

Setting Goals for Team Education

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When managing a software testing team it can be tricky trying to strike a balance between your resources. The process of developing and training your team members will become more difficult based upon the number of techniques and tools your team must collectively know. Things can become further complicate based upon your specific rate of turn over, your pool of available employees, company policies on employee training and development, and a thousand other things that make it difficult to keep a well rounded and educated team. It is impossible for any article to layout a plan for educating your specific team. What I will attempt to do in this article is to help you determine what your needs are, what types of goals you should be setting, and what your options for education are.

It should go without saying that you should develop training goals for every employee you possibly can. With today's changing technologies and the job market being as unstable as it is, it benefits both the company (by supplying better trained and more productive employees) and the employee (by offering more job security and making them more marketable if they do seek employment elsewhere). The idea of someone in IT becoming proficient with one technology or job function, and performing that task or function until they leave the company, is a thing of the past. Either an employee becomes multi-proficient or they will need to leave the company sooner then later.

What are your needs?

When you look at training programs, certifications, and classes you need to look at what your needs are and who will be receiving the training. There are two main considerations that you will have to balance when you set your goals for training:

- What training is best for the team?
- What training is best for the individual?

Striking a good balance between these two points is both important and difficult. If you let the individual team member choose the training it may not meet the overall needs of the team. If you pick the training for him or her, the training may not fit into their overall career plans and they will give minimal effort and become de-motivated. While the later situation is the worse of the two, as it is a loose-loose situation, the first situation is not desirable either, as it results in no tangible gain for the team.

Determining your training needs should consider both the needs of your project or organization as well as those of your team members. You will want to consider those areas your team is currently strong in and weak in, what tools you use, potential future tools, and what training will make your employees more marketable. If your team performs automated testing, you should consider building programming expertise and target specific tool training. If your team does a lot of in-depth test planning and engineering, consider certifications in testing or courses/programs designed to increase knowledge of best practices and available techniques.

What should your goals be?

Before you look at your options for training, you need to establish what your goals are. Certain types of training lend themselves to specific goals. If your goal were to become proficient in a specific tool, then a program, seminar, or course offered by the tool manufacturer would be your best avenue. If you desired to develop a more complete and well-rounded view on testing, a college level course on testing or obtaining a certification may be the best bet. If a higher competence in programming (or some other relevant field) is desired, it may be as simple as a temporary transfer to a different team for a period of time where the employee can learn from their experts.

The best thing to do is to sit down with the individual employee, find out what they desire, match that with the needs of your team and projects, find out what is available within your area/price range, and develop a timeline for completion. This can be a firm date, a series of steps, or a work in progress. Most organizations have some sort of form or process for career development; using this will more than likely be sufficient.

What are your options?

OK, here's what you've been waiting for. As you know it can be hard to sort through everything available out there to find the best resources available. For this article I have attempted to compile a "good" list of high quality resources that can help you find the right training to meet your needs. I use the word "good" and not "complete", because that would be impossible and more than likely undesirable (as some resources are NOT high quality). As I see it there are four ways to receive a professional education.

- Working towards and receiving a professional certification.
- Taking accredited or certified courses.
- Attending topic or tool specific programs or seminars.
- The "free" option of receiving training within the company, in another department or team.

Working Towards and Receiving a Professional Certification

Certification is one of the most desirable paths, as it makes the employee more marketable, and more than likely more competent. Certifications can be obtained from many different organizations and at different levels of competency. Certifications can sometimes be pricey and will consume more than some of the time of the employee. If this path is chosen, the amount of money the organization will contribute and the amount of time “on the clock” that will be allowed for the employee should be well defined.

The most common certifications for testing include:

[Quality Assurance Institute](#)

CSQA – Certified Software Quality Analyst

“... indicates a professional level of competence in the principles and practices of quality assurance in the IT profession. CSQAs become members of a recognized professional group and receive recognition of their competence by business and professional associates, potentially more rapid career advancement, and greater acceptance in the role as advisor to management.” – From the QAI website

CSTE – Certified Software Test Engineer

“...intended to establish standards for initial qualification and provide direction for the testing function through an aggressive educational program...indicates a professional level of competence in the principles and practices of quality control in the IT profession. CSTEs become members of a recognized professional group and receive recognition of their competence by business and professional associates, potentially more rapid career advancement, and greater acceptance in the role as advisor to management.” – From the QAI website

[International Institute for Software Testing \(Software Dimensions\)](#)

