



Managing Uncertainty in Dating and Other Complex Systems

B. E. White, Ph.D.—16 April 2011

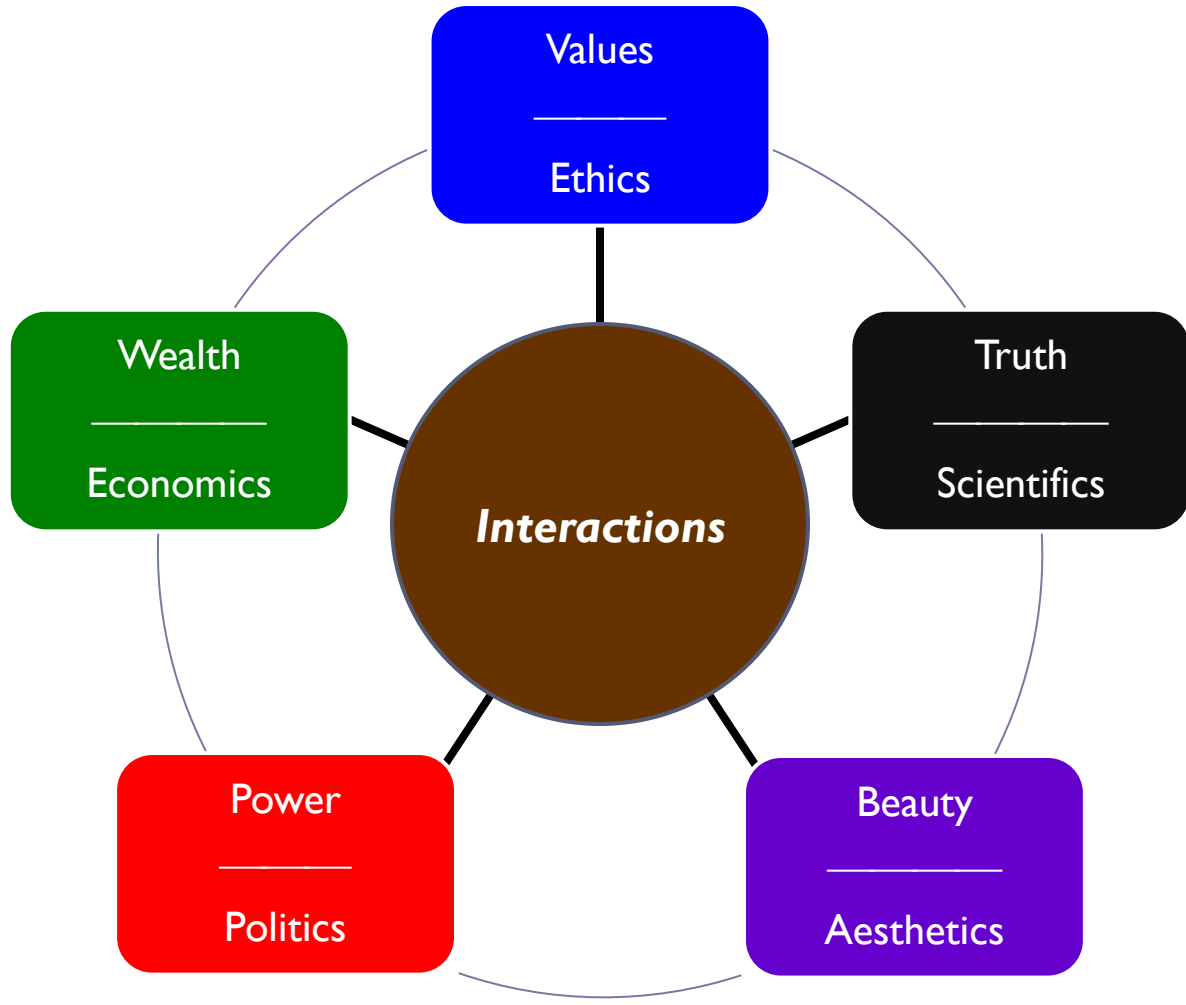
CAU←SES (“Complexity Are Us” ← Systems Engineering Strategies)



Introduction

- ▶ **Topics**
 - ▶ Complex system behaviors
 - ▶ Complex systems engineering principles
 - ▶ Analogies with (one-one) human relationships
- ▶ **Purpose**
 - ▶ Enliven complexity topics.
 - ▶ Change conventional mindsets about systems engineering.

Intertwining of Social Dimensions and Their Interaction



Correspondences Between Complex Systems and Relationship Behaviors and Their Social Dimension

| Index | Complex Systems Behavior | Friendship/Dating/Marriage Behavior | Principal Social System Dimension |
|-------|---|---|-----------------------------------|
| A | Surprising Emergence | What did I say?! | Truth/Scientifics |
| B | Evolves on Its Own as a Whole | It takes time to really get to know someone | Values/Ethics |
| C | Acts Robustly | Go with the flow | Power/Politics |
| D | Thrives on Diversity | Be creative and avoid ruts | Beauty/Aesthetics |
| E | Many Factors at Play | It's about the whole person | Power/Politics |
| F | | | |
| G | | | |
| H | Informs the Observer | Systematically learn from experience | Truth/Scientifics |
| I | Performs Openly | Express your feelings and showcase your actions | Values/Ethics |
| J | Internal and External Relationships are Key | Try to understand what's happening | Truth/Scientifics |
| K | Self-Organized | Continually share duties and responsibilities | Wealth/Economics |
| L | Sensitive to Small Effects | Little things can mean a lot | Beauty/Aesthetics |
| M | Exhibits Tight and Loose Couplings | Stay in touch but give your partner freedom | Wealth/Economics |

**These are my behaviors.
If you don't like these, we can suggest others!**

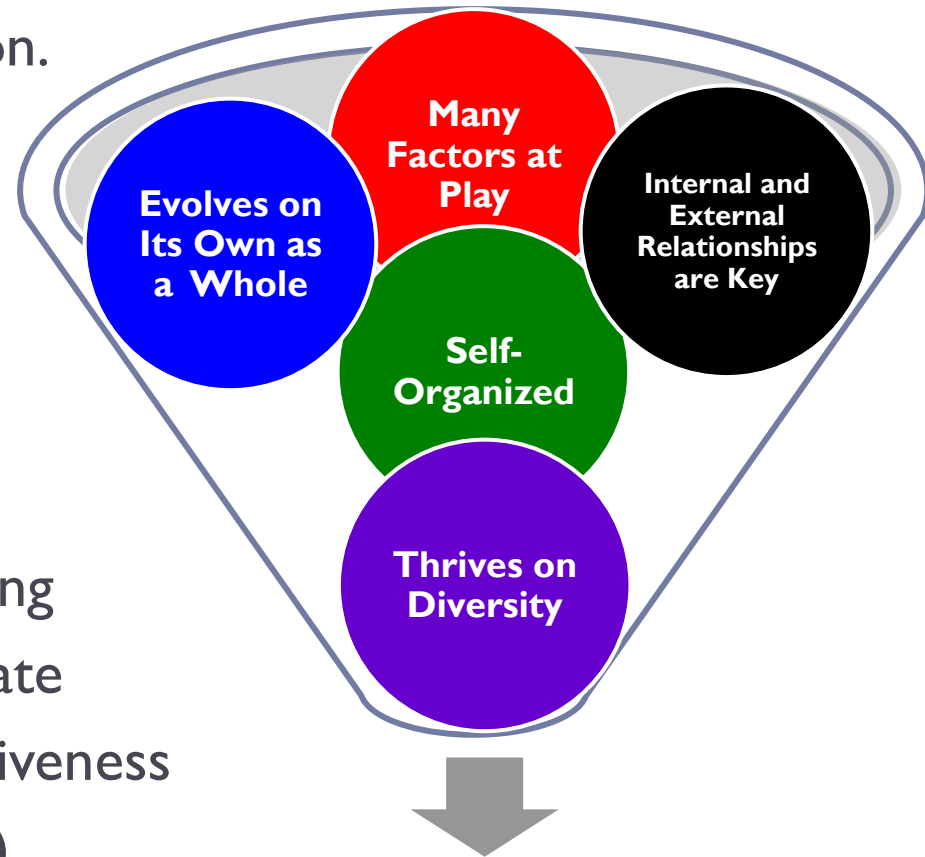


Explanation of Charts that Follow

- ▶ *Italics* in title indicate(s) present emphases(is) on chart, whether of friendship, dating, and/or marriage.
- ▶ In preceding “Behaviors” and subsequent “Principles” chart, only one social dimension was selected for each behavior or principle; you might choose another.
- ▶ In following “funnels” a color-coded attribute was assigned from each of the five social dimensions to emphasize many possible interrelationships.
 - ▶ Upper left one is deemed primary but you might choose another.
 - ▶ Our choices are based, in part, on our subconscious and emotions.
- ▶ There’s a personal story (depicted in lower left) associated with these (and some backup) charts.

Friendship/*Dating*/Marriage Behavior (B)

- ▶ It takes time to really get to know someone.
 - ▶ Motivation is a mystery early-on.
 - ▶ Be patient and don't push.



It Takes Time to Really Get to Know Someone

▶ Story

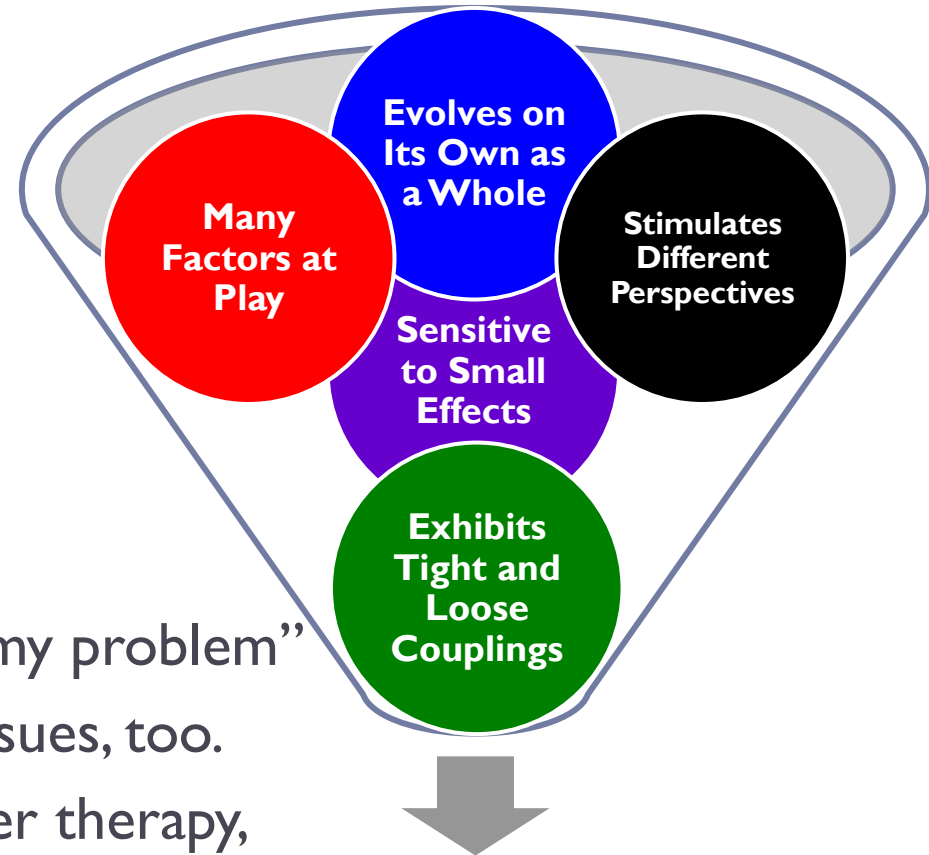
- ▶ I'm recent widower and am dating
- ▶ Questioned reticence on first date
- ▶ "Listener" continued unresponsiveness
- ▶ I finally gave up trying (too hard).

