Simple Hints to Help Trainers Improve Training Quality

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The purpose of this white paper is to provide a number of simple hints, suggestions, examples, and recommendations that will help trainers and benefit trainees by assuring and improving training quality, namely when in-house subject matter experts do lead the courses.

It is the eight paper in a series of thoughts collected, organized, and promoted by the Quality in Education Think Tank (QiETT) of the International Academy for Quality (IAQ).

The first paper addressed a broader scope of topics and put into perspective the overall field of "Quality in Education", which set a common ground for further reflection and guidance of QiETT activities. The forthcoming papers, such as this one, focus on more specific topics and delve deeper into particular topics based upon the collection of international inputs from quality and education experts.

To date, this collection of white papers comprises the following titles:

1-"Quality in Education: Perspectives from the QiETT of IAQ"
2-"Large Scale Training of Quality Professionals"
3-"Inclusive Quality of Education"
4-"Continuing Education in Quality Improvement for Healthcare Professionals and its effects on organizational improvement"
5-"Current Societal Challenges to Quality and Quality Management in Higher Education"
6-"Applying Quality Theory to Educational Systems"
7-"Training and Teaching Statistical Methods for Quality"
8-"Simple Hints to Help Trainers Improve Training Quality"

1. Introduction

An organization conducting training is doing so as an investment with the expectation that it will in some way benefit from that training and investment. Participants must be able to apply the concepts taught in a training session in practical situations for training to be considered successful (Tonhäuser & Büker 2016). This investment may be in the form of purchased training services from an outside provider, or in the time and effort an in-house trainer spends developing and delivering the course. The time training participants spend away from their regular jobs due to training should also be viewed as an investment leading to increased performance on the job. Both the quality of the training and the usability of the training determine whether or not the training was a good investment for the organization as well as the participant.

Training may be conducted for improvement purposes, such as when it is conducted due to the implementation of a new process or to increase the skills of employees. Training may also be needed as a response to a quality failure, such as when an operator skips a process step.

Assigning training to an in-house expert instead of hiring outside help may be a lower-cost option. However, only well prepared training conducted by a skilled trainer can ensure that it will be a good investment.

2. Conducting Training as a Subject Matter Expert

Often, organizations training employees after a failure simply explain the correct procedure and then require the employee to sign a document confirming that they have been trained. Such an action should not be considered a proper training session. Training should not be thrown together without prior planning; it should be systematically planned regardless of whether an outside trainer or an internal expert are used for conducting it.

Using in-house subject matter experts (SME) in place of external trainers such as consultants is an option that an organization should consider when planning training pertaining to a subject area in which the organization has experts. For example, an organization with a highly specialized proprietary technology will have difficulties finding an external trainer with the required knowledge. Training in a new human resources process is also a good candidate for an in-

house trainer. Training that will be regularly repeated, such as new employee orientation related training, may also be a good candidate for an in-house trainer. Training or retraining a machine operator after a failure is generally conducted by an in-house SME. Unfortunately, this SME may be somebody who has understanding of the machine or process, but little or no experience as a trainer.

The skills of a trainer are especially relevant for SMEs who may be called upon to conduct training after improvements have been implemented such as when a bolt tightening process has been changed due to a process improvement. Lean Six Sigma Black Belts may also need to provide Six Sigma team members with basic training in the Six Sigma methodology or even roll out a complete in-house Lean Six Sigma training and certification program. Non-professional trainers may possess knowledge of the subject that will be taught, but may lack the skills required of a trainer (Boyer 2017). In such situations, the trainers should receive trainer training or trainer coaching from somebody with trainer skills as all potential in-house trainers should be knowledgeable in how to conduct training.

3. Training as the Transfer of Practical Knowledge

Training should not be confused with education. Training is conducted to pass on a usable skill whereas education is intended to achieve personal development without necessarily a direct use (Borror 2009), although there can be room for some overlap between the two goals. From the organizations point of view, training should be viewed as an investment; the time and money spent on a training initiative should have some form of benefit for the organization. This benefit may be more efficient employees who perform tasks quicker or reduced failures due to employees performing tasks correctly.

Training is about knowledge transfer and trainers must understand this. They should also consider the training participant's background and education. One SME trainer was tasked with teaching vibration isolation to all new employees as this pertained to the organizations core business. Unfortunately, the buyers, production employees, and warehouse workers did not have advanced engineering degrees and were incapable of following slides that mostly consisted of calculus type mathematical formulas that the trainer declined to explain because they were self-explanatory; you can guess what the quality of this training ended up being!

Trainees walking out of a training session wondering why they wasted their time is a poor training outcome. In addition to wasting the trainer's preparation and training time, poorly planned or executed training takes people off the job without delivering any return on investment.

4. Training as a Process

Well designed and executed training should be viewed as an investment such as when trainees loose two hours of work time to attend training, but return to the job capable of working in a more efficient manner that saves far more than two hours of labor in the long run or reduces the number of failures that occur.

