by side in the workplace. While the first reaction to the former statement may be a positive one, nothing could be further from the truth. Compounding generational concerns are that employee attitudes, values and satisfaction can change during the lifespan on one's career (Rhodes, 1983). Based upon the diversity of generations working side-by-side, the workplace can be riddled with confusion, miscommunication, and misperception.

Today's workplace environment is complex and dynamic. Different from times past, more and more employees are being asked to identify work-based problems, create unique procedures, collect data to inform decision making, and integrate solutions. Employees are being tasked with monitoring integration models as well as adapting those models to fit the changing circumstances of the workplace (i.e. make decisions). Arsenault's (2004) research illustrates significant differences in how generations communicate with one another and value leadership styles. As more and more employees are being asked to assume team roles once relegated for a single manager, what impact will this have on how employees communicate across generations and make workplace decisions?

For instance, operator Leon, age 56, is observed working beside Apprentice Jason, age 22. Both of these men have a lot to offer each other, but there are differences in how they relate to each other and how they communicate across generations. These differences can degenerate to resentment and disrespect. If this occurs, both the men and the company will lose. There must be a way for Leon and Jason to work amicably together and for Jason to benefit from Leon's vast knowledge acquired through his many years of experience for the good of everyone involved.

A good example of the differences in the age groups and their use of technology is evident in a recent Esquire Magazine survey (October 2010). The 50-year-olds and the 20-year- olds were asked for their preferred methods of communicating exciting news. The 20-year-olds preferred in-person (31%), by texting (24%), or on Facebook (25%). The 50-year-olds also preferred in-person (50%) but their next choice was by telephone (30%). Newer generations are classified as digital natives; that is they integrate a variety of different forms of technology into their everyday lives (Forrester, 2008). Older generations, on the other hand, only integrate technology in support of a specific task or need. They learned technology after their schooling. They have a very difficult time valuing technology integration, often seeing it as more of an intrusion and a threat to time spent with family and in the workplace.

Research suggests that work values are significantly different from generation to the next (Smola & Sutton, 2004).

Among the general population there are more 50-year-olds in America than any other single age group, and the next largest age group is 20-year olds.

The younger generation was found to be:

- Less loyal to the company than their older employees
- Desiring promotion more quickly
- Less likely to see work as important
- More likely to leave employment for money

The older generation views can be articulated as:

- More idealistic toward work
- Feeling strongly correlating working hard with worth
- Working hard even when not being supervised

How does one measure a company's differences between these two age groups with respect to their attitudes, their expectations, and their beliefs?

Learning Styles and Expectations of the Various Generations

The U.S. Census Bureau defines the labeling of the generations currently in the work force as follows:

Traditionalists – those born before 1946
Baby boomers – those born from 1946-1964
Generation X – born between 1964 and 1981
Generation Y (often called Millennials) born since 1981.

Although these birth years may vary depending on the references used, there are no hard rules as to the characteristics of the individuals within each group. While there are four generations in the workplace, three generations dominate the currently employed. Those include: Baby Boomers, Generation X and Generation Y (Glass, 2007). As of 2004, the Society for Human resource Mangers (SHRM) indicate that the workforce is made up of 10% traditionalists, 44% baby boomers, 34 % generation X and 12% generation Y (SHRM, 2004)

For the purpose of this discussion, the groups know as “cuspers” will not be addressed. Cuspers are those people born near one end of a generational date range and can relate to either or both of the generations. For example, someone born in 1944 can understand the perceptions of the Traditionalists and share their sense of patriotism, but this person can also prefer rock and roll music to that of the big band era.

Why Is Each Generation the Way It Is?

Each person goes through the same life stages (childhood, adolescence, young adulthood, middle adulthood, and late adulthood). The two life stages influential on the workplace are: early adulthood and middle adulthood (Erikson, 1968). The early adulthood stage can be characterized by searching and developing an identity in the workplace (Ralston et al. 2004). Middle adulthood can be exemplified by mastery of a skill or assuming leadership within a company. It is the approach to these stages that vary based on the events and conditions each experienced as they mature through adulthood.

