



The Psychology of Software Quality

Thomas(Tom) C Roth

grpatom@sbcglobal.net (614)882-6501

tom.roth@l-3com.com (614)825-2189

The Psychology of Software Quality

- psy-chol-o-gy - 1: the science of mind and behavior 2 a: the mental or behavioral characteristics of an individual or group b: the study of mind and behavior in relation to a particular field of knowledge or activity
- soft-ware – 1: something used or associated with and usu. contrasted with hardware: as a: the entire set of programs, procedures, and related documentation associated with a system and especially a computer system ; specifically : computer programs
- qual-i-ty - a. superiority of kind: b. degree or grade of excellence

Major premise

- Software Quality practitioners need to market the importance of Software Quality to those people who put this Quality into the software developed.
- Software Quality is practiced by **people** trying to influence the behavior of **people** performing software development.
- Addressing the entire life-cycle of Software Quality should include the mind and behavior characteristics of the **people** involved in this activity
- In order to better understand our mind and behavior characteristics, I want to first review the roles, perspectives and attitudes of a software quality practitioner.

- **What is my role as a Software Quality practitioner?**

ROLE 1 a (2): a socially expected behavior pattern usually determined by an individual's status in a particular society

- **What perspective should I adopt as a Software Quality practitioner?**

PERSPECTIVE 2 a: the interrelation in which a subject or its parts are mentally viewed

- **What is the attitude I should take as a Software Quality practitioner?**

ATTITUDE 2 b: *a feeling or emotion toward a fact or state*

What is my role as a Software Quality practitioner?

- How should I perceive the Software Quality practitioner's role in the software development process?
 - How does quality software come to be?
 - What is the role of a Software Quality practitioner in an artifact review?
 - Is trust involved in our job?

What is my role as a Software Quality practitioner?

- What other roles should a Software Quality practitioner perform?
 - Where are the industry and regulators going?
 - New and innovative approaches to Software Quality
 - Consistency between organizational entities.

What is my role as a Software Quality practitioner?

- How do I keep myself current of industry and regulators guidance in order to do a better job as my company's Software Quality practitioner?
 - Attend SPIN meetings
 - Take advantage of any opportunity to network with Software Quality peers
 - Volunteer to help with your industry or regulatory groups

What perspective should I adopt as a Software Quality practitioner?

- What criteria should I use to encourage my software community to better explain the reason various Software Problem Reports which are left open across software releases?
 - Criticality level of the software my teams are developing
 - These criteria should help establish verification and validation strategies.
 - What kind of defects are OK to exist in a fielded system.

What perspective should I adopt as a Software Quality practitioner?

- How do I find that compromise between worrying to death over whether or not the software, whose data I approve, will fail or have the confidence that we have done every thing under our power to make this software safe.
 - Worry and Fear are not appropriate
 - Role of confidence and experience
 - Have the courage to be imperfect

What perspective should I adopt as a Software Quality practitioner?

- Should all of my decisions, with my Software Quality practitioner delegated hat on, be associated with software safety and maintainability?
 - Spirit of Software Safety
 - Give the software development team license to do their job their way.

What perspective should I adopt as a Software Quality practitioner?

- How much common sense can I apply to my industry and/or regulatory body delegated decisions?
 - It is more important to meet the spirit of our guidance than the letter of our guidance.
 - I didn't want you to do exactly what I said!

What is the attitude I should take as a Software Quality practitioner?

- How are my responsibilities to my employer balanced with my Software Quality practitioner delegated authority?
 - Do not enjoy the power!
 - Stay open to new ideas

What is the attitude I should take as a Software Quality practitioner?

- How are my responsibilities to my fellow employees balanced with my industry and regulatory guidance to review their software practices?
 - Reach consensus on exactly what is expected.
 - No “ex post facto”

What is the attitude I should take as a Software Quality practitioner?

- How do I avoid confrontations with my company and my fellow employees whose data I review or audit?
 - Let your developers know your expectations as much ahead of time as possible
 - Avoid significant issues as the project nears completion.
 - Be careful not to enjoy and relish in the power you have.

What is the attitude I should take as a Software Quality practitioner?

- How do I impart an attitude of cooperation with those whose software data I am to audit or recommend approval of?
 - Group synergy
 - Results of the best thinking of the group
 - Good groups or bad groups
 - Egoless and personal attack less
 - As a manager I cannot change attitudes, I can only influence behavior

What is the attitude I should take as a Software Quality practitioner?

- **To what extent should I cooperate with those whose data I am auditing or reviewing?**
 - Not schedule driven
 - Must be schedule aware
 - Data that hard to read and hard to understand
 - I cannot prepare for you to die daily, I want to prepare for you to die annually.

Lessons learned

I do not make mistakes anymore; I just have experiences which I learn from.

- In relationships, differences attract and sameness comforts
- The opposite of love is not hate, but indifference.
- Personal life lessons

In relationships, differences attract and sameness comforts

- Significant other relationships
 - Attracted to our significant others by the fact that they are different from ourselves
 - In a effort to be more comfortable, we try to make our significant others like ourselves
 - If successful in that effort, we are no longer attracted to them
 - Recognize the difference and its value and even permit and encourage its growth

In relationships, differences attract and sameness comforts

- Family relationships
 - Many of us do NOT get along with one or more of our own children
 - Those children have typically inherited your personality traits
 - Many of us get along very well with one or more of our own children
 - Those children have typically inherited the personality traits of your significant other.

In relationships, differences attract and sameness comforts

- Supervisor relationships
 - All of the best bosses I have had made a significant effort to hire people **un-like** themselves.
 - All to the worst bosses I have had made a significant effort to hire people **exactly like** themselves.

In relationships, differences attract and sameness comforts

- **Team relationships**
 - MBS personality test helped people to better understand your own behaviors as well as better understand the behavior of your co-workers.
 - Dominant or not dominant
 - Extroverted or introverted
 - Paced or not paced
 - Structured or not structured
 - A good formation tool for teams

In relationships, differences attract and sameness comforts

- Should all SQA Representatives act exactly the same way?
 - Absolutely not
 - The decisions each of us make are always influenced by on our experiences
 - We are what we experience and that is good

**In relationships, differences
attract and sameness comforts**

These experiences demonstrate
to me the importance
and excellent benefits of
Diversity of Everything.

The opposite of love is not hate, but indifference

- Changing indifference to hate can help you solve a problem.
- The importance of listening
- Any decision is better than no decision.
- It is easier to change hate into love than to change indifference into love.

Personal life lessons

- Did my parents present me with a stable home environment?
- Did I develop inappropriate habits that I needed to recover from?
- Did my living with people with inappropriate habits influence me inappropriately?

Are all of these lessons learned independent or interdependent?

- Am I one person or 2 or 3 or 4 persons?
- The better handle I have on my own behavior, permits me to be a better worker, and spend less time fearing and worrying about my problems and more time enjoying life.
- In summary, whatever we can do to better understand our own behavior and understand and appreciate the behavior of others will improve every aspect of our lives.

Epilog

- Most of us, when working alone, tend to spend 2/3's of our time evaluating alternatives and 1/3 of our time implementing the chosen alternative.
- Conversely, two people working very closely together tend to spend only 1/3 of their combined efforts evaluating alternatives and 2/3's of their time implementing the chosen alternative.
- If you agree with these observations that would imply that two people working very closely together can perform the same amount of work as four people working alone.

I believe great strides can be accomplished in worker productivity by understanding and applying the study of the soft sciences of psychology and sociology to improve our work methods and practices.