

The Role of TWI In The 21st Century

Abstract

The TWI Programs are powerful, valuable tools that have stood the test of time and are even more relevant now than they were when they were developed. They are timeless because they are based on principles that are universally accepted and proven. First, they are simple and fundamental. Second, because they are simple, they can be learned and used by everyone, resulting in the use of collective thinking where many people work on a single problem independently. Finally, the skills learned enable individuals to focus on the part of the problem that is important to them, thus solving one part of the problem at a time. Many small improvements sum to a significant solution. The programs are more relevant now because when they are used, employees think about their work in a different way and become more engaged in it. They take ownership of what they do. Job Instruction Training has been used around the world and often it has been used incorrectly by omitting the Job Breakdown Sheet. The Four-Step Method is necessary but not sufficient to achieve all the potential benefits of Job Instruction Training. The Job Breakdown Sheet is critical for at least two reasons. First it offers a document that enables implementation of standard work; i.e. repeatedly doing the same task the same way every time it is done. Second, it includes the concept of Key Points, which represent variability in a job and thus give people a focus for continual improvement.

Occam's Razor is a "rule of thumb" that states, "Entities should not be multiplied unnecessarily." Having been stated in many ways, the general meaning is that the simplest solution is usually the best. Great minds have believed this for a long time since Aristotle said, "Nature operates in the shortest way possible" and Einstein (so it has been said) related that "Everything should be made as simple as possible, but not simpler." In our vernacular, most people have heard, "Keep it simple." Thus, when we are searching for solutions to the many problems and opportunities we face every day, we should keep this timeless idea in mind.

In addition to keeping things as simple as possible, we should also strive to spread out the workload as much as possible according to the philosophy of "many hands make light work." Although this concept seems obvious and has also been known for many years, it appears that we are just starting to rediscover its power. The first production Model T Ford was built in Detroit on October 1, 1908. Henry Ford and the Model T transformed the nation's landscape by enabling people to move further away cities, which in effect created suburbs. They also transformed the

labor force by raising wages and by introducing a new kind of manufacture – the moving assembly line. Ford indeed was a world-class manufacturer in that his product was successfully used and imitated around the world. Some of Ford's ideas were not as good as others, however. The division of labor, for example, where assemblers work on the line and engineers and managers determine how to increase productivity, is an extreme waste of one of an organization's most precious assets – its people. Everyone has ideas and now it is slowly being recognized that those closest to the work probably know best how to increase the productivity of their work. Since we have had almost 100 years to form this habit of division of labor and since that habit has been formed around the world, it will take some time before it is generally accepted that everyone should be involved in operating the organization – even if it is only within the scope of an employee's individual job. Coming to this realization is only the first step. Determining how to accomplish it will take longer.

There are many reasons why the phenomenon of the division of labor worked for Henry Ford. One was that it fit the society at that time. Many people were grateful for their jobs and were willing to do whatever they were told to do. This was also a time when, perhaps, it was easier for one individual who had the intelligence, creativity, strength and ambition to develop an idea in to what could be considered an industry in itself. Consider not only the automobile, but also photography (George Eastman), tires (Harvey Firestone), cereal (W.K. Kellogg), safety razors (King C. Gillette), and steel (Andrew Carnegie) to name a few. Each of these men formed his company based on a product, but more importantly, each had some philosophical ideas that drove him. Ford thought everyone should be able to own an automobile and Eastman thought everyone should be able to take photographs. Ford developed the assembly line for more efficient manufacture of a complicated product and Gillette realized that the main product (the razor) can be sold at a much lower price (or be given away) since the real profits could be made from the razor blades themselves. Similar to Gillette's razor and razor blade concept, Bill Gates realized that as important as the computer would be, creating the software would be even more lucrative.

Although all these examples refer to different products in different industries, they all have one idea in common. Mainly, one person drove all of these organizations. Everyone remembers the name Henry Ford, but how many people remember the name of the second in charge. If you live in the city where a particular entrepreneur made his or her impact, then you may know some of the people who worked for them. These people also became wealthy and distributed their wealth locally, but once you get beyond the county border, the names of the second or third in charge usually fade away. Obviously, one person cannot do all that is required