Traditionalists grew up during the “hard times” of the depression and then joined the military and were transported to foreign lands. (50% of men who survived this era are veterans along with a number of women.) Those who came home from World War II saw a new country that had become industrialized and prosperous. The work place was populated by women who until this point had been at home with the children. And many of these women did not want to go back to the kitchen.

Traditionalists also experienced the Korean War. They believed that leaders lead and followers follow. They were part of a team that did not question authority and followed commands. Their trademarks include “souped” up cars, unfiltered cigarettes and nickel Cokes. These people are loyal and patriotic and numbered about 75 million born in the 45 year period from 1900 through 1945.

Baby Boomers were the results of the end of the war. As the soldiers came home, the birthrate skyrocketed. In little more than 18 years, they numbered 80 million. This group was raised by parents who were frugal, but wanted their children to have things that they did not have growing up. The parents sacrificed while the children became “market changers.”

An example of this generation of market changers is evident in the popularity of an early television show, Davy Crocket. Davy wore a raccoon skin hat which became a popular item among young Baby Boomer boys. Supply and demand caused the price of raccoon skins to go from a few cents a pound to several dollars a pound in a very short period of time. This competitive group had to have a ‘coon skin hat just like the boy down the street. This competitiveness continued as the group grew up and entered the workplace.

The cultural influences for the Baby Boomers were television, the assassination of a president, the Beatles, man’s walk on the moon, the Vietnam War, antiwar protests and the sexual revolution.

Generation X numbers approximately 46 million, close to half of the population of the Baby Boom generation. This group has grown up with computers, cell phones, microwaves, fax machines, satellite television and instant communication. They were shown a darker world that included drug use, AIDS, child abuse, divorce and were to become the generation of latch key kids. The Gen X'ers saw the downfall of American institutions as scandal dominated the news. It is not surprising that this group became the "me" generation.

Generation Y or the Millennials born from 1981 to 1999 number more than 75 million. This group has entered the work force with text messaging, video games, and social networking and is sometimes called the trophy kids because everyone who played got a trophy. They are the most coddled of the generations. They do not understand why there is diversity training in the workplace. The world they have grown up in has always been diverse.

How Do These Generations Perceive Themselves?

In a 2008 survey, "World of Work," conducted by the staffing agency Randstad, 86 percent of the members of the oldest generation described themselves as ethical, compared with 58 percent of Generation Y respondents. The traditionalist generation perceives itself as patriotic and values team work to accomplish tasks. They are rule followers and have a respect for authority. They will have a keen awareness of values and morals that a company espouses to have in its mission. They will employ clear logical reasoning when accomplishing a task.

In this same survey, 78 percent of Baby Boomers described themselves as having a strong work ethic, as opposed to 53 percent of Millennials and 68 percent of those in Generation X. Baby boomers are optimistic and often are high achievers. These adaptive employees value higher education as means of learning new skills. They were willing to relocate from birthplace in the pursuit of career opportunity. Baby boomers value success and workplace tenure.

Generation X perceives itself as being fiercely independent. They need to feel their work adds value to a company and its mission. They often seek constructive feedback and do well in work environments that recognize their achievements. They seek autonomy in their work and value their ability to be adaptive. While many are comfortable with directly reporting to a hierarchy, they do not necessarily value titles. Generation X seeks to balance their work environment with their personal lives.

Generation Y (Millennials) are the fastest growing segment of America's workforce. They are ethnically diverse and expecting of corporate environments that promote working in teams to accomplish tasks. They perceive themselves as hyper-communicators preferring to receive information quickly and from multiple media sources. Generation Y are multi-taskers; that is, they process pictures, audio and video prior to text based resources. They learn information that is relevant, immediately useful and in real time. They have a direct affinity for information that is both "play orientated" and "fun". These employees embrace change and challenges.

