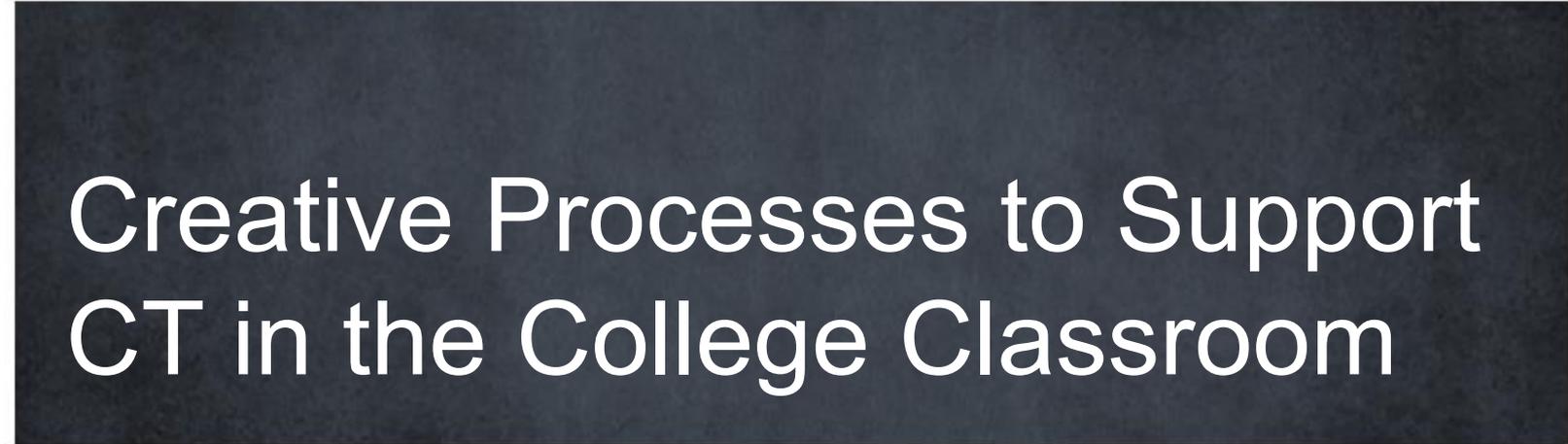




Dr. Ellen Vincent
Clemson University 



Creative Processes to Support CT in the College Classroom



CT2 Summer Faculty Learning Institute July 14, 2021
41st Annual International Conference on Critical Thinking
Online/Foundation for Critical Thinking
July 25, 2021

Syllabus-HORT 3080 CT²

HORT 3080 CT² Sustainable Landscape Garden [2019] Design, Installation, & Maintenance

Sustainable Sites:

Holly Owings, MLA



<http://earthdesignsc.com/about/staff/>

Watt Center Green Roof



Lady Bird Johnson Wildflower Center



Photos by Ellen Vincent

Critical Thinking:

Judge Ricardo Urbina | Dr. Frank Fear



David Brooks



Author Chamamanda. N. Adichi



Syllabus-HORT 3080 CT²



Critical Thinking Student Learning Outcomes

- (1) Explore complex challenges associated with sustainable landscape design, installation and maintenance.
- (2) Analyze sustainable design problems using multiple lenses and perspectives.
- (3) Extrapolate from one conceptual context to others in the sustainable landscape.
- (4) Develop creative solutions to complex challenges.
- (5) Communicate complex ideas effectively.

This class is a Clemson Thinkers2 (CT2) seminar –developed to increase and enhance your critical thinking skills



Syllabus-HORT 3080 CT²

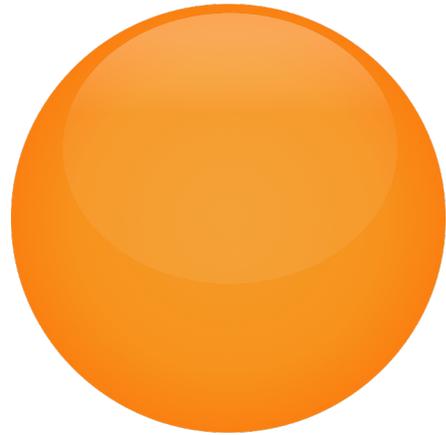


Goals of the CT2 Seminar

1. Students will develop university-level competence at the activities that characterize critical thinking.
2. Students will describe the specific activities that characterize critical thinking and will reflectively report on their own use of these tools.
3. Students will apply critical thinking skills to solve problems that occur outside the academic classroom.

What are critical thinking skills?

1. Determine the relevance of information for evaluating an argument or conclusion.
2. Recognize flaws and inconsistencies in an argument.
3. Evaluate competing causal explanations.
4. Evaluate hypotheses for consistency with established facts.
5. Determine whether an artistic interpretation is supported by evidence contained in the work.
6. Recognize the salient features or themes in a work of art (landscape design).
7. Evaluate the appropriateness of procedures for investigating a question of causation.
8. Evaluate data for consistency with established facts, hypotheses, or methods.



PRESENTING COMPLICATED TOPICS: SUSTAINABILITY

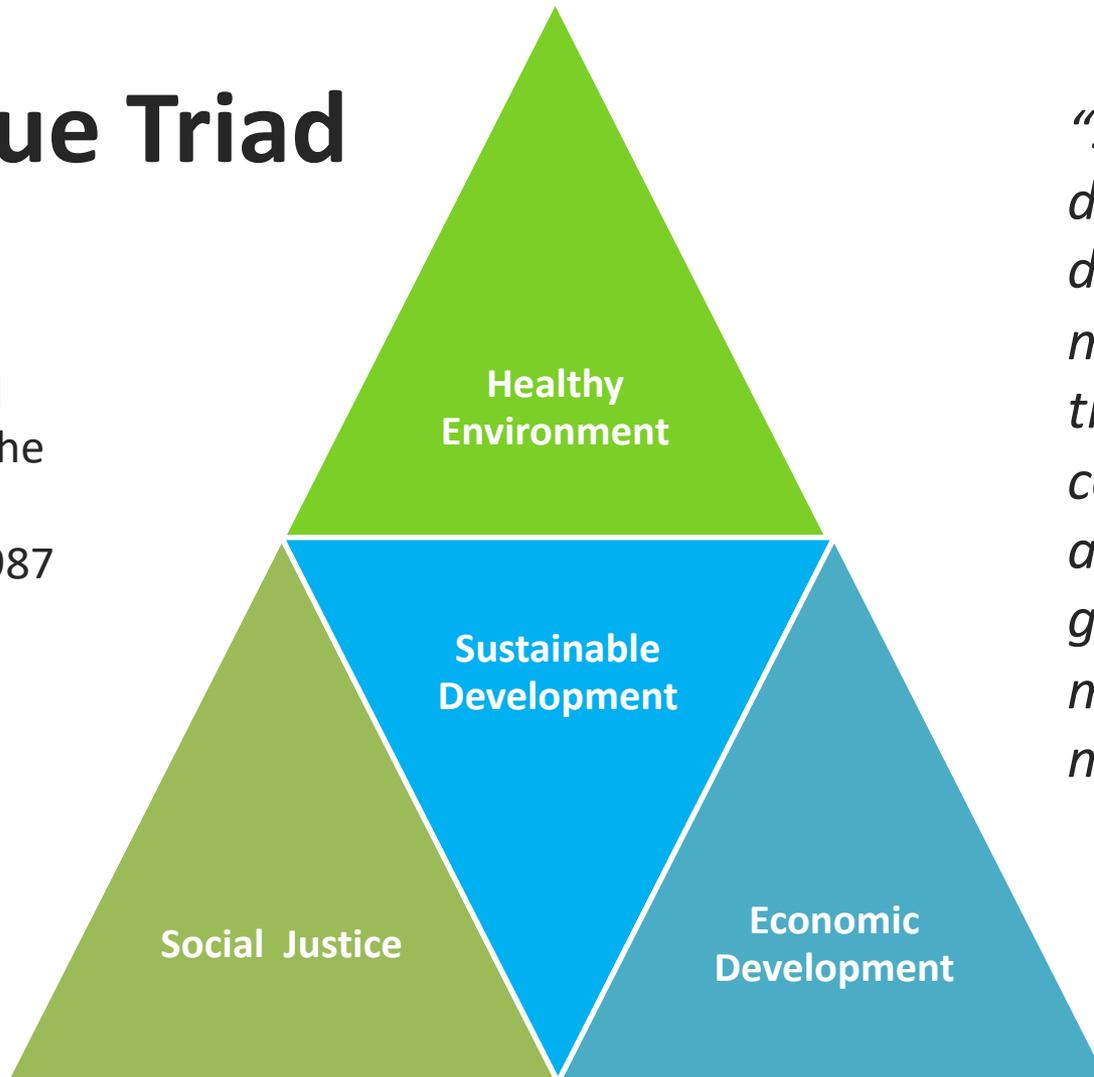
Multiple definitions/real people/places/visuals



Sustainability defined-historic

Issue Triad

Brundtland
Report to the
United
Nations, 1987



“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (1987, p. 8).

