

# Stories or numbers or stories and numbers?

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Last Saturday, I read an article in the Times by a man called Anthony Lloyd, who was reporting from a temporary orphanage in Sierra Leone that had been set up to take victims who had lost their families to Ebola [1].

*Ebola, Lloyd explained, infects along the transmission lines of human love and kindness, decimates whole families and kills across the generations. As a result, most of the survivors at the orphanage had suffered multiple simultaneous bereavements.*

The article included a picture of a little boy called Stevie, who was four years old. Lloyd recounted a conversation he had had with the head social worker in the district, Mr Kamara.

*“Stevie is very young and very traumatised,” said Kamara. “So much so that he is only just beginning to speak. His documents are missing so we aren’t sure where he is from, or what happened to his family. We are sure of just one thing: he is an Ebola survivor.”*

*Many children in the care centre, said Anthony Lloyd in his article, are classed as ‘double orphans’, having lost their parents and then had their foster parents killed by Ebola too. However, having survived so much already, the children now face a final injustice common to Ebola survivors throughout West Africa: stigmatisation.*

*Victoria, aged 16, watched eight of her nine siblings die of the deadly virus alongside her guardian aunt, one after another, in their home. Her entire family was wiped out over a period of only four weeks. Yet she has been completely disowned by her extended family. “My surviving aunts and one sister call me by phone,” she told Lloyd, weeping in a sudden burst of uncontrollable anguish. “But I can’t go back to the village as the community won’t accept me, so I am completely alone.”*

*Mr Kamara explains to Lloyd that communities do not understand the science behind Ebola and why those who suffered it can, in fact, be an asset rather than a danger. “Survivors have a strong resistance to the infection, probably immunity. They could serve their community in this crisis. Yet communities don’t know how the virus works and still believe that Ebola survivors can pass it back to others. So they exclude them.”*

Here ends my introductory story (actually, story-fragment, since the article went on for a couple more pages). Like many stories, the one I’ve just told is incomplete, ambiguous, multi-vocal, and pregnant with tropes that suggest (but fall short of proving) complex chains of causation. The story is both personal and political. It is Stevie’s story, Victoria’s story, Mr Kamara’s story, Lloyd’s story, Sierra Leone’s story, Africa’s story, the Ebola virus’s story – and Rupert Murdoch’s story.

And it is my story, because I selected it to share with you today. I edited it, re-told it, cast it as an exemplar of the story form, typed it out last week, practised it, and recounted it

verbally today. And it is *your* story – because it was chosen, edited, practised, and read out with you in mind, with my anticipation of your expectations shaping the selection and editing of the extracts, and your moment-by-moment reactions shaping the real-time telling.

Nobody has ever told that story in quite the same way to the same audience – and nobody will ever tell it like that again. Those of you who are familiar with the academic literature on narrative will probably recognise what is known as a Bakhtinian framing here: the Russian literary theorist Michael Bakhtin said that everything we write, every word we utter, is shaped by the response of our audience – and/or by the way we anticipate our audience will respond [2].

This is why, when you tell your children their bed-time stories, the story changes a little depending on which child it is, but also on how a particular child is reacting to today's telling. So it is with lecture theatres full of undergraduates, and conference audiences, and parliamentary select committees, and juries. As Maxine Alterio, who has written charmingly about storytelling and professional development, has put it, "A story told twice is a lie" [3].

It is small wonder, then, that 'anecdotes' – the perjorative word that epidemiologists use for stories that emphasises their subjective, idiosyncratic, unrepresentative and unreplicable nature – 'anecdotes' are usually placed at the very bottom of the hierarchy of evidence [4]. The plural of anecdote, say the disciples of evidence-based medicine, is certainly not science.

Feeling uneasy? Need some hard facts? In his article, Anthony Lloyd juxtaposed individual, human, personal stories like those of Stevie and Victoria with other stories told by statistics. I quote again from his article: "*As more than 1,100 of Sierra Leone's 4,333 confirmed Ebola cases are believed by UNICEF to be children and, with the rate of infection now doubling in the country every three weeks, as many as 28 per cent of the final death toll are likely to be children under 16.*"

Let me offer you some more numbers. In April 2014, the World Health Organisation began an appeal to raise \$4.8 million dollars to help control the Ebola outbreak in West Africa. By the end of July, it revised its target to \$71 million. In August the WHO made an international appeal for \$490 million, and a few weeks later the United Nations launched a linked appeal for \$988 million [5]. Don't tell me numbers don't tell stories.

And don't tell me these numbers are any more 'factual' than the statement that Stevie is traumatised, or that Victoria's extended family don't want her back. I suspect that if we tried hard enough, we would find people who would contest the number of children with Ebola in Sierra Leone and the values and dates of the WHO's fundraising targets – just as we would be able to find people who would argue that Stevie is not as traumatised as the social worker claims. Numbers are no more 'factual' than so-called anecdotes. Quantitative data aren't *true* just because they're quantitative.

On my first day as a PhD student, studying enzymes in a laboratory, I was advised by a second-year PhD student on how to get on in science. "*Find something to measure, and then measure it,*" he said. "*And keep on measuring it until you can fit six points on a graph*

*and get a statistical test to come out significant. Then start writing a paper.”* I am happy to report that although my colleague did get a PhD by following his own advice, his academic career didn’t progress much farther than that. Numbers, even statistically significant ones, mean very little indeed unless couched in a meaningful story.

The really interesting thing about a series of numbers is why *these* numbers, rather than a different series of numbers, have been presented – and what story the narrator is seeking to tell with those numbers. Because the fundamental purpose of a story is to *persuade*. When my kids were young, the story of being picked on at school was told for the purpose of persuading me that they needed comforting. The story of a fine sporting performance or (more unusually) academic success was told to persuade me to praise or reward them – and so on.

