Testing for trainability

Barry Johnson and Mandy Geal

Key learning points
- **What trainability is.**
- **The key elements of a trainability test.**
- **Designing trainability tests.**
- **Test validation.**

Background

Trainability testing has been around since the 1960s, driven by rapid change in industry, new materials, new technologies and new methods. The changes are even more rapid now. We have people in their 50s learning new crafts while, in the past, such skills were learned exclusively by the youth of the country. Training that took five or more years has been reduced to three or fewer, giving rise to a demand for people to acquire the skills rapidly, with fewer drop-outs. With the technological changes, the removal of artificial age barriers, shorter training times and the high cost of training investment, comes a greater requirement to select people who can be trained.

This article looks at a test structure designed specifically to test for trainability.

What is a test of trainability?

Trainability is the ease with which a person is able to learn specific skills or to adapt current skills to new job requirements. Some people have an aptitude to learn a certain set of skills, and other people have aptitude for a different set of skills.

A **trainability test** exposes the person to training in an element of the job they will be expected to perform when fully trained. On completing the training element, the person will be required to produce a piece of work using the skills they have been taught. The candidate is observed carrying out work and the process of producing the output is marked.

Advantages of testing for trainability

The Adult Learning Inspectorate has reported that, overall, only 28 per cent of apprentices are completing their training. From a different perspective, according to a recent article in the *Daily Telegraph*, BT believes apprentice-trained people are 7.5 per cent more productive than non-apprentices.

Trainability tests predict success in training better than interviews and, in most cases, better than general aptitude or intelligence tests. Modern jobs are complex, and the training is expensive and time consuming. The economic advantage of testing for trainability is undeniable, as it ensures that selected people:

- can be trained faster
- cost less to train
- have fewer failures during training
- start productive work quicker
- are more competent when they start work.

In addition, the potential trainee gains a feel for the job, and can assess whether they want to undergo the specific job training or undergo training with the testing company. This leads to the further advantage that successful people are more likely to accept job offers.

Validation of tests

It is important to validate tests – that is, ensure that the test does what it is designed to do (see Step 2 below).

Step 1
Try it out on a sample population and ask these questions about the results:

- Is the task hard enough to discriminate between people?
- Are the required training elements covered?
- Are the test instructions clear and concise?
- Is the test checklist unambiguous?
- Are the trainers trained to give the test (training and assessment)?

Step 2
What are your criteria for deciding the test works? For example, ask these questions, to cover the full training period:
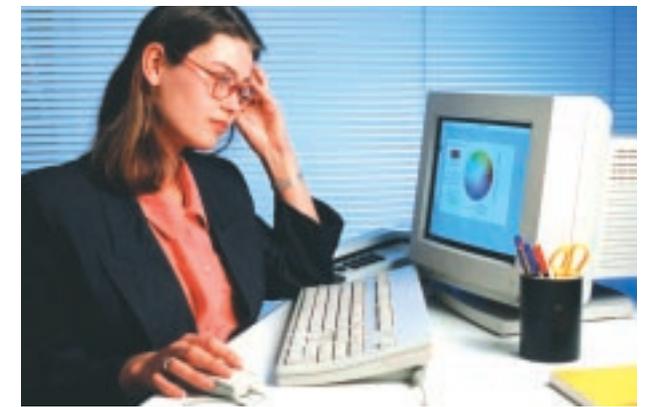
- Does the pass rate increase?
- Does the drop-out rate decrease?
- Does the time in training decrease?
- Does the skill level improve?
- Do other variables improve?

Application

Now the test criteria have to be applied. You can use the test immediately for selection, and test the training results against historical records. This has the advantage that it is put immediately into use. It has the disadvantage that, if the test is not valid, good candidates will be rejected. Furthermore, it does not allow for the target population changing. So, better applicants coming forward could cause improved results which would have occurred anyway. Alternatively, you could select using the previous methods, and apply the trainability test without using it for selection. This is statistically a better method, as it gives a direct comparison. If the numbers being selected are small, it could take a long time to get sufficient numbers for validation. A strong indication will be achieved with 30 trainees, and as few as 20 will give an indication.

Conclusion

The basis of trainability tests is that the person involved is actually learning something and demonstrating how well they have learned it. It is direct, and there is no assumption that, if the person is intelligent or dextrous or outgoing or any other thing, they will be trainable.

Trainability test example
In a purchase ledger department, the potential employee has to be able to match the orders made against the delivery notes with the invoice from the supplier, in order to produce the payment amount, using a computer and handling documents. This requires skills of organising the paperwork, discriminating between suppliers, and matching invoices to received goods and non-deliveries. The computer terminal skills include calling up the correct screens, inputting information correctly, recognising incorrect inputs and action to be taken in the event of an incorrect input, and ensuring that the outputs are congruent with the inputs.

Post-instruction, the trainee is required to produce three outputs from given inputs. The important part of the assessment is the ability to carry out the task in the manner instructed.