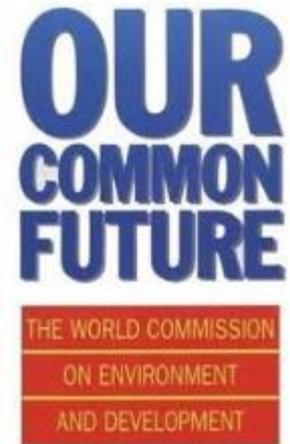
Issue triad created by E. Vincent using *Our common future* (1987) pp.37-38
The World Commission on Environment and Development (1987), *Our Common Future*. Oxford:
Oxford University Press

Gro Harlan Brundtland (b. 1939)

- Norwegian Minister for Environmental Affairs (1974-1979)
- Prime Minister of Norway (Feb –Oct 1981, May 1986-Oct 1989)
- Chair of United Nations World Commission on Environment and Development, published *Our Common Future* (April, 1987) aka The Brundtland Report
- Commissioners: 22 people 21 countries



http://www.kennuncorked.com/images_multiple_locations/sus_history_gro_harlem_brundtland.gif



Amazon prices:

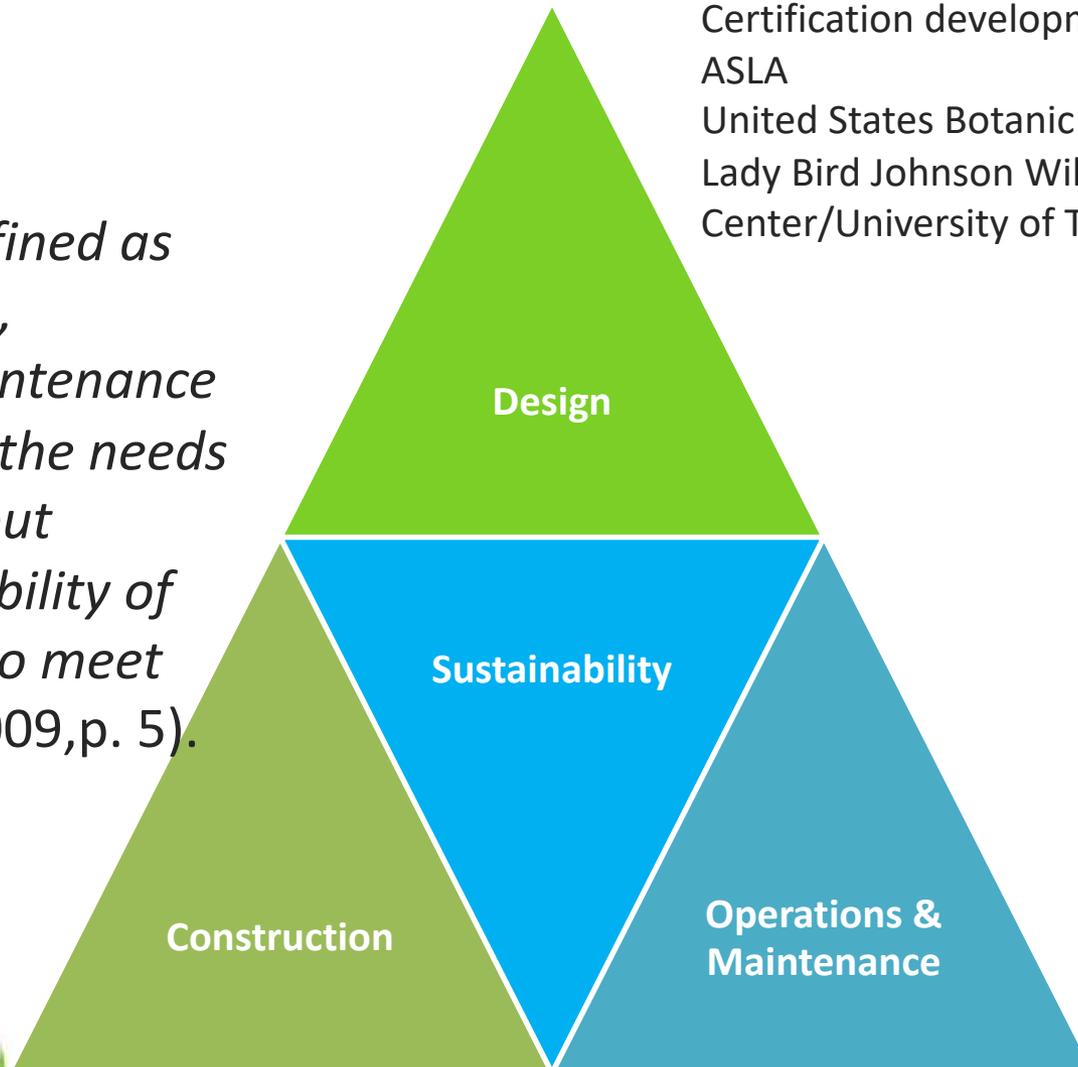
\$24.95 new

\$4.95 used

http://en.wikipedia.org/wiki/Gro_Harlem_Brundtland

Sustainability defined-contemporary

“Sustainability is defined as design, construction, operations and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs”(2009,p. 5).



Certification development authors:
ASLA
United States Botanic Garden
Lady Bird Johnson Wildflower
Center/University of Texas at Austin

The Case for Sustainable Sites, 2009, p. 5

Sustainable Sites Initiative, (2009). *The case for sustainable landscapes.*

Sustainability: Modern definition creators, 2009

THE SUSTAINABLE SITES INITIATIVE™



- www.sustainablesites.org/



- <http://asla.org/>
- <http://www.wildflower.org/>
- <http://www.usbg.gov/>



Sustainability evolved-contemporary

2015-Sustainable SITES Initiative SITES® is produced by Green Building Certification Inc. (GBCI)

SITES v2 includes **18 prerequisites and 48 credits** for measuring site sustainability. To achieve certification, projects can earn a total of up to 200 points at the **Certified, Silver, Gold or Platinum** levels.

The rating system is divided into 10 sections, which cover **site context, design and construction, operations, maintenance, education and innovation**.

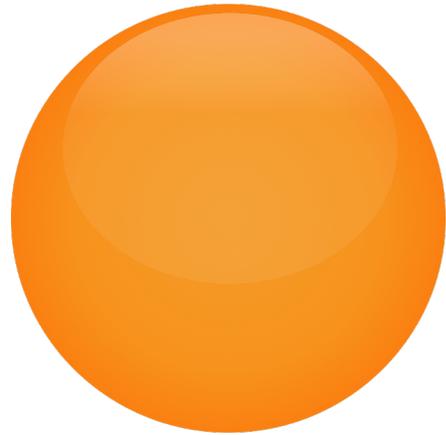
These strategies cover both **predesign and construction activities** and are tied together through an integrative process.

Program is designed to evolve over time.

Sustainable
SITES
Initiative™

https://www.asla.org/uploadedFiles/CMS/AboutJoin/Copy%20of%20SITESv2_Scorecard%20Summary.pdf
<http://www.sustainablesites.org/certified-sites>
<http://www.sustainablesites.org/about>

SITES v2 Rating System, p. xii



PRESENTING COMPLICATED TOPICS: DIVERSITY

What is diversity?

- Individual differences (e.g., personality, prior knowledge, and life experiences) and group/social differences (e.g., race/ethnicity, class, gender, sexual orientation, country of origin, and ability as well as cultural, political, religious, or other affiliations). AACU



Association of American Colleges and Universities

Moryah Jackson FLC: Diversity email 3/25/2019
Moryah Jackson, Former Clemson Director of Diversity
Education Office of Diversity & Inclusion

What is diversity?

The condition or fact of being different or varied; variety:

- *a wide diversity of opinion/ideas*
- *genetic/biological diversity*

The fact of many different types of things or people being included in something; a range of different things or people

Definition of “diversity” from the [Cambridge Business English Dictionary](#) © Cambridge University Press

<https://dictionary.cambridge.org/us/dictionary/english/diversity>

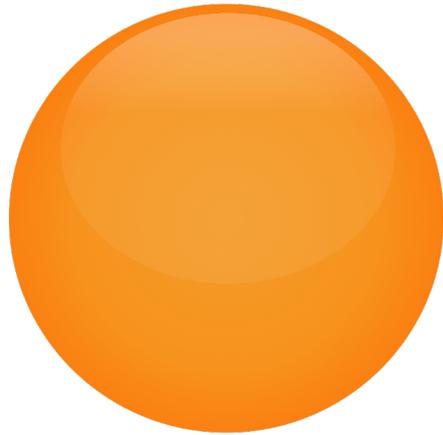
Progress-FLC



“Remember, inclusion and equity is not instantaneous, nor is it easy. It is a progression of small, medium and large advancements that incrementally improve culture and understanding.”

--Moryah Jackson

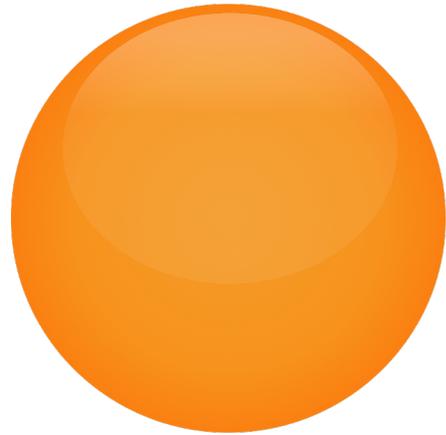
Director, Diversity Education, email 5/21/2019



**SUSTAINABILITY CONCEPT AND
PRACTICE REQUIRES CRITICAL
THINKING SKILLS WHICH FOSTERS
INTERDISCIPLINARY GROUP WORK
THAT EMBRACES DIVERSITY**

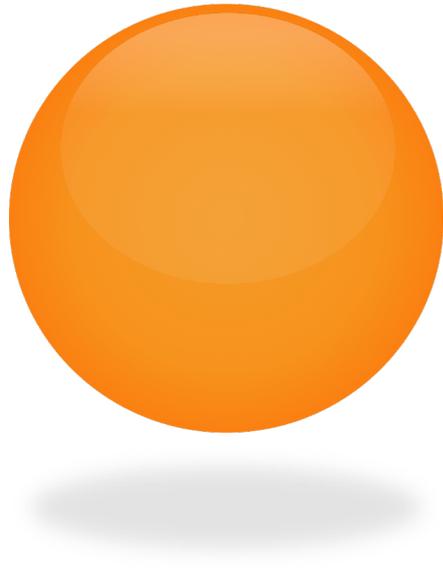
Complicated messy topics build and support each other





PRESENTING COMPLICATED TOPICS: CRITICAL THINKING



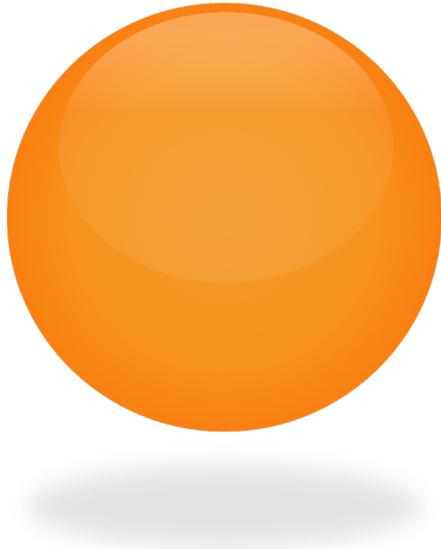


CRITICAL THINKING IS AN ANCIENT RICH CONCEPT

The practice and concepts are 2500 years old.