Friendship/*Dating*/*Marriage* Behavior (E)

- ▶ It's about the whole person.
 - ▶ Tell what you're looking for.
 - ▶ Be open, honest, and flexible.

▶ Story

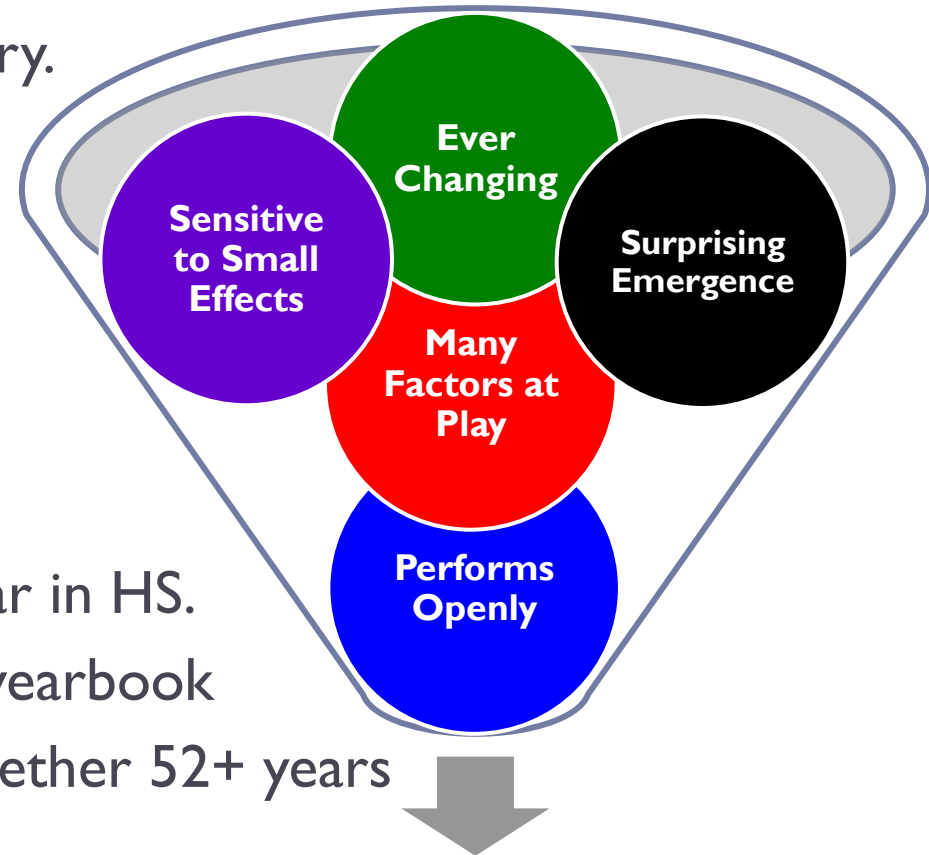
- ▶ In mid 30s, saw “shrink” to fix “my problem”
- ▶ Then spouse realized she had issues, too.
- ▶ We always became stronger after therapy,
- ▶ We evolved but stayed together!



It's About the Whole Person

Friendship/*Dating*/Marriage Behavior (L)

- ▶ Little things can mean a lot.
 - ▶ Think about your personal story.



▶ Story

- ▶ I “dated” 10 girls after senior year in HS.
- ▶ Saw picture of unknown girl in yearbook
- ▶ Asked her out and we were together 52+ years

Little Things Can Mean a Lot

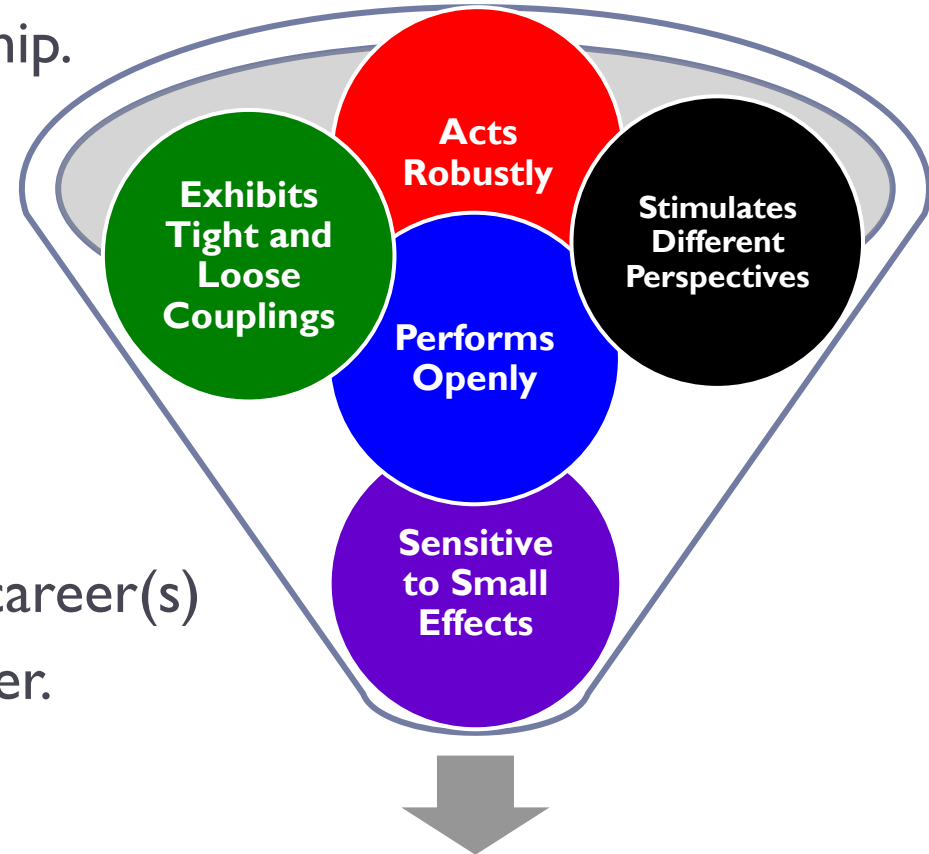
Friendship/Dating/Marriage Behavior (M)

▶ Stay in touch but give your partner freedom.

- ▶ Have tight, non-stifling relationship.
- ▶ Enjoy your time apart!

▶ Story

- ▶ Proud of encouraging spouse's career(s)
- ▶ Business absences made us closer.



Stay in Touch But Give Your Partner Freedom



Correspondences Between Complex Systems Engineering and Relationship Principles and Their Social Dimension



| Index | Complex Systems Engineering Principle | Friendship/Dating/Marriage Principle | Principal Social System Dimension |
|---|---------------------------------------|---|-----------------------------------|
| 1 | Bring Humility | Admit the possibility your partner is correct | Truth/Scientifics |
| 2 | Follow Holism | Keep the entire long-term relationship in mind | Values/Ethics |
| 3 | Achieve Balance | Realize it's not just about sex or cuddling | Wealth/Economics |
| 4 | Utilize Trans-Disciplines | Together pursue healthy bodies, minds, and spirits | Beauty/Aesthetics |
| 5 | Embrace POET* aspects | Learn from each other and your varied interests | Power/Politics |
| <p>* Political, Operational, Economic, and Technical</p> <p>These are my principles.</p> <p>If you don't like these, we can suggest others!</p> | | | |
| 8 | Formulate Heuristics | Assess what's working and what isn't—to improve | Truth/Scientifics |
| 9 | Foster Trust | Be open and honest, freely sharing information | Values/Ethics |
| 10 | Create Interactive Environment | Prepare for evolution and foster those ingredients | Power/Politics |
| 11 | Stimulate Self-Organization | Encourage individual pursuits and join in the fun | Wealth/Economics |
| 12 | Seek Simple Elements | Be aware of and simplify your interactions | Beauty/Aesthetics |
| 13 | Enforce Layered Architecture | Strive to feel close even while changing internally | Power/Politics |





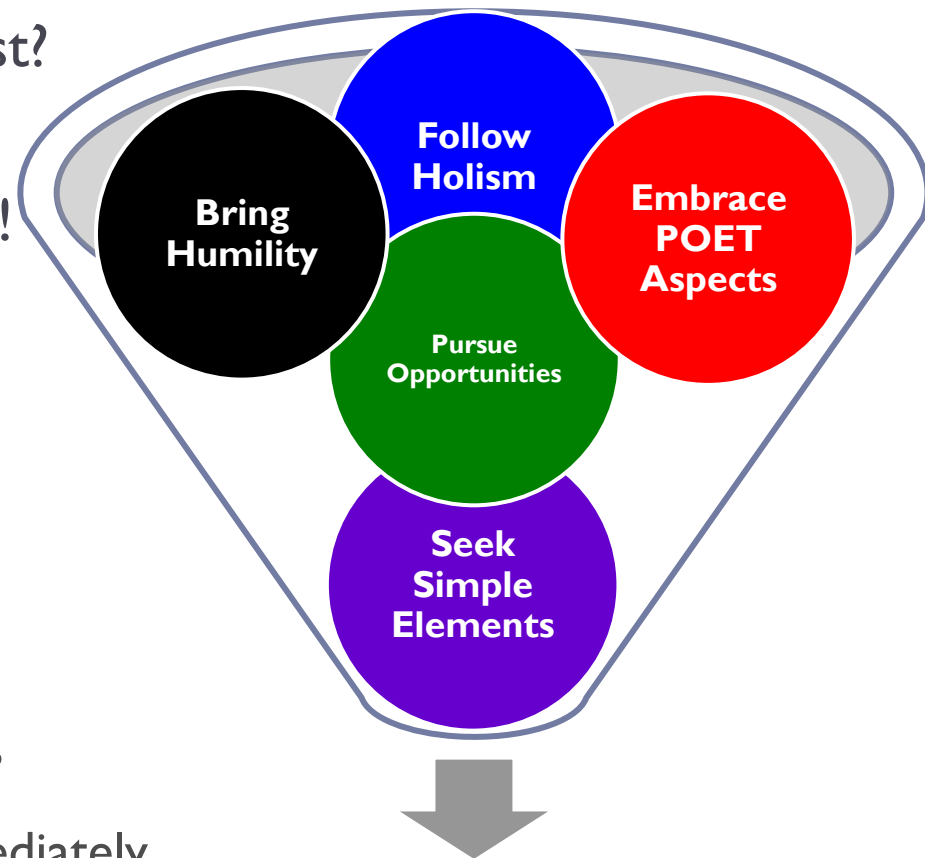
Friendship/Dating/Marriage Principle (1)

▶ Admit the possibility that your partner is correct.

- ▶ How often have you not been lost?
- ▶ Be open to their point.
- ▶ Concede their being right before!

