

28

Being a Team Coach

Coaching teams is both challenging and exciting. It is challenging because it concerns people, their skills, their interests, and their motivation. I have found that motivating people is the most fascinating part of working with development teams. It is also the area where coaches, managers, and team leaders generally need the most help.

Coaching is exciting because motivating people is exciting. It is an enormous challenge to get people to try their very hardest and to consistently do superior work. They must be excited about what they are doing, and they must believe that good work is important to them, to their teammates, and to their managers. As you learn to motivate people to do great work, you will get excited too. It is unbelievably rewarding to see what people can do when they are highly motivated to do it. This chapter concerns the nature of coaching, why coaching teams is so rewarding, and some things to think about as you coach development teams. The following topics are covered.

- Building understanding and motivation
- Building a coaching team
- Reporting to management
- Coaching yourself

28.1 Building Understanding and Motivation

Have you ever taught a child to read? The process is instructive. My wife and I have seven children, and they all learned to read before they finished first grade. One of them learned to read even before she started school. We didn't try to teach them to read, all we did was read to them. We read to them every day, and reading became a fun thing for us all to do. Soon reading became a habit.

There are three keys to learning to read: fun, reward, and habit, and these learning keys also apply to the TSP, only with an interesting twist. This twist is illustrated by how I learned to read as a child. I didn't read until I was nine years old. While my family regularly read to me and my brothers, I was dyslexic. This made reading very difficult. I had to sound out each word phonically until I could hear and understand the words that I could not recognize. While I still can't spell or punctuate, reading is now rewarding, but the reward is not so much the pleasure of reading as much as all the other fun and rewarding things reading enables me to do.

What makes this like the TSP is the struggle that people have in learning good development methods and learning them so well that they become habits. While it would be hard to argue that taking the PSP course is fun, practicing the PSP methods on a team is rewarding and, if consistently used, these methods will ultimately become habits. The fun part of the TSP comes from working on a team and seeing the benefits of all the effort and struggle required to do truly superior work.

What developers find truly rewarding about the TSP is discovering the power they have when they use the methods they have learned. Now they can predictably create quality products, their products work when they enter test, and they regularly deliver these products on time. While the fun and reward of doing good work is important, the impact this has on their work performance is truly amazing. The developers now know how to make commitments and they can successfully negotiate with management. Now management will listen to them and agree to realistic plans and schedules.

The true excitement of the TSP is learning how discipline gives us the control to run our own lives. When we predictably do quality work, our peers and our managers will respect us and will trust us to make realistic but aggressive plans and commitments. When developers work this way, they discover that developing complex systems is really as much fun as they thought it would be. Also, as one developer told me, "Now I can have a family life too!"

28.2 Building a Coaching Team

As you introduce the PSP and TSP into your organization, you are likely to have other TSP coaches working with you. Now, as described in Chapter 27, you can

form a coaching team and plan and track your coaching work. You can use the same PSP and TSP methods that you teach to help you do a better coaching job. This coaching team will provide a support structure, and it will help you to anticipate and resolve problems while learning and benefiting from the support of your peers. When you work with a team of coaches, you will see better ways to help and guide your development teams, to help them build on each other's successes, and to share and benefit from each other's data.

Finally, as you launch and relaunch your coaching team, you will develop strategies and plans for integrating the TSP work into your organization's other operations. For example, you might interest the quality group in the TSP quality data. Suggest that they work with your teams to develop statistically sound quality planning guidelines that are based on data from your own organization's teams. You could interest the testing group in projecting test and post-test defects from development data and in establishing test estimating, test tracking, and defect projection techniques. As they see the value of the TSP data, other groups might develop improved support tools, better reporting methods, administrative and clerical support opportunities, or innovative marketing strategies. By thinking strategically, your coaching team will see many opportunities where the TSP methods and data could be used to improve the organization's business performance. These data can also be used to improve the overall working environment and to make everyone's work more rewarding.

28.3 Success Is Invisible

One of the most frustrating aspects of quality work is that success is invisible and often unrewarded. One TSP team completed development on schedule and their product completed system test with no defects. Instead of being praised and rewarded, however, management merely thanked the developers and gave them another job to do. At about the same time, a non-TSP team was late getting into test and worked day and night for several more months to fix the many test defects. When they were finished, this team got a big party with a cake and management thanked them profusely.

Not surprisingly, the TSP team thought this was unfair and blamed management for not appreciating their work. While I don't know exactly what happened, I suspect that management knew little or nothing about what either team did. The celebration was proposed by this team's leader. He made a big deal out of the team's hard work and arranged for management to come to the party and thank everyone for what they did.

When one of your teams does good work, make sure everyone knows about it. Help the team leader arrange a party. Make sure that management knows why this was such a good job and what it means to the business. Then have the managers

tell the team how much they appreciate the good work. In many organizations, management knows little or nothing about the technical details of the products, and often they don't even understand what's involved in development work. You and the team leaders must tell them, and you must tell them at every opportunity you can get.

