



Alastair Grant

Deeper voices earn more money

Recent research at Duke University in North Carolina, USA has discovered that men with deeper voices make more money, run larger companies, and stay in their jobs longer. They are simply more successful.

Dr Yi Xu of University College London agrees but also said that research shows that men prefer women with higher pitched voices suggesting they were submissive and petite. This seems to contradict the well-known ‘deepening’ of Margaret Thatcher’s voice to make her sound less shrill and instead give her more gravitas.

Last year there was an article showing that both male and female teachers with deeper voices had less trouble with pupils in the class in secondary schools. Who is right in this apparent contradiction? The first finding – deep male voices versus female voices is really about sexual attractiveness. But the general deepening of voices is, I believe, about power and persuasion outside anything to do with sex.

So how deep is a deep voice? We measure this using the Fundamental Frequency (also called F_0), which is a measure of deepest voiced sound in the human voice. There are a series of harmonic frequencies above this, usually labelled F_1 , F_2 etc. Each harmonic is at double the frequency of the one below it.

Pitch is measured in vibrations per second, or Hertz (shortened to the symbol Hz). For men, F_0 is usually between 85 and 180 Hz, and for woman it ranges

from 160 to 255 Hz. To set this in musical context Middle C on the piano is 261.6 Hz, and is also known as C4. Two octaves down we get the much deeper C2 at 65.4 Hz. C2 is indeed very deep and outside the speaking range of most men. The optimum F_0 for men is around 100 Hz, and for women 190 Hz, according to our Associate, Dr Branka Zei of the Vox Institute in Geneva.

So back to the question: Why do deep voices, in both men and women, carry more weight in developing a more persuasive successful person?

I think there are two reasons. **First** a deep voice creates an image of power and size. We do not associate a deep voice with slight physique or weak character. But in reality this is not true. Some Russian Basses can sing below Deep C2, but some of them are pint-sized. They’re easy to find and listen to on YouTube.

Second, a deep voice means a relaxed larynx, indicating calm and confidence. The opposite is easier to observe: Someone who is stressed, unsure or just plain nervous will constrict their larynx and so sound squeaky.

What can we do about this? Well, quite a lot as it turns out.

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Advice *squeezed*
straight from the
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In this edition:

Deeper voices earn more money

By Alastair Grant

Alastair has looked at the advantage of a deeper voice in business.

Accentuate the positive

By Lynda Russell-Whitaker

Lynda looks into positive attitude and offers some techniques to try.

Obama at the Gate

By Ewan Pearson

Ewan reviews Obama’s speech in Berlin using GPB’s content analysis principles.

Deeper voices earn more money

... continued

Here are some tips:

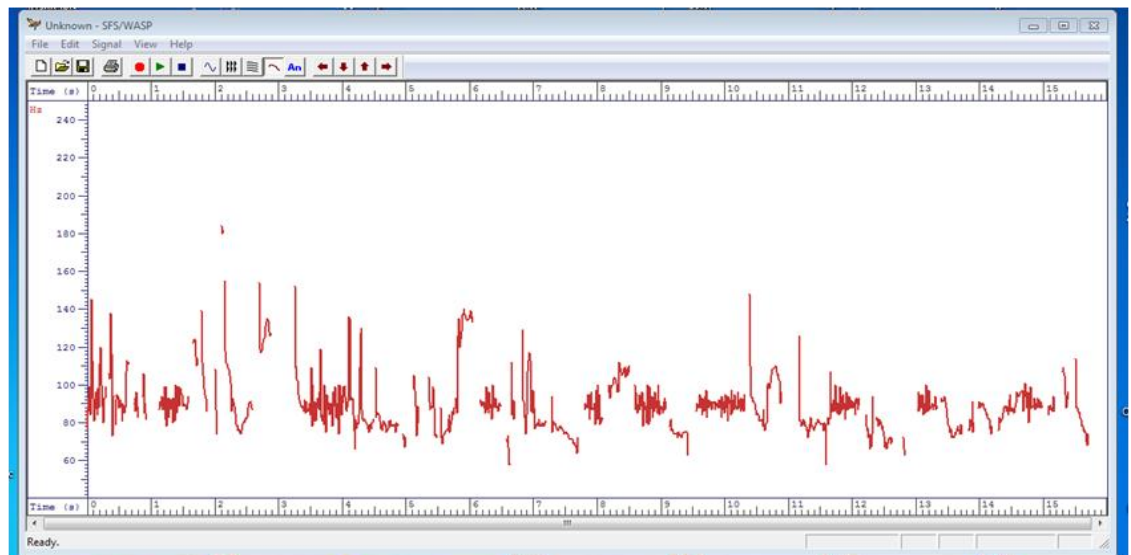
First. Be more aware of what your voice is doing. Try the University College London website (ucl.ac.uk) and search for Phonetics. You will see a simple freeware programme called Wasp produced by Mark Huckvale, which you can download. Or just type "Wasp UCL" into Google.