▶ Story

- ▶ I often miss the obvious.
- ▶ E.g., insisted object wasn't there
 - ▶ After scouring house "thoroughly"
 - ▶ Only to have spouse go to it immediately



**Admit the Possibility
Your Partner is Correct**

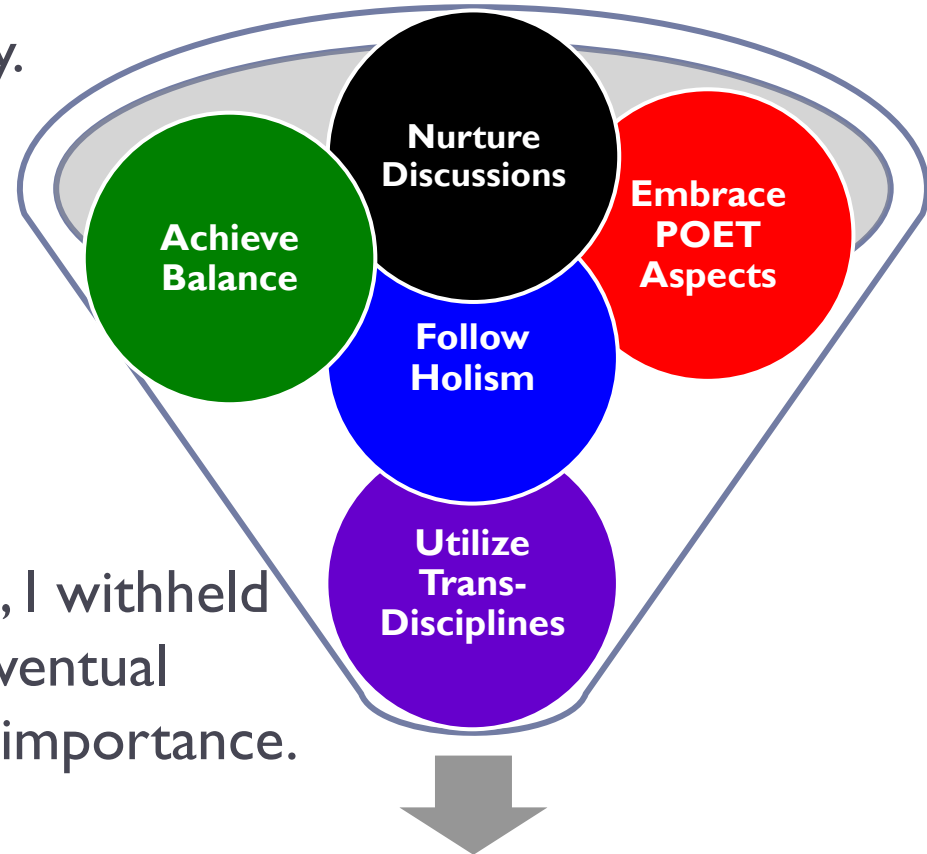
Friendship/*Dating*/Marriage Principle (3)

▶ Realize it's not just about sex or cuddling.

- ▶ Men likely want sexual intimacy.
- ▶ Women likely prefer cuddling.
- ▶ Need intellectual chemistry
- ▶ Treat your partner well.
- ▶ If asked for advice be helpful.

▶ Story

- ▶ During our initial months dating, I withheld kissing and touching (from my eventual spouse) for a while to prove its importance.
- ▶ It worked!

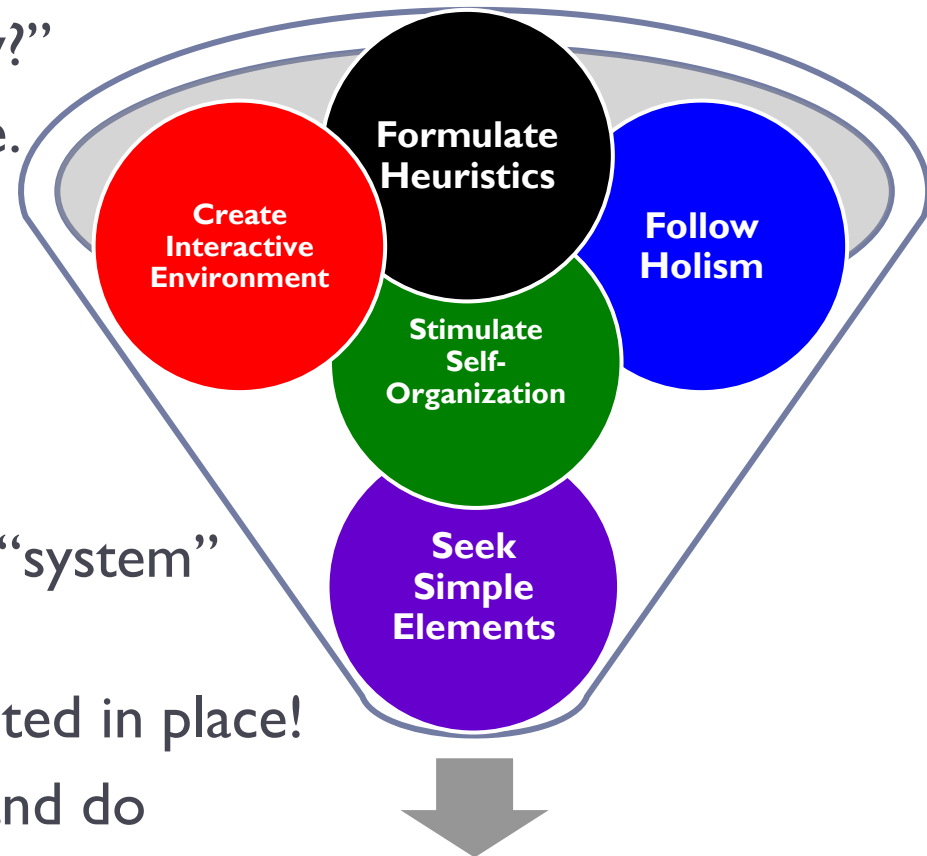


**Realize It's Not Just
About Sex or Cuddling**

Friendship/Dating/Marriage Principle (10)

▶ Prepare for evolution and foster those ingredients.

- ▶ Don't resist chores asking "Why?"
- ▶ Don't have a "poor me" attitude.



▶ Story

- ▶ I often fought my organization's "system" and did not "play the game".
- ▶ In my career I was never promoted in place!
- ▶ My spouse taught me to adapt and do better in picking my battles.

Prepare for Evolution and Foster Those Ingredients

Friendship/Dating/Marriage Principle (13)

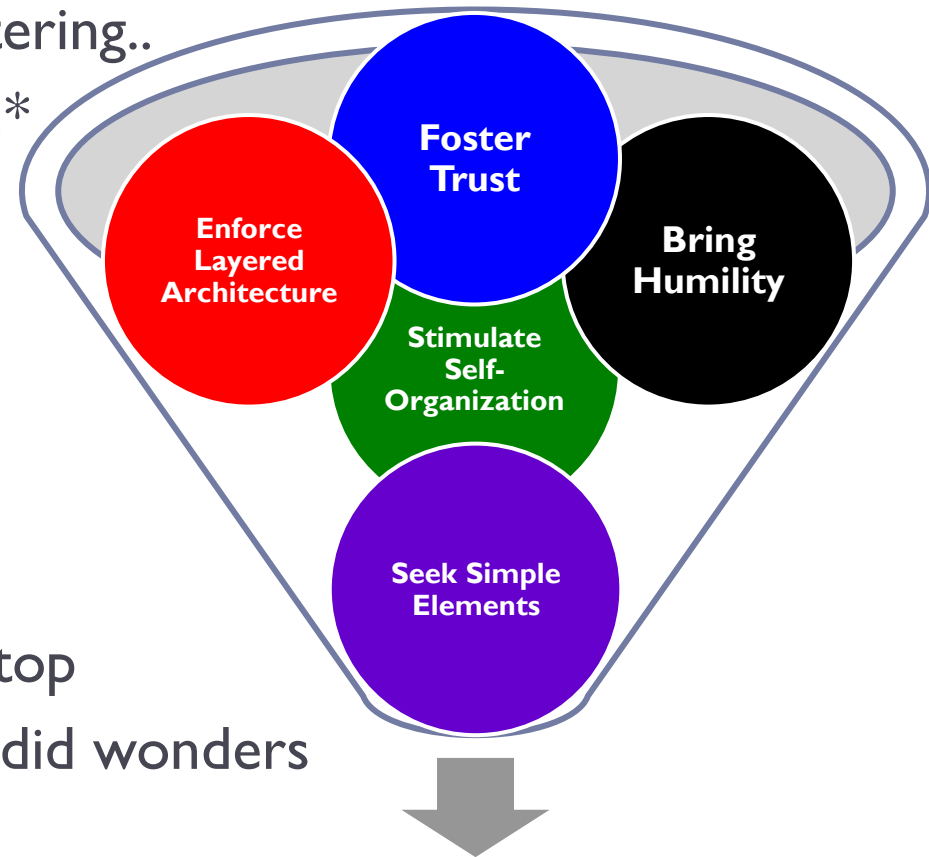
▶ Strive to feel close even while changing internally.

- ▶ Use straight talk to prevent festering..
- ▶ Feel close; it doesn't take much!*
- ▶ Fight fair.

* I learned this repeatedly!

▶ Story

- ▶ I was workaholic at home.
- ▶ Thankfully, spouse finally got laptop
- ▶ Occasional glass of wine by fire did wonders



**Strive to Feel Close Even
While Changing Internally**





Conclusion

- ▶ Learn from complex system behaviors.
- ▶ Try applying complex systems engineering principles.
- ▶ Analogies in personal relationships exist.
- ▶ Reflect on your own.
- ▶ Future work might include delving into group (many-many) relationships.

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Backup Charts



Behaviors of Complex Systems

- ▶ A. Surprising **Emergence**
- ▶ B. **Evolves on Its Own** as a Whole
- ▶ C. Acts **Robustly**
- ▶ D. Thrives on **Diversity**
- ▶ E. **Many Factors** at Play
- ▶ F. Stimulates Different **Perspectives**
- ▶ G. Ever **Changing**
- ▶ H. **Informs** the Observer
- ▶ I. Performs **Openly**
- ▶ J. Internal and External **Relationships** are Key
- ▶ K. Self-Organized
- ▶ L. **Sensitive** to Small Effects
- ▶ M. Exhibits Tight and Loose **Couplings**



Abbreviated Behavior Definitions

A. Surprising Emergence

Favored definition: emergence is unexpected

Surprises not easily explained are especially interesting

B. Evolves on Its Own as a Whole

System does whatever it damn pleases!

