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## The Gurus

To continue with the theme of Quality Gurus, this month we will introduce Genichi Taguchi and the concept of Quality Loss Function. It is up to you to decide whether his views are appropriate to your organization.

## Genichi Taguchi

Dr. Genichi Taguchi was born in 1924 and in the 1970s he developed the concept of the Quality Loss Function and published books on Design of Experiments. His methodology is based on:

- Ensuring that quality is built into the product right from the design stage
- Product optimisation prior to commencement of manufacturing
- Avoiding inspecting the quality into the product, i.e. make the product right first time

Taguchi Methods is a system of cost-driven quality engineering that highlights the effective application of engineering strategies rather than advanced statistical techniques.

The methodology can also be used to identify and resolve manufacturing quality problems, which cannot be solved by the normal routine problem solving methods. Taguchi thinks that what must be aimed for is minimum variation (rather than some arbitrary tolerance) because minimum variation reduces losses to both the customer/society and the producer and improves quality.

Often Quality Managers see their role as only ensuring the output meets the tolerance or specification, mistakenly thinking this alone

will achieve customer satisfaction. The tolerance is only one person's (designer's) view on achieving the customer requirements and it may not be correct. The Quality Manager blindly following the tolerance misses the point that it is the reduction in variation that will satisfy the customer.

A better approach would be, if the variation in the quality characteristic around the nominal or target value was minimised this would minimise the losses to both society and the company and improve the quality performance. There are certain difficulties with this approach:

- Two or more factors may be combining to cause the problem - so the problem may not be observed.
- Five variables tested at three points would require 50 tests.
- This is a very time consuming approach.
- It can be difficult or even impossible to hold the other variables constant while varying only one.

Using Taguchi's matrices, the number of tests can be greatly reduced. These matrices can be used to determine the main factors. It is this experimental design that provides considerable information concerning the best combination of levels of factors, which will minimise process variation.

## IQA Diploma

Interest in the Institute of Quality Assurance (IQA) Diploma gathers pace <http://www.iqa.org/>. This appears mainly

because it not only offers a clear route for students and QA professionals to become members (MIQA) of the IQA, but also because it is recognised by the government's Qualifications and Curriculum Authority (QCA) who are the guardians of standards in education and training <http://www.qca.org.uk/>. It is possible to study the IQA Diploma modules either at college (Plymouth College of Further Education) or via distance learning (see [www.qmt.co.uk](http://www.qmt.co.uk) frequently asked questions and answers).

### **New doctors in demand**

To tackle the huge shortage of doctors across the UK and to boost the number of medical graduates, two years ago, fast-track medical courses were introduced in the UK. These courses are based on programmes which have been running in the US and Australia for many years. They allow postgraduate students to switch from non-scientific backgrounds, such as arts or history, and become doctors within four years instead of the normal five or six years. More and more British universities are offering these fast-track medicine courses. In year 2000 there were only four medical schools offering these places, but for this year, it is reported that another five universities will also be offering these courses. The General Medical Council, which is legally responsible for making sure the high standards in medical schools are kept, has been reported to say that there is no evidence to suggest the fast-track courses are sub-standard and that the vast majority of doctors will still continue to qualify through the traditional route.

### **Children and computers**

More and more children are using the computer everyday at school and at home, sometimes for long periods, and this could be causing permanent, painful injuries. The equipment; computer, keyboard, mouse, and the furniture rarely take into account the size of children. Although many measures have been taken to minimise the risk of adult workers developing computer-related injuries such as Repetitive Strain Injury (RSI), this has not been considered in the case of young children, where their muscles and bones are still developing. It would be good practice to check the positioning of the computer screen,

keyboard and seat, and also monitoring the children's time spent on the computer to making sure they get regular breaks.

### **New requirements for skyscrapers**

After the events of 11 September, skyscrapers and large buildings in the UK, in the future, may have to be specially licensed, to demonstrate they can evacuate very quickly within a set time period. For example, already football stadia in Britain have annual safety inspections to make sure they can evacuate quickly. Recently, the Government has published a discussion document on tall buildings and measures that might be introduced to make them safer. The document recommends that: "A requirement for tall and large buildings to be fully evacuated within a set time period should be included in the Building Regulations."

