Feedback and its importance in delivering high quality software

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May 31, 2015

1.0 - Introduction

Feedback is part of everyone's life; co-workers, bosses and direct reports give us feedback. Family and friends give us feedback too, although the way we get it from them is probably different than the way we would get it from co-workers. There are a number of tools that can help with giving and receiving feedback effectively.

> *"For some, feedback is like water off a duck's back, while for others, it penetrates deep into their soul. We each metabolize feedback in our own way."* (Stone & Heen, 2014, p. 143)

In receiving feedback, the goal is to take it and turn it into something constructive; as a result, by learning how to *receive* feedback well, *giving* feedback becomes more useful.

Testers are tasked with giving feedback to various stakeholders in the software development process. This can take the form of feedback to developers on the code they have created, or feedback to fellow testers when their tests cases are being reviewed. Testers are also tasked with giving timely feedback to management, including information on product quality. The value of good feedback can help with having effective conversations.

1.1 - What is feedback?

Feedback comes in three parts: appreciation, coaching and evaluation. Each serves its own purpose.

Appreciation helps to motivate and encourage people. When your boss says she is grateful for having you on the team, it can mean more than that. This comment can mean that they see you, they know you are working hard and that you matter to them.

Coaching is "…to help increase knowledge, skill, capability, growth or raise feelings in the relationship." (Stone & Heen, 2014, p. 45) Coaching comes in two forms. The first is to help someone gain knowledge and skills in order to build capabilities. The other is

based on the need for someone in the relationship to change something within the dynamic of that relationship. Sometimes the giver of the feedback thinks they wants the situation to change, but in fact, they want receiver to change.

Evaluation is the final part of feedback. Some people get defensive, however if given correctly, it will tell the receiver where they stand, will align expectations and help inform decision-making.

2.0 - Tools to make feedback successful

2.1 - Tools to gauge state of mind

To frame any discussion you might have with regard to giving or receiving feedback, there are a number of tools available to make it more successful. The first set of tools, "Mindsets" and "Learning room vs. Testing room" concepts, are useful in order to gauge your own state of mind and the receiver's state of mind when giving feedback. The other sets of tools are meant to give tangible methodologies to help bridge the gaps in communication that can happen when giving and receive feedback.

2.1.1 - Mindsets

In her book, *Mindset: The New Psychology of Success*, Dweck talks about how children in a kindergarten classroom behave when attempting to solve a problem. She observed that the children would take on one of the two mindsets in these situations; the 'fixed mindset' and the 'growth mindset'. (Dweck, 2006) The table below (table 1) illustrates the differences between the growth mindset and the fixed mindset.

Table 1 – Mindset differences (Sivers, 2014)

Fixed Mindset	Growth Mindset
It is about the outcome. Failure feels like wasted effort.	It is about the process, so the outcome hardly matters.
Hiding your flaws so as to not be judged or labeled a failure.	Flaws are just a 'to-do' list of things to improve.
Feel threatened by others' success	Find inspiration in others' success.
With setbacks, others are to blame, which leads to feeling discouraged.	Failures are temporary setbacks and are something used to try harder the next time.

Get defensive with feedback.	Learn from feedback. Feedback, in all forms, is welcome.

When giving feedback, knowing what mindset the person is in will help to understand how they will receive feedback. If they are in the fixed mindset, as testers, it is a responsibility of the giver to teach them about the growth mindset. This change in perspective can make a noticeable difference when building relationships and giving difficult feedback.

2.1.2 - Learning Room vs. Testing Room

For children in a kindergarten classroom, when faced with a new challenge, many will not stop trying until they solve the problem. In fact, they keep working through problems without fear of being evaluated. There is no fear of failure and the children keep trying. This is called the "learning room". This differs from the "testing room" in which there is a fear of failure. An example of the "testing room" is that of a university exam room where everyone's knowledge is measured and graded by a three hour exam. There is an understandable fear of failure.

> "*It's as if the growth-mindset kids were doing the puzzles in a room called the "Learning Room," and the fixed-mindset kids were doing the puzzles in a room called the "Testing Room." Which room would you rather live your life in?"* (Stone & Heen, 2014, p. 192)

On our teams in the workplace, testers should be encouraging co-workers, bosses and direct reports to learn quickly from their failure. In other words, with the right "growth mindset", coupled with being in the "learning room", a team should be able to accept any feedback with the right intentions. Conversely, receiving feedback becomes easier when in a growth-mindset and 'Learning Room' state of mind.

3.0 - Tools to help you bridge gaps in communication

3.1 - Critical Thinking

The goals of critical thinking are to seek out the truth, understand the context, validate assumptions and come up with alternatives. (Rabinowitz, 2014) In order to do that well, biases need to be understood and eliminated. Critical thinking is a way of solving a problem and this can be implemented in the feedback process.

When receiving feedback, knowing the facts is a useful starting point. Facts, and understanding the biases people may have toward situations or individuals, both play a role. The following are examples of biases that can be overcome by seeking out the facts or validating assumptions.

Confirmation bias is about evaluating feedback against what you believe is true. It is the "tendency to look for information that confirms our existing preconceptions, making it more likely to ignore or neglect data that disconfirms our beliefs" (Lau & Chan, 2004).

Framing bias, in relation to feedback, is how people are influenced by the way in which a problem is presented, even though it should not affect the solution. In terms of testing, an example is whether we choose to ship a product because of the number of test cases failed versus the number of test cases passed.