Wasp is a small programme and easy to use. You make a recording using this software and a microphone, or record on your mobile phone and copy the sound file over. You can then see what your F_0 is by reading the Y axis.

Fourth. Practice using your voice at deeper pitches and your larynx will adapt over a period of weeks. As part of a choir some of us sang the deeper Bass part for Rachmaninoff's Vespers. We had to dip below Deep C.

This was at first mission impossible but with practice one's voice was able to hit the right note and with adequate volume. (I also tried out this newly acquired skill on my dog, who became more submissive!).

Our voices are complex and wonderful instruments. We might recognise someone on the phone we have not heard from for a



A sample male sound file on Wasp

Second. Practice relaxing your larynx and exploring those deeper frequencies. Try saying "aaargh" and tilting your head back – just as a doctor would ask when looking down your throat.

Third. You may be at your most nervous at the beginning of a presentation, or when asking a question in front of senior peers. This is a good time to start your transmission at a deep pitch.

By relaxing your larynx you will also be helping yourself to relax. You will hear a deeper more authoritative tone which will further add to your confidence.

long time. The reason for this is that our voices contain a very distinct series of harmonics, each one double the frequency of the one below it.

The spectrogram below shows the harmonics of a human voice with the fundamental frequency – the bottom thick blue line starting below 100 Hz and rising to a shrill 400 Hz.

The Y scale is highly compressed starting at 0 and rising to 5,500 Hz.

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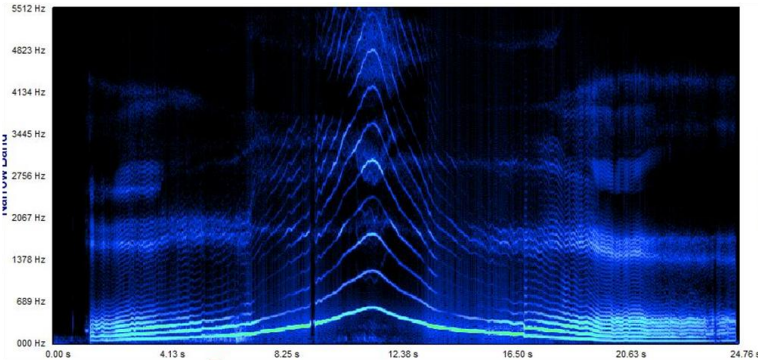
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Deeper voices earn more money ... continued



The frequency harmonics are easy to see: Below that we can see a falling tone which shows finality and a sense of conviction.



