

Holistic Team Training; Understanding the Benefits

Brad Benhart, MBA, and Daphene C. Koch, PhD
Purdue University, West Lafayette, IN

Traditionally the construction industry trains like levels together, superintendents with superintendents, project managers with project managers, etc. Training similarly experienced people is always quicker and faster. It is also difficult for many people from one project to be released to attend training. These constraints, coupled with the simple comfort of being around like-minded people, have forced most construction training to be broken up by job title. But when we look at projects, they are formed with a balance of each professional required. Construction projects are continually adding complexity. Many tasks on today's projects are the responsibility of all team members. This paper focuses on research, findings, and a case study that support the use of team, or holistic, training in the construction industry and the associated efficiencies.

Keywords: construction training, construction industry, team, team training, holistic training

Introduction

When reviewing the failures of many projects, it often occurs where two people, trades, companies, or materials touch one another or have to coordinate. Liken it to a fly ball in baseball that is not caught because both players thought the other one was going to catch it. Much of a project teams' time is spent managing this coordination and ensuring the ball is not dropped. There is potential for great improvements on projects today by focusing training at these coordination points.

Within the construction industry, most employees are very experienced and knowledgeable at their core competencies required for their position. Estimators tend to be very good at estimating. Superintendents tend to excel at leading the field operations. If an employee is not good at their core responsibilities they are often provided task specific training. If that is unsuccessful, they are often transitioned out of a company. Similar to sports, players are good at their specific role or position, but often need practice as a cohesive unit. The weaknesses of a project team are highlighted in tasks that overlap job competencies. For example, scheduling is a task that spans multiple positions in an organization. Many projects are victims to schedule delays because of internal scheduling issues. However, most companies will continue to separate training by job title and thereby continuing to miss these critical overlaps. This paper will outline the development of a more improved holistic team formation of training.

Field Supervisor Training: Traditions

Traditionally in the construction industry, groups were trained by matching like levels. This is shown through the existing programs from Associated General Contractors (AGC)'s Supervisory Training Program (The Associated General, 2010), Associated Building Contractors (ABC)'s Supervisor training (Associated Builders, 2010), and mechanical Contractors Association of America (MCAA)'s Leadership Institute (Mechanical Contractors, 2010). Even looking back at the medieval times of craft training, all was done in the secret society of the group and outsiders were not allowed to understand the details of the craft (Ackerman, 1949; Ngowi, 1997). Training that has been completed in this manner assists each group in developing themselves, but does not lead to the overall development of a company or a project team.

Data collected from multiple field supervisor training sessions performed in the Midwest for the past three years can be summarized in Table 1. Table 1 data was collected during the training as an exercise to understand how the field

supervisors see problems and what they see as solutions. What was found is there is a disconnect between different levels of employees in a company. The strongest disconnect is between the workers in the field and the workers in the office. The problems that are occurring affect the profit and success of a company. Table 1 shows some of the common issues that the field employees revealed during training. The issues shown, or ones very similar, were repeatedly concluded at the end of the field training. More training did not take the issues away because the field employees were not given the opportunity to connect with the office employees.

Table 1: Issues common on all projects: Field perspective

Issue	Field View	Solution
Housekeeping	We are always over budget because we have to clean up after subcontractors	Include a fee in the subcontractors contract which would cover this area as a cost account
Scheduling	We are never given enough time to complete the task	Include field perspective in schedule
Not everyone gets to prepare for a new job	We are assigned to the project after it is already started	Include the field into the preplanning process
What is the BIG picture of the project?	We do not always know the "deals" which have been made during the contract negotiations	Give field employees overview of the project

Researchers of psychology began experimenting with teams and how training programs should be formed (Russell, Tansey, & Lear, (2000). In construction, all members of a project are the team. They have very challenging environments to overcome and each team member has specialized tasks to perform. The most successful teams shown in research were those who trained with one another, coordinated activities, and had successful interaction with other team members (Blickensderfer, Canoon-Bowers & Salas, 1998; Sundstrom, 1999). The term used to develop a deeper understanding of how each team member works is cross-training. Cross-training is defined as "an instructional strategy in which each team member is trained in the duties of his or her teammates" (Volpe, Cannon-Bowers, Salas, & Spector, 1996). In construction the level of cross-training which should occur is the understanding of each person's expertise and how it relates to the team. Hence, necessitating the development of a holistic program that would combine project based training instead of position based training.