When your TSP teams deliver products on schedule and have very few test defects, most managers will not be impressed. After all, this is just what the developers said they would do. The key is for you and the team leaders to find opportunities to brag about your team's work. Put the team's results in the cost, schedule, and customer response terms that management will understand. Be brief and factual, and compare the team's results with prior organizational performance or with other groups in other organizations. Help the team explain the business and technical significance of the achievement.

28.4 Reporting to Management

Whenever possible, have the team leaders present their own team's results, while you provide comparative trends and data. Some typical reporting opportunities are the following.

- Give management presentations at PSP course completion. When you review class results, explain what they mean in business terms.
- After each team launch or relaunch, write a brief summary report and make a management presentation comparing this team's plan with prior teams and other projects. Show goals, trends, and business consequences.
- After every checkpoint review or major project milestone, summarize the team's accomplishments and describe what they mean to the business.
- After a team has completed several consecutive TSP projects, have the members produce a longitudinal study that shows how much they have improved and what these improvements mean in business terms.

Excerpts from some typical reports are shown in Tables 28.1, 28.2, 28.3, 28.4, and 28.5. In Table 28.1, several points can be made about the business significance of the class results. By focusing on the quality of their work from the beginning of each job, the developers reduced their compile and test defects per KLOC from 82 to 17 and cut their percent of development time spent in compile and test from 32% to 16%. By reducing their compile and test defects by 4.8 times, these developers actually cut their compile and testing time in half. Furthermore, while cutting testing time and improving quality, the developers actually improved their productivity by 23.2%.

Table 28.1 Summary of PSP Class Results

Measure	Starting Value	End Value
Percent of development time in compile	9%	2%
Percent of time spent in design	10%	17%
Percent of time spent in unit test	23%	14%
Compile defect density	51 defects/KLOC	9 defects/KLOC
Unit test defect density	31 defects/KLOC	8 defects/KLOC
Yield before compile	5%	55%
Productivity	43 LOC/hour	53 LOC/hour

Table 28.2 shows an early progress report on a TSP team. The important message is that the developers on this job spent a lot of time fixing the test defects from a prior product that was not developed with the TSP. This not only delayed the delivery of that product, it also delayed the products that these developers were supposed to develop now. Poor product quality has a lasting impact. Product shipments are delayed by excessive test time, and all subsequent products are delayed because the developers are busy fixing test defects and can't develop new products.

Table 28.2 Sample Project Status Report

<ul style="list-style-type: none"> • Interim report after 4 weeks of work • Initial project estimate <ul style="list-style-type: none"> Base size of 54 KLOC Added and modified size of 14 KLOC Total estimated hours of 2,050 Delivery to test in July 2006 • High-impact risk during launch <ul style="list-style-type: none"> Developers pulled off project to fix defects in prior non-TSP project • The risk has so far been realized <ul style="list-style-type: none"> Team delayed to support prior product release Team now about 20% behind in task hours

Table 28.3 Average Team Task-Hour Results

Time Period	Plan	Actual
Weeks 1 through 14	12	11.25
Weeks 15 through 31	14	15.44

Table 28.3 shows one team's task-hour data. While the numbers may not look impressive, the business message is that by improving their task time from 11.25 to 15.44 task hours per week, these developers spent 37.2% more hours per week working on project tasks. This is a direct productivity increase that cost no additional money.

Table 28.4 shows the extraordinary impact of quality work on a team's business performance. The two TSP teams each produced relatively large programs with about one year of development time and approximately three months of final testing time. Another much smaller product team did not use the TSP. It finished development in about three months but spent over ten months in test. In fact, this smaller program had substantially more test defects than the two larger programs combined. Explain to management that if these developers had used the TSP, their short-term need for training might have cost a couple of weeks but they would have saved nine months of testing time.

Table 28.5 shows the benefits of keeping teams together and treating them as assets to be coached and improved. After first using the TSP on one project, this team completed three more projects to further enhance the same product. Compared to the prior non-TSP release, the TSP team reduced system and acceptance test defects by 99.1%. Since the data on release 2 were not complete, the developers calculated their productivity improvement from release 3 to release 5. It was 81.1%. Release 1 was developed by a different team that did not use the TSP.

Table 28.4 Quality Results for Three Products

Product	TSP Used	Size KLOC	Months in Development	Months in Test	Test Defects
X	Yes	91	12.3	3.0	78
Y	Yes	116	11.6	2.5	56
Z	No	31	3.0	10.8	189

Table 28.5 One Team's Longitudinal Study of One Product

Release Number	1	2	3	4	5
System and Acceptance Test Defects per KLOC	14.11	2.48	0.81	0.97	0.12
Relative Productivity: LOC/hour	N.A.	N.A.	1.00	1.40	1.81
TSP Used	No	Yes	Yes	Yes	Yes

28.5 Coaching Yourself

Being an effective coach is a challenging job. You must know how to do the work you are coaching, and you must also know how to be a coach. This requires interpersonal skills, high performance standards, and a willingness to stand up for what you believe in. Doing all of this is quite a challenge, particularly when you must do it by yourself. While there may be other coaches in your organization and they may be helpful and supportive, when you coach a team, you coach it by yourself with no other coach to help you, offer advice, or provide support.