<http://criticalthinking.org/pages/defining-criticalthinking/766>

HISTORY



IT CAN BE TRACED IN THE WEST TO ANCIENT GREECE WITH ITS SOCRATIC METHOD AND IN THE EAST TO ANCIENT INDIA WITH THE BUDDHIST KALAMA SUTTA AND ABHIDHARMA LITERATURE.

<http://openmindspace.org/CriticalThinking>

Socrates

- Socrates 469–399 B.C.E., lived in Athens, Greece
- He never wrote anything. But Plato did.
- He was ugly, really ugly.
- He liked to talk and ask questions.
- He acknowledged women as teachers.
- Young people started to ask questions too.
- He was sentenced to death for *irreverence* to the gods and killed by drinking hemlock (*Conium maculatum*).



Socratic method

- Father of philosophy.
- **Questions** were asked to determine logic, ethics, fairness, and constancy.
- Inspired the scientific method (develop a hypothesis and then investigate validity.)



Sculpture by Constantin Brancusi

<http://en.wikipedia.org/wiki/Socrates>

<https://plato.stanford.edu/entries/socrates/>

[ps://www.amazon.com/SOCRATES-Translated-Introductory-Huntington-Illustrations/dp/B01DRMUZ8Y](https://www.amazon.com/SOCRATES-Translated-Introductory-Huntington-Illustrations/dp/B01DRMUZ8Y)

Socratic principle--Linda Elder



<http://lindaelderart.com/about.html>

Dr. Linda Elder, President
Foundation for Critical
Thinking; CA

THEY EMBODY THE SOCRATIC PRINCIPLE: *THE UNEXAMINED LIFE IS NOT WORTH LIVING*, BECAUSE THEY REALIZE THAT MANY UNEXAMINED LIVES TOGETHER RESULT IN AN UNCRITICAL, UNJUST, DANGEROUS WORLD. (ELDER BIOGRAPHY)

<http://www.criticalthinking.org/data/pages/14/fd4e6f74cc717ed36a9facc870b8a2e4fe0bd688b279.pdf>



<https://www.uleth.ca/notice/events/linda-elder-state-critical-thinking-human-societies-today#.XvM3ryhKg2w>

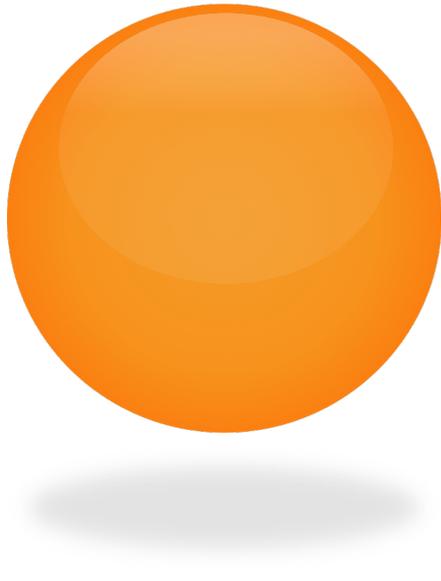
LINDA ELDER, PH.D. EDUCATIONAL PSYCHOLOGIST AUTHOR AND TEACHER OF CRITICAL THINKING

Career began in Memphis, TN with
underprivileged youth

**President of the Foundation for Critical
Thinking and Executive Director of the
Center for Critical Thinking**

<https://www.criticalthinking.org/>

Critical thinking - Richard Paul

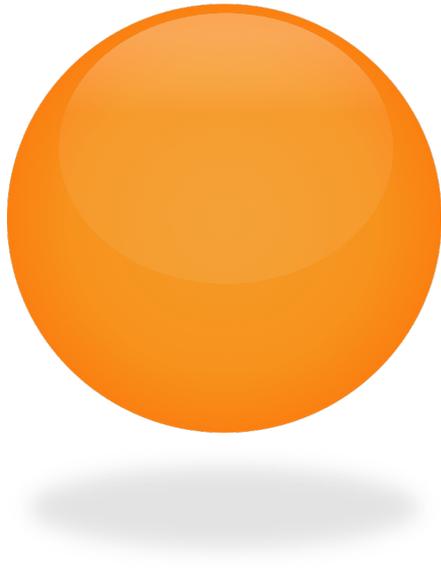


**WE QUESTION OUR OWN PURPOSES,
EVIDENCE, CONCLUSIONS,
IMPLICATIONS AND POINT OF VIEW
WITH THE SAME VIGOR AS WE
QUESTION THOSE OF OTHERS.**

(PAUL BIOGRAPHY BY ELDER)

<http://www.criticalthinking.org/data/pages/37/ff640b6d016307b54cad91e5a9d4edfd4f18adb74215a.pdf>
<http://www.criticalthinking.org/data/pages/14/fd4e6f74cc717ed36a9faccc870b8a2e4fe0bd688b279.pdf>

Critical thinking - Richard Paul



**WE QUESTION OUR OWN PURPOSES,
EVIDENCE, CONCLUSIONS,
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(PAUL BIOGRAPHY BY ELDER)

<http://www.criticalthinking.org/data/pages/37/ff640b6d016307b54cad91e5a9d4edfd4f18adb74215a.pdf>
<http://www.criticalthinking.org/data/pages/14/fd4e6f74cc717ed36a9facc870b8a2e4fe0bd688b279.pdf>



(1937-2015)

RICHARD PAUL, PH.D. AWARD WINNING AUTHOR AND TEACHER OF CRITICAL THINKING

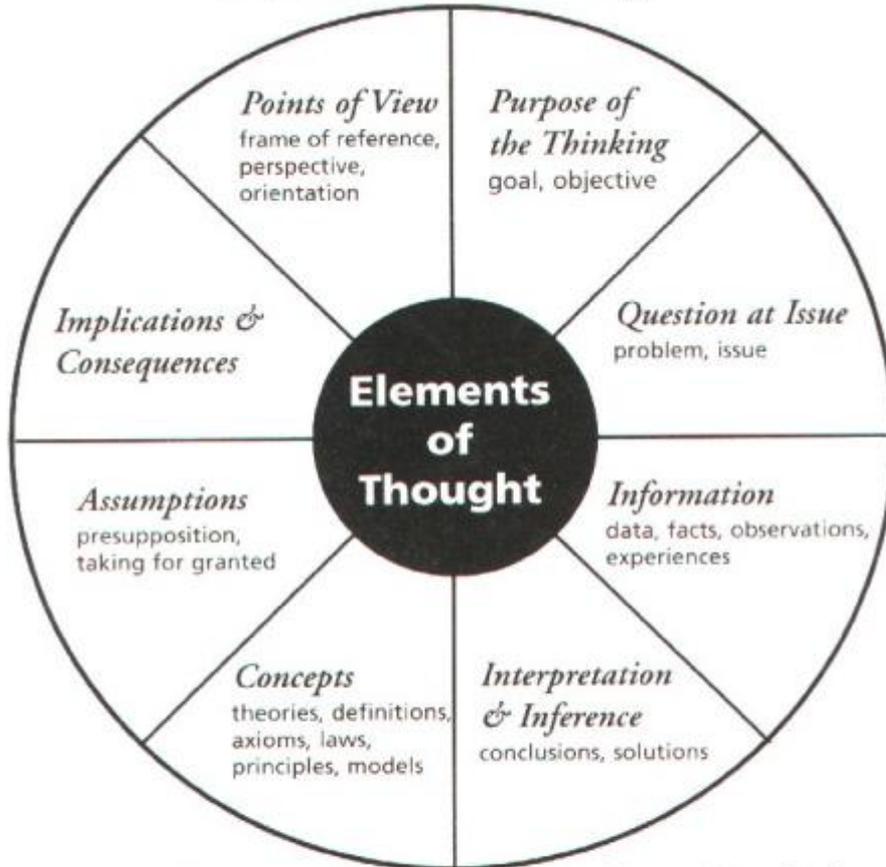
Earned 4 degrees; Director of Research and Professional Development at the Center for Critical Thinking; and Chair of the National Council for Excellence in Critical Thinking; Philosophy Professor at Sonoma State University.

Authored 8 books and over 200 articles

<http://www.criticalthinking.org/pages/dr-richard-paul/818>
<https://www.criticalthinking.org/pages/richard-paul-memorial/1231>

Critical thinking definitions

The Elements of Thought



CRITICAL THINKING WHEEL

Used With Sensitivity to Universal Intellectual Standards

Clarity → Accuracy → Depth → Significance
Precision
Relevance

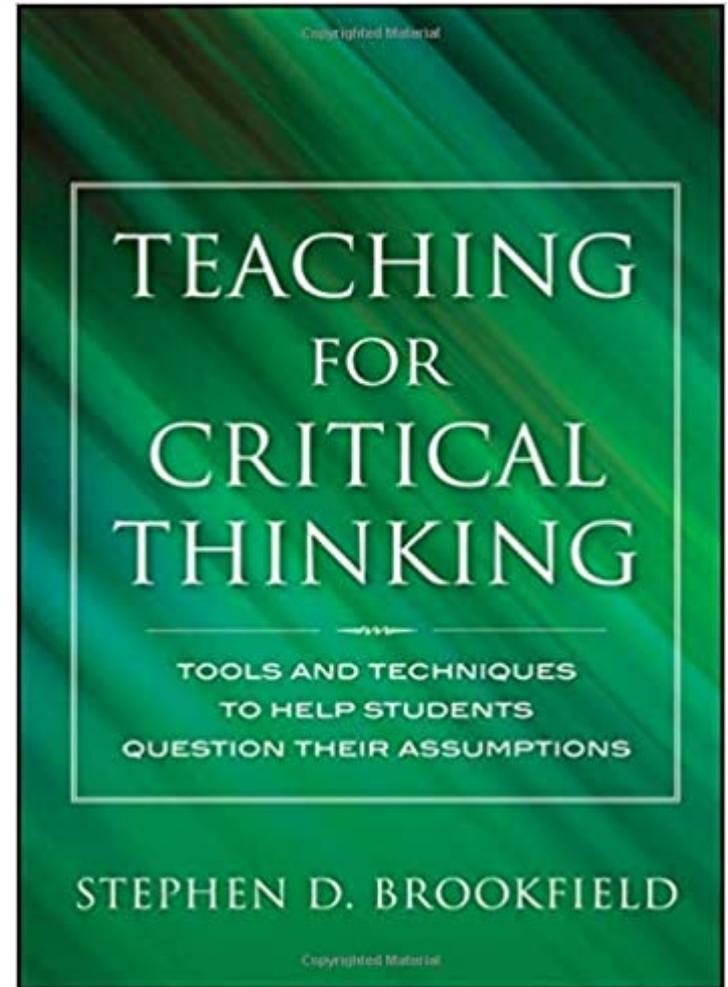
Critical thinking definitions-historic



http://3.bp.blogspot.com/-SRxM-4_fG6o/Tye7O48UZ3I/AAAAAAAAADNI/pluT8-qU0Kc/s400/Critical+Thinking+is...+Francis+Bacon.jpg

Hunting Assumptions

- Most of our daily actions are based on assumptions that we have accepted (sometimes unthinkingly) as accurate.



