

Fear of Innovation

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There is no secret

- ◆ We are intrinsically innovative as human beings
- ◆ We innovate and invent in response to needs, dissatisfactions, and curiosities
- ◆ To innovate you just need "permission"

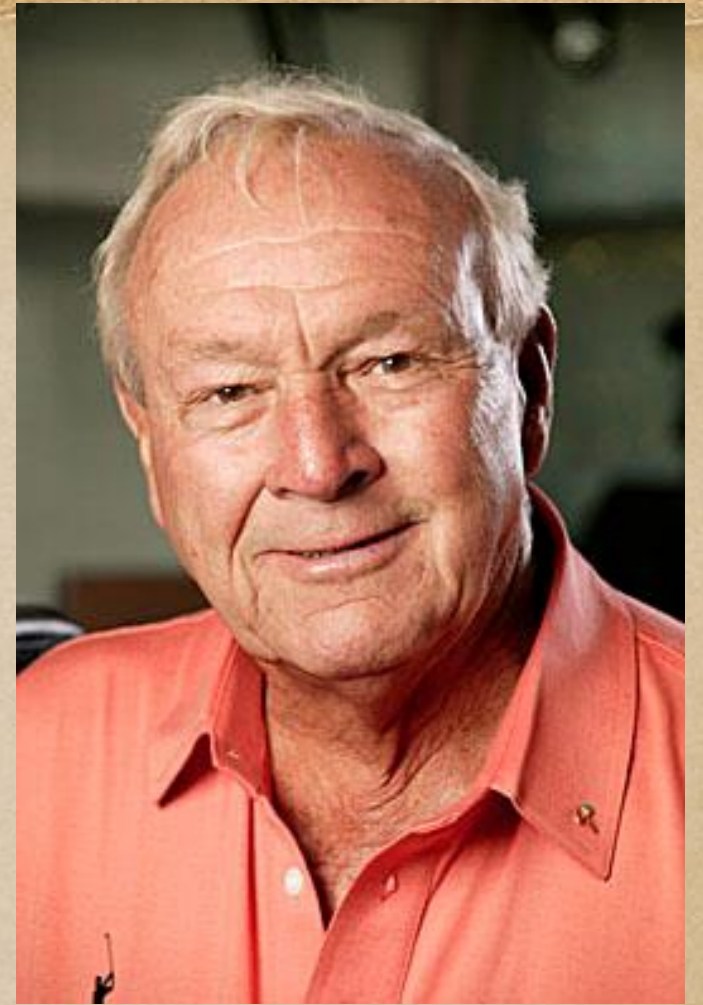
The myths of innovation

- ◆ The check is in the mail
- ◆ I'll still respect you in the morning
- ◆ I'm from corporate - here to help you
- ◆ Innovation is a secret talent
- ◆ Everyone wants to be innovative

Can you teach innovation

- ◆ It can not be taught
- ◆ You can coach and mentor it
- ◆ You can reward it
- ◆ You can stifle it

Can you teach golf?



- ◆ I took some lessons from Arnold Palmer
- ◆ I was a very good athlete
- ◆ I was (and am) a terrible golfer
- ◆ What went wrong

Can you teach dancing?



- ◆ My daughter can watch someone else dance and immediately replicate it
- ◆ My dancing looks like an arthritic flamingo doing the back stroke through a puddle of tar
- ◆ Enter labanotation

Points to Ponder

- ◆ The United States is at best mediocre in education of our children
- ◆ The United States wins over 60% of the Nobel Prizes
- ◆ Over half the graduate students in technical fields are not US citizens

Foundation of innovation

- ◆ The “scientific method” is tactics, not strategy
- ◆ We usually discard unexpected or undesired results
- ◆ Everything which is not success is called failure

Two kinds of fear

- ◆ Internal Fear
- ◆ External Fear

Internal Fear

- ◆ Internalized fear
 - ◆ I'm not smart enough
 - ◆ I can't afford the cost
 - ◆ I will be thought of as stupid
 - ◆ My idea will get stolen

External Fear

- ◆ I'll get fired
- ◆ I'll go broke
- ◆ I'll be perceived as stupid
- ◆ My idea will get stolen
- ◆ I might succeed - and then what

From "The Wizard of Oz"



They each thought they were short in a vital life skill - they just needed permission

From "The King and I"

"And when you fool the people you
fear, you fool yourself as well"

Things we are good at

- ◆ Rote repetition
- ◆ Accidental discovery
- ◆ Innovation
- ◆ Invention (deliberate discovery)

Can there be a roadmap
for innovation?

No, but there are disciplined processes which
greatly improve the odds of your idea
becoming a great success - but you can only
learn by doing

So...

- ◆ There are some very knowledgeable people who are not innovative
- ◆ There are some not very knowledgeable people who are very imaginative
- ◆ How do we train students to be both as our future depends on our doing so

Discovery is seeing what everyone else
has seen and thinking what no-one else
has thought

“Ewing Marion Kauffman Foundation
Thoughtbook - 2009”

Reduction to Practice

- ◆ What is the question
- ◆ Can you make it “bigger”, “different”
- ◆ Can you turn it on its ear
- ◆ What are your biases
- ◆ Who will be afraid of it

Our story begins...

- ◆ The original question as posed...
- ◆ Why it was a wrong question
- ◆ How to redirect and reorient

The first steps

- ◆ Understanding what was needed vs what was asked for
- ◆ Determining what the common attributes would have to be for any viable solution.
- ◆ Finding a “place to stand” from which to move the Earth.

Through darkest laboratory
land with gun and camera

- ◆ First experiment worked - unfortunately
- ◆ Second experiment failed - unfortunately
- ◆ Ultimately found a formulation that worked solved a broader problem but not the one for which it was intended.

Getting mugged - for pleasure and profit

- ◆ My wife adores coffee
- ◆ Travel mugs spill
- ◆ Coffee in a travel mug tastes terrible
- ◆ There are much more profitable uses for this technology than drinking coffee



Where does this leave us

- ◆ We must learn to teach “how” we make decisions, not just hand them down
- ◆ We must remove “fear of failure”
- ◆ Applied research can not succeed without basic research and vice versa
- ◆ There are many metrics of success

Other huge opportunities

- ◆ Food stores lose a ton of money when an item goes bad on their shelves
- ◆ Restaurants are leaving a lot of money on the table