Interactions make overall behavior unpredictable

C. Acts Robustly

Population of healthy system can survive harsh environments

Pay attention to flexibility and adaptability

D. Thrives on Diversity

Intricate and multifarious interrelationships



Abbreviated Behavior Definitions (Continued)

E. Many Factors at Play

Seek shared ideas/preferences and be aware of discord

Identify and build common ground

F. Stimulates Different Perspectives

Build new and interrelated ideas collectively

Continually nudge system in desired direction

G. Ever Changing

Expect change

Establish process for managing uncertainty

H. Informs the Observer

Try to observe objectively



Abbreviated Behavior Definitions (Concluded)

I. Performs Openly

Try to interpret specific causes of observed effects

J. Internal and External Relationships are Key

Ascertain most important interactions through experimentation

K. Self-Organized

Encourage purposeful human interactions

L. Sensitive to Small Effects

Slight changes of initial conditions can lead to very different results

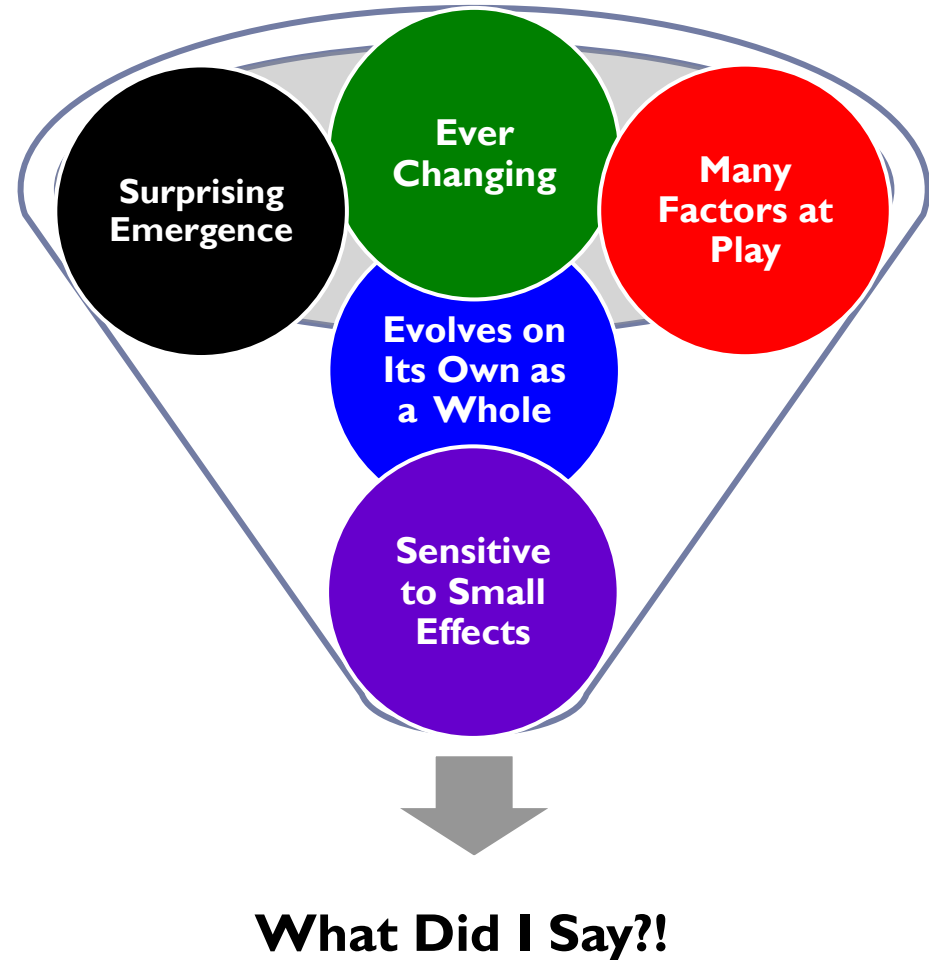
M. Exhibits Tight and Loose Couplings

Group interactions of each category together



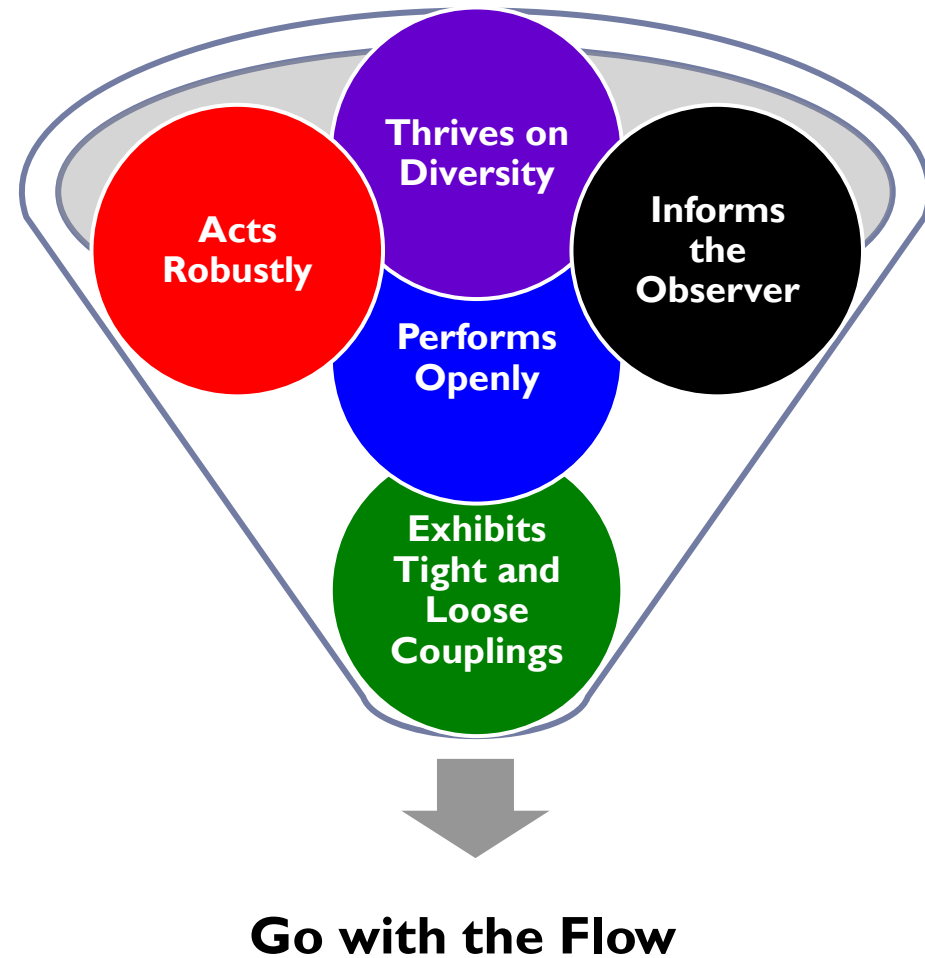
Friendship/Dating/*Marriage* Behavior (A)

- ▶ What did I say?!
 - ▶ It's too late to retract
 - ▶ Discuss to prevent "third rail"



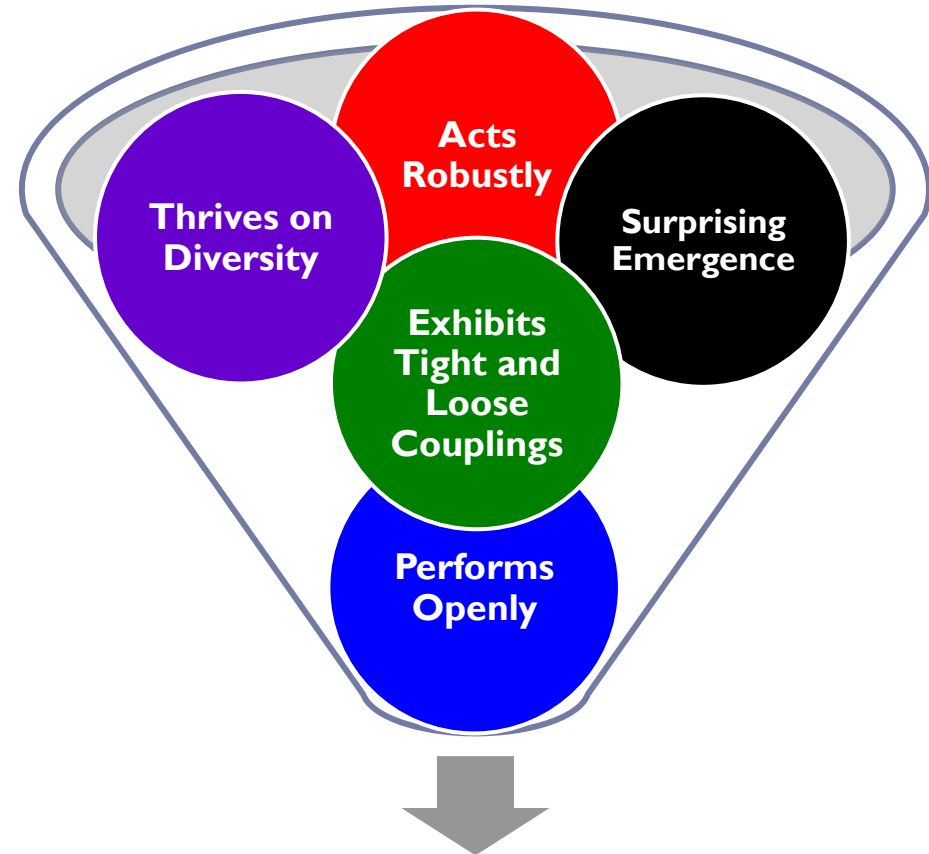
Friendship/Dating/Marriage Behavior (C)

- ▶ Go with the flow.
 - ▶ Value enriched qualities,
 - ▶ Notice what's *a propos* now.



Friendship/Dating/*Marriage* Behavior (D)

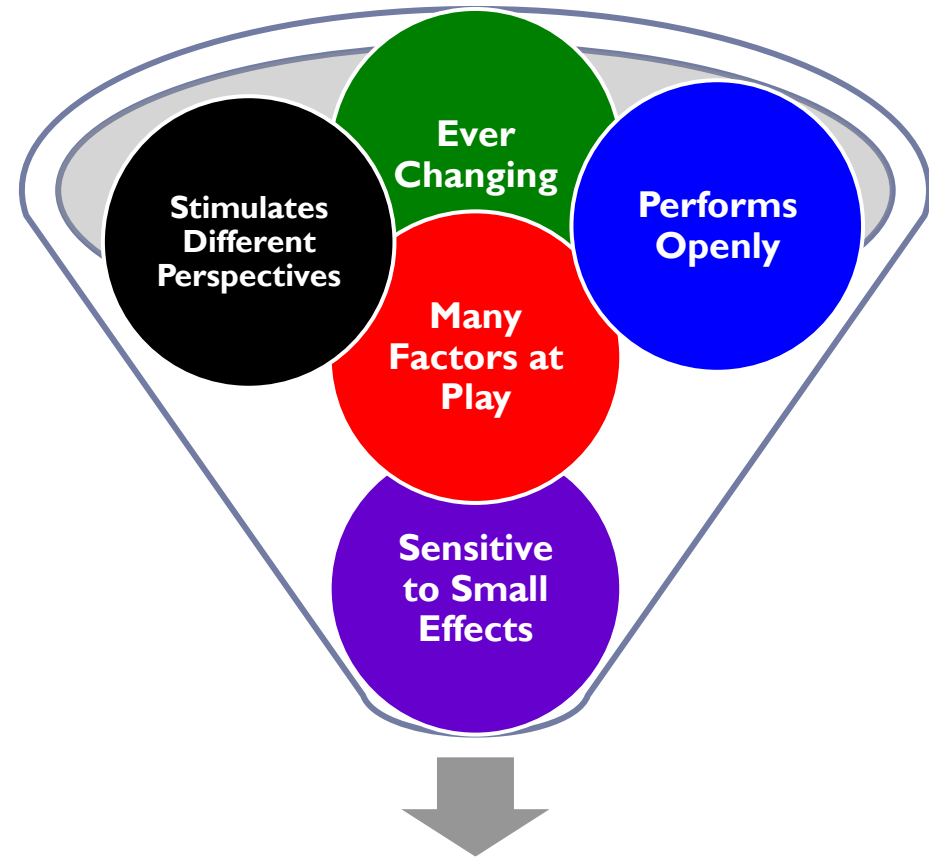
- ▶ Be creative and avoid ruts.
 - ▶ Share diversions.
 - ▶ Explore and nurture life.