to run a multi-million (or billion) dollar company and thus these entrepreneurs had to hire people to work for them. What is generally true in these examples, however, is that an individual had the main idea and it was fed down to the ranks below. The farther one gets from the main person, the fewer ideas were solicited from the top. It is well documented that Henry Ford hired some people to work on the assembly line and other people to think about improving the assembly line. The name of the game is control: I control the product; therefore I control the ideas about the product. Those ideas relate to new products, developments and improvements in existing products. Bill Gates helped bring us into the information age, where manipulation of information is primary to manufacture of goods. In that change, he maintains the same concept of control. The company he started still wants to maintain control over all the software used to drive computers. Microsoft hires people who develop software applications that are incorporated into the Microsoft realm. This concept has been found to be limiting, however, and a new concept of 'open sourcing' is proving to be very successful. This concept allows anyone who has the ability and desire to add to the software, as they desire. A classic and perhaps best-known example is Wikipedia, an on-line encyclopedia to which anyone can contribute. Although not stated explicitly, the underlying theory that drives Wikipedia is that if contributions and editing are open, the result will be true information. Since anyone can edit, if someone sees a mistake, it can be corrected quickly. The same holds true for consciously posting erroneous material. Since many people are viewing it, there is a higher probability that it will be corrected. Facebook is a social networking website that features open sourcing. Developers are free to create applications that can be used on the site. When this is allowed, more applications are developed and thus more are used, which means the site traffic increases. The more you give; the more you get. There are several other examples of this concept such as the browser Firefox and the operating system Unix. In Jeffrey Kluger's book *Simplicity*, he states "Many complexity theorists studying stock trades argue that collective human brainpower is an underestimated thing, and the more minds you put to work in a market, the better you're likely to do."¹

Note that the concept here is *collective thinking* and not *collaborative thinking*. The distinction is an important one. *Collaborative thinking* concerns a group of people getting together to solve a problem or discuss an issue. Think of a brainstorming session or a kaizen event where people are brought together for the express idea of addressing a specific problem. *Collective thinking*, on the other hand, concerns a group of people working independently to address problems of which they are aware. Person A is working on Problem 7 and Person B is working on Problem 23. Problem 7 may not affect Person B at all and it may have little

¹ Kluger, Jeffrey; *Simplicity*; John Murray Publishers, London; 2007; p 31.

significance outside of Person A's realm. But the key notion is that every improvement made will be another grain of sand added to the beach of productivity.

People are slowly finding that this same concept applies to "brick & mortar" businesses. Peter Block's book, *Stewardship*², explains how Ford's "command & control" will give way to stewardship. Command & control is where one person gets an idea and tells another person to execute it. Stewardship is where the entire organization knows where they want to go and everyone contributes. The role of managers in an organization practicing stewardship is not to just get ideas but also to enable others who get ideas to execute them. The concept is based on the notion that 80% of ideas come from the people who are actually doing the work. Therefore these are the ideas, which are critical to improving an organization. This sounds like a great idea, but the problem is in doing it. Many managers believe if all they do is help others, they will lose control and power. In addition, many people do not know how to get everyone working together. How does one get an employee interested in his or her job to the point where s/he would take action to make improvements under their own volition?

Another concept, which should be considered, might be termed "the rifle approach." When addressing many situations, people often have a tendency to use a shotgun because they want to cover as much area as possible so they don't miss anything. "Throwing money" at a problem is often done when the money is available (as with the government) because it seems like an easy thing to do. More often than not, it is ineffective. In *Simplexity*, Kluger says, "aim wide and your efforts – and money – will be wasted. Aim well, however, and you can crack the problem wide open."³ In this case, he's referring to micro financing, where people rose out of poverty when they could acquire small (often less than \$50) loans with reasonable interest rates. It is very difficult to alleviate poverty in an entire country, but it is much easier to do it in one village or with a small group of people.

The general problem that most people face is how to do more of what you want to do and less of what you don't. That is, how to increase productivity, while reducing (or at least not increasing) costs. How do we increase sales or quality while decreasing costs? Other resources we do not want to increase are time and effort.

What ties together these concepts of keeping things as simple as possible, getting everyone to work on improvements, and using the rifle approach to focus on problems? The answer is the programs developed by the Training Within Industry Service. The three "J" programs are powerful in their simplicity, and they have proven themselves to be effective around

² Block, Peter; *Stewardship*; Berrett-Koehler Publishers, San Francisco; 1996.

³ Kluger, p 232.

the world over a period of more than 60 years. They work because they get employees to critically think about what they do, while management allows them to make improvements over which they have authority. This empowers and motivates employees because they not only have control over more of their jobs, but they also see the benefits of what changes they make. At the same time, management does not lose control but rather, sees benefits in quality and productivity improvements. The programs are not meant to solve all problems, but rather to focus on a given problem and eliminate it.