Brookfield, S. D. (2012). *Teaching for critical thinking*. San Francisco, CA: Jossey-Bass

<https://www.amazon.com/Teaching-Critical-Thinking-Techniques-Assumptions/dp/0470889349>



STEPHEN BROOKFIELD, PH.D. AWARD WINNING AUTHOR AND TEACHER OF CRITICAL THINKING

Born-Liverpool, UK

Position-John Ireland Endowed Chair,
University of St Thomas, Minneapolis,
Minnesota

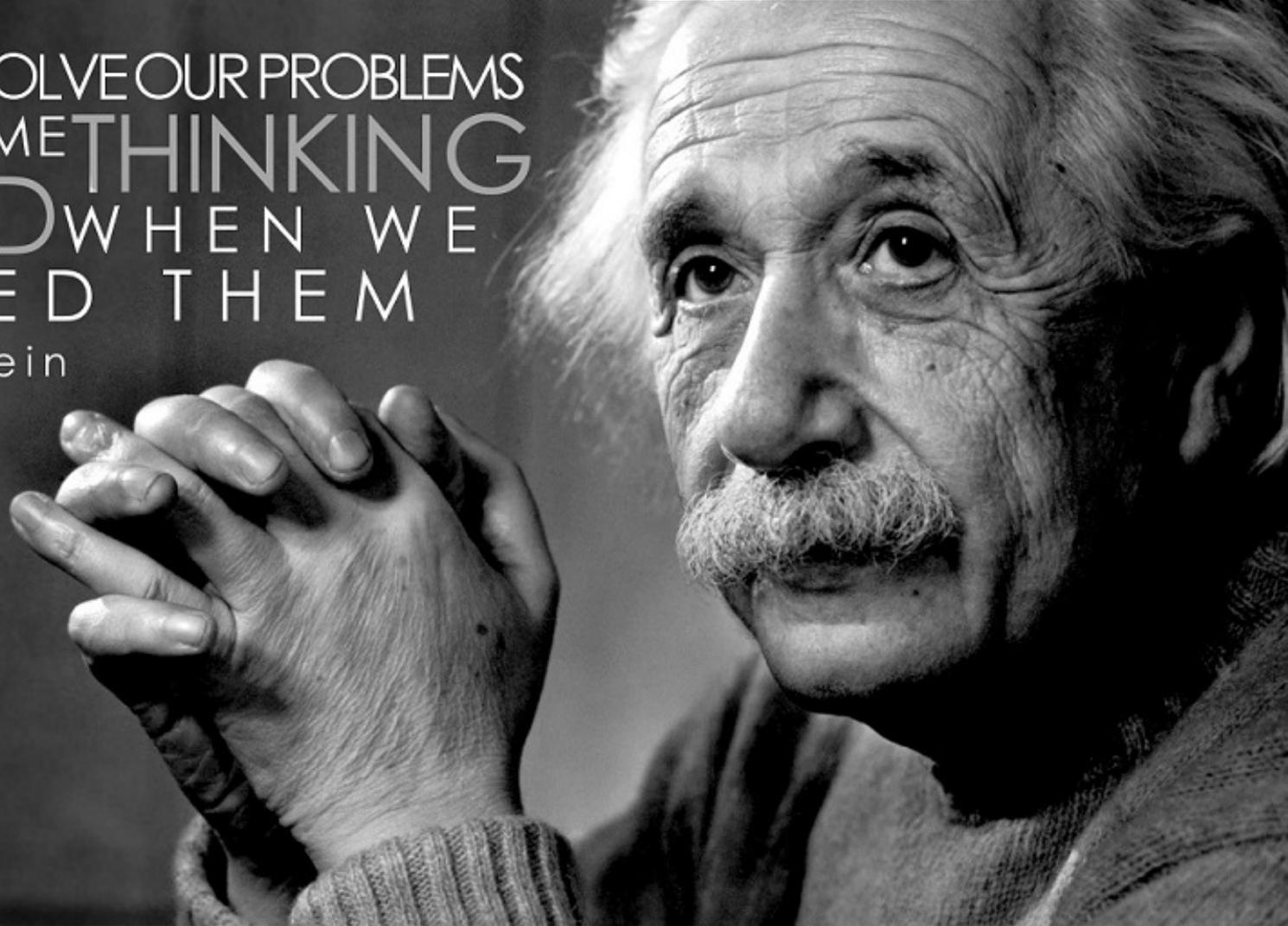
Works in England, Canada, Australia, US
Clemson Thinks2 Keynote presenter in
summer 2013

Photo: <http://www.columbia.edu/itc/tc/parker/adlearnville/transformativlearning/graphics/Brookfield.jpg>

Text: http://www.stephenbrookfield.com/Dr_Stephen_D_Brookfield/Home.htmltext:

Einstein-Critical thinking process

WE CANNOT SOLVE OUR PROBLEMS
WITH THE SAME THINKING
WE USED WHEN WE
CREATED THEM
-Albert Einstein





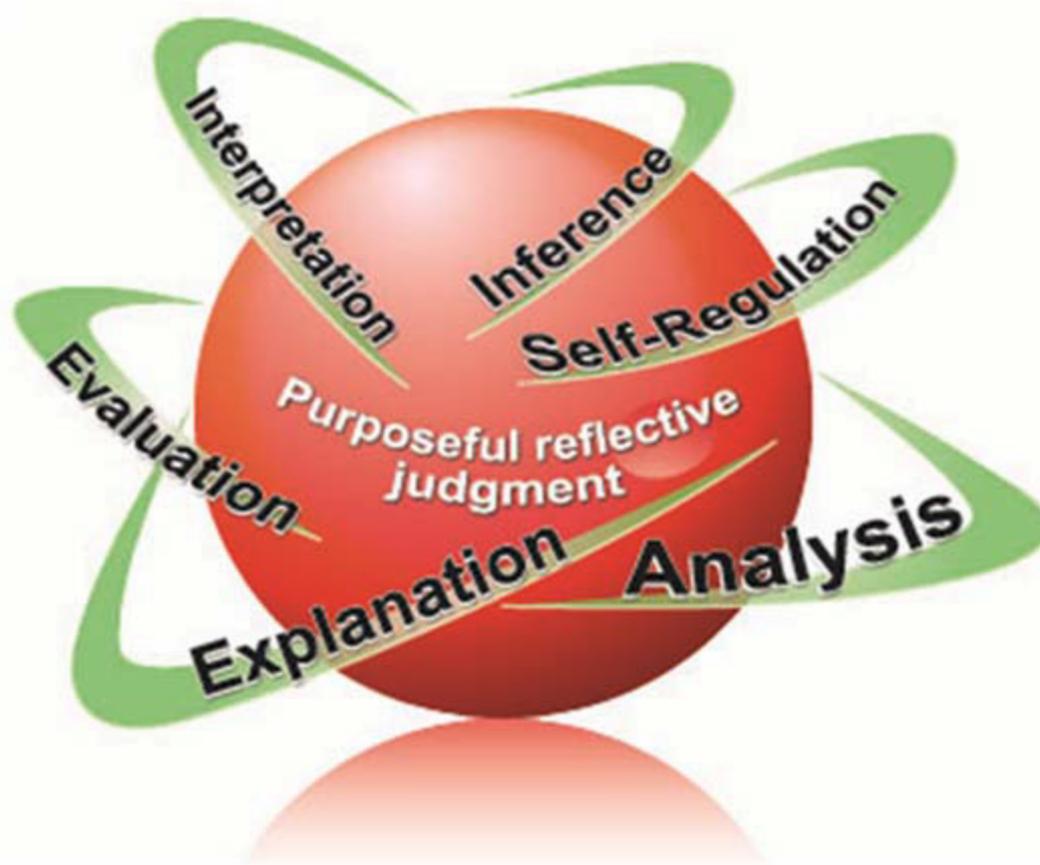
PETER FACIONE, PH.D. RESEARCHER WITH INTERNATIONAL ACADEMIC AND BUSINESS CONNECTIONS

Senior researcher at Insight Assessment,
Principle at Measured Reasons LLC.
Authored the famous international study The
Delphi Report (1990), created California
critical thinking test.

Keynote presenter at Clemson Critical
Thinking Summer Faculty Institute 2015,
2018, 2019

Peter Facione

Cognitive
(mental)
abilities
involved
in critical
thinking



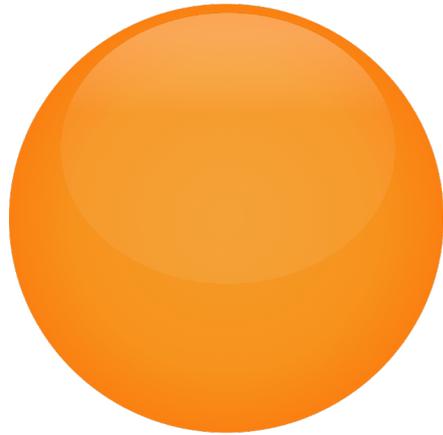
Facione, P.A. (2013). *Critical thinking: What it is and why it counts* (p. 5).
Retrieved from: <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=critical%20thinking%20what%20it%20is%20and%20why%20it%20counts>

France



Photo by Ellen Vincent

HORT 3080



CRITICAL THINKING IS AN INTELLECTUALLY DISCIPLINED PROCESS

<http://criticalthinking.org/pages/defining-criticalthinking/766>

Critical thinking

- Critical thinking happens when we think about how we think... we track our own thoughts and decision making processes (Vincent, 2013).
- Critical thinking...the awakening of the intellect to the study of itself (Scriven & Paul, 1987 from the Foundation for Critical Thinking Defining Critical Thinking at <http://www.criticalthinking.org>).