Be Creative and Avoid Ruts

Friendship/*Dating*/Marriage Behavior (F)

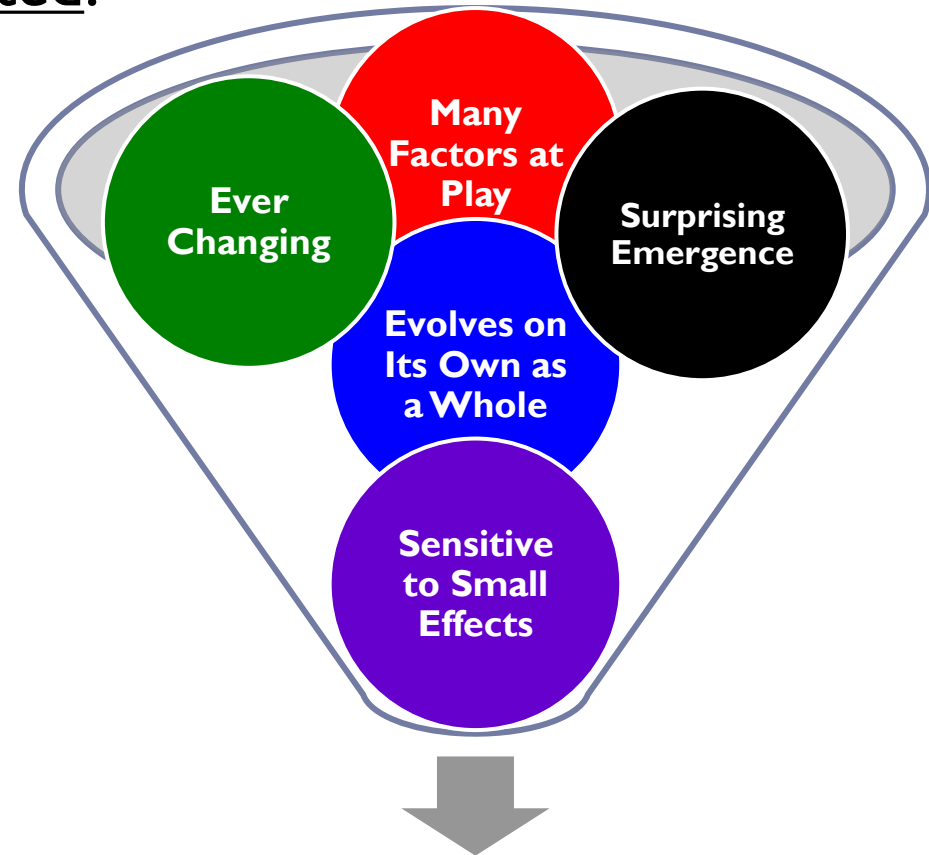
- ▶ Truly listen to your partner.
 - ▶ Focus on wants and needs.
 - ▶ Try to make things better.



Truly Listen to Your Partner

Friendship/Dating/*Marriage* Behavior (G)

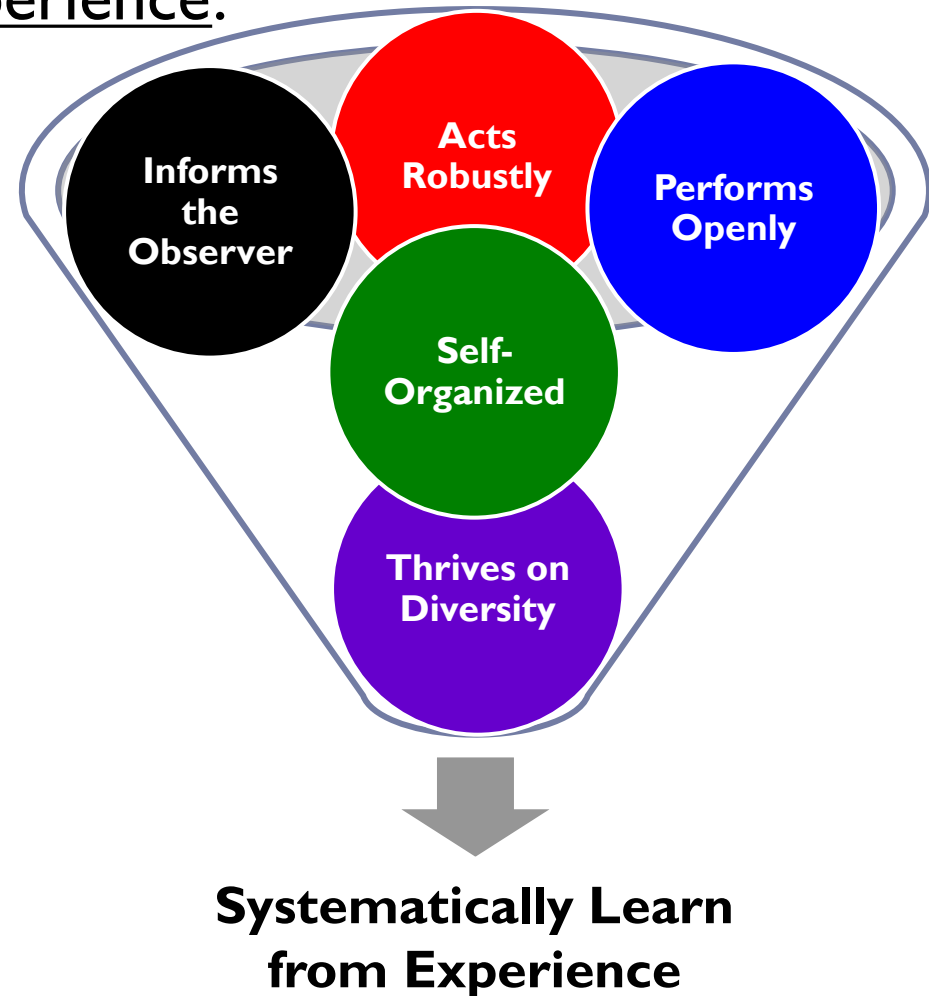
- ▶ Be prepared for the unexpected.
 - ▶ Plan for what-ifs.
 - ▶ Prepare for those moments.



Be Prepared for the Unexpected

Friendship/Dating/Marriage Behavior (H)

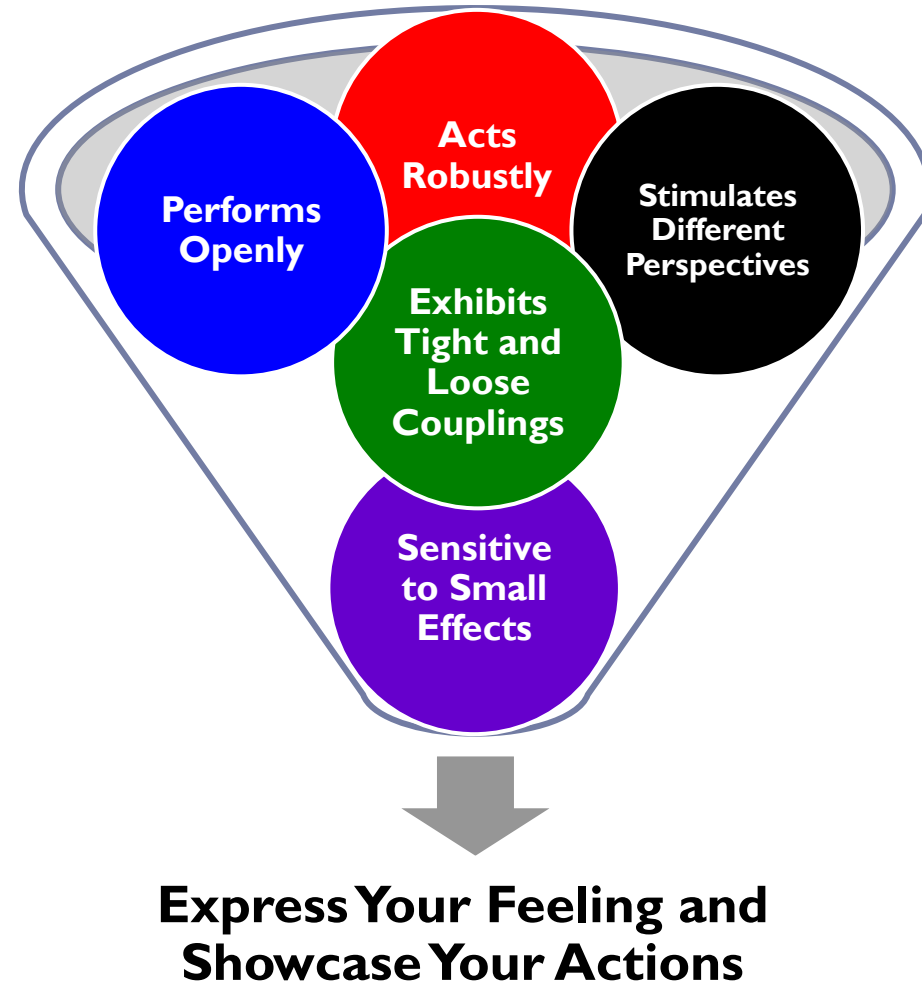
- ▶ Systematically learn from experience.
 - ▶ Stand back and contemplate.
 - ▶ Learn systematically.



Friendship/*Dating*/Marriage Behavior (I)

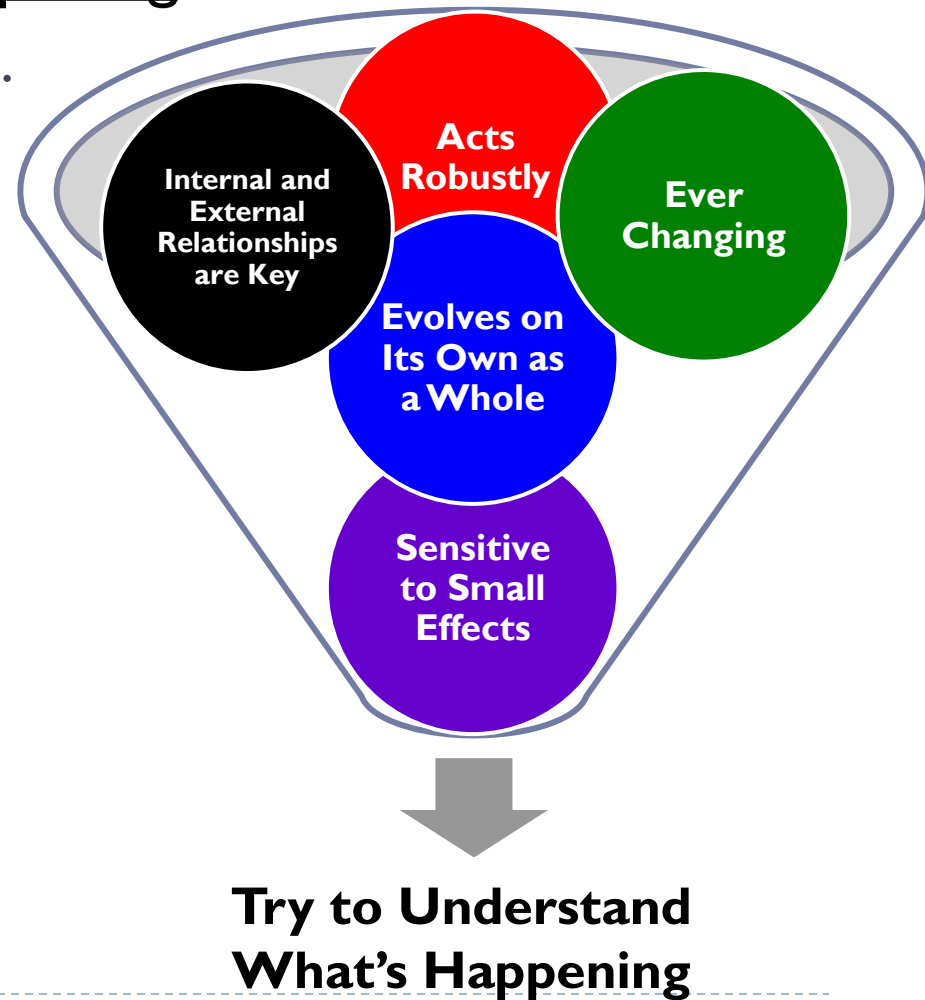
▶ Express your feelings and showcase your actions.

