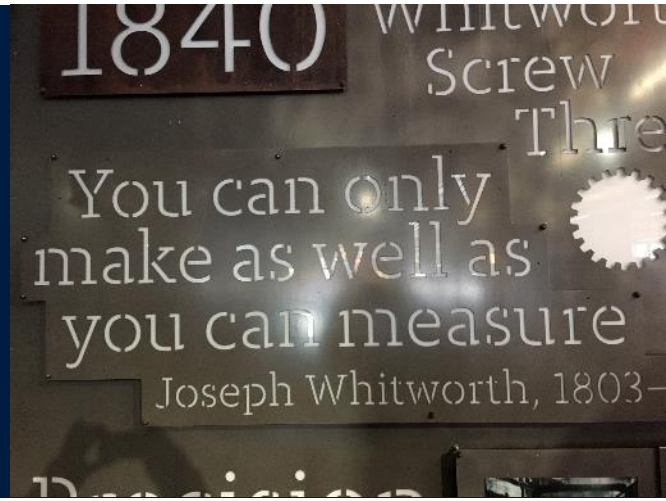
Turbo charge your Improvement Practitioner training delivery



Advanced Analytics Solutions

Agenda for today's Webinar

We are required to help training providers prepare their apprentices for success as assessment …

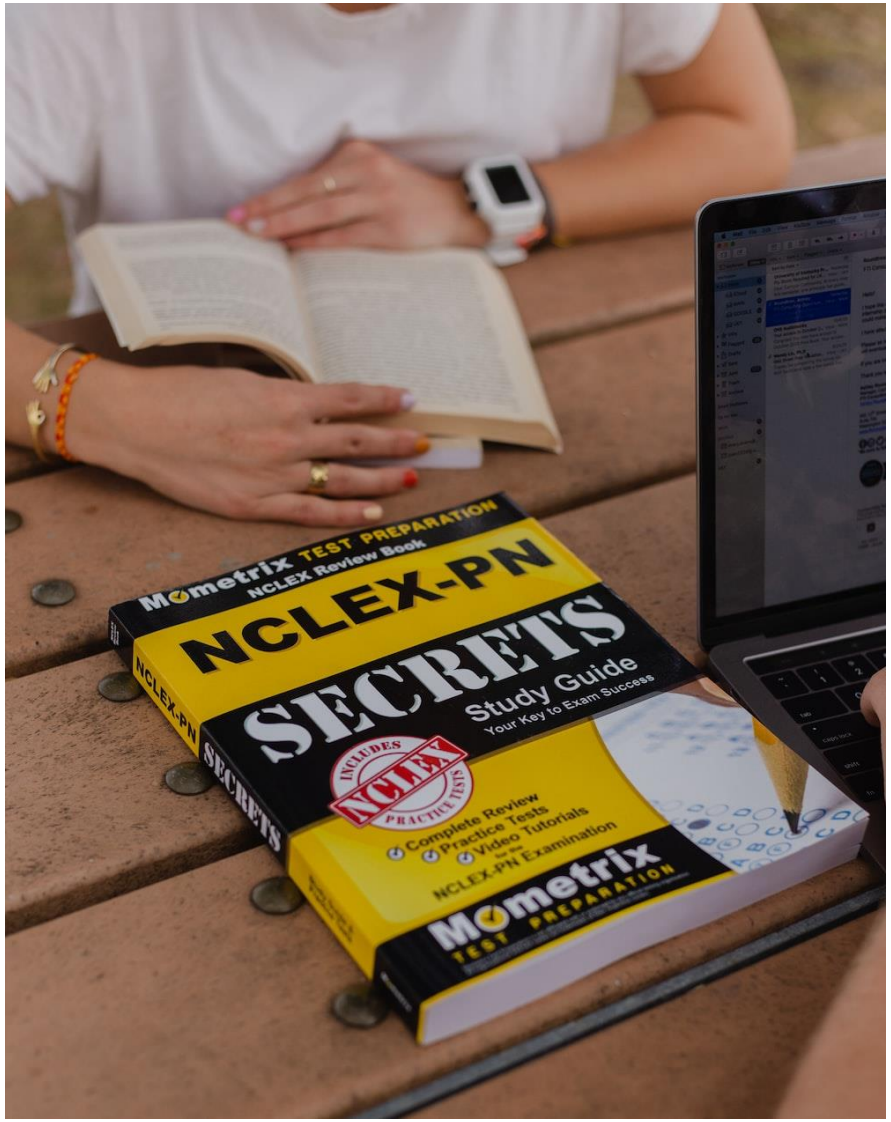
What we'll cover

- Introduction to Advanced Analytics Solutions
- Basics of measurement systems
- Gauge R&R studies
- Attribute Agreement Analysis
- Skills and knowledge required at Level 4
- How to use our data analysis toolkit to complete a measurement systems analysis

