Selling Hype or Giving Hope: Science and Pseudoscience In Autism
Selling Hype....

theranos technology development.

At Theranos, we are developing technologies that will enable us to make it possible for more people, in more places, to get the laboratory tests they need.
Selling Hype....
Selling Hype....
Selling Hype....

Hot Startup Theranos Has Struggled With Its Blood-Test Technology

Silicon Valley lab, led by Elizabeth Holmes, is valued at $9 billion but isn't using its technology for all the tests it offers.
Characteristics of Selling Hype

Extraordinary Claims of Success

Scientific Jargon

Inexpensive

No Peer Review Research Showing Effectiveness

Research Showing Ineffectiveness
Giving Hope...
Giving Hope...
And Catching Colds....
Characteristics of Giving Hope

Theoretically Sound

Empirical Research Database

Tentative Claims

Research Showing Effectiveness

Peer Review
Selling Hype...
Characteristics of Selling Hype

Extraordinary Claims of Success

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Giving Hope...
Giving Hope...

Figure 1. Standard instructional delivery components essential to all explicit instructional episodes (Hall, 2002).
Giving Hope...
Giving Hope...

Project Follow Through, 1967 - 1977
Nine models of teaching K-3 compared in history's largest educational experiment

Findings:
- Nine models grouped into basic teaching approaches: Academic focus, problem-solving focus, and achievement
- Three categories: results were measured: Basic achievement, middle school, and high school
- Direct instruction produced the best results in all areas: Literacy, math, and science
- More evidence needed to draw definitive lessons from the data
- Findings suggest that more research is needed in this area

KU THE UNIVERSITY OF KANSAS

Rock Chalk, JAYHAWK!
Characteristics of Giving Hope

- Theoretically Sound
- Research Evidence
- Tentative Claims
- Data Showing Effectiveness
- Peer Review
Selling Hype....

Astronaut Training...It’s Not Just For Astronauts!
Characteristics of Selling Hype

Extraordinary Claims of Success

Scientific Jargon

Inexpensive

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Research Showing Ineffectiveness
Giving Hope...

- Functional Assessment
Giving Hope...

Learned Functions of Behavior

VERBAL PERSEVERATIONS

Verbal Responses

Attention

Tangible

Alone

Demand

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Characteristics of Giving Hope

Theoretically Sound
Research Evidence
Tentative Claims
Data Showing Effectiveness
Peer Review
1. Greatly exaggerated and unsubstantiated claims;
2. Treatment will work, and nothing else will work.
3. Must learn from a ‘master’, ‘leading expert’
4. Rely heavily on endorsements from presumed leaders in that field
5. Group of trainers and international organizations and conferences to promote treatment

6. Provision of certificates/diplomas in that treatment

7. Followers are insular
8. Frequent use of psychobabble
9. Frequent use of neurobabble and biological reductionism
10. Advocates are defensive and thin-skinned about their approach
11. Advocates rely on anecdotal evidence at expense of controlled outcome data
12. Treatment claims have no clear boundary conditions
13 and 14. Argue their approach is evidenced-based
15. No critical account of the scientific validity or theoretical basis for, the effectiveness of proposed treatment

16. Resort to implausible ‘ad hoc’ hypotheses to explain away negative findings

American Academy of Pediatrics
American Academy for Cerebral Palsy
American Academy for Physical Medicine and Rehabilitation
American Academy of Neurology
American Academy of Orthopedics
American Academy of Pediatrics
Canadian Association for Retarded Citizens
Canadian Rehabilitation Council for the Disabled
National Association for Retarded Citizens
Canadian Association for Children with Disabilities
17. Test approach against weak comparisons
18. Do not report on potential allegiance effects
19. Do not independently determine whether treatment rationale for alternative treatments is as credible as for advocated treatment.
20. It’s easy to implement
DISINFORMATION
BY ANY OTHER NAME WOULD STILL SMELL BAD
Hype is a 4-letter word

Better to know the quick pain of truth than the ongoing pain of a long-held false hope.

Trudi Canavan

meetville.com
Skepticism

Baloney Detection Toolkit
The Role of Skepticism

- Skepticism vs. gullibility
  - “Keep an open mind, but not so open that your brains fall out”
- Open mind - do not reject without verification
- Skepticism - do not fail to verify
- Baloney Detection Toolkit
  - A scientist’s skepticism aid
You might be mistaken. You've been wrong before.
Ultimate Responsibility:

Our Client
In Conclusion:

If we dare to dabble as professionals in the lives of others, or teach other people to do so, we must accept a ‘moral obligation to be empirical.’
In Conclusion:

In order to provide the aid we hope to give, and to protect everyone from the trap of our own biases and distorted thinking, it is our fundamental duty to:
In Conclusion:

(a) know exactly what we are doing,
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(a) know exactly what we are doing,

(b) clearly and objectively determine whether our procedures are actually bringing socially significant and objectively measurable (not imagined) benefits to our clients, and
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(a) know exactly what we are doing,

(b) clearly and objectively determine whether our procedures are actually bringing socially significant and objectively measurable (not imagined) benefits to our clients, and

(c) stop what we are doing if we cannot meet the standards of (a) and (b).
For More Information:

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