- ▶ Build knowledge and intimacy.
- ▶ Provides relationship insurance



Friendship/Dating/Marriage Behavior (J)

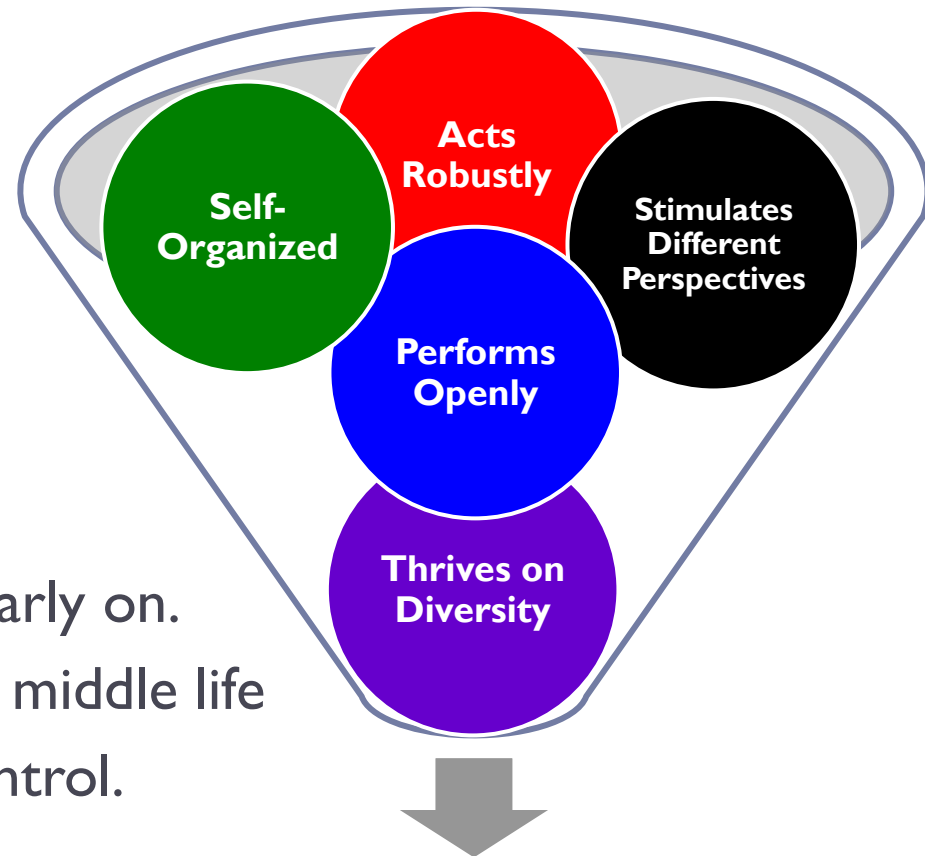
- ▶ Try to understand what's happening.
 - ▶ Experiment and try new things.
 - ▶ Exercise friendships.



Friendship/Dating/Marriage Behavior (K)

▶ Continually share duties and responsibilities.

- ▶ Complement and assist.
- ▶ Be responsible.



▶ Story

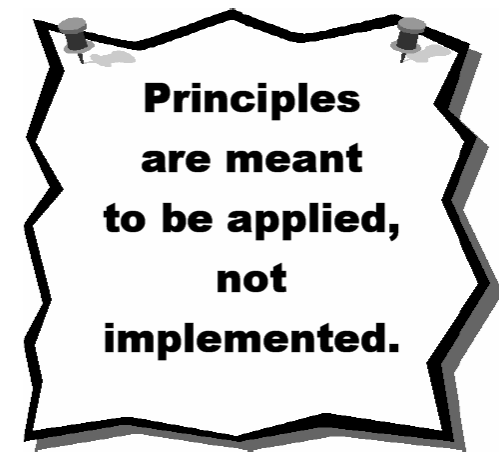
- ▶ I controlled our (little) money early on.
- ▶ We each paid own set of bills in middle life
- ▶ Later she took over financial control.

**Continually Share
Duties and Responsibilities**



CSE Principles

1. Bring **Humility**
2. Follow **Holism**
3. Achieve **Balance**
4. Utilize **Trans-Disciplines**
5. Embrace **POET***
6. Nurture **Discussions**
7. Pursue **Opportunities**
8. Formulate **Heuristics**
9. Foster **Trust**
10. Create **Interactive Environment**
11. Stimulate **Self-Organization**
12. Seek **Simple Elements**
13. Enforce **Layered Architecture**





Abbreviated Principle Definitions

I. Bring Humility

This has been attacked as unprofessional.

What do you think?

Simple fixes often don't work in complex situations.

One must watch carefully and be prepared to try something else.
But one is rarely sure just how long to wait to act (again).



Abbreviated Principle Definitions (Continued)

2. Follow Holism

One cannot use reductionism

Complex system and its environment will have moved

Fundamental problem with government system acquisitions

3. Achieve Balance

Optimizing sub-systems detracts from efficacy of whole

Try to balance various sub-system thrusts

4. Utilize Trans-Disciplines

People are part of system.

“Trans-disciplines” like philosophy, psychology, sociology, organizational change theory, economics, and politics apply

(White 2010)



Abbreviated Principle Definitions (Continued)

5. Embrace POET

Deal with all four aspects

Understand stakeholders' values

6. Nurture Discussions

Every person sees differently

No one grasps whole truth

Leverage group's cognitive diversity

Understand how words are used

7. Pursue Opportunities

Too much emphasis on identifying/mitigating risks

Principal risk is not pursuing opportunities

Strike balance



Abbreviated Principle Definitions (Continued)

8. Formulate Heuristics

Devise rules-of-thumb to help decision-makers

Time delays are tantamount

9. Foster Trust

Establishing trust is difficult and can be lost immediately

Try sharing some information

If echoed, share more and more



Abbreviated Principle Definitions (Continued)

I 0. Create Interactive Environment

Establish/maintain interactions and their reward structures

Act and be responsive

Don't fight systems that cannot be influenced

Solicit inputs from external observers

I 1. Stimulate Self-Organization

This is natural state for living elements



Abbreviated Principle Definitions (Concluded)

I2. Seek Simple Elements

SE solutions are often too big and/or complicated

Design down-scale and assemble smaller adaptable units

I3. Enforce Layered Architecture

Apply layering principles

Each layer can be adapted to different conditions

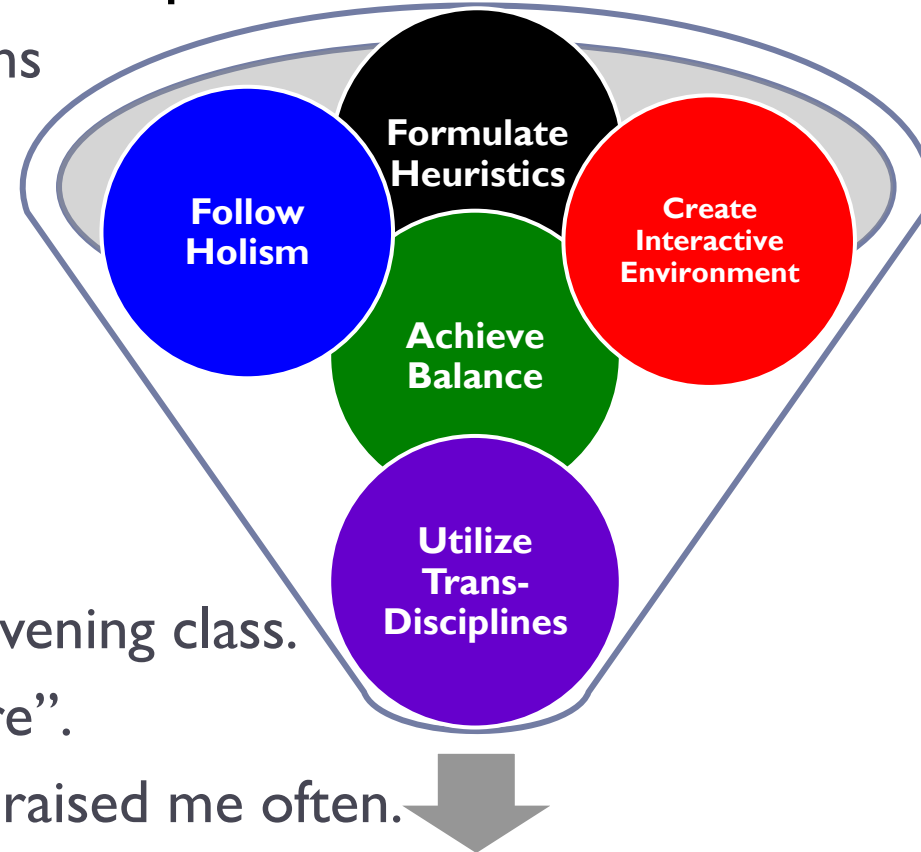
Keep interface(s) between layers unchanged



Friendship/Dating/Marriage Principle (2)

▶ Keep the entire long-term relationship in mind.

- ▶ Think about effects of your actions
- ▶ Don't overdo excuses.
- ▶ Sustain generosity.
- ▶ Be there to help.



Keep the Entire Long-Term Relationship in Mind

▶ Story

- ▶ I left suddenly ill spouse to teach evening class.
- ▶ She could not trust me to “be there”.
- ▶ With my primary-care-giving she praised me often.

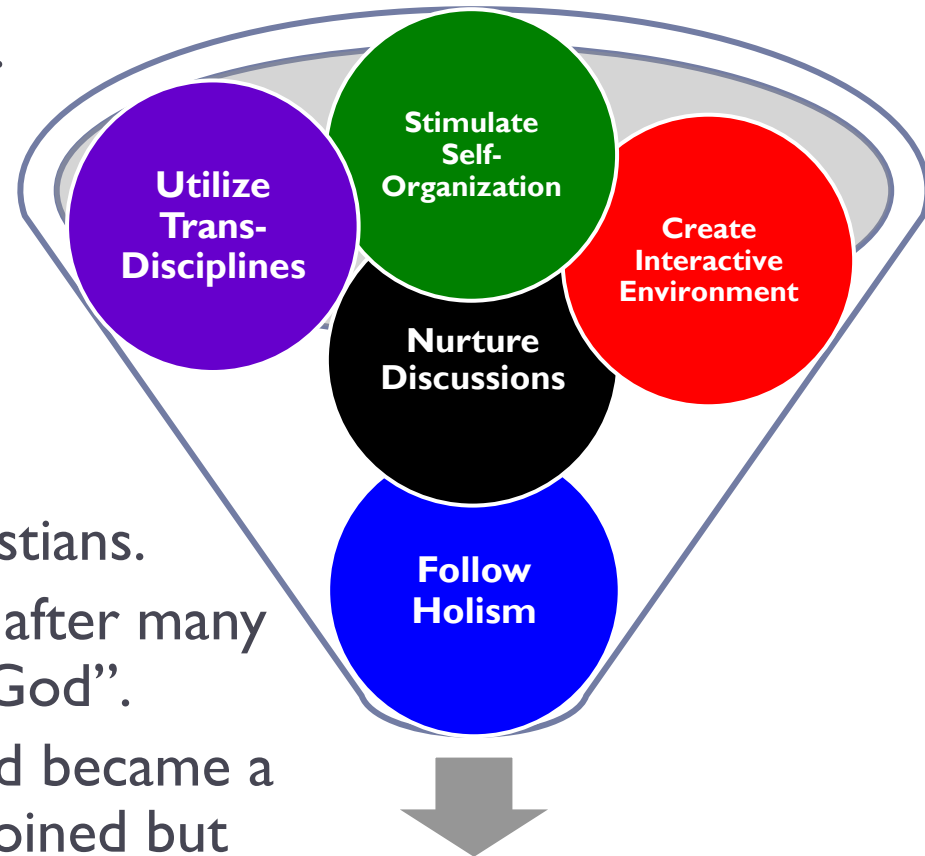
Friendship/Dating/Marriage Principle (4)

▶ Together pursue healthy bodies, minds, and spirits.