…up to a point …

What we won't cover

- Any confidential assessment materials



We wear two hats …

- We are unique in our delivery – we stick to what we know
- Why are we unique?
  - Other organisations typically use less well qualified and experienced people; our team are all experienced Lean Masters and Lean Six Sigma Master Black Belts (with an average of more than 10 years' consulting experience at this level) with certification from reputable blue-chip companies and consultancies such as Ford, Honeywell, Motorola and Accenture.
  - We are not just an assessment house, we are management consultants who specialise in this niche and have done this at multiple clients over decades.
  - We are one of VERY few Lean/Six Sigma providers to be regulated by both Ofsted for Training Delivery (trading as MDA Consulting Ltd) and Ofqual for Awarding of Qualifications

Here's what Ofsted said about us: [They] have developed a curriculum that is ambitious and responsive to employers who look for ways to improve their businesses. They work closely with employers to tailor and sequence the apprenticeships to support their specific skills and business needs. For example, [they] have designed the curriculum to include a variety of activities and topics, such as leadership workshops, projects on emerging business challenges, or management units that drive improvements in business processes. As a result, [they] ensure that courses meet the bespoke needs of their employers' industry. Highly qualified trainers have extensive and current industry experience in business and management improvement sector areas. [They] support trainers to keep up to date with teaching and assessing practices through links with universities, where they teach degrees and take part in research activities. Consequently, [participants] benefit from high-quality, relevant and industry standard training.

Who else uses us – a sample of some recent training and consulting activities

We are the EPAO of choice for the leading training providers in our field

Design and delivery of Lean Master Programme and Six Sigma deployment. Led a mission-critical improvement program on safety in Clinical Trials

Redesign and relaunch of corporate Lean Six Sigma Training programme. Wrote and delivered GB and BB training.

Value Stream Mapping for seasonal flu vaccine

Level 6 Improvement Leader training and coaching

Design and develop Lean transformation methodology including behavioural change

Lean Six Sigma Level 6 Improvement Leader training and coaching

£42m of validated savings through Lean Six Sigma Programme

Design and delivery of Improvement Apprenticeship Programme

Operations Transformation and Black Belt Training

Delivery of “Workout” facilitator training for Sellafield Sites (Capenhurst)
Delivery of multiple L6 Improvement Leader apprenticeships Sellafield site

The people you will see today – augmented by a team of similarly skilled, trusted operators

David Hampton - Partner

David, a certified Lean Six Sigma Master Black Belt, has worked as a senior consultant for over 20 years, advising client teams implementing Operational Excellence and Data Science with a focus on rapid, tangible results. He has extensive experience in training and coaching up to Master Black Belt level, as well as deployment and change management. David has consulted with a wide range of companies, especially in the discrete manufacturing and Pharmaceutical sectors.

Michael Akers - Partner

Mike, a certified Lean Six Sigma Master Black Belt, has worked as a senior consultant for over 20 years at the sharp end of leading and improving Operations across manufacturing, design, supply and service. He has experience in training and coaching up to Master Black Belt level as well as deployment leadership experience.
Mike has worked in a diverse filed covering Law Enforcement, Nuclear, Defence, Healthcare and Public Sector fields.

What resources and support do you get if you use us as your EPAO?

- It isn't very clear is it?
- Here's what we provide
  - Detailed qualification specification here:
    - https://advancedanalyticssolutions.co.uk/wp-content/uploads/2023/06/4.-Qualification-Specification-Improvement-Practitioner-v3.pdf
  - KSB by KSB guidance (ACE360 Knowledge Base)
  - Tutor calls and one-to-one support
  - Workshops as appropriate to help you understand
- What we don't provide
  - Information about the contents of the assessment materials or the assessment that isn't available via the assessment plan – we aren't allowed to

Condition D7 - Making available information to help meet Teachers' needs

Hide

D7.1 In respect of each qualification which it makes available, an awarding organisation must ensure that there is available to each Teacher any information which, for the purpose of preparing Learners and persons likely to become Learners for assessments for that qualification, the Teacher may reasonably require to be provided by the awarding organisation.