The three programs are Job Instruction Training, Job Methods Training and Job Relations Training. They are all different but they all support each other. The similarities lie in the programs' formats. Each consists of 10 hours of training and practice, although additional practice is usually required. The sessions are limited to 2 hours a day because learning loses its effectiveness after that. In addition, learning is retained better if there is a period of time when the participants can absorb the material. All programs consist of a simple 4-step method whose main ideas are conveyed during the first 2-hour session. The remainder of the time is spent on practice because a main tenet of the programs is "learn by doing." Each program is designed so that each participant is capable of applying the material by the end of the 10-hour session. Note that the trainer must work with management to make sure this is planned for.

JOB INSTRUCTION TRAINING

Job Instruction Training (JIT) focuses on instructing someone how to do a job. In a general sense, the concept is "transfer of knowledge." Thus, once people become proficient in this skill, they can more easily transfer their knowledge to others, either in a formal instruction session or informally when someone is requested to do something. Just because someone can do a job at a high skill level does not mean s/he can explain to someone else how to do that same job. There are three main parts of JIT: Preparation, the 4-step Method, and the motto.

Preparation

Preparation consists of creating a Training Matrix, a Job Breakdown Sheet (JBS) for a given job, and making sure all the materials are ready and available for the training. The Training Matrix is used to determine what jobs should be trained (and why), who should be trained in them and when. The heart of preparation is the JBS, which is unique to JIT. Although there is a skill required to properly deliver instruction using a JBS, it must be written correctly in order to be effective. The three main areas in a JBS are the Important Steps, the Key Points, and the

Reasons. Once written, these three categories will appear obvious, but in the process of determining what they are for a particular job, the writer gains critical insight to exactly what s/he has been doing when they actually perform the job. Most people do not usually think this deeply about what they do, but after a JBS is written, the person can not only better explain it to someone else, but also has a better appreciation of the job. This critical thinking has a tendency to get individuals more involved in what they do and to think more deeply about how to improve what they do. JIT can lead to standard work if the JBS's are created properly. This means that once a JBS has been written, it is then shown to others who do the job to determine if that is, in fact, how others do the work. Usually, there are some variations, which may or may not be significant. The important point is to get all "experts" to agree on one way to do this particular job. The chosen method should be the one that results in the required quality for the least amount of effort and time. That will benefit the organization and the individual. Once that has been done, everyone who performs (or will perform) the job either receives training in how to do it or is given a demonstration in the agreed method. Standard training results in standard work.

The 4-Step Method

The 4-step Method is always conducted 1:1 and consists of:

- 1- Preparing the learner
- 2- Presenting the operation
- 3- Trying Out the Performance
- 4- Following up

Each step is important and cannot be eliminated or shortened in any way. Preparing the worker involves finding out what the learner knows about the job so the instructor can deliver proper training. It also is a time when the instructor can tell the learner why doing the job correctly is important to the organization's goals. The instructor also wants to get the learner in the proper frame of mind in order to optimize learning. The job is presented in several repetitions so that all the information is not delivered at one time. Material is repeated and built upon. It is also important to identify and enumerate both Important Steps and Key Points so the learner has a definite understanding of what each of them are. Mixing Important Steps and Key Points results in loss of quality, productivity and/or safety. Although Important Steps are distinctly different from Key Points, some people confuse them. Important Steps define WHAT you do, and the job will stop when one is omitted. Key Points represent the variability in a given Important Step in that they tell us HOW that step is done. The job can continue without perform a Key Point, albeit

with less quality, productivity and safety or at a higher cost. The reason we have quality problems, for example, is that one or more Key Points have been omitted even though all Important Steps have been done. Once the instructor and the learner believe the learner knows the job well enough to proceed, the learner does the job. Once the learner can do the job well, s/he then explains what and how it was done by stating Important Steps and Key Points. Finally, the instructor leaves the learner to do the job but does follow up later to make sure there are no questions and the method is being followed.

The JIT Motto

The last part of JIT is the motto: If the person hasn't learned, the instructor hasn't taught. This is based on the assumption that the learner is ready, willing and able to learn, which the instructor should determine either before the training or in Step 1. Once that determination has been made, it is the instructor's responsibility to make sure the learner knows how to do the job as requested. Although this process may seem lengthy and include additional paperwork, the gains in quality, productivity and safety easily outweigh any additional effort. Once this becomes part of an organization's culture, no other system will be preferred.