The Preferred Learning Patterns of the Generations

Learning patterns or learning styles has a rich research history with a variety of different models for categorization. For the purpose of the report, we have employed the ideas across many of these theorists, focusing on Fleming's VARK Model (Hawk & Shaw, 2007) which includes the following categories:

1. Visual learners - seeing
2. Auditory learners - listening
3. Reading/writing preference learners -
4. Kinesthetic/tactile learners - experience (hands-on)

Traditionalists bring to the workplace loyalty, a respect for hierarchy, resistance to change and a need for recognition. They want a training program to follow. They want to see training material with pictures of their peers performing important tasks. Traditionalists seek work place training approaches that address reading/writing and visual learning preferences. Traditionalists don't like playing, games or looking stupid in front of anyone in the workplace.

Sometimes called the "Sandwich Generation," Baby Boomers find themselves caring for children and elderly parents. They are competitive, dedicated, and work well in teams. They require one-on-one time with their supervisor, but they want to be in charge of their own learning. Because Baby Boomers don't want to look bad in front of the boss, they may give "safe" answers instead of honest ones. They will sometimes tell the boss what they think he/she wants to hear. Baby boomers seek work place training approaches that address visual and auditory learning preferences.

Generation X witnessed the dismantling of the Soviet Union, the rise of the women's liberation movement, the birth of the internet and the dot-com boom and bust. They were responsible for the popularity of MTV, home video games, and personal computers. Gen X'ers are flexible but want a balance between work and life. They want their independence and prefer informal training and self-direction in order to learn. Generation X'ers prefer work place training approaches that address tactile/kinesthetic and visual learning preferences. Because they grew up watching fast-paced children's programs, they do not want to be bored. This group typically retains information through visual presentations. Baby boomers seek work place training approaches that address visual and kinesthetic/tactile learning preferences.

The Millennials began using computers and the internet from early childhood and socially network through sites like Facebook. They were given cell phones at a very early age and prefer texting on their phones versus talking on them. They saw the September 11, 2001 terrorist attack and watched the Columbine High School shootings.

This group wants to have fun at work and expects advanced technology. They crave feedback and recognition. Their learning style requires interaction with their peers, but they want structure and direction. Millennials prefer work place training approaches that address tactile/kinesthetic and visual learning preferences. They typically prefer hands-on and rapid-paced orientation with computer-based training. They want to know what is expected of them up front and "Will it be on the test"?

Information Retention

Learning is defined as "the process of gaining knowledge or skills acquired through instruction or study, or to modify behavior through exposure to a type of conditioning or form of gaining experience" (Shelly et al. 2008). There are many educational theorists that have prescribed different sets of principals over the last half century to accomplish learning and knowledge retention. The cognitive domain specifically sets forth a taxonomy that can be explained as knowledge, comprehension, and critical thinking.

Information is retained by seeing, hearing or doing. The following statistics are valid no matter the age of the student.[2]

In general, information is retained as follows:

10% of what we read
20% of what we hear (i.e. lecture)
30% of what we see
50% of what we see and hear (at the same time)
70% of what we say (discuss in detail, the reason why repeat backs are important)
90% of what we do (manipulating, hands-on)
95% of what we teach (knowledge transfer)

Levels of Learning

With command of information on how we retain information, we need to be aware of the levels of learning. In 1956 a committee of colleges, led by Benjamin Bloom identified three categories of educational activities:

- **Cognitive**: mental skills (*Knowledge*)
- **Comprehension**: growth in feelings or emotional areas (*Attitude*)
- **Application**: manual or physical skills (*Skills*)

The above are the three basic levels of learning now known as Bloom's Taxonomy of Educational Objectives. The first one must be mastered before the next one can take place.

Knowledge is the first level of learning and is simply the acquisition of facts. It does not require the student to understand or make use of those facts. He/she can name the fact and identify it. Evaluation of knowledge retention is the ability to memorize. We "know it."

Comprehension implies understanding of the information. It does not require the student to apply the information to any specific situation. With comprehension the student can describe, explain, and contrast information. Evaluation of comprehension requires the student to restate or explain the information. We "understand it."

