





William Shakespeare

.....

**1700 words to his credit
due to an OED editorial
position.**

***"THE 21ST CENTURY IS FACING A
PLAGUE OF CREDULOUS
THINKING"***



TRUTH

TRUTHINESS

POST-TRUTH

INFORMATION LITERACY
IN THE 21ST CENTURY

Truth - Objective, verifiable, provable with evidence

Truthiness - The feeling that something is true regardless of evidence

Post-Truth - The complete disregard of facts in favour of an emotional response



Since the 60's, the role of the librarian has expanded with technology.

Web 2.0 created an internet focused on interaction and sharing.

Blogging transformed information distribution into an opinion rather than fact based system.

The editorial procedure of "Old Media" is largely absent from "New Media."

An inherent and misplaced trust in anything that is "published."



Millennials use Facebook as primary source for news





Bernie Sanders Could Replace President Trump With Little-Known Loophole

[huffingtonpost.com](https://www.huffpost.com)

3

59%

Links shared on social media that are not read

Social media bubbles promote misinformation
which reaffirms a previously held belief

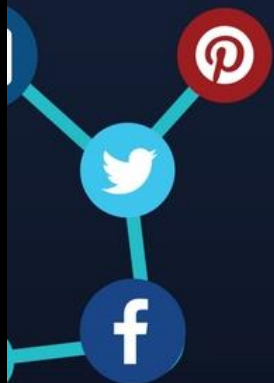
25%

High school students
knew what a Verified
Account is.

"stunning and
dismaying
consistency"

80%

Middle school students can't tell
between a real news article and fake





20%

Undergrads who
visited the Library

Google
gives thousands
of results; Siri responds
to most questions. Students
don't know how to look for information.



**"By faking or
neglecting peer review,
they pollute the
scholarly record with
fringe or junk science
and activist research"**

ALA

- Authority Is Constructed and Contextual
- Information Creation as a Process
- Information Has Value
- Research as Inquiry
- Scholarship as Conversation
- Searching as Strategic Exploration

Plausibility Check

- Does that seem right?
- Is it suspicious in any way?
- What isn't being included here?
- Could there be an alternative explanation?



- Nov 2016: comments during a Q&A following a lecture at Cambridge
- Similar comments made in both 2014 and 2012
- Hawking is a Mathematician, Cosmologist and Theoretical Physicist.
- Expertise in one field does not equal expertise in all fields.



Humanity only has around 1,000 years left on Earth, Stephen Hawking predicts

- 1998: published in Lancet connecting MMR to autism
- Began the “Anti-Vaxxer” movement
- Noted a significant rise in diagnosed cases of autism from 1970 to the modern day
- Entire methodology was unethical and flawed.





75531||

Early Report

RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

Dr AJ Wakefield, FRCS^a, , SH Murch, MB^b, A Anthony, MB^a, J Linnell, PhD^a, DM

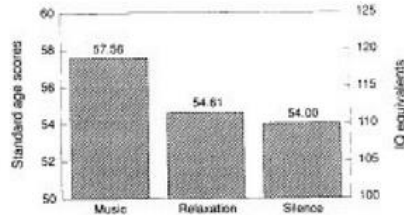
8

“utterly clear, without any ambiguity at all, that the statements in the paper were utterly false”

Music and spatial task performance

SIR— There are correlational¹, historical² and anecdotal³ relationships between music cognition and other 'higher brain functions', but no causal relationship has been demonstrated between music cognition and cognitions pertaining to abstract operations such as mathematical or spatial reasoning. We performed an

spatial IQ scores of 119, 111 and 110, respectively. Thus, the IQs of subjects participating in the music condition were 8–9 points above their IQ scores in the other two conditions. A one-factor (listening condition) repeated measures analysis of variance (ANOVA) performed on SAS revealed that subjects



Standard age scores for each of the three listening conditions.

Testing procedure. In the music condition, the subject listened to 10 min of the Mozart piece. The relaxation condition required the subject to listen to 10 min of relaxation instructions designed to lower blood pressure. The silence condition required the subject to sit in silence for 10 min. One of three abstract reasoning tests taken from the Stanford-Binet intelligence scale⁴ was given after each of the listening conditions. The abstract/spatial reasoning tasks consisted of a pattern analysis test, a multiple-choice matrices test and a multiple-choice paper-folding and cutting test. For our sample, these three tasks correlated at the 0.01 level of significance. We were thus able to treat them as equal measures of abstract reasoning ability.

Scoring. Raw scores were calculated by subtracting the number of items failed from the highest item number administered. These were then converted to SAS using the Stanford-Binet's SAS conversion table of normalized standard scores with a mean set at 50 and a standard deviation of 8. IQ equivalents were calculated by first multiplying each SAS by 3 (the number of subtests required by the Stanford-Binet for calculating IQs). We then used their area score conversion table, designed to have a mean of 100 and a standard deviation of 16, to obtain SAS IQ equivalents.

experiment in which students were each given three sets of standard IQ spatial reasoning tasks; each task was preceded by 10 minutes of (1) listening to Mozart's sonata for two pianos in D major, K488; (2) listening to a relaxation tape; or (3) silence. Performance was improved for these tasks immediately following the first

performed better on the abstract/spatial reasoning tests after listening to Mozart than after listening to either the relaxation tape or to nothing ($F_{2,35} = 7.08$; $P = 0.002$). The music condition differed significantly from both the relaxation and the silence conditions (Scheffe's $t = 3.41$, $P = 0.002$; $t = 3.67$, $P = 0.0008$, two-tailed, respectively).

The relaxation and silence conditions did not differ ($t = 0.795$; $P = 0.432$, two-tailed). Pulse rates were taken before and after each listening condition. A two-factor (listening condition and time of pulse measure) repeated measures ANOVA revealed no interaction or main effects for pulse, thereby excluding arousal as an obvious cause. We found no order effects for either condition presentation or task, nor any experimenter effect.

The enhancing effect of the music condition is temporal, and does not extend beyond the 10–15-minute period during which subjects were engaged in each spatial task. Inclusion of a

delay period (as a variable) between the music listening condition and the testing period would allow us quantitatively to determine the presence of a decay constant. It would also be interesting to vary the listening time to optimize the enhancing effect, and to examine whether other measures of general intelligence (verbal reasoning, quantitative reasoning, and

- 1993: small letter published in Nature
- Small study that made no conclusions
- Data was misinterpreted in a 1997 popular publication
- Two separate meta-studies dispelled any ambiguity

- 2011: OPERA team announced unexplainable discovery
- Submitted the data for peer-review
- Recognized that the data was beyond their ability to interpret
- Five other labs replicated the test
- Based on results of peer-review, OPERA was able to identify the fault



THANK YOU

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