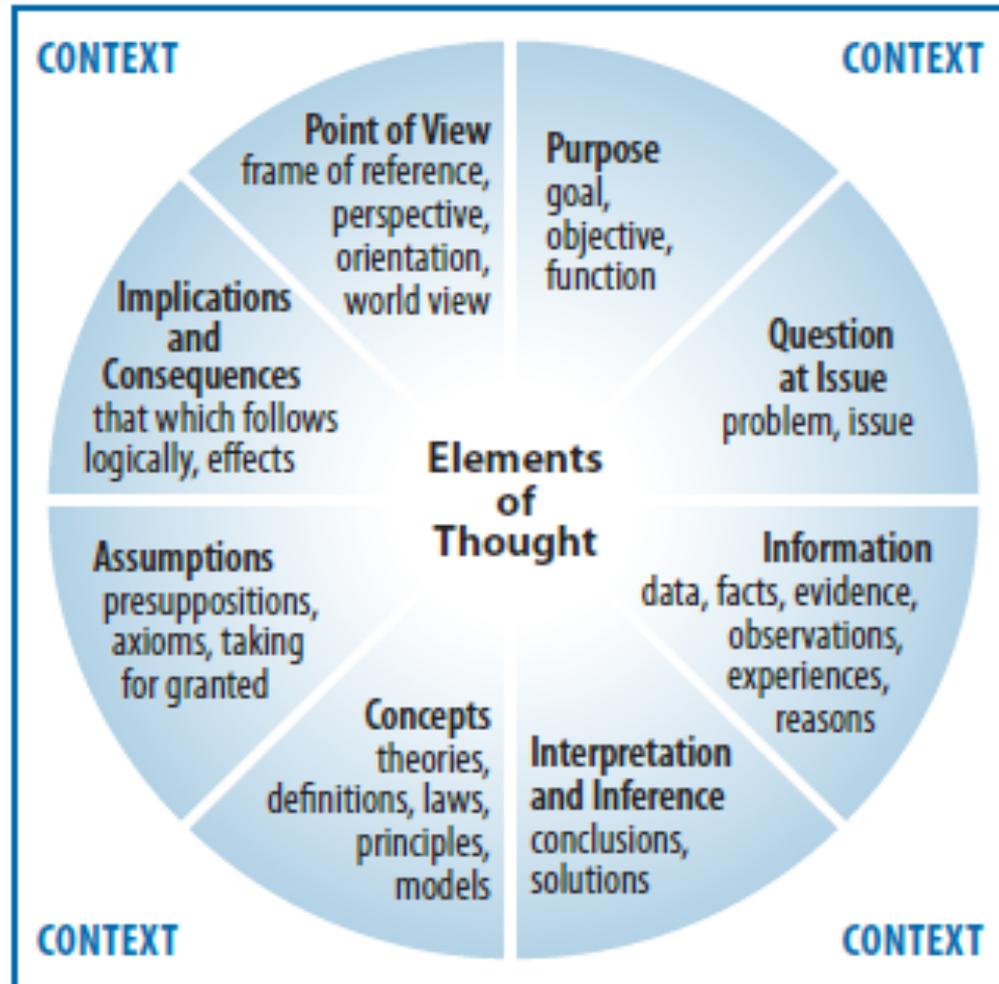


<http://sandykumskov.com/images/think.jpg>

Richard Paul-The Elements of Reasoning

Thinking, then:

- generates purposes
- raises questions
- uses information
- utilizes concepts
- makes inferences
- makes assumptions
- generates implications
- embodies a point of view



Paul- Critical thinking abilities



- GATHERING *RELEVANT* INFORMATION
- MAKING *LOGICAL* INFERENCES
- GENERATING *JUSTIFIABLE* ASSUMPTIONS
- FOLLOWING OUT IMPLICATIONS *LOGICALLY*
- CHECKING INFORMATION FOR *ACCURACY*

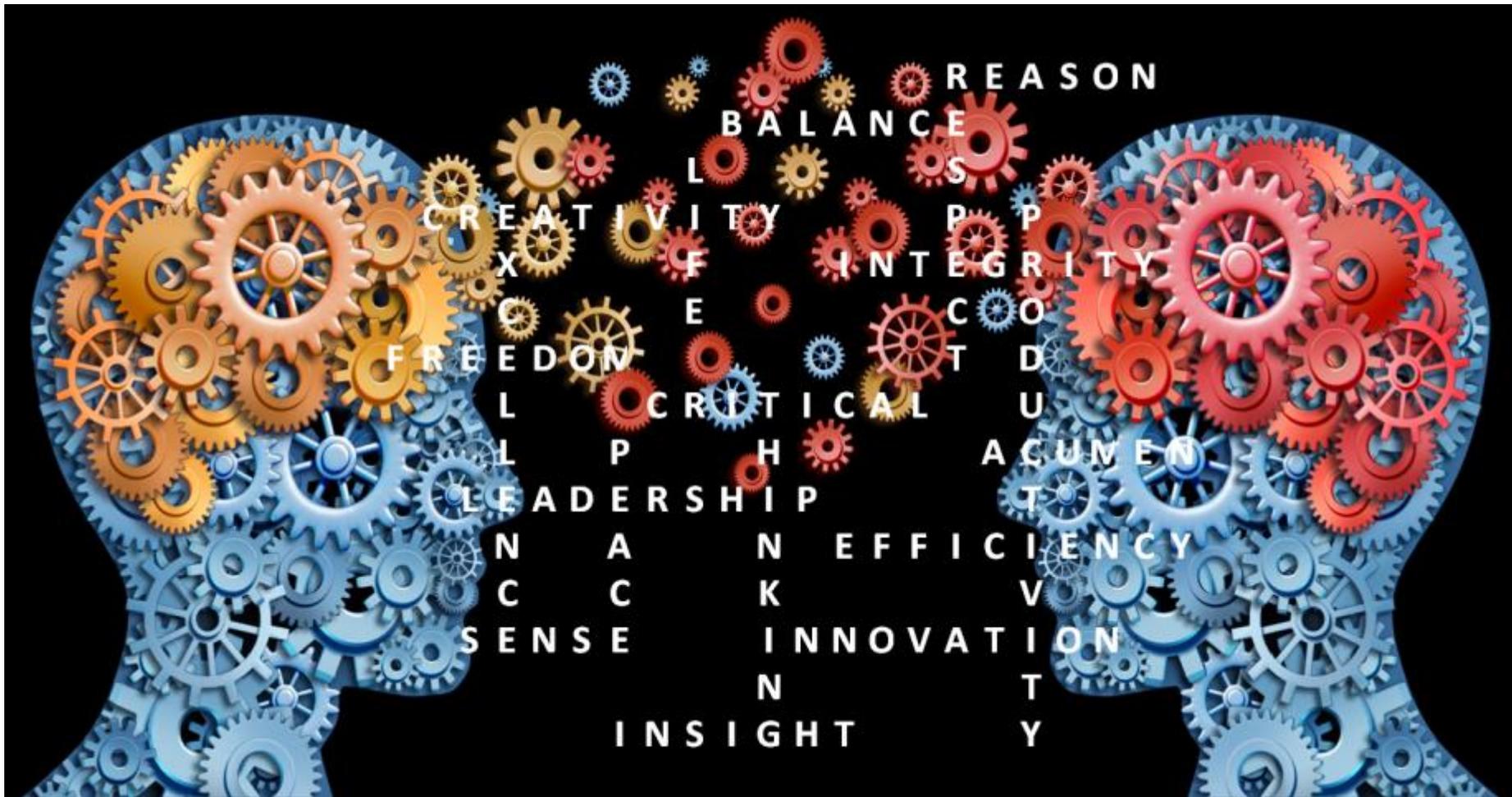
(PAUL BIOGRAPHY BY ELDER)

<https://www.criticalthinking.org/pages/richard-paul-memorial/1231>



https://www.skeptic.com/reading_room/richard-paul-tribute/

<http://www.criticalthinking.org/data/pages/14/fd4e6f74cc717ed36a9facc870b8a2e4fe0bd688b279.pdf>



Critical thinking intellectual traits

- Intellectual humility
- Intellectual autonomy
- Intellectual integrity
- **Intellectual courage**
- **Intellectual empathy**
- **Intellectual perseverance**
- Confidence in reason
- **Fairmindedness**



<https://www.pinterest.com/pin/322148179572194734/>

HORT 3080

The Foundation for Critical Thinking

<http://www.criticalthinking.org/pages/critical-thinking-where-to-begin/796>

Test 3 Q#49 student response

Which intellectual trait are you becoming stronger at using or recognizing this semester? Identify and explain.

- *“Fairmindedness. Prior to this class, I would sometimes see another person's viewpoint that was completely different than mine and then look down upon them for thinking a different way. After being in this class this semester, I have truly begun to look at other people's viewpoints as a way of understanding them better. It has truly shown me that everyone is different and experiences different things, which then leads to different viewpoints.”*

Test 3 Q#49 student response

Which intellectual trait are you becoming stronger at using or recognizing this semester? Identify and explain.

- *“Intellectual empathy. Having worked in the role of a service provider for the last six or seven months has really granted me a new lens from both sides of the counter. I realize that I can never really understand what other people are going through so there's no good reason for me to stress them out more. Understanding what other people have issues with and doing what I can to mitigate those issues is one of my favorite aspects of working with customers.”*

Test 3 Q#50 student response

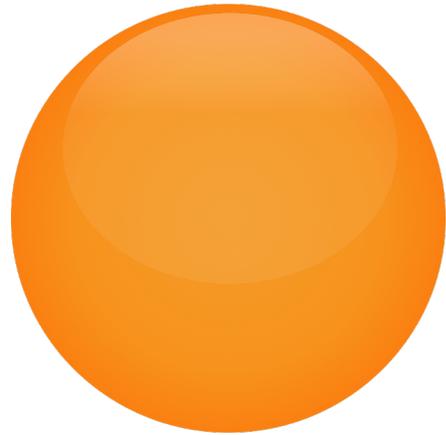
Which intellectual trait do you wish to learn more about and practice?

