Magazine

How to be a better tester

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About the author:

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Abstract

I would like to give some thoughts about what it means to be better tester. Who can and should be a better tester? Why someone may want to be still better in his/her job. I will concentrate on personal development as opposed to training courses. There are some traits a tester should posses and they cannot be taught on courses. How to acquire and develop those traits?

Companies always need better people, especially now in the days of staggering economy. Is it possible to motivate people for personal growth? And if it is how to do that? I would like to show the way organizations can enable and facilitate personal growth of testers to the mutual benefit of employers and employees.

At each level of process maturity the goals are different. The measurements we collect to understand the status of maturity level goals achieved is explained in this paper using GQM model.

Introduction - Traits of a tester

To be a good tester and to perform testing well may mean several different things. There are many different tasks during testing, and these tasks may require sometimes quite different knowledge. In this article I will concentrate on the role of a tester as a person responsible for analyzing test basis, designing test cases, implementing them, performing and reporting test results. I will not elaborate on managerial tasks because they are more complicated, but some conclusions can be generalized basing on this material.

Skills and knowledge which testers need can be divided into four categories. They are:

- knowledge about testing process and techniques
- technical knowledge
- domain knowledge
- personal traits

Much of it can be learned through training courses (e.g. testing process, some of domain knowledge), but some of it comes with experience during performing tests in projects. Still, some of being a good tester requires possessing certain personal qualities.

ISQTB Foundation Level syllabi list following traits of a good tester:

- curiosity
- professional pessimism
- critical eye
- attention to detail
- good communication with development peers
- experience on which to base error guessing

One may argue which is more important, hard testing knowledge or soft testing skills. Some test managers believe they can get anyone with potential of being a tester (i.e. having a personality of a tester as listed above) and make him or her a good tester.

I will not give the answer to this question here as this paper is addressed to these who are already testers, and these who want to be better at their job, and maybe to those of us that do not feel the need to go forward and become better and better.

Why to be a better tester?

There is a saying that who does not go forward falls back. The systems we are testing and technologies we use are day by day more complex. Computer science is in its development stage yet, so each year new techniques, methodologies and tools emerge. Testing is a set of activities that is a part of more general project development. Test planning always tries to match testing tasks to project management and production methodologies (see V-model and W-model). If project design and development methods go forward, testing methodologies must proceed in parallel.

Moreover, organizations we work for are developing. Our competition is developing as well. If we allowed ourselves to do things the way we always did, others would outperform us having lower prices and tighter schedules.

These two above mentioned factors are external to the testers. But some of testers' personal traits (e.g. curiosity and critical eye) constantly motivate them to learn and develop, to reach for more knowledge.

Testing has been gaining more and more visibility over last few years. Testing community has developed new standards and aids for testers (e.g. ISTQB Syllabi, ISO/IEC 29119). There are new tools that support testers, but testers have to get to know them, try them and learn their usefulness. This is also a form of personal development

There are many reasons for testers to develop. Some of them are external to testers and some of them come from the essence of being a tester. Both are important to drive tester's career forward. And where is the will there is the way. There are many ways to get knowledge and develop skills. In next chapter I examine some of them.

Development of a tester

As I stated in previous chapter all testers need to improve themselves, need to learn new techniques and tools. There are many ways to do that. Most common of them are:

- training courses
- conferences
- self development through books and articles
- hands on experience in projects

Training courses can give you knowledge and insight into experience of an expert who givies a course. Training courses may prepare you for an examination giving certificates. Training courses in the form of workshops help building up skills in using tools and techniques. Some skills such as assertiveness can be learned effectively only through workshops.

Equally important are other forms of development such as conferences that create opportunities to exchange experience and share problems and their solutions.

Every organization should have personal development plans to keep balance between project work and self development. It is hard to tell how much of personal time should be devoted to development. The more work in projects is done the greater profit it brings to organizations in the short run. But in the long run too little development can cause demotivation and render work methods obsolete. If there are no plans and no test managers to keep an eye on their realization, all time and attention is devoted to current projects and none of them to development. This brings stagnation in well known comfortable procedures and boredom and after a while best people, who value their careers begin to seek opportunities for growth elsewhere.