Developing a Holistic Program

Developing a holistic team-training program is difficult and takes a great deal of time and support. But it seems that since the 1980's companies have been continuing to restructure the teams, rather than the jobs (Hollendeck, DeRue, & Guzzo, 2004). Individuals do a great job at their expert area, but they need to work together towards the common goal. Holistic programs are often met with resistance and unwillingness to participate because many do not want to share their expertise. It must have the commitment of all layers of the company to ensure the proper resources are devoted to the project and that the individuals understand that it is a personal, professional, and company improvement. It should be emphasized that upper management is committed to this training and will recognize it in career progression and compensation consideration.

The research developed and followed this eight-step process for course development:

1. Identify the gaps where tasks are not being executed correctly or in a timely manner
2. Define the perfect process where there are no gaps
3. Establish goals
4. Author the fundamentals, theory, and definitions required as the foundation
5. Design team exercises that reinforce the technical skills and teamwork at the same time
6. Structure the team exercises to progress and evolve with more complex situations
7. Provide mechanisms for feedback

8. Allow for class discussion topics throughout

Once in draft mode, execution should be done on a small test class. Attendees should be picked based on ability to give constructive criticism. Upon completion of the test group, all changes should be incorporated and the program should be launched.

Case Study

A large general contractor was in the process of a strategic plan. One of the goals of this plan was to improve the efficiency of their training programs. Reduce the number of hours, but increase the value of the programs and the return on investment (ROI). Simply put, training programs should make employees and the company more efficient and subsequently, more profitable. Utilizing profit, or lack of, seemed a likely place to focus training resources.

An interview with the Chief Financial Officer (CFO) proved to be insightful. When asked what the commonality was amongst jobs that lost money, the answer was clear - schedule. The failure of the schedule was the common thread on all projects that did not make their profit projections on 90% of the projects. If scheduling accuracy could be improved, the company would be more profitable. On the threshold of a recession, management was very receptive to anything that could improve the bottom line.

Further interviews indicated that the failure on most of these jobs was not the responsibility of just one person, but the team. Consistently, the team failed at coordinating resources. This even occurred with internal resources and was not isolated to outside vendors or subcontractors. This insight drove the reasoning that there needed to be team training on scheduling to focus on the whole process and stop the schedule from falling through the gaps. Upper management was hesitant at first about holistic team training. The following simplistic figures were utilized to show the company ownership why holistic team training was the key to solving these issues. Figure 1 was utilized to highlight how activities and tasks are not perceived to be anyone's responsibilities. Estimating training shows that their Core responsibility fall in their, but there are also item in the Estimate that must be used by the Superintendent, Project manager and Project Engineer to have a successful project.

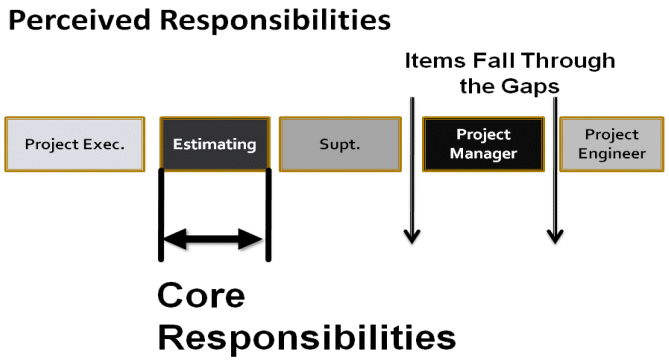

Figure 1: Perceived Responsibilities versus Core Responsibilities.

The philosophy of "team" needed to be encompassed in the development of the training. To ensure that the program was equally represented it was determined that there should be multiple people involved in the development and execution of the classes. A senior superintendent was selected who had extensive knowledge in construction, scheduling, and computer programs. This same individual is the trainer who delivers the entry level training course to all superintendents. This initial course would be required core training to help introduce computers and scheduling software to the entry-level superintendents. Also, on the team were a senior project manager, and company officer. The senior project manager was selected to highlight the skills and tasks of the project management staff. The company officer was the original instigator of the program and wanted to ensure that all parties understood the big picture of the schedule and its critical role in managing the company and its resources.

Figure 2, highlights how overlapping responsibilities will prevent tasks from being overlooked. While elementary in nature, these figures were successful at explaining the process and garnering upper management's support. The training then followed the eight steps outlined earlier in the paper to map out a course. If the training includes the gaps by forming a holistic group, these gaps are not forgotten.