Therefore, training should not be conducted in a haphazard manner. Simply assigning an SME the task of throwing some slides together to read to trainees will not result in a successful training experience. Neither will sending the process expert into production to give a five minute lecture on not making mistakes.

Creating and delivering a high quality new training course consists of four main phases: needs assessment, course development, training delivery, and documentation of training (Table 1). These four phases apply to all types of training; whether retraining production employees in the proper procedure for tightening a bolt or rolling out a full training program.

Table 1. Four phases of training design and delivery.

Training Phase	Main Actions
Needs assessment	• Determine that training is needed to correct a deficiency • Identify the target audience
Course development	• Determine the delivery method • Write a course description • Create training material, if necessary
Training delivery	• Plan the training date, time, and location in advance • Conduct the training • Determine if the training was effective
Documentation of training	• Document the training and save in the employee's training records • Look for potential improvements • Implement identified improvements

The next four sections of this paper discuss the four phases of training. Here, the main actions of each phase will be explored in detail. Templates for the necessary documents will also be provided.

5. Needs Assessment

The needs assessment is where the nature of the required training is determined. The training may already be available internally or externally or it may need to be created specifically to fulfill the identified need. The first step is identifying the target audience for training and then determining if there are any deficiencies in their current skill set. The need for training may also be more obvious when it is the result of a change to a process, the implementation of a new computer program, or the organization's purchase of a new piece of equipment. Training related to a new type of failure will generally need to be created.

A training plan can be useful for planning training. Although the exact layout and content training plan can vary, the training plan should at a minimum include employees' names, training attended, and training that they must attend. The training plan shown in Figure 1 is a matrix listing employees and their departments as well as training courses, the trainer, and date conducted or planned. The matrix also lists the corresponding documents, such as an attendance roster or certification that is used to confirm that training has taken place.

		New Employee Orientatio	First Aid	New Accounting Software	Calibration	New Employee Orientation	Six Sigma Green Belt	Forklift Operation Refresher	Five S
		A. Wade	External	External	S. York	A. Wade	External	J. Haley	C Barnes
		08. Jan 20	23. Jan 20	16 Mar. 20	26-27 Mar. 20	14. Apr 20	11-15 May 20 8-12 June 20	to be determined	14. Jul 20
Name	**Department**								Planned
M. Bennet	Production	Roster							Planned
D. Dean	Production		Roster						Planned
M. Cole	Production		Roster						Planned
L. Terrel	Production					Roster			Planned
A. Velez	Quality		Roster		Roster		Certification		
P. Payne	Shipping		Roster					Planned	
J. Erickson	Shipping							Planned	
W. Shepard	Quality						Certification		
L. Irwin	Quality				Roster				
M. Hayes	Accounting			Roster					
C. Johnson	Production		Roster						Planned
K. Merrit	Production								Planned
E. Finley	Accounting								
L. Long	Quality				Roster				
S. Simon	Production		Roster						Planned

Figure 1. Training plan matrix.

A person or department should be designated for maintaining and updating the training plan for a large organization with many trainers and trainees. For example, a member of the quality or

human resources department may be designated as responsible for maintaining the training plan, saving documentation, and coordinating with internal and external trainers.

The needs assessment should consider training that all employees require, such as new employee orientation, department specific training such as measurement device calibration for the quality department, as well as new training requirements such as a new software program or process is implemented in the organization.

6. Course Development

The training course then needs to be developed if it is not already available. This may be simple such as when it is in response to a failure, but some planning is still required even for a short training session. The delivery method for a failure related training session may be a short session directly on the production line, but it should still be planned in advance, namely to ensure it does not disrupt production.

Many approaches to training can be used. A training session may involve lecture, hands-on activities, games, or group activities. Alternatively, one course can mix approaches. A mix of lecturing and hands-on activities can be helpful in communicating concepts. For example, a lecture on the statistical distribution of samples can be followed by the use of a quincunx machine to illustrate the concept (Dew 2018).

Alternating between approaches can help to avoid monotony and keep participants focused. Another approach to training is to use reflective learning methods such as case studies where participants discuss actual case studies under the guidance of the trainer (Dew 2015).

The use of training aids should be considered to simplify concepts, make concepts more memorable, and present concepts that could not otherwise be presented (Mitchell 1998). Needed training aids should also be acquired prior to the start of training and checked to ensure they function as intended.

A course description such as the one depicted in Figure 2 should be created to describe the training. It should include the subject, objective, content of the course, duration of the course, and any necessary equipment or training aids. The course objective should list the key actions that people will be able to accomplish upon completion of the training. When writing course objectives,

they should be considered the key points to be learned during the training as well as how the effectiveness of the training can be assessed. Words to use when writing course objectives may include apply, contrast, define, perform, select, and create.

Introduction to Vernier Calipers

Objective:

- Participants will be able to:
  - Describe the proper use of Vernier calipers
  - Identify different components of Vernier calipers
  - Read the scale on Vernier calipers
  - Measure production parts

Content:

- Measurement scale
- Calibration traceability
- Internal, external, and depth measurements on parts
- Check calibration

Duration:

2 Hours

Training Aids:

- Vernier calipers
- Gage block
- 10 production parts

Figure 2. Course description for training on the use of Vernier calipers.