- ▶ Share aspirations and activities.
- ▶ Learn from each other.
- ▶ Support religious beliefs.
- ▶ Stretch minds and bodies.

▶ Story

- ▶ My spouse and I started as Christians.
- ▶ Though our kids were baptized, after many years neither of us believed in “God”.
- ▶ She was much more spiritual and became a principal in UU church; I never joined but did often support her there.

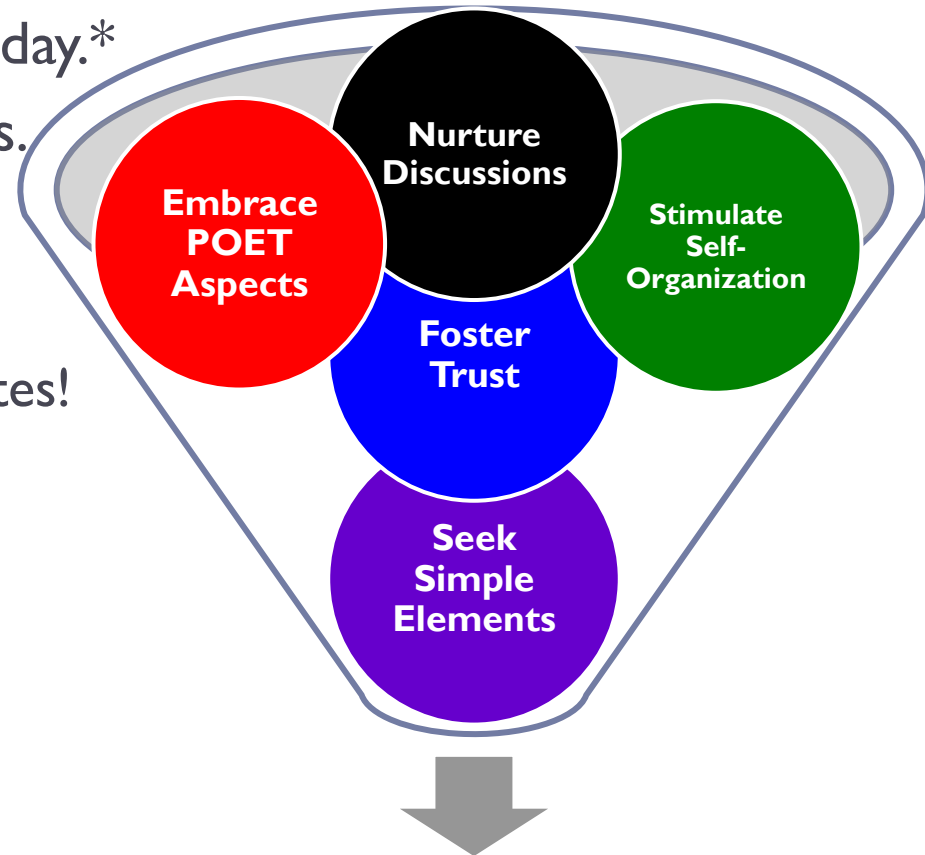


**Together Pursue Healthy
Bodies, Minds, and Spirits**

Friendship/*Dating*/Marriage Principle (5)

▶ Learn from each other and your varied interests.

- ▶ Discuss important issues of the day.*
- ▶ Sharpen thinking and sensibilities.
- ▶ Let your love hold up a mirror.

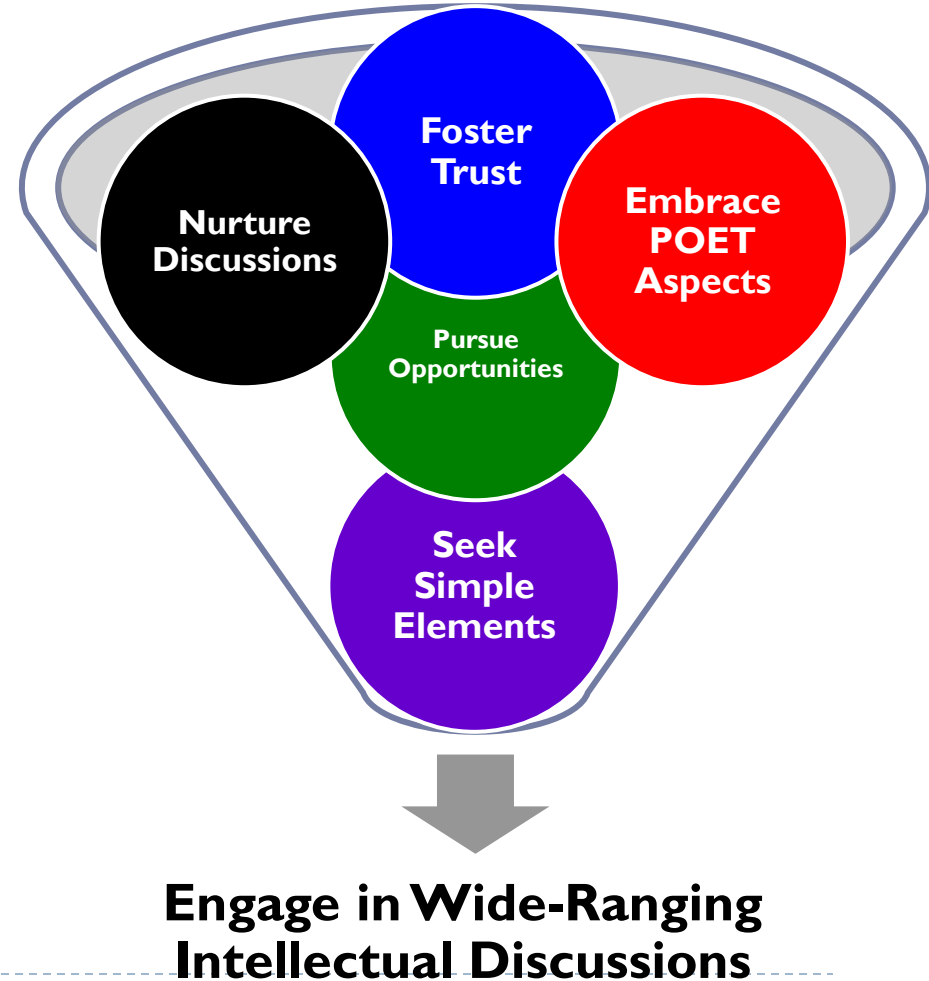


* In elections we could cancel our votes!

**Learn from Each Other
and Your Varied Interests**

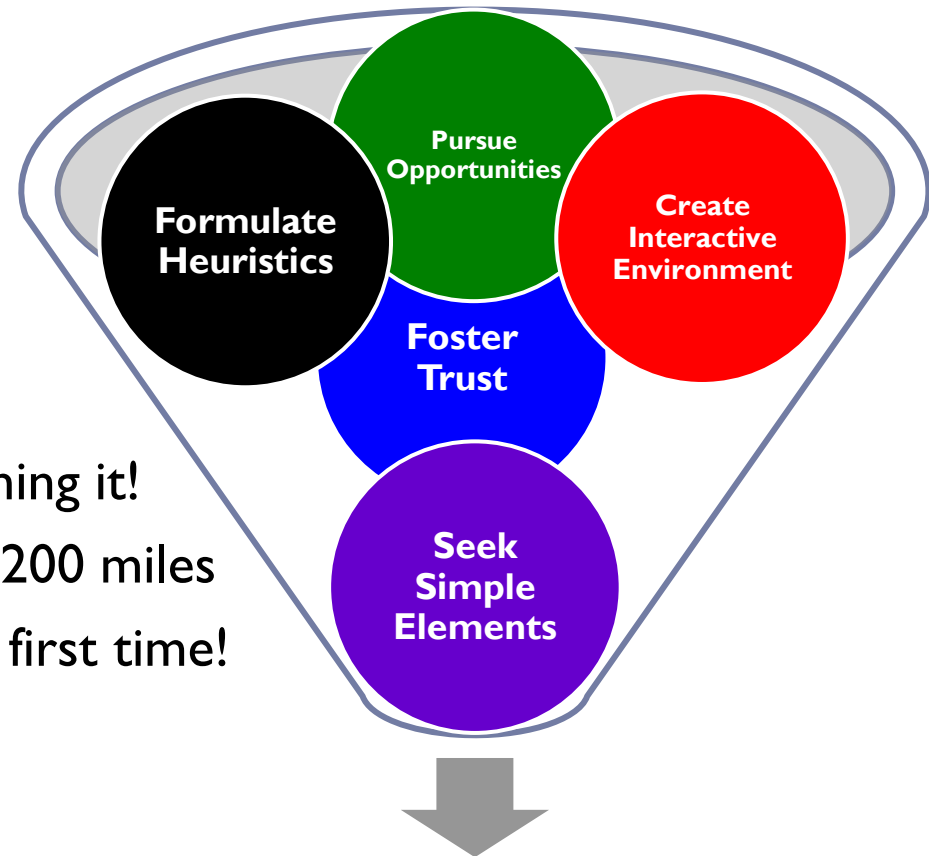
Friendship/*Dating*/Marriage Principle (6)

- ▶ Engage in wide-ranging intellectual discussions.
 - ▶ Build and nurture.
 - ▶ Chase someone with ideas.



Friendship/*Dating*/Marriage Principle (7)

- ▶ Try new things, being mindful of downside risks.
 - ▶ Be responsive but forthright!
 - ▶ Open* opportunities.
 - ▶ Go the extra distance.**
 - ▶ Be excited but wary.