While building development plans and assigning development goals to testers one has to keep in mind that they have to be formulated in the right way. For example using SMART technique:

- specific
- measurable
- ambitious
- realizable
- timely

Very good technique for defining goals can be found also in the book "One Minute Manager" [3].

Most important factor in giving work and development tasks is their difficulty. Too easy tasks are boring and do not really bring any development. On the other hand too difficult tasks frustrate, demotivate and do not improve skills or knowledge as well.

People have three zones of competence:

1. comfort zone

2. development zone (discomfort zone)

3. panic zone

If a tester gets tasks only from comfort zone, he or she can execute them well and on time. But this work becomes boring with time and does not improve him or her. Furthermore boring work may be done without due attention and a tester may overlook defects in tested software.

Too difficult tasks may induce panic in some people that may inhibit them and again no development will be achieved or work tasks will be performed inadequately. That may raise project's exposure to risk.

To maintain tester's curiosity, attention to detail and other desirable traits, to develop testers, they have to be given tasks and goals that are in their discomfort zone. These tasks should require more than a person thinks is safe and easy but not too much so as not to upset a tester.

If you are a tester living and working in comfort zone, notice that this may be easy and pleasurable, but it is not developing. To develop you need to leave your comfort zone and try things out of its bounds. See also [5] for some motivation to do so.

Deliberate practice

In order to become a better tester it is not sufficient to do one's work in the best way. To grow one must have a goal and a plan to achieve it, and of course goal has to be taken from discomfort zone. Everyday exercise complementing more formal training can help personal development and can give new meaning to routine tasks.

In his book [4] Geoff Colvin describes deliberate practice, an everyday exercise which aims at constant personal growth. It requires dedication and patience but assures that person who devotes time to it will develop desired skills or traits.

Looking at chess masters, musicians and sportsmen we can learn to practice our skills too. Not every exercise brings development. Such practice has to possess a couple of important features:

- one has to intentionally strain to develop oneself
- one has to exercise every day
- one has to regard it as most important
- it has to be hard
- it does not need to be pleasurable

There is no way to motivate people to work hard to develop. An impulse for doing that has to come from inner motivation. The role of a manager of people wishing to grow is to help them doing it within organization and if necessary to be a mentor to such people.

Deliberate practice can be present in organizations but it is hard to achieve because quarterly or yearly appraisal rituals effectively hide actual problems of a worker and concentrate on filling in the forms and tactical placement in corporate ladders and salary brackets.

To implement everyday development practice organizations need to notice that the best way to raise engagement in development is to inspire and not to command. To do so organizations have to develop a corporate culture that allows and promotes personal development. Organizations should choose some of their employees and allow them to be mentors to others. To share experience and to judge grow of their mentees.

Even if we do not have mentors we can exercise personal growth through deliberate practice. Having mentors gives, however, better results because a mentor can help to choose appropriate goals and can evaluate outcome of exercises and show their weak points.

To do deliberate practice at work one has to take care of several crucial elements. It has to be prepared, observed and measured and conclusions have to be drawn from it.

Before work

Before starting working day you have first to examine your beliefs. You have to believe that work and practice is beneficial to you. That it helps you grow and develop you career, to raise the level of your expertise. You have also to believe in you ability to perform the work that lies ahead of you, believe in your self-efficacy.

Before starting work you have to set a goal for today. The goal has to be SMART, and it has to lead you out of your comfort zone into your development zone, but not too far away into panic zone. Remember that lazy people do not set goals and live in their comfort zone. Mediocre people set goals of immediate results. And best people set goals of personal improvement or improvement of work methods and processes.

After you have decided what today's goal will be, make a plan of achieving it through today's tasks.

If you have a mentor, he or she may help you to choose your goals. He may be able to see the long term goal you try to achieve and can align your goals with needs of the project or organization. He has already walked the path you are taking and may be able to point out the best next step for you.