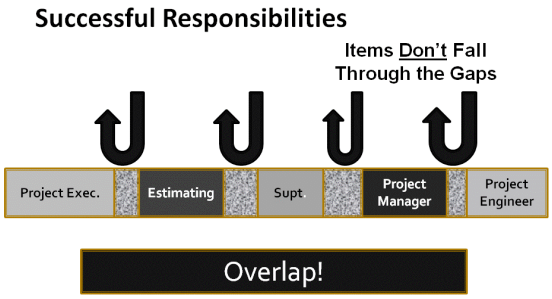

Figure 2: Overlap of training to enhance project success

The course was developed using the 8 steps. Timing and content dictated that the course would be taught over three Friday mornings for a total of 11 hours. The initial program included two project teams. Upon completion of each class the teams had a debrief to assist the trainers in course adjustments.

The program included:

- Kick off session of why this is important and what they hoped to learn
- Individual feedback on their own project roles in scheduling
- Post it exercises developing a project schedule.
- Five progressive computer simulations on project schedules where teams would have to work to a target completion date. Each simulation progressed the schedule from concept to development, organization, updating, and tracking delays and progress.
- Homework
- Pre & post testing

Makeup of the project teams included the entire project leadership team. This included the field (general foreman & superintendent) and the office (Assistant Project Engineer up to the Project Executive). Due to project size, some teams were as small as three members: project engineer, project manager, & superintendent. Others were as large as 5-6. Larger projects typically introduced the General Foreman and another project management member.

Case Study Results

To date, the program has been executed four times with 11 project teams. Feedback has been very positive. The training coordinator now has a waiting list for project teams who want to attend the program. Marketing of the program is being done by the previous attendees. Listed below are some of the key reactions that the teams have had regarding the training.

- The course helped improve teamwork on the project in more than one area.
- Interaction working on a common everyday problem
- Appreciation of the others point of view on the project. The field and office staff understands each other better now.
- The team is now goal oriented
- Older team members are teaching younger team members

- Everyone hears the same message
- Everyone understands the others strengths and weaknesses

Conclusion

There are several indirect benefits with this training now and in the future. Teamwork and team building are being accomplished in conjunction with the technical training. This process has also assisted in the knowledge transfer between senior staff and younger staff. In the future, this training model is going to be expanded to several other categories of training that span multiple job titles. Possible subjects include: quality, safety, and estimating.

The results of this course has given us basis for further investigation into the benefits of holistic training. We are preparing plans to monitor these teams at mid-project and project completion to seek results and return on investment for future research.

As evidenced, holistic training is valuable at cross-functional training and providing the organization with team insight regarding the selected training subject (safety, estimating, scheduling, etc.). Team training is often most valuable in the advanced training curriculum when strategy and team coordination are critical. It should be noted that it can not replace basic core training that is required to elevate employees to the base level of knowledge. They must be experienced enough to understand the other team members roles in the process. Holistic and core training must be dove-tailed together for a successful training curriculum.

As training budgets are reduced in a weakening economy, holistic team training can provide valuable training with a much quicker return on investment. Construction companies need to recognize that their training programs must mirror the same coordination meetings they lead each day. The entire team should be present.

References

Ackerman, J. Gothic Theory of Architecture at the Cathedral in Milan. *Art Bulletin*, 1949, 31, 85-111.

Associated Builders and Contractors, Inc, Education and Training tab on their homepage. Retrieved from www.abc.org on September 12, 2010

Blickensderfer, E., Cannon-Bowers, J. & Salas, E. (1998) *Cross-training and team performance*. Training and Team Performance. Washington, DC, (pp 299-311).

Hollenbeck J, DeRue, S, & Guzzo, R. (2004, Winter). *Bridging the gap between I/O Research and HR practice: Improving team composition, team training, and team task design.* Human resource management, 43(4) pp 353-366.

Mechanical Contractors of America Education Calendar on their homepage. Retrieved from www.mcaa.org on September 12, 2010.

Ngowi, A (1997). *Virtues of Construction Training in Traditional Societies*. Building and Environment. 32(3). Pp 289-294.

Russell, N., Tansey, E., & Lear, P (2000). *Missing Links in the History and Practice of Science: Teams, Technicians and Technical Work.* History of Science, vol. 38, p.237-241

Sundstrom, E (1999) The challenges of supporting work team effectiveness. San Francisco: Jossey-Bass.

The Associated General Contractors of America Education and Training tab on their homepage. Retrieved from www.agc.org on September 12, 2010.

Volpe, D., Cannon-Bowers, J., Salas, E, & Spector, P (1996). *The impact of cross-training on team functioning: An empirical investigation.* Human factors, 38, pp 87 – 100.