The training description is also the advertising for the course and can be entered into a training catalogue or stored in the organization's intranet site if the course will be offered based on demand. The course description can also be used to quickly communicate to mangers what is being offered so they can decide if their employees should attend the training. This document, together with a sign-in sheet, can be used to document the training.

The training date for longer duration sessions should be set well in advance whenever possible or potential attendees may be unable to attend if they have important meetings already schedule during the training time. Consideration should also be given to the location selected for the training. Classrooms, if used, should be free from outside distractions.

A trainer should consider the education, skills, and background of the participants when planning training. Explaining concepts involving algebra to a production employee who has

difficulties with arithmetic will waste the employee's time and may cause aggravation. This problem is not limited to production employees; a highly specialized engineer may have the same problem if the trainer assumes all employees with a degree have their level of understanding in calculus. There may also be employees who have the required level of understanding to grasp the subject matter; however, they may not have the required skills in the language of instruction.

Limit slides to 4-6 key points per slide if a presentation program is used. The font size should be large enough to view from the back of a classroom; generally, anything less than font size 14 should be avoided. The presentation should be used to guide the training and present key points; it should not be intended as a script to be read word for word to the participants.

Training aids should be procured ahead of time and checked prior to the start of training. Training aids should be considered for courses without a hands on component; for example, a trainer mentioning an assembly could have an assembly on hand to show the participants as it is explained.

7. Training Delivery

The appropriate attire for a trainer will very based on the course, organization's culture, and participants. An external trainer should generally wear business formal attire. Everyday work clothes may be more appropriate for an SME conducting a short session on a company specific process. Overdressing should also be avoided; wearing business formal while teaching production operators who are wearing t-shirts may set the trainer too far part from the participants. A rule of thumb is to dress one level above that of the participants such as wearing business casual with a sport coat if the participants are in button down shirts.

Breaks should be planned for longer training sessions. Participants may stop paying attention if the training continues too long without a break. One approach is a ten minute break for every hour of training. Alternately, a 15 minute break can be taken every two hours of training. A trainer should be sure to observe the participants. If they seem to be getting sleepy or losing interest, it may be necessary to announce a break earlier than planned.

The trainer should also pay attention to the audience to see if anybody looks confused; if so, others may also be confused and the material should be reiterated in a different way. It may be a good idea to take a short break if it looks like participants are getting tired. A trainer should avoid reading directly from slides. The slides should guide the trainer, but not dictate every word or the

participants may get the impression they could just read the slides themselves. Slides are a support, not a crutch. The trainer should also speak slowly and clearly while avoiding any slang or jargon that the participants may not know; this is especially important when a technical expert is training non-experts.

The effectiveness of the training needs to be assessed both during the training and after the training. A trainer could periodically ask the participants questions during the training. A trainer should either ask more questions at the end of the training or pass out a written quiz or exam. Another alternative is to distribute a written exam weeks or months after the course has ended. This has the advantage of determining if the training material was retained.

8. Documentation of Training

The completed training must be documented. This can be achieved through the use of an attendance list such as the one depicted in Figure 3 or a certification of participation. A certification of participation can be saved in the employees file. Alternatively, the attendance list can be saved in a file and a training plan can be updated to show which employees attended the training. Properly documenting the training will help with planning future training as it will be clear who has already attended the training. Failing to properly document the training could cause problems if an auditor ever asks for proof that an employee attended a specific training session.

Figure 3. Training attendance list.

Feedback should also be solicited to improve the course in the future. This can be done by handing out a questionnaire such as the one depicted in Figure 4 or providing a link to a website with a questionnaire. The satisfaction surveys collected at the end of the training session should be reviewed to look for improvement opportunities.

Training Satisfaction Survey

Training:_____ Date:_____

Trainer:_____ Participant name (optional):_____

Scale: 1 = strongly disagree 2 = neutral 5 = strongly agree

The trainer was well prepared	1	2	3	4	5
The trainer was knowledgeable	1	2	3	4	5
I can apply what I learned on the job	1	2	3	4	5
Training objectives were achieved	1	2	3	4	5
I would recommend the training to others	1	2	3	4	5
The training location was suitable	1	2	3	4	5

What are three things you learned during the training? _____

_____

Do you have any recommendations for improving the training? _____

_____

Figure 4. Training satisfaction survey.

9. Conclusion

Training needs to be valued added and using an untrained trainer risks simply wasting time and resources. Training could be as detailed as a Lean Six Sigma training program; however, training as the result of a change in a given procedure, or as simply part of a corrective action are also possibilities from the wide range of reason that training may be performed. Regardless of such a scope of the training, a skilled trainer is still needed to ensure the training will be effective.

A number of steps, going from planning to implementation and then to improvement, may help to assure increased training effectiveness. This paper describes a number of simple hints, recommendations, and suggestions that may help trainers and benefit trainees by leading to higher levels of training quality. With these recommendations and suggestions, training will be an investment that pays.

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