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[2] Source: Thinking Maps, California State University, Northridge; College of Education, Elementary Education Department

The **Application** Level of Learning involves using facts in solving problems. The student may need to assess, demonstrate, or perform. Evaluation requires the student to make choices and apply them to a given situation. We "can do it."

Generational Goals in the Workplace

Generalizations as to generational characteristics need to be softened by recognizing the individual's actual habits and personality which may or may not be relative as to when they were born. However, knowing a few things about each generation can help cut down on needless conflict in the workplace.

As the oldest generation's label implies, tradition has meaning. Traditionalists want to know about the company, its background and history. They want to be a part of the big picture, a part of the company's future. They are hard-working, are used to taking direction, and tend to have strict moral codes. Their loyalty will keep them with the company as long as the company will have them.

Baby Boomers are competitive. They want to know the company's mission. Where are we going? They want to move up within the company and take on enormous responsibilities. The company has to integrate them into the team as soon as possible. They want to roll up their sleeves and get into the middle of things. With this group, overtime is a given. They will stay with the same company as long as they are moving up, but will change jobs when the work is no longer challenging.

Generation X wants to know exactly what they will be doing and if they are on the right career path. They will need reassurance about their choices. They want to see others of their generation in their workplace. This group makes job and career changes often and will make their decision about the position within the first six months.

Although Millennials may respect authority, they are not impressed by it. They want to know what their role will be moving forward. They need to be encouraged to look around the company for what they want to do next. They will question rules and policies and will often ask "why?" Although work has to be fun for this group, it also has to be realistic. They like to come up with solutions, but be aware that they will run with a project without looking for the big picture.

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GENERATIONAL OVERVIEW

The U.S. Census Bureau defines the labeling of the generations currently in the work force as follows:

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	Traditionalists	**Baby Boomers**	**Gen X**	**Millennials or Gen Y**
Birth Years	Before 1946	1946-1964	1964-1981	Since 1981
Population	75 million (50% were veterans)	80 million	46 million	76 million & growing
Historical References	Great Depression, World War II, Korean War, GI Bill	Woodstock, Vietnam, Presidential assassination, Watergate, TV, Moon walk, Beatles	Presidential scandal, MTV, Sesame Street, Columbine, computers, 9/11, fall of institutions	More high tech inventions, dot com boom & bust, internet
Cultural References	Patriotic, War Bonds & Victory Gardens, saved money, paid cash, corporal punishment	Prosperity, war protests, working moms, sex, drugs and rock & roll	Single parents; AIDS; crack cocaine; latch key kids; video games, women's lib	Drugs, gangs, violence, cell phones, Texting, every one gets a trophy, illegal immigration
Learning Style	reading/writing and visual learning preferences	visual and kinesthetic/tactile learning preferences	fast-paced visual presentations	structure and direction, visual, computer- based
In a Word	Patriotic	Competitive	Skeptical	Realistic

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FACILITY VISITS

The process for training and qualifying operators is important for any company to maintain and develop talent that they have "in-house." With the potential for nearly 50% of the operators eligible to retire within the next five years or so, all of the stations recognized the need for a strong training program for operators, and each has made significant improvements in their respective programs. All of the facilities recognized the need for continued improvement.

The Facilities

The use of community resources was an outstanding plus for all of the stations. Each company had an extensive working relationship with local colleges as follows:

San Juan Generating Station – Public Service of New Mexico

San Juan Junior College

Coal Creek Station – Great River Energy

Bismarck State College National Energy Center

Martin Lake Power Station – Luminant

Tyler Community College – Luminant Academy

San Juan Generating Station – Public Service of New Mexico

San Juan Generating Station is located 15 miles west of Farmington, New Mexico and is a coal-fired, 4 unit plant generating 1,800 gross megawatts. The plant is the 7th-largest coal-fired generating station in the West and employs approximately 400 full-time employees.

San Juan College School of Energy is located south Farmington, New Mexico and supports economic development through training and educational programs responsive to the needs of the energy industry and related businesses. Courses are designed to include hands-on workshops and seminars to help individuals gain entry-level, professional and/or advancement training including supervisory and management training.