There is currently no guidance on complying with this Condition

The ST0192 Standard

Improvement Practitioners have the Knowledge and understanding of:

- **Measurement systems:** Repeatability and Reproducibility principles

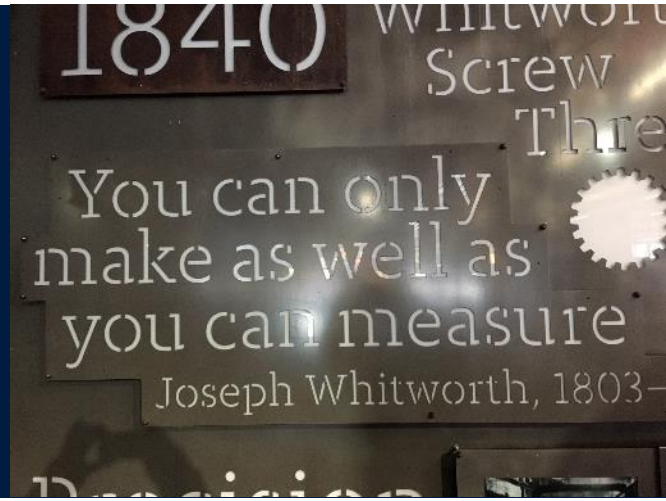
So… regardless of EPAO you can expect that there will be exam questions to test knowledge of repeatability and reproducibility principles.

Improvement Practitioners have the Skills within the context of their own organisation to:

- **Measurements systems**: Plan, carry out and assess results of a measurement system study

So… regardless of EPAO the assessor will expect to see evidence that the apprentice has planned, carried out and assessed a measurement systems study

Measurement Systems Analysis



This module supports Knowledge 11 and Skill 12 (ST0192 only)

Advanced Analytics Solutions

The Importance of Measurement Systems Analysis

- We need to ensure that the data that we use truly reflects what our Customers see.
- Green Belt projects rely on us taking decisions based on the analysis of data
  - So it is critical that this data is of a suitable quality for us to be able to take these decisions with confidence.

Therefore, before you…

- Make adjustments
- Implement solutions
- Test a new process
- Perform statistical analysis

You should…

- Validate your measurement systems
- Validate data and data collection

If you cannot measure, you cannot improve

Taguchi

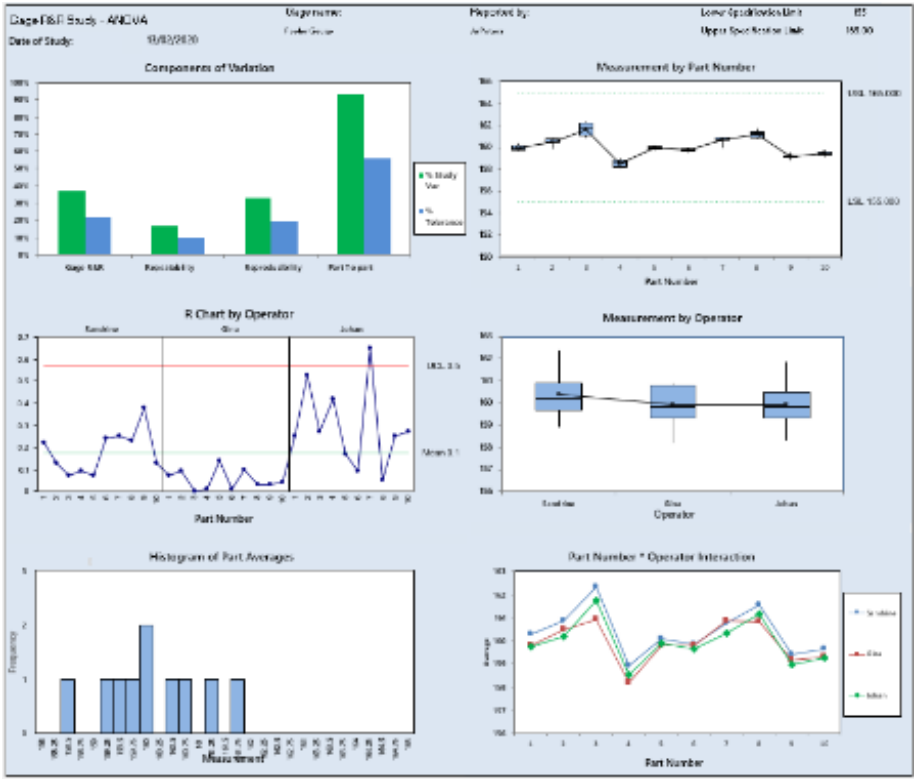
Gauge Repeatability and Reproducibility: Key Concepts That Your Apprentices Should Know

When teaching Gauge R&R, you will naturally want to cover:

- Types of measurement systems problems (bias, repeatability, reproducibility, stability, resolution etc)
- How to set up a Gauge Repeatability and Reproducibility Study including…
  - Number of parts, operators, repeats
  - Procedure to follow, including blinding
- What to look for in the graphical output from your software
- How to interpret the statistical calculations from your software including…
  - The meaning and purpose of GR&R and Precision-to-Tolerance
  - How much is too much?
- Typical types of improvements that people make
- What's involved in going monitoring

You'll need a practice exercise! Examples:

- Rubber bands
- Water level in plastic cups
- Timing short videos (good for remote training)



Attribute Agreement Analysis: Key Concepts that Apprentices Should Know

How attribute studies differ to Gauge R&R

- Typically subjective assessments, so you need to include the “right” answer
  - Need to look at consistency within and between operators
  - And also compare to the known standard … are they too strict or too lenient?
- Less powerful data, so far more parts needed (50-100) – and need a mix of good and bad
- May have to deal with more than one category
- Defects must be representative of the ones seen in normal work

Apprentices do not need to understand Kappa values – percentage agreement is OK

You’ll need a practical exercise! Examples:

- Visual inspection - M&Ms
- Is this a genuine or faked signature?
- Is this a ‘real’ picture or was it photoshopped?

Gage Name: The gauge being used

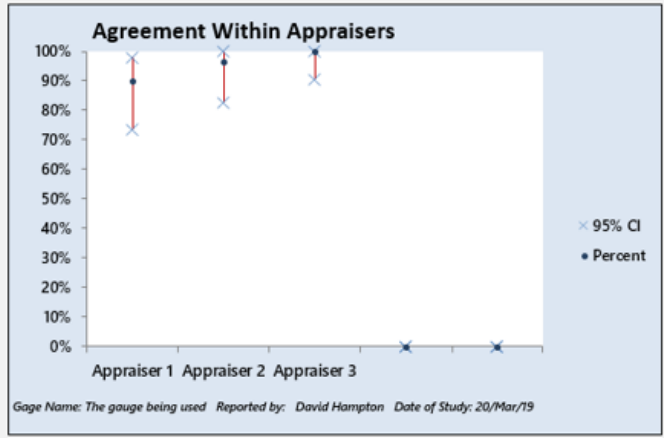
Reported by: David Hampton Date of Study: 20/03/2019

Are the categories ordered? No

Within Appraisers

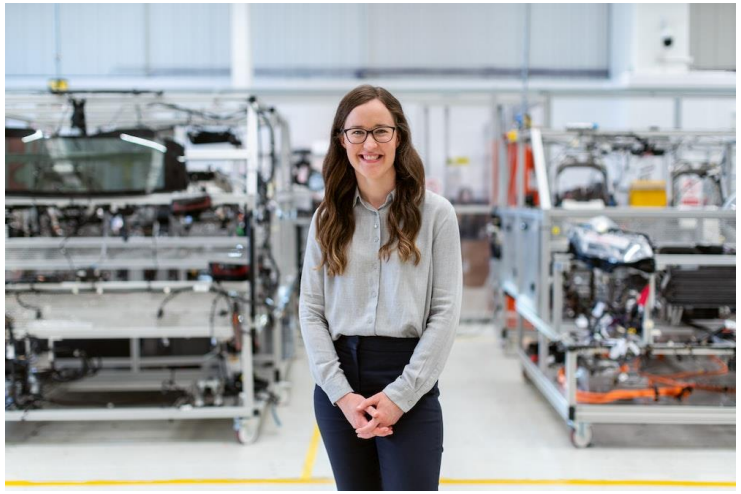
Appraiser	# Inspected	# Matched	Percent	95% CI from	95% CI to	Kappa Value
Appraiser 1	30	27	90.0%	73.5%	97.9%	0.800
Appraiser 2	30	29	96.7%	82.8%	99.9%	0.923
Appraiser 3	30	30	100.0%	90.5%	100.0%	1.000

 # Matched: appraiser agrees with him/herself across trials



Not everyone will be in the same position…

It's reasonable to expect that an apprentice in a manufacturing environment will rely on measurements of physical things…
…so she will typically need to check that the measurement system can be relied on.



She might only be working with discrete data
… in which case, an attribute agreement study would be the sensible thing to do

One working in a care home might instead rely only on measurements of time taken, or money… both of which are easy to measure precisely
… so you might need to give the apprentice a separate exercise to work on to demonstrate the skills, if their project doesn't lend itself to a formal measurement study.

The apprentice should do what makes sense, given the nature of the project
…so, what is "good enough" depends somewhat on the nature of the project
…it's OK to use common sense – we will do that, too


Advanced Analytics
Solutions