Further reading

S. Downs, *Testing Trainability*, NFER-Nelson Publishing Company, 1985.

Authors

Barry E Johnson BA MCMI MCIPD and **Mandy Geal** BA are directors of LEARNING*partners* Ltd. Both Mandy and Barry have considerable business experience. Barry was the senior manager responsible for training, resourcing and development in Europe for a global company before joining LEARNING*partners*. He operated training on a 'zero budget basis'. Mandy was the MD of her own software house before becoming a founding director of LEARNING*partners* Ltd.
Telephone: 01279 423294 • E-mail: info@learningpartners.co.uk • Website: www.learningpartners.co.uk

Characteristics of a trainability test

1. Based on a real task in a specific job.
2. Practical (physical and mental).
3. Considers a number of factors simultaneously.
4. Discriminates between highly trainable candidates and those who are less trainable.
5. Has a structured learning period.
6. Standardised training given by a trainer.
7. Practice, if needed, is controlled.
8. Test immediately follows instruction or practice.
9. Test given in work surroundings.
10. Test is about learned process, not just about produced output.
11. Assessed by a trainer.
12. Marked against training given using standard checklist.
13. Scored on ability to be trained.
14. Applicant expected to complete task and make errors.
15. May be individual or in small group.
16. Not normally timed.
17. Test validated against training performance.

Do trainability tests apply to all workers?

Trainability tests have been applied to jobs and professions as diverse as post office sorters, plumbers and dentists. Although many trainee positions are now being filled by graduates, do not assume that higher educational achievement improves trainability – although the specific educational content in a particular degree course may be a pre-training asset.

Trainability test indicators

Indications that a trainability test may be appropriate are:
- high drop-out rate of trainees during training
- trainees not reaching the required standard
- trainees taking too long to reach the required standard
- jobs that involve skills that are difficult to acquire
- jobs that require a training period of longer than a month.

Trainability test design

Designing a trainability test involves a number of steps.

Step 1 Identify the designers
Designers are people who will work with subject-matter experts. They are likely to be members of the training staff, members of HR experienced in selection and testing, or external consultants.

Step 2 Identify critical trainee behaviours
This will normally be achieved by critical incident and Repertory Grid interviews with the trainers and subject-matter experts working with recently trained people. The interviews identify the job behaviours that trainees have found difficult to acquire, or to apply, in the work environment. It is not unusual for such analysis to cause a change in the training method or content.

Step 3 Identify critical area to be the subject of the test
The selected task should include aspects of the work that are important, such as being able to:
- memorise a sequence of instructions
- follow and use work instructions, plans, tables or schematics
- recognise errors and faults
- correct errors and faults
- attend to accuracy

- follow sequence
- sensitively operate controls and make adjustments
- hand-eye co-ordination when using tools, machines or other equipment
- select correct tools, materials, and so on
- correct use of tools, machines and other equipment
- take correct precautions when using dangerous materials
- pay attention to, and apply, safety precautions.

Step 4 Select a task that incorporates the elements above that should be tested
Training materials and processes covering the task may already be being used.

Some care needs to be taken in the selection of a test piece. For example, in one company, a simple test of wiring a three-pin 13-amp plug was used. This was a poor example for a number of reasons:
- Firstly, it was too simple: it did not discriminate between trainable and less trainable candidates.
- Secondly, many of the potential apprentices had often wired such plugs. These candidates were often confident and rapid at completing the job. However, they often displayed poor techniques of wire stripping, estimation and tool usage, as they relied on the methods they had previously acquired through trial and error.

Step 5 Design the training sequence and method
The method chosen must match that used in the usual training of job trainees. It is beneficial to write a trainer's 'script'. This ensures that each candidate is treated equally and fairly. The training documents will specify all materials, tools, equipment, conditions and so on, and how they will be arranged before the instruction

commences. For example, it will state such things as that the equipment to be used is 'switched on and loaded' or 'switched off', and part of the training is the switching-on procedure. It is likely that the instructional plan is in much greater detail than in the normal training situation.

Training element

As we have said above, it is important that the training element of the trainability test uses the same approach, techniques and conditions as used during training. This should be consistently replicated with all test candidates. Some trainers have idiosyncratic behaviours. This may lead to inconsistency in the training section of the test, and must be eliminated or else adopted by all the trainers involved. Consistency is essential. At the same time, the learning needs of the candidates must be met, as they would be in the normal training environment.

Assessment element

The basis of the assessment is the observation of the candidate during the production of the test piece or the enacting of the test procedure. For example, if we consider a forklift driver trainability test, the steps may be as follows:
1. Having 'trained' the candidate, tell them what they are expected to do; for example, from the start point where the forklift truck is parked and running, drive round the bollard, pick up the pallet, take it to the marked square and place it in the square.
2. The candidate will then be walked through the course and the trainer will ensure that the candidate knows exactly what they have to do.

3. The test is then run.
4. The trainer will have a marking guide.

Timing

The full sequence of candidate training and assessment may vary between two hours and a day.

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TASK	Install accounts software on PC.
TIME	Untimed.
GENERAL	Explain task, show available equipment and so on.

CONDITIONS

1 The PC runs Windows XP Home or Professional version.

2 There is a minimum of 40 Mb of hard disk space available.

3 The PC is connected to a working printer.

4 The PC has a CD or DVD drive accessible.

STANDARD

The candidate will install the accounting software for Purchase, Sales and Nominal Ledgers. The program menus and security will allow access only to authorised individuals using the system. A test company and live company will be accessible for testing and live usage.

The candidate will correctly perform all items marked 'A'.

Some allowance will be given on items marked 'B'.

	STD	X / ✓	NOTES
Checked version number of Windows on PC is correct	B		
Checked PC hardware is in accordance with checklist	B		
Used correct system, set up authorisation	A		
Copied software to correct folder on disk	A		
Set up list of authorised users and passwords	A		
Modified menu access to authorised users	A		
Created test company	B		
Created live company	A		
Set up control features for test company correctly	B		
Set up control features for live company correctly	A		
Tested access to each Ledger Maintenance program	A		
Backed up system	A		
MARKING	Correct completion of all 'A' items and 2 or more 'B' items		

Fig. 1: Example of trainability test