With the overconfidence effect (the above-average effect), a person may tend to over-estimate their own abilities and therefore project that bias onto others. An example is the 'rock star' tester who is blinded by their own overconfidence and as a result, does not actually perform enough testing. For testers, from a feedback perspective, biases can lead to misunderstanding. For example, there might be an overconfidence bias associated with talking to developers where people implicitly trust the developers' opinions because of their confidence in the developers' work. As testers, we should recognize that and not always trust a developer's opinion. In decision-making, it is always advisable to check your facts before filing bugs. When looking for bugs, critical thinking can help you to see the forest from the trees by eliminating your personal opinion and allow you to drive to your conclusions with facts.

3.2 - Johari Window

The Johari Window is a tool for uncovering knowledge gaps between people; it is designed to reduce misunderstandings. (Hill, 2014) The window is segmented into four quadrants: shared, hidden, blind and unknown. On one dimension, is information that you are aware of versus on the other dimension is information that is known to the other person (See figure 1).

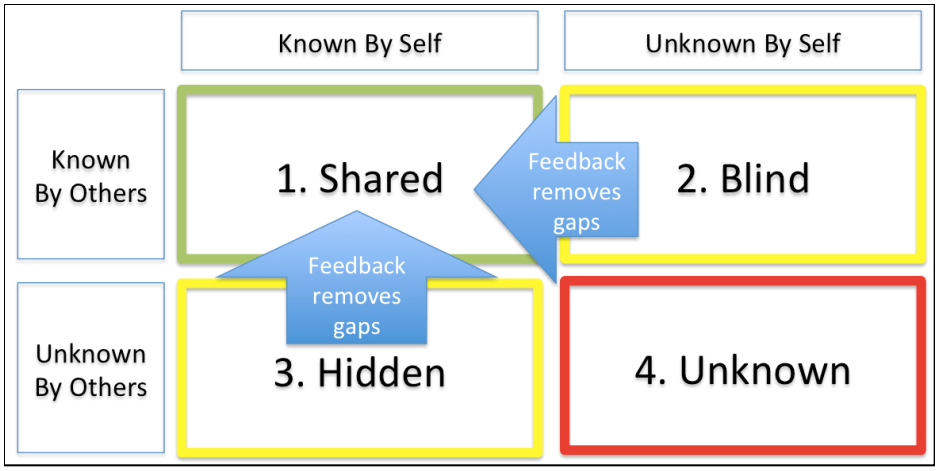

Figure 1 - Johari Window

1) For information that is 'known by self' and 'known by others', there is typically shared knowledge, which reduces the gaps in communication. This allows for public transparency for a mutual benefit.
2) For information that is 'known to others', but 'unknown by self", this is a blind spot. This will lead to assumptions, misinformation and bad decisions.
3) For information that is 'known by self', but 'unknown by others', this is hidden information. With information hiding, it can lead to embarrassment, misunderstanding and misinformation.
4) For information that is unknown to everyone, this is the "unknown". For teams, this could take the form of a missed delivery for a project deliverable where dates were not communicated to the team from other parts of the organization.

When feedback is given or taken, you go from 'blind' to 'shared' or from 'hidden' to 'shared'. Feedback helps to removes gaps in communication, which should be a goal of testing. In testing, we want to remove these gaps. Recognition of where the information lies can be valuable in moving people into the 'shared' knowledge space.

3.3 - Systems thinking approach to understanding feedback

Systems thinking applied to feedback is a tool that can be used to validate assumptions and understand the feedback that is being given or received. (Stone & Heen, 2014, p. 133) "A 'system' is a set of interacting or interdependent components that forms a complex whole." (Stone & Heen, 2014, p. 124) In terms of feedback, the heuristic that can be applied is that each person only sees part of the problem, but we should recognize that each of us is part of the problem too.

There are three steps that can be applied to help understand systems thinking in the feedback process:

1) You + Me intersections. Are differences between us creating the friction? “This is how you are” is usually how feedback is given and can cause undue stress. The better way to frame it is “this is how you are in relation to how I am”. For example, two people who are constantly in conflict, interactions between each of these people will be different when they are stressed versus when they not stressed.
2) Role clashes. Are the roles we play in the organization causing friction? Confusion about the roles we play can lead to poor feedback loops. For example, peers with whom you could be comfortable giving and receiving feedback may get promoted and is now the boss. This might lead to a different dynamic in relation to how feedback is received and given.
3) Look at the big picture. Are the processes, policies, physical environment, or other players reinforcing the problem? For example, senior leaders might be clashing, causing a ripple effect. The boss may be pressuring the team because of pressure he or she is feeling from higher parts of the organization, such as budgets cuts, which then results in limited testing. Decisions are being made that are outside of the teams control in your organization. Knowing this situation is useful in understanding the feedback that may be given.

4.0 - How is all of this applicable to testing?

There are many dimensions to giving and receiving feedback. Depending on the type of feedback – coaching, appreciation, evaluation – the state of mind and understanding the type of communication you are employing will play into how you deliver and receive feedback.

Of course, giving better feedback will assist in producing better software. It will reduce blind spots and reduce biases. Coaching team members into having the right mindset and making sure everyone is in the “Learning Room” will also have an effect on the software produced. By being in the right “room”, you are creating a safe environment in which everyone can feel free to share feedback.

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6.0 - Biography

Ken De Souza has been in software development for over 15 years, starting as a developer bent on automatically checking everything he built. Currently he is specializing in testing network optimization systems, with a passion for delivering high quality software at a rapid pace. Ken is a student of the Miagi-Do School of Software Testing. Twitter @kgdesouz and blog blog.tkee.org.