During work

During executing work tasks you have to observe yourself and methods you use, your ways of thinking. This is called metacognition and is a way of thinking about thinking. This allows you to correct and rearrange the way you are working in order to achieve the goal you have set in the morning.

If you have a mentor, you may work with him or her. It is easier to observe someone else than to observe oneself. From his experience he may also see more good points of your work or things you need to improve.

After work

After work your mentor or yourself appraises your work. You should measure to what extent you goal has been achieved. Appraisal and measurement should be as accurate as possible. You have to get to know what you have done well and what you have done poorly. The key to get better is to know you deficiencies and to repeat situations that showed them to invent and drill better ways of dealing with those situations.

Important factor here is to acknowledge that all defeat has its source in you yourself. Admitting that allows you to set more realistic goals and to take responsibility of you development.

Above procedure allows anybody to simultaneously perform work tasks and develop qualities that he or she needs. Thanks to deliberate practice even most boring job gets additional meaning and a greater goal. This raises motivation to work and to continue self development.

Deliberate practice at tester's work

Deliberate practice can be used during tester's work. Many task in software testing produce measurable outcomes. Many processes have corresponding standards that can be used to judge tester's performance, e.g. ISO 29119 or IEEE 829.

To be a better tester one has to get more of what has been mentioned in first chapter:

- knowledge about testing process and techniques
- technical knowledge
- domain knowledge
- personal traits

Through deliberate practice you can improve skills or get knowledge from any of above listed groups. If you need technical knowledge and you are implementing automated test scripts you may set a goal of employing into your tests today one new feature of automated testing tool which you are using. In such case you should choose an area in which the feature may be useful, get to know the feature in details and use it as appropriate. After the work you may have the tests you produced reviewed by more experienced test automation engineer and he or she will tell you what you did well and what aspects you should improve.

If you need skills in using testing techniques and you plan today to design test cases, you may choose one testing technique and try to design more test cases to each test condition, even if you have already covered them. At the end of the day you will be able to use that technique far better and also you will be able to tell for which types of testing conditions it should be applied and how.

If you need more inspiration in setting everyday goals of personal development you can refer to ISTQB syllabi. Both Foundation Level and Advanced level syllabi contain learning objectives. Learning objectives are divided into four levels:

- K1 – remember
- K2 – understand
- K3 – apply
- K4 – analyze

They are also structured by the chapters of syllabi. And for example if your general development goal is to more effectively use reviews you may refer to chapter 3 Static techniques of Foundation Level syllabus and chose one of learning objectives from that chapter. For example "Recognize software work products that can be examined by the different static techniques". You can make then a checklist for your project to use in project planning, which will help checking if all necessary reviews have been planned.

If you need to work on some of you personal qualities you may choose one of traits of good tester and make a goal for the present day of it. For example if you want to cultivate professional pessimism, you may try to think about project and product risks in tasks you are working on. Make a goal of performing twenty mini risk analyses today and put a dash on a sheet of paper for each analysis and note how many risk items you were able to think of.

These are examples only of many different directions and goals you may choose from while planning personal development of you or your testers. If you add to that pieces of domain knowledge testers need to possess in order to design and run tests in projects, you get a vast number of opportunities to learn.

Summary

Every tester needs to learn and to polish his skills. There are many ways of doing that. First of all you need to achieve level of so called conscious incompetence. That drives learning and training courses can carry you from conscious incompetence to the level of conscious competence. In that level you are able to perform you work, but you simultaneously think of the way you are doing it. This level is still in your discomfort zone. As your experience grows, you are growing more and more accustomed to using skills you acquired during training course or workshop. These skills move more and more into your zone of competence or more precisely you competence zone expands to include those new skills and techniques. When your work hides completely into comfort zone your personal development stops. And at that moment you need deliberate practice which will move you back into conscious competence level and out of comfort zone and allow you to grow.

In this article I showed the need of personal development of tester from the point of view of a tester himself and an organization he works for. I showed several ways of acquiring new skills and knowledge. And I described deliberate practice and its application which can help sustain personal growth on daily basis, in which all testers should participate.

Reference

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