An excellent interface exists between the San Juan Station and San Juan College. Instructors and the individuals that are the primary interface between the college and the station are retired from San Juan and have first-hand knowledge of the plant and how it operates. The negative side of this fact is that currently the success of the program has a strong link to the experience of these specific individuals, which may weaken when they retire if they are replaced with individuals less familiar with the needs of San Juan Station.

The Labs at SJCC are state of the art and provide the ability for significant hands-on learning. Expectations require at least 50% of the training conducted to be "hands-on" training in labs, mock-ups, or dynamic learning activities, with the remainder of the training being in the classroom or CBT.

Industry Best Practice. English, writing, and studying skills are embedded in the training to help the trainees learn to write clear problem statements, work orders, etc., in conjunction with the technical training they receive. Some of the training is available on line, making it easier for apprentices to access from home.

Coal Creek Station – Great River Energy

Coal Creek Station is North Dakota's largest power plant, featuring two units with a total generation capacity of more than 1,100 megawatts. The power plant is located about 50 miles north of Bismarck, North Dakota, near the city of Underwood. Coal Creek Station has more than 200 employees and is one of the largest employers in the area.

Bismarck State College (BSC) is a North American Electric Reliability Council (NERC) Approved Continuing Education Provider. The college offers continuing training for certified system operators. BSC provides training both at the station and at the college.

The interface between Coal Creek and Bismarck State College is excellent. The students are provided updated lesson materials and make good use of the various forms of training that are offered including classroom, computer based training, PowerPoint, videos, and "hands-on" training.

Martin Lake Power Station – Luminant

Martin Lake Power Station is a 3 unit coal fired plant with the generating capacity of 2,250 megawatts and is located near the town of Tyler, Texas. It is the largest coal fired plant in the Luminant fleet.

Tyler Junior College is the home of Luminant Academy. Occupying 24,000 sq. ft. of the Skills Training Center on the TJC west campus, Luminant Academy offers classrooms, laboratories and simulators for the company's power plant operations.

The relationship between Martin Lake and Tyler Junior College (Luminant Academy) is very good. The program of study is well designed and classes are readily available. Retirees are the technical trainers which utilizes legacy knowledge and experience. . The College's physical structure, laboratories, hands-on training and capacity for success are impressive opportunities.

The Power Plant Technology program is uniform across Texas.

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BIBLIOGRAPHY

20/50 The Esquire Survey of American Men, Esquire Magazine, October 2010.

Anderson & Krathwohl, A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, 2001.

Bismarck State College National Energy Center, Bismarck, ND.

Lancaster, Lynne C. and Stillman, David, When Generations Collide. New York: HarperCollins Publishers, Inc., 2002.

www.luminant.com.

Marketing and Managing the Millennial Generation from Pacific Northwest Apprenticeship Symposium 2009 notes posted on MillenialGeneration.org blog by Kanna Hudson.

Netting the Net Generation, BusinessWeek, March 13, 2008 by Peter Cheese. Peter Cheese is the managing director responsible for Accenture's Talent & Organization Performance practice and a contributor to BusinessWeek.

www.census.gov U.S. Census Bureau.

www.doe.gov U.S. Department of Energy.

Randstad Staffing Agency, "World of Work" survey, 2008.

www.**sanjuancollege**.edu – San Juan College, Farmington, NM.

http://www.pnm.com/systems/sj.htm - San Juan Generating Station.

Thinking Maps, California State University, Northridge; College of Education, Elementary Education Department.

The "Trophy Kids" Grow Up, Wall Street Journal, October 21, 2008, by Ron Alsop adapted from his book *The Trophy Kids Grow Up: How the Millennial Generation Is Shaking Up the Workplace*. Ron Alsop is a contributor to The Wall Street Journal.

Updated Operations Assessment Guideline. EPRI, Palo Alto, CA: 2008. 1014200.

Tyler Junior College, Tyler, TX.

http://www.valueoptions.com/spotlight_YIW/gen_y.htm.

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