JOB METHODS (IMPROVEMENT) TRAINING

Everyone has ideas and we want to capitalize on all the ones that are beneficial to the organization. One problem is separating good ideas from others. Who is better suited to evaluating an idea about a job than the person doing the job? The difficulty often lies in the fact that the individual who has an idea about the job does not know how to separate a good idea from one that is counterproductive. In addition, once a good idea has been verified, that person often does not know how to 'sell' it to someone or how to put it to use. The Job Methods Training Program (JMT) addresses these issues with its own 4-step method. A person must first decide on a given job that they want to consider for improvement. Usually a person is doing a job and thinks of something that would make it easier to do. In either instance, the first step is to break down the job into its details. Here the operative term is 'detail' as opposed to 'step' as was considered in JIT. We want to know everything that is done so that we can question everything that is done. Listing all the details is an interesting exercise because invariably people start to question why they do what they do. Although this is encouraged, we emphasize that no action should be taken at this time. This activity alone, however, also gets people to think critically about their jobs just as it did with JIT. Once all the details have been documented, the person

must question each detail. The first question to ask is, “Why are we doing this detail?” Often the answer is easy to determine; but occasionally we might receive an answer like, “That’s our policy” or “That’s how we’ve always done it.” We then ask a second question of “What is its purpose?” If an action has no purpose, we should not be doing it. Sometimes the search for the purpose of an action takes longer than one might expect, but unless we can determine why we are doing something, it should be eliminated. When we determine that the detail does add value, we continue with the remaining four standard questions of ‘where?’, ‘when?’, ‘who?’, and ‘how?’ Note, however, that the order of all questions is important. Since when we progress into Step 3 (Develop the New Method) we first want to eliminate any non-value added details, then we try to combine or rearrange them to further reduce waste, and last we try to simplify the detail. Simplification is often what people attempt to do first while it really should be the last resort at reducing waste. Step 4 involves putting the new ideas to work and that involves convincing people that they should be adopted. The best way to sell an idea is to quantify it so that everyone can see its advantages easily and JMT walks the session participant through a procedure on how to accomplish this. Finally, a main idea is that one should not become attached to this process because it should be subject to continual improvement, by either the person who initiated this change or another person. Note also that we are not necessarily limiting our ideas to major projects. In fact, we encourage everyone to use this method on all the ideas that they think of no matter how small they think they are. Small ideas must be thought of as grains of sand on a beach. Each one may not be significant by itself, but together they can make a huge difference. Critics of JMT say that it is not a complete methods improvement program. These critics may not realize that JMT teaches the basic fundamentals of job improvement, which are essential to job improvement and which are skills many people lack. “Complete” methods improvement programs are usually written by engineers for engineers and are rarely used by others. JMT, however, is a program that can quickly be learned and used by anyone and thus forms the real basis of continual improvement.

JOB RELATIONS TRAINING

The third program is Job Relations Training (JRT), which could be thought of as stabilizing the other two programs. The result of using the JRT method is that relations between individuals improve when it is used. Because supervisors at all levels are paid to handle personnel problems, they are usually the ones who receive this training. However, it is very

useful for anyone in almost any relationship situation. Good relationships among people in an organization are necessary for that organization to be strong and successful. When a difference of opinion does occur, the first question to ask is, “What is our objective?” or “What are we trying to accomplish?” If we don’t know that, we won’t know whether the action we take is successful. Once we determine an objective, we follow the 4-Step Method: 1- Get the facts, 2- Weigh & Decide, 3- Take action, and 4- Check Results. In getting the facts, we try to collect as much information as possible so that we are confident we have the whole story. We then “weigh & decide,” which means looking for gaps and contradictions before listing all possible actions. If we find a gap or a contradiction, we must go back to Step 1 and gather additional facts. Only then can we choose a possible course of action, noting that there is always more than one. We follow up to see what affect our course of action had on the individual, the group and production. We also see if we have accomplished our objective. If we find we are lacking in any of these categories, we think about going through the process again. This is only a brief description of the program and does not include all the ideas put forth. A main idea, however, is that using this process has two main advantages in an organization. First, it slows down the decision making on personnel issues just to the point that good decisions are made in a non-emotional or objective manner. Second, it serves as a standard process for all supervisors to use so that all personnel know that they will be treated fairly and uniformly.