- *“I would like to learn more about **intellectual perseverance** to learn how to stay true to what I know during difficult times and hardships. I will definitely face more hardships during my life and would love to learn how to remain intellectually strong during these.”*
- *“**Intellectual humility** - having an awareness of the limits of one's knowledge, egocentricism and/or bias.”*

Test 3 Q#50 student response

Which intellectual trait do you wish to learn more about and practice?

- *“Intellectual courage. I have always had a hard time expressing my personal claims/intellectual views on something due to fear of rejection or doubt. After taking this class and doing so many critical thinking activities, I believe that the confidence to speak out on things has improved in me.”*
- *“ I would like to learn more about **intellectual perseverance** to learn how to stay true to what I know during difficult times and hardships. I will definitely face more hardships during my life and would love to learn how to remain intellectually strong during these.”*



VISUAL REFLECTION ESSAY

Clear expectations/samples/common errors posted



Critical Thinking Visual Essay Items

1. Identify a claim/belief/assumption from the readings or class that you personally connect with.
2. Investigate the validity of the claim/belief/assumption.
3. Explore or look at the issue using multiple viewpoints.
4. Reflect from your past and tell the story.
5. Conclude with personal *informed* actions.
6. Add an image that supports your search.
7. Cite the image.



Sustainable Landscape Garden Design, Installation, & Maintenance HORT 3080

**HORT
CT²**

Critical Thinking Protocol in Visual Essay

Grading rubric: 100 points total

Each essay should contain a header that includes: Name; Class title; Date; CT2 Visual Essay
Save the essay with your last name and the essay # in the saved file name: e.g. Vincent_CT2 essay1

Critical Thinking Essay Item	Points
<p>Identify a claim/belief/assumption from class or readings that you personally connect with:</p> <p>Identify and clearly state a specific claim/belief/assumption that you perceive. Include the source(s) you are using in the text. Do not use quotes-use your own words.</p>	10
<p>Investigate the validity of the claim/belief/ assumption:</p> <p>How can you check the author's claim/belief/assumption for accuracy and validity? Be specific and use a minimum of two methods to determine the legitimacy of the author's claims.</p> <p>Experiential (personal experience); authoritative voices (professors, .gov, .edu sites); disciplined (peer reviewed literature; surveys; fact checks; repetition of experiments, etc.)</p>	20
<p>Explore alternate possibilities/conclusions using multiple viewpoints:</p> <p>What other possible perspectives, explanations, or interpretations can you suggest for a deeper understanding of the claim/belief/assumption? State the source of the view.</p>	10
<p>Reflection from your past:</p> <p>Using your own personal experiences share a story from your past that was triggered by the claim/belief/assumption. Make it vivid so the reader feels as though they were there with you.</p>	10

Cognitive

Cognitive

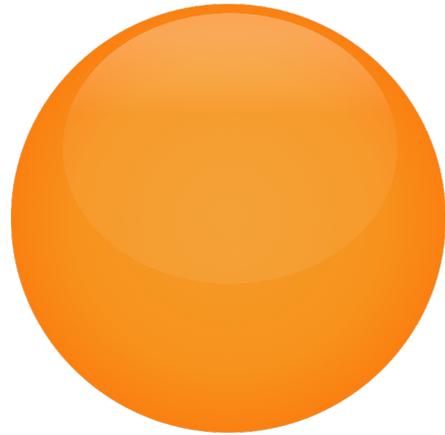
Cognitive

<p>Investigate the validity of the claim/belief/ assumption:</p> <p>How can you check the author’s claim/belief/assumption for accuracy and validity? Be specific and use a minimum of two methods to determine the legitimacy of the author’s claims.</p> <p>Experiential (personal experience); authoritative voices (professors, .gov, .edu sites); disciplined (peer reviewed literature; surveys; fact checks; repetition of experiments, etc.)</p>	<p>20</p>
<p>Explore alternate possibilities/conclusions using multiple viewpoints:</p> <p>What other possible perspectives, explanations, or interpretations can you suggest for a deeper understanding of the claim/belief/assumption? State the source of the view.</p>	<p>10</p>
<p>Reflection from your past:</p> <p>Using your own personal experiences share a story from your past that was triggered by the claim/belief/assumption. Make it vivid so the reader feels as though they were there with you.</p>	<p>10</p>
<p>Concluding personal informed actions:</p> <p>What informed action can you take in your daily life as a result of your critical analysis? Sit back and think about your critical examination of this topic. -What has changed (if anything)? <i>“I now plan to...”</i> or -What will you do now and why? Use “I” in this concluding section. Sample: <i>“As a result I will...”</i> or <i>“From now on I intend to...”</i></p>	<p>10</p>
<p>Image: Tells the story of your search all by itself</p>	<p>20</p>
<p>Image is correctly cited to source</p>	<p>20</p>
<p>TOTAL</p>	<p>100</p>

Affective

Kinesthetic

*Additional points may be lost for poor spelling and grammar or lack of header.



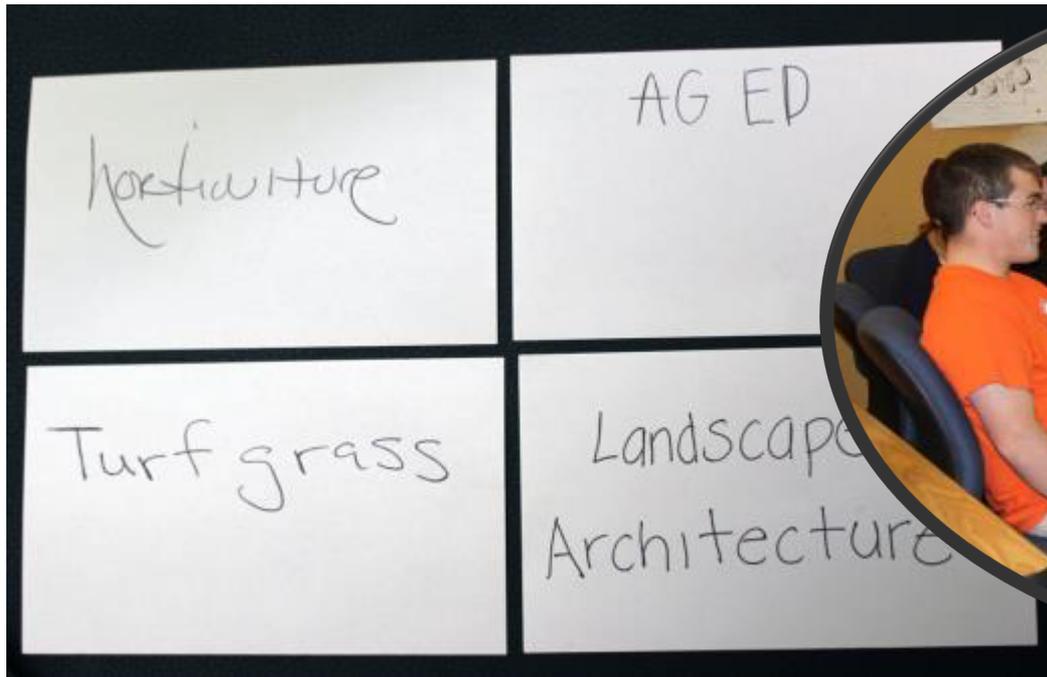
CREATING INTERDISCIPLINARY TEAMS IN THE CLASSROOM

Fair, random



Tool: Form mixed major teams

- ***Form interdisciplinary teams by mixing majors***
 - *Sort by major, shuffle cards, student rep from various majors select cards for team in full view, no personal names visible*



Tool: Group exercises

- *Provide clipboards and worksheets to professionalize the experience*
- *Worksheets contain space for name and major*



Tool: Group exercises

Group exercise: Sustainable Communications | HORT

Name	Major
1	Architecture
2	Hort
3	Civil Engineering
4	LAHC

State a claim (clear and obvious) made by authors (like a hypothesis) about engagement and/or dialogue:

In order for a group to be successful^{in a dialogue setting} every member must be included and energetically engaged, through maintenance and facilitation

Validity checks (search for truth) using three methods/sources:

1-Experiential (personal or others)

Multi- or interdisciplinary work with conflicting or multiple opinions. (e.g. lab work, architecture projects)

2-Authoritative (professors, .gov; .edu; non-profit organizations)

A contractor who has to deal with ... help

2-Authoritative (professors, .gov; .edu; non-profit organizations)

A contractor who has to deal with and help converge ideas from a number of different professions on a daily basis.

3-Disciplined (peer reviewed lit, published surveys and experiments)

Published peer reviewed article on the subject of communication and engagement.

Alternate views/perspectives

Identify people or organizations who may disagree with the claim.

State the source of the view.

- A CEO who wants to have the final say on decisions, despite other opinions
- Control oriented people in positions of power
- A tenured professor who doesn't have Intellectual humility

HORT 3080 Group exercise: Sustainable Garden | CT2

Name	Major	Name	Major
1	He LA	3	EA. HORT
2	LA	4	Hort

Viewpoint from your discipline

Beliefs/claims (clear and obvious) of authors (like a hypothesis):



Be mindful of design process in working with other disciplines.

Methods/sources for checking validity

Experiential (personal or others):

How we feel and know about the claim through our own LA and design experience.

Authoritative (professors, .gov; .edu; non-profit organizations):

Ask professors about personal experience working w. collaboration / local consultants / viewpoints from ^{college} books

Disciplined (peer reviewed lit, published surveys and experiments):

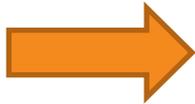
Clemson extension for published surveys.

ASK professors about personal experience working w
collaboration / local consultants / viewpoints from books ^{college}

Disciplined (peer reviewed lit, published surveys and experiments):

Clemson extension for published surveys.

Multiple views: Perspectives (your own or imagined others) that do not support your claim. State the source of the view.