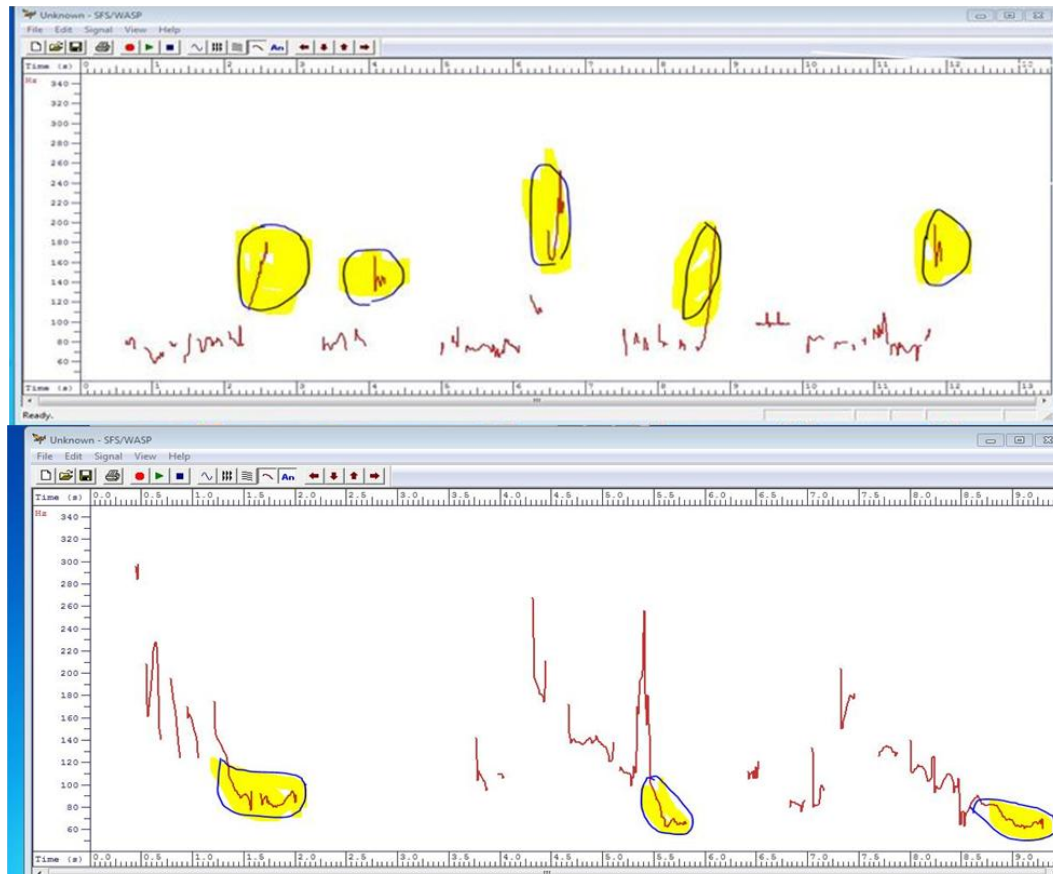
Spectrogram

So what do we do if nature endowed us with a high pitched voice? A high tenor will never make it to deep bass. Likewise a high soprano will not

become an alto, except with the ageing process where our voices fall in pitch. But using the deeper frequencies of our voice is not enough. We have to modulate our pitch up and down and at the right times. We know that a rising tone signals discomfort, uncertainty, an incomplete thought or lack of confidence.

The first graph below shows a voice ending a phrase in a rising tone. Australians are famous for this but once plugged into their accent we can still differentiate the difference between accent and uncertainty.

The truth is that other factors become more important. The words that you utter, your body language are key components. Fluency, articulation, phrasing, use of silence all contribute. Tony Blair has quite a high pitched voice, higher than Gordon Brown, but it has done him no harm, perhaps as it is much more modulated. All the same, the ability to use the deeper registers of your voice may just help you to get that pay rise!



Advice *squeezed* straight from the experts



Accentuate the positive



"You've got to accentuate the positive, eliminate the negative, latch on to the affirmative, don't mess with Mister In between." From music by Harold Arlen, and lyrics by Johnny Mercer. Published in 1944.

Whenever I hear this song (Rumer released a very good cover version in late 2012) it makes me smile, affecting my mood. This could simply be the effect of the music on my brain, or the action affecting my mood. I shall elucidate.

There are thousands of self-help books out there offering us strategies, hints and tips that claim to work to make us feel and be positive, happy, and satisfied with our lives.

None of these can really be proved to work. However, there has been some interesting new research and findings that echo the thoughts and writings of a late 19th Century psychologist William James (brother of the novelist Henry James).

James's magnum opus, *The Principles of Psychology*, first published in 1890, is still required reading for students of behavioural science (in the US at least). He subsequently published a number of other important works, with disparate yet interesting theories. One of these being that an emotion depends on feedback from one's body.