### **QA Software**

There appears to be plenty of high-priced QA database software around, i.e. software to manage ISO9001 and other management system records e.g. Health & Safety but none seems to be offered at a realistic price. That is until "*Quality Manager Database*" came along. At £150 it has got to be the most affordable and value for money around. It appears covers all the functionality any Quality Manager (or Integrated Systems Manager) would ever need. See [www.qmt.co.uk](http://www.qmt.co.uk) for further details.

### **Mobile phones recycling**

According to a recent report, a new mobile phone recycling scheme has been developed. This has come about due to the millions of mobile phones being discarded every year, by users upgrading to newer models. Customers will be encouraged by retailers and service providers to return their old mobile phones. This is the first collaboration between mobile phone retailers and network operators, and has the backing of the government. In 2 years time, legislation will be in place requiring all manufactures of mobile phones to be responsible for accepting back old products and recycling them. Currently in the EU, only 10% of all electrical goods are recycled.

## **Euro coins causing allergies**

According to a recent report, nickel in some euro coins has caused red hands and painful itching in some people. Researchers from the University of Zurich have reported that the design of some euro coins leads to the release of high levels of the metal. It is through continuous handling and through sweating that the nickel leeches into the skin and causes an allergic reaction.

## **ISO 9000 Education Guidelines**

Guidelines for implementing ISO 9000 quality management systems for organisations providing educational services are to be developed this year. The guidelines will help the implementation of ISO's new 9001:2000 standard. The guidelines will address all levels and types of education, including elementary, higher, distance learning and e-learning. For more information please visit [www.iso.org](http://www.iso.org)

## **World Standards Day**

This year celebrates the 33<sup>rd</sup> year of World Standards Day. Every year on October 14<sup>th</sup>, members of ISO, IEC and ITU celebrate World Standards Day. It is meant to pay tribute to the efforts of all those involved in developing the voluntary technical agreements that are published as international standards. These standards help ensure all goods, services and systems worldwide are of the same quality, safety and performance. For more information please visit [www.iso.org](http://www.iso.org)

## **Free Internet university courses**

According to a recent report the Massachusetts Institute of Technology (MIT) in America have launched their free online degree courses this year, aimed at anyone with access to the Internet. The project is called OpenCourseWare (OCW) and the first set of courses was published in September 2002. Over the next 10 years, MIT is hoping to deliver all its existing courses on the Internet for free.

## **BS7799 Standard**

Currently, only a few companies comply with the security standard BS7799. It has been reported that fewer than 150 organisations have achieved BS7799 security

certification, but the number is thought likely to be increasing over the next few years. The UK government is encouraging its departments to comply with parts of this standard by year 2004.

## **Testing for pesticides**

It has been recently reported that the UK has a very low rate of testing for pesticides. Consumers are given very little information regarding their exposure to chemicals in food. In 2001, the Department for the Environment, Food and Rural Affairs' Pesticides Residues Committee tested more than 4000 samples of food for residues. The report showed that more than 99% of the food tested was negative, however, 68% of cereal bars, 45% of crisps and 29% of breakfast cereals showed residues. But the Committee have reported to say that there were no health risks for consumers.

## **Quality mark for teachers**

The first new "Quality Mark" has been awarded to teacher supply agencies. The four agencies, which have been awarded the first Quality Marks, are Capita Education Resourcing, Protocol Teachers, Standby Recruitment and Supply Desk. To win the Quality Mark, agencies have to meet minimum standards on how to recruit and manage their temporary staff and liaise with the relevant schools. The Quality Mark scheme was introduced in May 2002, after the case of the Canadian supply teacher who continued working with teenage boys despite the agency being warned that she was a risk to them.

## **Newly released QA Books**

Looking for a comprehensive book covering all the very latest and up to date tools and techniques associated with Quality Improvement, well there are a couple of books which have recently been released.

- **The Quality 75** by John Bicheno ISBN 0954124405 published by ICSIE books.
- **Quality Management (Tools & Techniques)** ISBN 1904302041 published by Quality Management & Training (Publications) Limited.

Both books cover issues such as; Seven tools of quality, Muda, Poka-Yoke, Gemba Gembutsu, Six Sigma and much more.