While this is challenging, it is not hard. Your teams will have smart and dedicated members who are highly motivated to help you succeed. However, your teams can't be of much help in assessing and improving your performance as a coach. While they will generally sense whether you have done a good or a poor coaching job, they will not know the difference between good and poor coaching. And, even if they do, they will be reluctant to criticize you or to offer advice, even when you ask for it in the postmortem meetings.

Your teams will be focused on their own work and not thinking about how you are doing or how they could help to make you a better coach. The job of managing your personal improvement is almost entirely up to you. In addressing this challenge, consider assessing yourself. Periodically review your own performance and identify areas where you could improve. Think about specific ways to change what you do and then concentrate on making these changes over the next several weeks. Don't pick more than one or two improvement actions at a time, and try to adopt them as regular practices before you tackle the next improvement topic.

Some questions to consider in a coaching self-assessment are shown in the sample questionnaire in Table 28.6. While you may want to use these questions as a starter, you will almost certainly think of other areas and questions to consider. Add some questions to address the improvements you plan as well as the

Table 28.6 Coaching Self-Assessment Questionnaire

Topics	Ratings		
	A	B	C
PSP Training			
Was everyone properly notified and ready for the course?			
Did you use a checklist to promptly grade and return every assignment?			
Did you provide prompt feedback to each student on his or her work?			
Except for the first day, did you show class results every day?			
Did everyone finish the course?			
Did the course results meet normal improvement expectations?			
Did you review PSP course results with management?			
Did you submit the course data to the SEI?			
Improvement ideas			
TSP Preparation	A	B	C
Did you hold four weekly preparation reviews before the launch?			
Was everyone properly trained before the launch?			
Was management prepared for meetings 1 and 9?			
Did the team prepare a conceptual design in advance?			
Was the team prepared to bring historical data to the launch?			
Were the launch facilities suitable?			
Did everyone who was supposed to attend actually attend?			
Improvement ideas			
TSP Launch	A	B	C
If people were missing, late, or ill prepared, did you take proper action?			
Did you effectively facilitate the launch meetings?			
Did you follow the scripts in conducting the launch?			
Did you gather and submit launch data to the SEI?			
Did the team produce a complete plan, including suitable alternates?			

Table 28.6 (continued)

Topics	Ratings		
	A	B	C
TSP Launch (continued)			
Did you prepare a post-launch coaching plan and review it with the team?			
Did the team present a complete and effective report in meeting 9?			
Did the team include the coaching plan in their meeting 9 presentation?			
Did the team provide useful feedback in the launch postmortem?			
Did the team leader tell management the launch results before meeting 9?			
Improvement ideas			
TSP Post-Launch Coaching	A	B	C
Did you hold a post-launch briefing for the team?			
Were you available to help the team after the launch?			
Did you ensure that the weekly team meetings were properly conducted?			
Did you ensure that the team inspections were properly conducted?			
Did you monitor the quality of every team-member's data?			
If members did not properly gather data, did you effectively coach them?			
If members refused to gather data, did the team leader resolve the problem?			
Did you faithfully follow your post-launch coaching plan?			
Did your teams and team members conduct a postmortem for each project?			
Did your teams and team members keep complete project notebooks?			
Have the team leaders regularly celebrated their teams' successes?			
Do the team leaders report their team's achievements to management?			
Do you regularly inform management about team progress and success?			
Improvement ideas			

ones you have already made. Then, when you use the questionnaire, treat it as a checklist to remind yourself about what to do and how to do it.

If you regularly assess your performance and make one or two little behavior changes with each assessment, your coaching performance will gradually improve. Then your coaching results will also improve. You will also find that coaching is more fun and much more rewarding.

28.6 Summary

This chapter describes the nature of the coaching job and what makes it so rewarding. It also describes why PSP-trained developers get so excited about the TSP. When teams are excited about their work, they create better products on shorter schedules than they otherwise could. The members of such teams are more productive, do better work, and have more fun. The coach's job is to help their teams have a truly rewarding team experience.

After discussing the challenges of building the team's interest and excitement about its work, this chapter covers the opportunities coaches have for building coaching teams. As organizations introduce the TSP, all but the smallest will have several TSP coaches. This provides the coaches with an opportunity to form their own teams and to use the TSP methods to guide and support these teams in doing the coaching job.

One problem with doing quality work is that it looks so easy. Managers and executives who do not understand development work will not generally know how difficult it is to produce quality software-intensive products and to do so on aggressive and predictable schedules. An important part of the coach's job is to help the team leaders keep their management informed about their teams' achievements. This will also help the coaches retain management's support for their work and for their efforts in coaching the TSP teams.

Finally, the TSP coach is in many ways alone. There may be other coaches in the organization, but you do the coaching job essentially by yourself. That is, you will work with a team and team leader but will not generally have another coach there to provide help and to support you. You must therefore be responsible for improving your own performance as a coach. This in turn means that you should periodically conduct a self-assessment of your coaching performance. Then, based on the results of this assessment, establish and implement a personal improvement plan.

As the team coach, you have the opportunity to guide and support some of the smartest people on the planet. If these people are properly motivated and guided, they can perform truly extraordinary work. You will find that helping people to perform at their best is one of the most rewarding things you have ever done.