Even earlier, the Italian Dominican physiognomist and philosopher Tommaso Campanella (1568-1639) apparently *"composed his face, his gesture, and his whole body, as nearly as he could, into the exact similitude of the person he intended to examine; and then carefully observed what turn of mind he seemed to acquire by the change."*

In the 21st Century there is growing scientific evidence that the brain is indeed very malleable. Neuroscientist Michael Merzenich has given a fascinating Ted.com talk on the plasticity of the brain and the fact that our brains have an extraordinary ability to change and adapt themselves.

Furthermore, by altering ingrained habits and simply *acting* in a different way, we really can change our mood. If we make

regular efforts to change these habits, we can bring about long-term changes in the way we think.



The brain is very malleable

It's just as well. With mental health problems on the rise, the cost to UK business is substantial. The Centre for Mental Health calculated that from mental ill-health alone in 2011 presenteeism cost the UK economy £15.1 billion per annum, while absenteeism costs £8.4 billion.

If we are to positively impact this very real problem, we will need good practical strategies to manage our anxiety and stress levels ourselves, as individuals.

Practical strategies

1. Look at things in a new way

Author of 'Kitchen Table Wisdom' and 'My Grandfather's Blessings', Dr. Rachel Naomi Remen, an early pioneer in the mind/body holistic health movement stresses the importance of finding meaning in our lives:-

"Most of us lead far more meaningful lives than we know. Often finding meaning is not about doing things differently; it is about seeing familiar things in new ways."



**Lynda
Russell-Whitaker**

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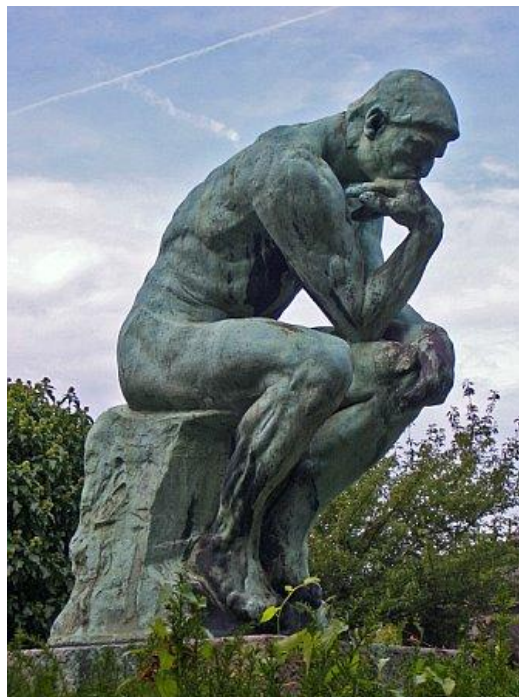
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Accentuate the positive ...continued

2. Tell and listen to stories

As I briefly touched on in my last article for SpeakUp! (Storytelling: No. 49), stories give meaning to our lives. In Dr Remen's view:

"Everybody is a story. When I was a child, people sat around kitchen tables and told their stories. We don't do that so much any more. Sitting around the table telling stories is not just a way of passing time. It is the way the wisdom gets passed along. The stuff that helps us to live a life worth remembering."



Rodin's statue *The thinker*

As one of her patients said when he experienced first hand how one of his

most profitable medical inventions (with sales in excess of 10,000 per year) had transformed the life of another of her patients who had been fitted with this device:- *"I only knew the numbers, Rachel. I had no idea what they meant."*

Prior to meeting the patient, her relatives and friends who had been involved in her care, this man had felt his life to be a failure, looking only at the 'negative' aspects and what he felt he hadn't accomplished.

3. Daily Practise

Dr Remen has created some practices (she says they're cheaper than Prozac!) to be performed at the end of each day. Taking only ten minutes at night, start with the most recent incident and going backwards, first ask yourself: *"what [pleasantly] surprised me today?"* As soon as you find it, write it down.

Repeat this process, asking yourself: *"What touched my heart today?"* As soon as you find something, write that down.

On the third and final run, ask yourself: *"What inspired me today?"* Again, write down the first incident that comes to mind.

The more you practise this, the more you will get be able to see 'familiar things in new ways' and like I am starting to do, appreciate the wonder and, dare I say, mystery of your daily life.