Centuries ago, Aristotle characterized the art of rhetoric – that is, of persuasion. Rhetoric consists of three things, he said: logos – the ‘facts’ or message that you wish to convey; ethos – the credibility of the speaker; and pathos – the appeal to emotions [6]. The art of rhetoric, said Aristotle (and note that it is an art not a science) is to achieve a judicious combination of logos, ethos and pathos – don’t overwhelm your audience with too many numbers; don’t overdo the appeal to emotions, and so on.

Much later – in 1969 to be exact – Chaim Perelman wrote a book called *The New Rhetoric* in which he confirmed the importance of logos, ethos and pathos but also emphasized the importance of finding out where one’s audience is coming from [7]. Different audiences have different assumptions, things they “know” to be the case, things they value and things they don’t like to hear mentioned. These, said Perelman, are the audience’s *points of departure*. To persuade effectively, you need to ground your argument in the points of departure of a particular audience.

In his article in last week’s Times, which was entitled ‘**Orphaned, rejected and afraid: plight of the Ebola children**’, Anthony Lloyd was seeking to persuade the reader of two main arguments: first, that the epidemic is having a particularly bad effect on children, and second, that its social impact is made immeasurably worse by ignorance.

If you look up Ebola in the medical literature, you will get plenty of other stories – some of them told retrospectively to try to make sense of what has already happened, some of them speculating prospectively what is likely to happen in the future. All of them seek to persuade their audience of a particular set of arguments about what is important, what is ethically justified, what is evidence-based care and so on.

There are the personal accounts of doctors and nurses who have worked at the front line of this ghastly epidemic. They want to persuade us that it’s tough at the coal face, that resources aren’t getting through, that there is avoidable suffering, that they are doing God’s will – and so on.

There is the vaccine story, which depicts the cause of the Ebola epidemic as lack of effective vaccines – and predicts a cure, just around the corner, as Big Science rushes through the vaccine trials that will save a continent’s children. This is a story to persuade us of the good side of the pharmaceutical industry – and of the philanthropic generosity of the Wellcome Trust.

There is the genetic drift story – that Ebola virus is one of the most rapidly mutating organisms ever studied, hence will be uniquely difficult to contain and control. Most worryingly, a new mutation might make Ebola go airborne – that is, its main mode of transmission could change from a diarrhoeal disease spread by ingestion of faeces to one that could spread much more extensively through droplet infection. If you came on the tube today, you’ll know we all get sneezed on a lot more often than we accidentally eat someone’s poo. This story seeks to persuade us of an impending cataclysm, perhaps for entertainment reasons, but perhaps also to attract a chunk of the Ebola research budget into the ever-expanding genetics industry.

Then there is the critical social scientist’s story, which depicts the underlying cause of the Ebola epidemic not at the level of a tiny virus and the magic bullets directed at that virus but at the level of the health system. Ebola, say these critics, is caused by fragmented health systems, decades of under-investment, corrupt governments and weak leadership. This story seeks to persuade us that a cure for Ebola will not come in a syringe or a tablet or a full-body hazardous substances suit. Rather, such a cure will elude us, says this meta-narrative, until we have strengthened the fragile health systems, integrated their various components, cleaned out the corruption and installed leaders with vision, integrity and courage.

All these stories use both words and numbers. They also use visual images like photographs, maps and diagrams. Each story combines these different modalities rhetorically in an effort to persuade the intended audience of the importance and veracity of the account. The map of West Africa, with Guinea, the origin of the latest epidemic, highlighted in dark red, adjacent to Sierra Leone and Liberia, coloured in bright red, and neighbouring Ivory Coast portrayed in green, also tells a story. The dark red epicentre sits in the middle of the map like the centre of a target. The guilty country. The dark-red-against-light-red national borders depict how easily international spread occurs. And farther from the epicentre, in clashing red-against-green, are the borders across which a mutated Ebola virus might yet jump. The colours on the map, of course, are derived from numbers – incident cases to date – but the visual story portrayed is particularly evocative. It says: this virus needs no visa; your country is next.

I’m deliberately mixing up words, numbers, pictures – and also speakers and audiences – to illustrate the argument that the notion of stories OR numbers is a false dichotomy. Stories use numbers, numbers tell stories, numbers can paint pictures – and so on. The skillful storyteller who understands his or her audience and crafts the narrative accordingly is more likely to persuade than that hapless second-year PhD student who naively and wrongly assumed that *“the [quantitative] data would speak for themselves”*. This widely held assumption is empiricism’s most dangerous myth. In truth, as I suspect most of you know very well, there is no text, no set of figures, no picture, no experience that is self-interpreting.

Those of you who came to the Oxford conference ‘Experience as Evidence’ recently will have heard Professor Steve Woolgar describe an exercise he gives his undergraduates. He sends them out into the real world, and tells them, *“Go and get a fact. Carefully note the circumstances of its collection. Bring it back to class to share with others.”* Nothing,

says Woolgar, demonstrates the fluidity of so-called 'facts' – both quantitative and qualitative – more tellingly than this exercise.

In the sessions that follow this talk, you have an impressive line-up of speakers who are going to talk about how stories persuade – and I guess how numbers persuade as well – in the field of quality improvement. I deliberately chose an example at some distance from the developed-world hospital setting and the particular example of Schwartz rounds so I didn't steal anyone's thunder for the later sessions. I won't be able to stay for the whole of this conference but I hope I've set you on the route to a stimulating discussion about both the philosophy and the practicalities of using stories, numbers and indeed a host of other modalities, in the effort to reduce suffering and improve patient outcomes.

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1.11.14

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