The less people know, the more they think they know
by Richard Naish

Several things about learning design and coaching that I had been pondering on suddenly come together when I came across a cognitive bias that was new to me; the Dunning-Kruger effect. It explained both a coaching issue and a learning design issue. The effect can be summarised as 'the less people know, the more they think they know'.

In 1999 David Dunning and Justin Kruger of Cornell University looked at a range of skills such as reading, operating a car and playing tennis, so both cognitive and physical skills. They found that for any skill, incompetent people:

- tend to overestimate their own level of skill
- fail to recognise genuine skill in others
- fail to recognise the extremity of their inadequacy

but they will recognise and acknowledge their previous lack of skill once they start learning about it.

As the court jester said in Shakespeare's *As you like it*, 'the fool doth think he is wise, but the wise man knows himself to be a fool.'
So this does explain why people may ignore opportunities to learn skills and knowledge. They believe they already have a good level of skill in that area, so they don't need to bother with the e-learning provided for them.

This is why 360-degree feedback is so good at motivating people to change their behaviour at work and develop skills; it corrects their inadequate understanding of their own level of competence in certain areas. If people get feedback from several unconnected sources then they believe it is more likely to be true than be one or two people with an axe to grind.

Likewise it explains why presentation of technical information in page-turning e-learning is so ineffective. People are just clicking through the pages thinking 'yeah, yeah, yeah, I know all this already'. Neither do low-cognitive-engagement interactions aid learning. For example it is easy to illustrate a theory with a simple graphic that can be clicked, but this does not really engage any of the higher cognitive levels of the user; it is simply another form of presentation at a superficial level. (Of course it can be a good way of illustrating a complex graphic, such as an engine that can be clicked for greater levels of graphical detail.) So interaction can be illusory; it looks like good e-learning because you get to click a theoretical model, but it is not really engaging higher levels of understanding that will mean the theory sticks in the user's head and can be applied in the workplace.

So when presenting technical information, it would actually be better to present a well-laid-out, intelligently edited and graphically illustrated PDF, which can be read and saved for future reference. Then the interactive part of the e-learning is a series of mini-scenarios (4 or 5 lines of exposition) illustrating a practical application of that technical information in a real-world example. The user is given a multi-choice question asking them what they would do in this mini-scenario. Each of the options offered need to be plausible to really test their understanding of the technical content in the PDF. And each of the incorrect options need differentiated feedback; it should explain why that option would not be appropriate here but would be appropriate under other circumstances.

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So effectively you are both testing their understanding of the technical content and how they would apply it in the real world using the multi-choice questions and then revising the technical content covered in the PDF using the differentiated feedback. Three birds with one stone; theory, application and revision.
Now this approach to e-learning does not fit the model of 'interactive learning' since it includes the completely un-interactive PDF that would be frowned upon by those new to e-learning who think interactivity means clicking on lots of things. However mindless clicking is not engaging the learner's brain at all and so will not lead to learning, although it would certainly look pretty. I would prefer to see high-level 'engagement' with the learning content more than I would like to see such illusory 'interactivity'.

Another related model to this Dunning-Kruger effect is the more well-known conscious competence model. This model says we go through four stages of competence when we learn:

1. Unconscious incompetence: we don't know how to do something but we don't know that we don't know.
2. Conscious incompetence: we now know that we don't know how to do something but we haven't yet learnt how to do it.
3. Conscious competence: having improved our skill in that particular area, we now know that we do know.
4. Unconscious competence: the skill we have has become second nature to us and so we know the skill but are not really conscious of knowing it.

So the Dunning-Kruger effect is noticed in people in the first stage of learning; unconscious competence. And the fact that they over-estimate their skill means that they are unlikely to move onto stage 2 unless they are made aware of their competence level in some way.

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