The brain may not be as hard to re-wire as we all thought

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Obama at the Gate



On 19th June, President Barak Obama was back orating in Berlin, five years after his highly successful visit whilst campaigning first time round for election in the USA. Was this such a success, what did he say, and how well did he deliver at the Brandenburg Gate?

One story I tell a lot of our clients is the one about some advice given by I think Harold Macmillan, whilst Prime Minister (PM) here in the UK from 1957-1963, to a new Member of Parliament (MP) who was soon to give his inaugural speech. Such speeches are considered pivotal in the likely future career path of a politician.



Obama in Berlin, with an open gesture

The new MP had asked the PM a question along the lines of: 'How many key points do you think I should include in my speech?'

The advice was clear and brief: "My dear boy, when I joined Parliament I thought it wise to keep to one message; when I became a member of the Cabinet I limited myself to two, and now I am PM I occasionally allow myself the luxury of three."

This was a bit of a shock to the new MP, who had already drafted his speech with many more than three key messages! But he heeded the advice and apparently his career flourished. Who can say what the result would otherwise have been?

My review of Barack Obama's speech was done using a number of the scientific content tools we have developed for GPB's Content Analysis. One of these is around the clarity and memorability of

key messages: how many, how identifiable, and how impactful.

Key messages: My first striking observation was that after the 'thank yous' and contextual pieces, Obama really only had just one message, delivered under one theme: "*Peace with Justice*". These three words were repeated 10 times throughout the speech. Under that theme, one key message which was to call for a reduction in nuclear weapons. So a good score for that, lowered slightly by the cloudy surrounding baggage and other competing minor messages; he did not make it that easy to pick out his key message, nor make it memorable.

You had to concentrate.

Structure: We look for a clear structure, with easily identifiable 'chapters', with signposts and linkages between these chapters so that audiences can follow the trail set out. This speech left much to be desired. Obama's speech felt at times like a random and unguided walk through broad themes: peace, freedom, western values, privacy, restoration of the old alliance against communism, and potential immoralities such as drones and Guantanamo Bay (both ironically US deficiencies).

Evidence-based credibility: Well, being US President is always going to give you a head start here, as credibility partly rests on authority, position, experience and expertise. It also relies on the absence of BS and presence of evidence such as data, examples, quotes and comparisons.



Ewan Pearson

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Obama at the Gatecontinued

Data evidence: Obama uses data comparatively sparingly vs. your mainstream businessman of the current era. Here are two examples: “*For over a decade, America has been at war*”, and “*we’ve doubled our renewable energy...*”



JF Kennedy in Berlin in 1963.

Quotes: Obama gets a Full House: Quotes coming flying in, not just from the obvious – he quotes JFK’s “*Ich bin ein Berliner*” plus another quote from the same speech, but from Immanuel Kant’s quote on freedom, from the US Constitution and Basic German law, James Madison, and Martin Luther King. Wow, quite a deck of quotes!



Obama makes his point with precision

Examples and comparisons: Obama does not use the word ‘example’. But the word ‘like’ appears 12 times, and several of these are examples: “*clean sources like wind and solar power*” and “*the use of new technologies like drones*”. To GPB, ‘comparison’ means the use of similes, metaphors, and other such rhetorical tools

to bring the abstract to the tangible, the complex to the simpler. This is his alternative use of ‘like’ and it is very effective: “*..as long as walls exist in our hearts to separate us from those who don't look like us, or think like us..*” Here, he gets a high score.

Language complexity: Here we can cheat a little by using tools available to all for free on the internet. We use several sites to look at the Flesch and Gunning Fox indexes, that measure readability of text. They work just as well for scripts. The Gunning Fox index scores come out just under 12; this index suggests the number of years

formal education required to get the most out of the text. The Flesch index is at about 60, which is a % score, where the higher the better, and the average is 50%. So he does very well on both indices, and significantly above the average business speech that we’ve analysed with scores of 16 and 35 respectively.

Quantity: We look at how much someone says vs. a rational or imposed target time, and whether it is verbose or concise. Being President means you can gas on forever if you wish, so no target would seem to have been set. However, with the caveat that the content is a touch over-elaborated, he has done fine here, albeit way over our observed threshold of 20 minutes for the average speech.

Pace: Pace also effects timing.