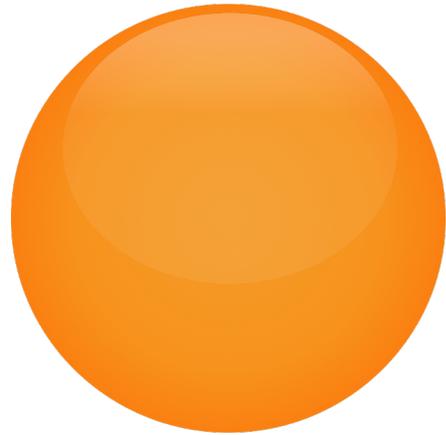


Prestigious design artists in different states or countries.

-they have been so highly regarded, they have "faith" in their design and don't plan to look and listen to outside sources.

Use reverse side if needed





DEFINING INTERDISCIPLINARY

<http://criticalthinking.org/pages/defining-criticalthinking/766>

Definitions

The terms **multidisciplinary**, **interdisciplinary** and **transdisciplinary** are increasingly used in the literature, but are ambiguously defined and interchangeably used.

Dictionary definitions

Multidisciplinary: Combining or involving several academic disciplines or professional specializations in an approach to a topic or problem.

Interdisciplinary: Relating to more than one branch of knowledge.

Transdisciplinary: Relating to more than one branch of knowledge; interdisciplinary.

<https://en.oxforddictionaries.com/definition/us/multidisciplinary>

<https://en.oxforddictionaries.com/definition/us/interdisciplinary>

<https://en.oxforddictionaries.com/definition/us/transdisciplinary>

Research definitions

- **Multidisciplinarity** draws on knowledge from different disciplines but stays within their boundaries.
- **Interdisciplinarity** analyzes, synthesizes and harmonizes links between disciplines into a coordinated and coherent whole.
- **Transdisciplinarity** adds knowledge and production from outside the academy to the multiple disciplines within the academy.

Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. Choi CK, Pak, AW, 2006.

<https://www.ncbi.nlm.nih.gov/pubmed/17330451>

<https://sustainabledevelopment.un.org/content/documents/612558-Inter-%20and%20Trans-disciplinary%20Research%20-%20A%20Critical%20Perspective.pdf>



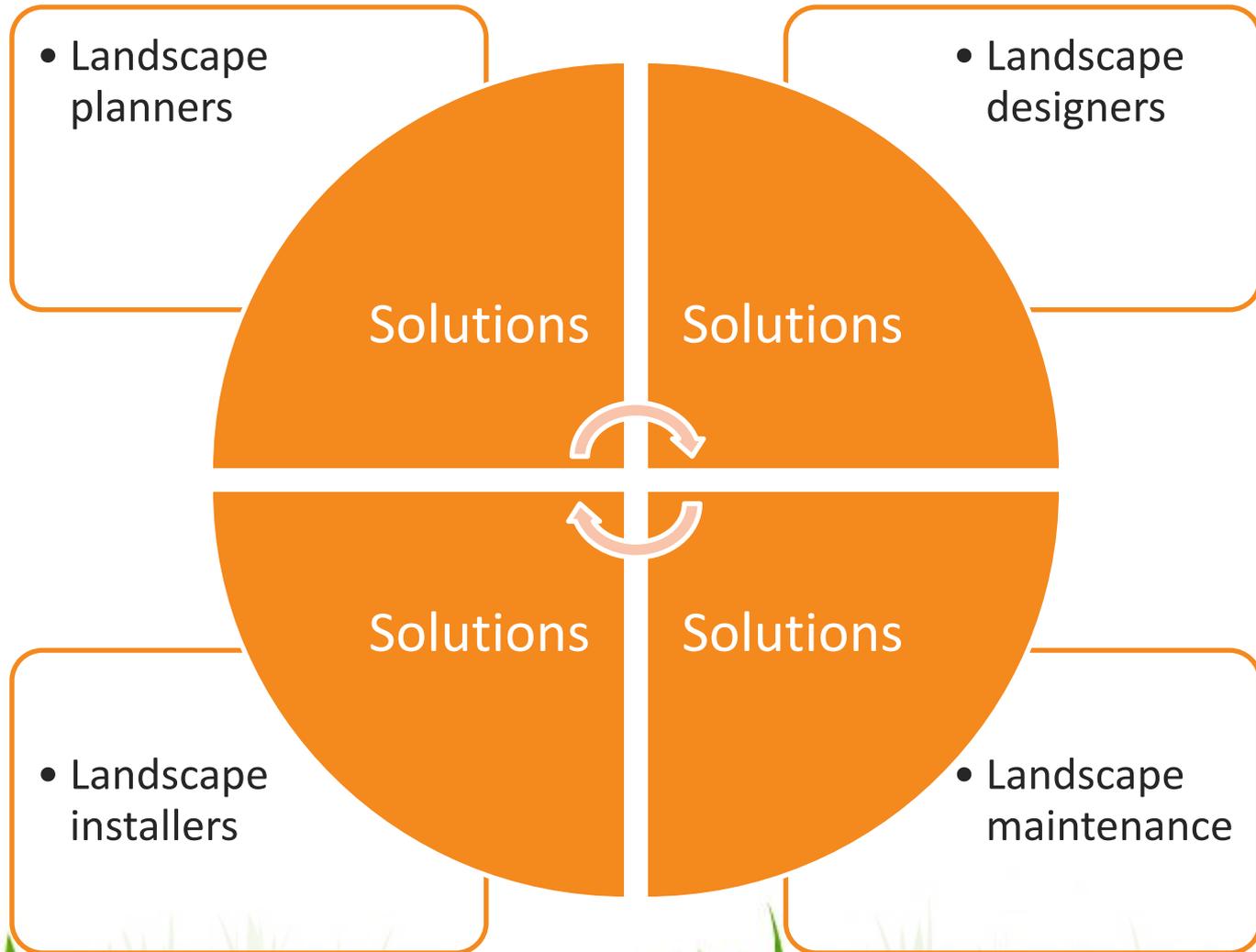
Academic/field applied definitions

- **Multi-disciplinary** teams involve people from different disciplines.
- They agree to work as a team to create solutions for a specific issue/problem.
- Each discipline develops one or more solutions for consideration and presents these to the leader or the group for consideration.

From personal conversations between Dr. Vincent and Dr. Frank Fear

Photo: <https://www.laprogressive.com/spartan-silence/>

Multidisciplinary teams





Academic/field/applied definitions

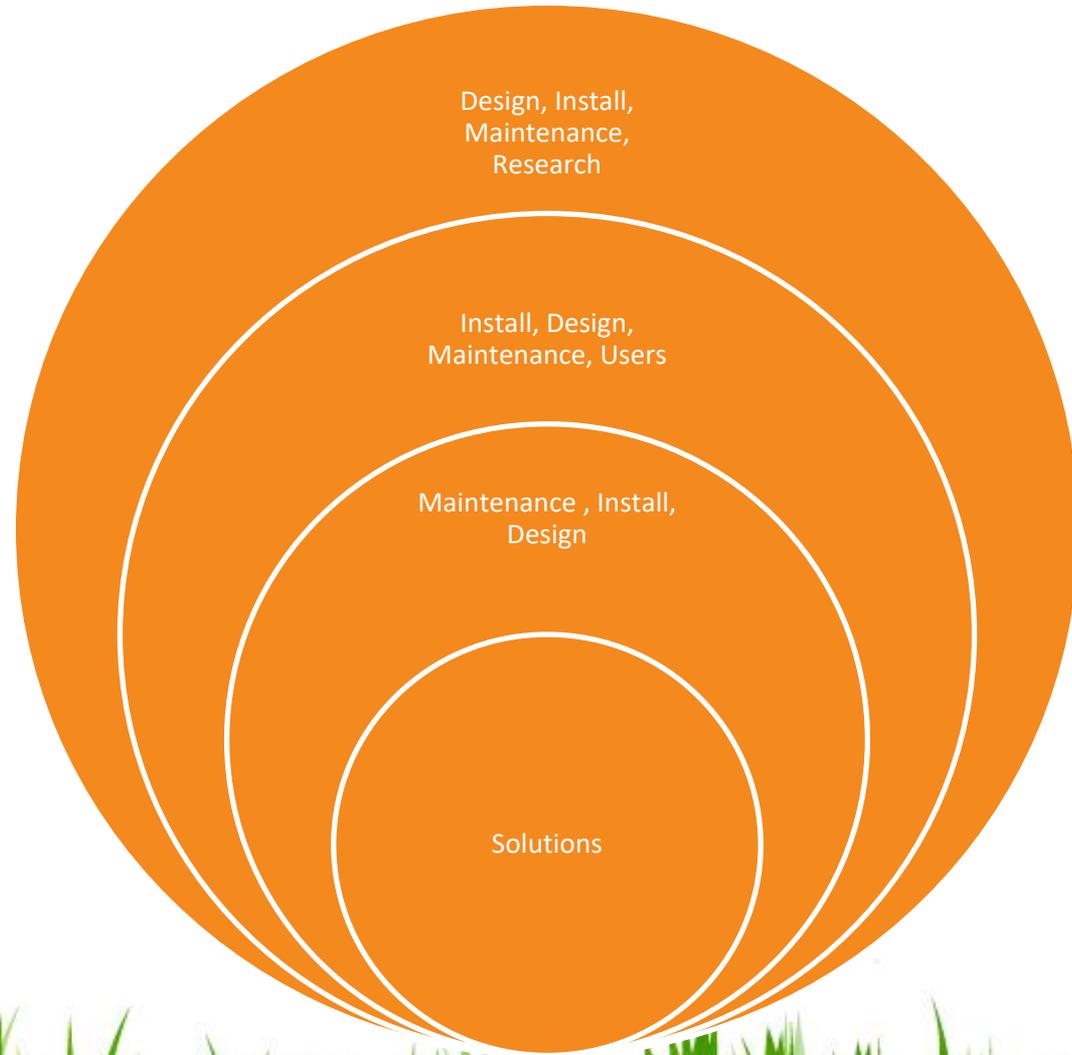
- **Interdisciplinary** teams involve people from different and varied disciplines.
- They agree to work as a team to create solutions for a specific issue/problem.
- They are willing to **learn from the other team members and change their mind** about how to solve the issue/problem.