Putting the TWI Programs to Work

The first program to embed into an organization’s culture is usually Job Instruction Training (JIT) because that will drive standard work. In other words, by using JIT correctly, employees will actually follow the standard work as it was designed. Standard training leads to standard work and JIT is standard training. Until standard work is actually achieved, there will be too much variability in production, and therefore improvements will be difficult to achieve. Standard work means that everyone doing a given job is doing it the same way every time it is done. Once standard work has been achieved, everyone has only one process to think about improving for a given job. Furthermore, a major strength of JIT is that by using a JBS, everyone knows on what they should focus to make improvements. In order to understand this concept it is necessary to understand the makeup and use of a JBS

As mentioned, the JBS consists of three parts: Important Steps, Key Points, and Reasons. Important Steps are the actions that are necessary to get the job done. If an Important Step is missed, the job stops and can’t be completed. Since Important Steps are those actions that get the job done, they are the ones usually cited in procedures and most easily remembered by people. A

distinction made in a JBS is that we do not want every motion recorded as an Important Step. Many actions are obvious and do not need to be stated. Important Steps are WHAT is to be done. Key Points, on the other hand, are HOW a given Important Step should be done. This implies that there is more than one way to do this step. When there is more than one way to do something, there is variability. Thus, Key Points represent variability in a job. Variability effects quality, productivity, safety and cost. Consider the job of changing a tire on a car. An Important Step is to replace the lug nuts. If the lug nuts were not replaced, the tire would fall off the car every time you lowered it to the ground. Thus, replacing the lug nuts is an Important Step in changing the tire on a car. HOW the lug nuts are replaced can vary, however. They can be put on hand tight. They can be tightened with a wrench. They can be tightened with a torque wrench to a specific tightness. When they are being tightened, they can be tightened in order (sequentially) or they can be tightened out of order (e.g. in a 'star' pattern). Also, if there are five lug nuts on this car and only four are replaced, one could argue that the step has been completed. To consider an extreme case, if someone changed a tire on a car by replacing 4 out of 5 lug nuts and tightened them by hand, the automobile might drive several miles before the tire fell off. Thus the job of changing the tire would have been completed, but the quality of the job is poor. If a wrench were used to tighten the lug nuts in order, the car may be driven many miles without any harm to the driver or the car. Again, the job would have been completed; but the quality, although better than the previous example, is still not what we expect. In some instances, if the lug nuts are tightened sequentially, the hub of the tire can become deformed, which will affect the life of the wheel and perhaps the quality of the ride. Also, if the lug nuts are over tightened, the studs may break; and if they are under tightened, they may loosen. However, if the lug nuts are tightened to a specific tightness (torque) and if they are tightened incrementally, alternating every other lug nut, then no problems will occur because of the job of changing the tire. In every case, the Important Step was completed, but the quality varied because Key Points were or were not used. Note also that the degree of variation in quality was caused by which Key Point was omitted.

Because we want to eliminate variability in all jobs, and because Key Points represent variability, we want to (legitimately) eliminate all Key Points. That's called mistake proofing. Instead of randomly coming upon an action to mistake proof, a JBS tells us exactly what actions to consider. Consider the following example.

The job is bagging hardware, which is to be used by the customer for assembly of the product. The operator will first take a plastic, sealable bag from a rack. She will then look at the routing sheet to see what hardware is to be packed – black or silver. Black hardware takes a D1

label and silver hardware takes an A4 label. The operator places the correct self-adhesive label in the top center of the bag. She takes an instruction sheet, folds it into quarters so the company name shows and then places it into the bag. When folded, the instructions just fit into the bag and thus it is easier if the operator holds the leading edge of the instructions and places her hand into the bag. She then selects four ¼-20 screws, two ½-13 screws and a hex wrench and places them into a mistake proofing tool in order to make sure she includes the correct size and number of screws. She empties the tool contents into the bag and seals the bag. She takes a hang tie from the bin, places it through the hole in the bag, secures the tie to itself and places the bag into a tote bin. (The hang tie is used to hang the bag on the product when it is packed in the shipping department.) When the order is complete, a material handler will pick up the tote bin and take it to the next operation. This is what the Job Breakdown Sheet looks like.