Obama spoke 3,321 words in 28 mins and 36 seconds. This produces an average of just 116 words per minute (wpm), but given that a significant time is taken up with dramatic pauses, crowd cheers, and the removal of his jacket, his pace is more like his standard 130-140 wpm, still a steady rating vs. an articulatory limit for most people of about 200 wpm.

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Obama at the Gatecontinued

Our Services

Grant Pearson Brown Consulting Ltd (GPB) is a respected adviser based in London. We enhance the performance of businesses, helping clients to excel in the use of the spoken and written word, improving the performance of individuals and teams. Over the long term our work improves the way a firm does business.

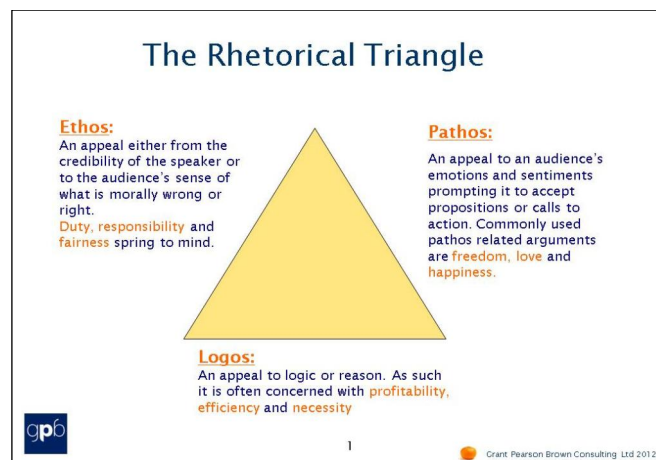
We coach and advise individuals to perform at their best in the toughest situations including: Presentations, New Business Pitches, Business Development, Negotiating, Media Interviews, Telephone Calls and Document Writing.

We also produce scientific Voice, Visual and Content Analysis reports, then provide content, voice coaching and non verbal communications advice.

Our clients' needs are the only focus of our work; we listen to them and closely tailor our response to deliver first class coaching and advice. In support of this we selectively pursue new ideas and approaches, continually hone our advice and create tools such as Prospect Relationship Management (PRM), Just a Minute, the Fire Bell Test and the Information Iceberg.

His pace suggests confidence; he's not in a hurry to get off stage.

Rhetorical balance: We agree with that old card Aristotle, the first truly commercial management consultant. He postulated that to maximise persuasiveness a speaker (they were called orators back then) had to have an equal balance of Logos, Ethos and Pathos. We loosely translate these as logic, ethics/authority and emotion.



Aristotle's three appeals

Modern scientists have also found this in their research, but given them fancy labels and Aristotle no credit. Obama studied Aristotle's work before becoming President, and understands this balance. Not only that, he provides it as his speech moves neatly between the three.

Rhetorical tools: Some of these should be considered 'academic pornography', others though are among the best ways of communicating content clearly, elegantly and persuasively. Obama understands this and uses such tools to the limit. He includes many *triplets* such as: "*your leadership, your friendship and the example of your life*" and "*yearnings of justice, yearnings for freedom, and yearnings for peace*" in the first 30".

He uses alliteration such as "*courageous crowds climbed*", rhetorical questions, counterargument, and unlike most people who don't even realise they are using rhetorical tools at the time, he uses the more common tools such as parentheses (sub-clauses), data, examples, similes, metaphors and the quotes mentioned above.

Visuals and imagery: He does not show any slides (and we realise many of you will be disappointed by this!), but he uses plenty of mental imagery to convey messages. For example: "*Angela and I don't exactly look like previous German and American leaders*", and "*...walls exist in our hearts to separate us from those who don't look like us*".

Personal and interactive: He uses 'we', 'you', and 'I' a great deal, and appropriately. He engages with humour, wit, and by reference to the current place and time. All just spot on.

Overall he scores very highly with the content of this speech, which although a presidential address rather than a standard business presentation, gives us lower mortals plenty of guidance on how this speaking lark should be done.

We commend to you a self-analysis of your speeches and presentations along similar lines. If you follow our headings, you will have a methodical way of working through what you've created. It will show you your strong points, and the content gaps that need to be filled.