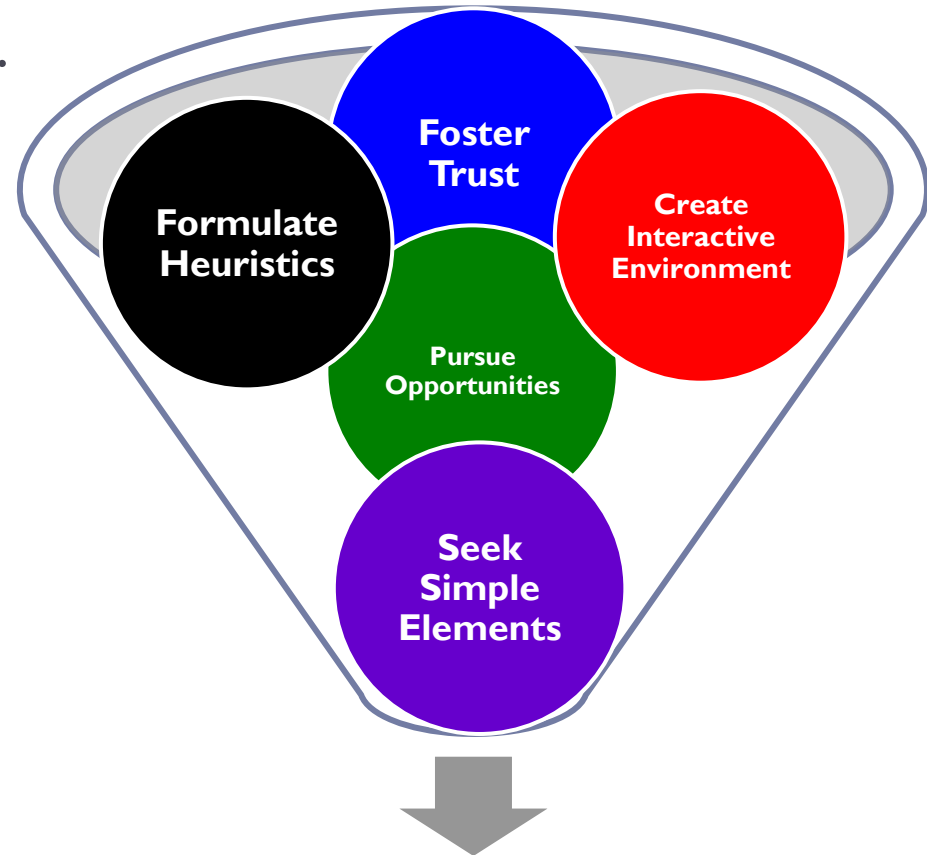
* "You cannot close a sale without opening it!"

** As an available single, I have traveled 200 miles four times to meet a woman for the first time!

**Try New Things, Being
Mindful of Downside Risks**

Friendship/*Dating*/Marriage Principle (8)

- ▶ Assess what's working and what isn't—to improve.
 - ▶ Develop simple dating site rules.
 - ▶ Ask decision-making questions.
 - ▶ Assess progress in going out.
 - ▶ Life is short!



**Assess What's Working and
What Isn't—to Improve**

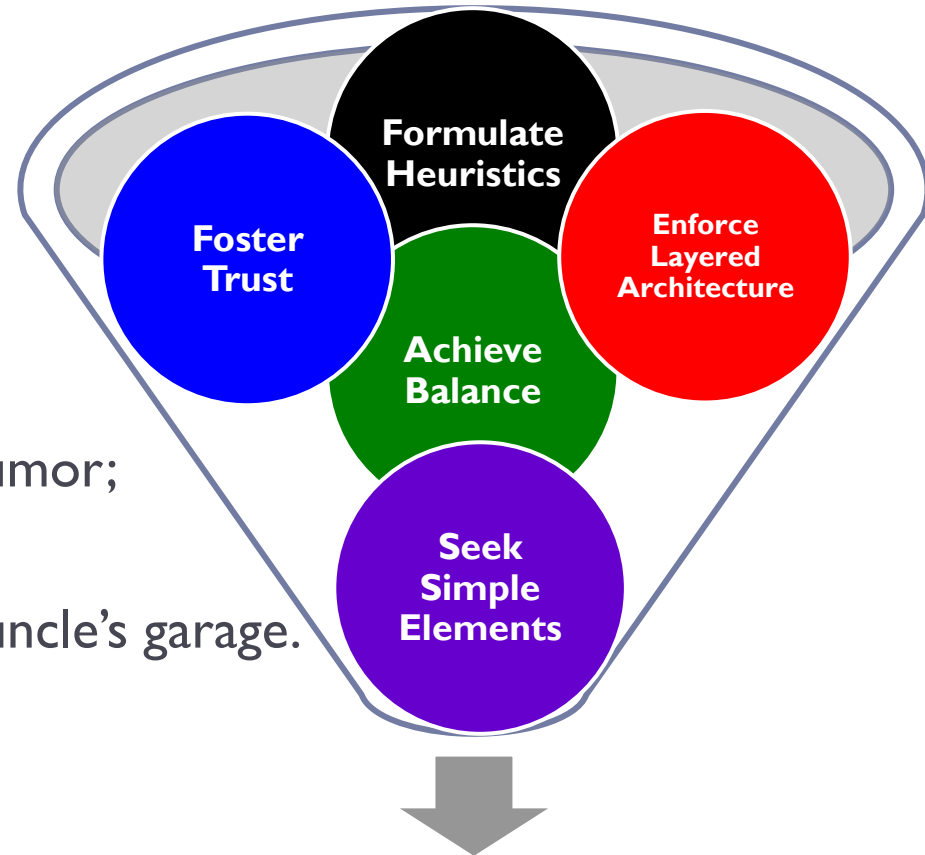
Friendship/Dating/Marriage Principle (9)

▶ Be open and honest, freely sharing information.

- ▶ Speaking truth builds trust.
- ▶ Do you laugh together?*
- ▶ Admit mistakes right away.**
- ▶ Don't play mind games.

* Tell a funny story to test sense of humor;
see if it backfires!

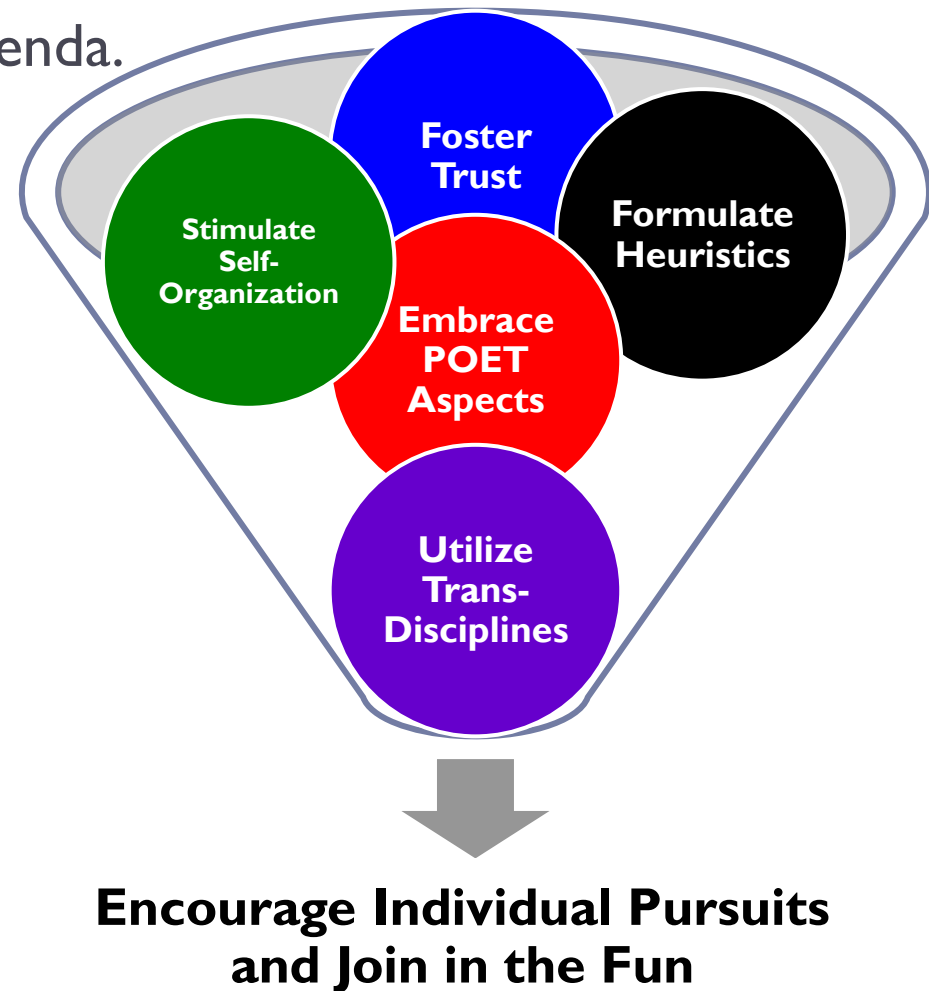
** I learned at 16 after damaging my uncle's garage.



**Be Open and Honest,
Freely Sharing Information**

Friendship/Dating/Marriage Principle (11)

- ▶ Encourage individual pursuits and join in the fun.
 - ▶ Suggest a menu, not a planned agenda.
 - ▶ Be willing; be happy!



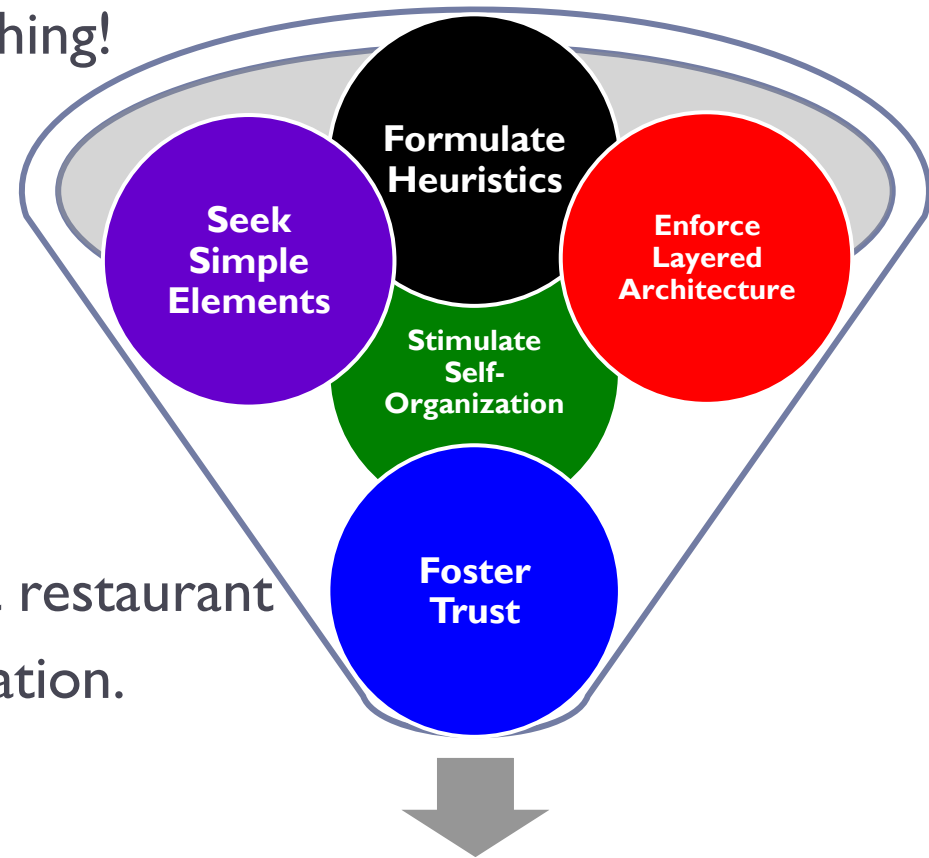
Friendship/Dating/Marriage Principle (12)

▶ Be aware of and simplify your interactions.

- ▶ Frequent communication is the thing!
- ▶ Keep routine things simple.

▶ Story

- ▶ Spouse talking w/other couple at restaurant
- ▶ She didn't draw me into conversation.
- ▶ I dumped popcorn on her head!



**Be Aware of and Simplify
Your Interactions**