Job Name: Bagging hardware			
Parts: ¼-20 screws; ½-13 screws; hex wrench; instructions			
Tools & Materials: plastic bags; hang ties, mistake proofing tool; D1 & A4 labels			
	Important Steps	Key Points	Reasons
1	Label bag	1- Label per route slip 2- Top center	1- Match hardware to product 2- Visible to shipper
2	Insert instructions	1- Fold in ¼ 2- Name shows 3- Hand into bag	1- Fit into bag 2- ID Company 3- Easier
3	Insert hardware	1- Use MP Tool 2- Check hardware type 3- Seal bag 4- Install hang tie 5- Check connection	1- Verify quantity 2- Product presentation 3- Hardware doesn't fall out 4- Used by shipper 5- Easy to come unattached

To determine if Step 1 is an Important Step, we ask the ‘expert’ operator, “Does it advance the work?” The operator replies that the job can’t be done properly without a label. But then we ask, “Would the job stop if the label were not applied? Yes. All material handlers are very sensitive to labels and bar codes because they use them continually and they would never pick up material without labels attached. Therefore, the job would never leave this station without a label and thus attaching a label is an Important Step. The same reasoning applies to the instructions and the

hardware; a material handler would not pick up an empty bag. What about the hang tie? Would not attaching the hang tie advance the work since it's required in shipping? The operator replies that some hardware bags use hang ties and some don't, so the material handlers would pick up the bags if the ties were not attached. This means the operator could complete the job (incorrectly) and the error (no hang tie) would not be found until it reached shipping. Therefore we include attaching the hang tie as a Key Point and tell the operator the reason for it when she is being trained. We want the operator to know and understand the reason so she will not forget to attach the hang tie. If she does forget to attach the hang tie, the bag will leave her station and she will consider the job complete.

By reviewing the Key Points, the operator can focus on what actions cause variability in the job. For example, using a self-sealing bag might eliminate Key Point #3. Changing the tote to a carrying device that requires the use of the hang tie would eliminate Key Points #4 and #5. If the operator has to use the hang tie in order to complete the job, attaching the hang tie is no longer a Key Point; but now it becomes an Important Step. Let's say the operator thinks of using a carrying device with a horizontal peg so that the hang tie must be used in order to move the bags. The JBS would now look like this.

Job Name: Bagging hardware			
Parts: ¼-20 screws; ½-13 screws; allen wrench; instructions			
Tools & Materials: self-sealing bags; hang ties, mistake proofing tool; D1 & A4 labels			
	Important Steps	Key Points	Reasons
1	Label bag	1- Label per route slip 2- Top center	1- Match hardware to product 2- Visible to shipper
2	Insert instructions	1- Fold in ¼ 2- Name shows 3- Hand into bag	1- Fit into bag 2- ID Company 3- Easier
3	Insert hardware	1- Use MP Tool	1- Verify quantity
4	Attach hang tie		

By (legitimately) eliminating Key Points we have taken some variability out of the job. Ideally, we should eliminate all Key Points so a job can be done only one way when one follows the Important Steps.

Using Key Points to focus on variability helps in another way also. If there is any problem with variation in quality, productivity or safety, we can quickly identify which Key Point is being missed by the operator. We therefore have to reinforce just that Key Point as opposed to giving the operator a complete job re-training.

These programs are not a panacea and will not address all problems in an organization. They will, however, form a solid basis for a successful culture on which a strong organization can be built. Furthermore without these skills being universally used throughout an organization, the odds of the organization becoming stronger and more successful are decreased. They work because they get employees involved in their own jobs. The employees who actually do the jobs are the people who create the Job Instruction Job Breakdown Sheets. Done correctly, all employees who know the job well will have input. This involvement is very empowering and can actually change the culture of an organization. Most improvements in world-class companies come from the employees who actually do the work, but the trick is to get them involved in what they do. The Job Methods Program teaches each employee how to separate their good ideas from others, and then how to sell and implement that good idea. These are not world changing, organization changing or even department changing improvements; but like grains of sand on a beach, their accumulation results in something to behold. Since the success of any organization depends on good relationships among all employees, it is necessary for leaders to know how to successfully handle personnel problems that arise. The Job Relations Program is a simple but functional way to do this. These are the main skills that everyone needs in order to make the best use of the unique knowledge in each organization.

The TWI programs are not new, but they bear investigation. Two quotations are appropriate:

“The TWI programs are distinctive, not because of the accepted principles of good management they cover, but because they are successful in getting these *used*”⁴

“To select well among old things is almost equal to inventing new ones.”⁵

⁴ *Training, Continuous Improvement, and Human Relations: The U.S. TWI Programs and the Japanese Management Style*; Alan G. Robinson & Dean M. Schroeder; California Management Review Reprint Series ©1993 by The Regents of the U. of California, CMR, Vol. 35, No. 2, Winter 1993.

⁵ Agel, J., & Glanze, W. D. (1987). *Pearls of wisdom: A harvest of quotations from all ages*. New York: Harper Perennial.