CSTP – Certified Software Test Professional

“The purpose of the certification program is to teach individuals from different disciplines sound and effective testing techniques and methods and to certify them as Software Testing Professionals” – From the Software Dimensions website

[American Society for Quality](#)

CQE – Quality Engineer Certificate

“Designed for those who understand the principles of product and service quality evaluation and control.” – From the ASQ website

CCT – Calibration Technician Certification

“A Certified Calibration Technician tests, calibrates, maintains, and repairs electrical, mechanical, electromechanical, and electronic measuring, recording and indicating instruments and equipment for conformance to established standards.” – From the ASQ website

CQA(B) – Quality Auditor Certification (Biomedical)

“Designed for those who understand the standards and principles of auditing and the auditing techniques of examining, questioning, evaluating, and reporting to determine quality systems adequacy. The ASQ Board of Directors and the Certification Board with sponsorship from the Biomedical Division approved our most recent "Add-On Certification" to the Certified Quality Auditor exam.” – From the ASQ website

CRE – Reliability Engineer Certification

“Designed for those who understand the principles of performance evaluation and prediction to improve product/systems safety, reliability, and maintainability.” – From the ASQ website

CSQE – Software Quality Engineer Certification

“Designed for those who have a comprehensive understanding of software quality development and implementation; have a thorough understanding of software inspection and testing, verification, and validation; and can implement software development and maintenance processes and methods.” – From the ASQ website

CQT – Quality Technician Certification

“Designed for those who can analyze quality problems, prepare inspection plans and instruction, select sampling plan applications, and apply fundamental statistical methods for process control.” – From the ASQ website

CQIA – Quality Improvement Associate Certification

“Designed to assess basic knowledge of quality tools and their uses by individuals who are involved in quality improvement projects, but do not necessarily come from traditional quality areas.” – From the ASQ website

Quality Manager Certification

“Designed for those who understand quality principles and standards in relation to organization and human resource management.” – From the ASQ website

Six Sigma Certification

“Designed for those who have a comprehensive understanding of Six Sigma and its methodologies.” – From the ASQ website

Taking Accredited or Certified Courses

This is my personal favorite, but that could be because I teach a college course on software testing. College courses on testing may be the best way to bring relatively inexperienced employees up to speed quickly. It may also be a good option for your employees if your team is still establishing practices and processes. There are several colleges that offer classes as well as various institutions that will do onsite class instruction.

Certified courses are courses offered for a specific tool. There are as many of these as there are tool vendors and their subsequent products. For available courses that they offer see your vendors website.

The testing greats Cem Kaner, James Bach, Bret Pettichord, and Stale Amland all teach (or have taught) courses on testing and have made their course notes available online at www.testingeducation.org. This is a great site! It also has a great list of colleges that offer courses on testing including: Georgia Institute of Technology, University of Kansas, Florida Institute of Technology, Texas A&M, Mississippi State, George Mason University, and others. Links to these programs are made available as well as short descriptions. I would also recommend querying local colleges to see what they may have available.

Attending Topic or Tool Specific Programs or Seminars

As stated above vendors often offer their own training. Other avenues could include conferences on testing, testing seminars, or even events not targeting testing but tie in (project management, software development, etc...).

The some conferences that I'm aware of include:

- [Software Test Automation Conference & EXPO](#)
- [STAREAST \(Software Testing Analysis & Review\)](#)
- [STARWEST \(Software Testing Analysis & Review\)](#)
- [Software Management People, Processes, & Products](#)
- [Applications of Software Measurement](#)
- [Test Weeks](#)
- [Training offered by SQE \(Software Quality Engineering\)](#)
- [QAI's Annual Conference](#)

- [International Conference on Software Testing](#)
- [International Conference on Practical Software Quality Techniques](#)
- [International Conference on Practical Software Testing Techniques](#)
- [Rational User Conference](#) (My Personal Favorite)
- [Mercury Interactive User Conference](#)

Receiving Training Within the Company

This is one of the most overlooked options in training. It has a relatively low cost and can give significant benefits. This path can include establishing a mentor, forming a professional group for career development and having individuals share their experiences and expertise, and working under an expert in the field or topic for a period of time or a project.

All of these options will result in a higher level of competence, but they do have drawbacks. The employee(s) do not have an event, certification, or credit that they can list on a resume making them more marketable or showing their knowledge/accomplishments. Further, the personality of the employee must be positive and extroverted, and one could become de-motivated or view such training negatively if they cannot work under someone without injury to their pride.