From personal conversations between Dr. Vincent and Dr. Frank Fear

<https://www.laprogressive.com/spartan-silence/>

Interdisciplinary teams

Discipline specialists and project leaders share information with each other and seek varied perspectives





Academic/field/applied definitions

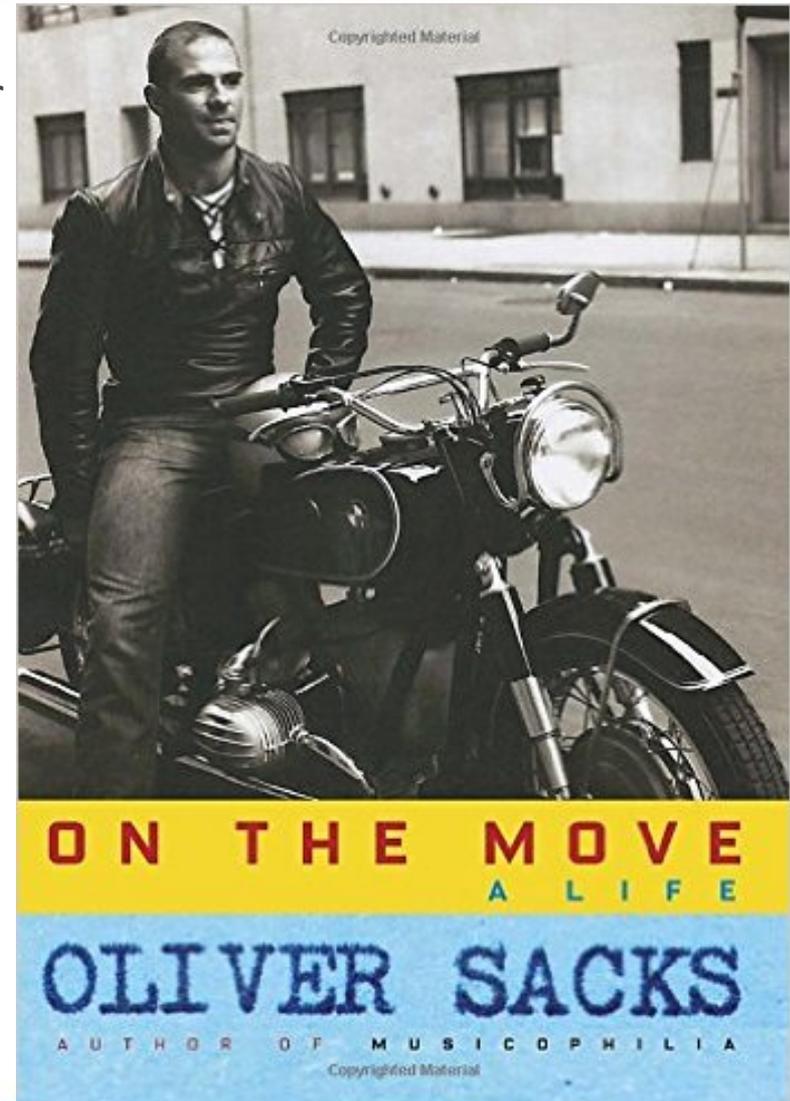
Multidisciplinary	Interdisciplinary
Relevant disciplines involved	Varied yet relevant disciplines involved
Meets at least once then continues work within one's own discipline	During group meetings seeks to learn about the problem from other people's perspectives
Submits work to leader or group for consideration	Continues to meet with larger diverse group (or relevant portions of) while developing solutions
Makes changes based on feedback	Team members have capacity to listen deeply
	Team members are willing to change their mind based on new information

From personal conversations between Dr. Vincent and Dr. Frank Fear

Photo: <https://www.laprogressive.com/spartan-silence/>

Interdisciplinary communicator: Oliver Sacks

- British neurologist, practicing physician at New York University, and acclaimed author who explored the “mysteries of the brain”.
- Wrote case studies that looked for novel connections between science and the human condition.
- He perceived resilience and beauty where few dared to look.
- Author:
 - *On the Move: A Life* (2015) Amazon \$15.68
 - *The Mind’s Eye* (2011) Amazon \$11.05
 - *Musicophilia: Tales of Music and the Brain* (2008) Amazon \$9.36
 - *The Man Who Mistook His Wife for a Hat* (1998) Amazon \$9.51

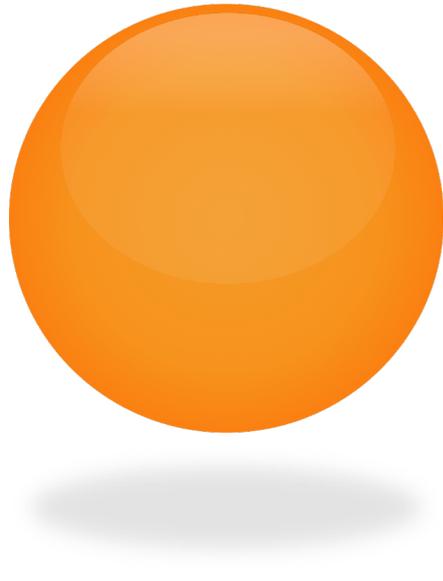


http://www.amazon.com/Minds-Eye-Oliver-Sacks/dp/0307473023/ref=sr_1_8?ie=UTF8&qid=1441062889&sr=8-8&keywords=Oliver+Sachs

http://www.amazon.com/Move-Life-Oliver-Sacks/dp/0385352549/ref=sr_1_1?ie=UTF8&qid=1441062889&sr=8-1&keywords=Oliver+Sachs&pebp=1441063394099&perid=1XHREHWVYZFZHEZ12KN89/24/21

http://www.nytimes.com/2015/08/31/arts/oliver-sacks-wrote-awakenings-and-cast-light-on-the-interconnectedness-of-life.html?emc=edit_th_20150831&nl=todaysheadlines&nlid=52547291&_r=0

http://www.amazon.com/s/ref=nb_sb_noss_2?url=search-alias%3Daps&field-keywords=Oliver+Sachs



WHY USE INTERDISCIPLINARY WORK GROUPS IN THE CLASSROOM?

To contribute to positive solutions in the workplace and world

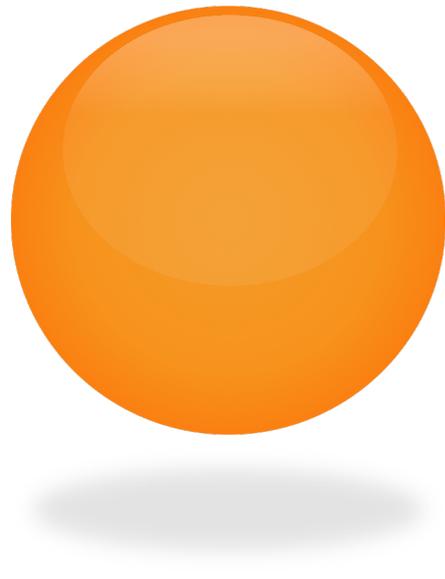
Shared leadership

Nelson
Mandela
convenes
The
Elders in
2007
(July 18)



http://desertpeace.files.wordpress.com/2009/09/the_elders.jpg

<https://theelders.org/nelson-mandela>



INTERDISCIPLINARY COMMUNICATION TOOLS

Engagement, dialogue 

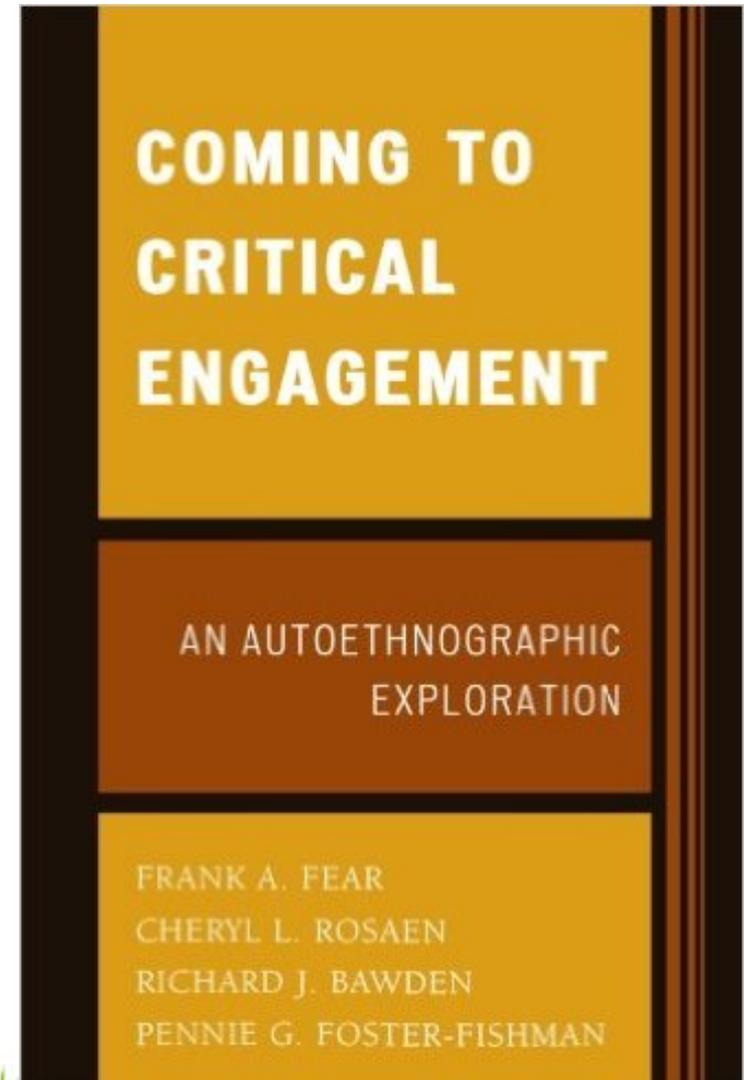


Engagement-Dr. Frank Fear



**Dr. Frank Fear, Professor Emeritus
Michigan State University,
engagement author; Kellogg
consultant**

Amazon \$49.88



<http://www.amazon.com/Coming-Critical-Engagement-Autoethnographic-Exploration/dp/0761834710>

HORT 3080

<https://www.laprogressive.com/author/frank-a-fear/>
<https://www.amazon.com/Coming-Critical-Engagement-Autoethnographic-Exploration/dp/0761834710>



Photo by Ellen Vincent

County Mayo, Ireland

Engagement

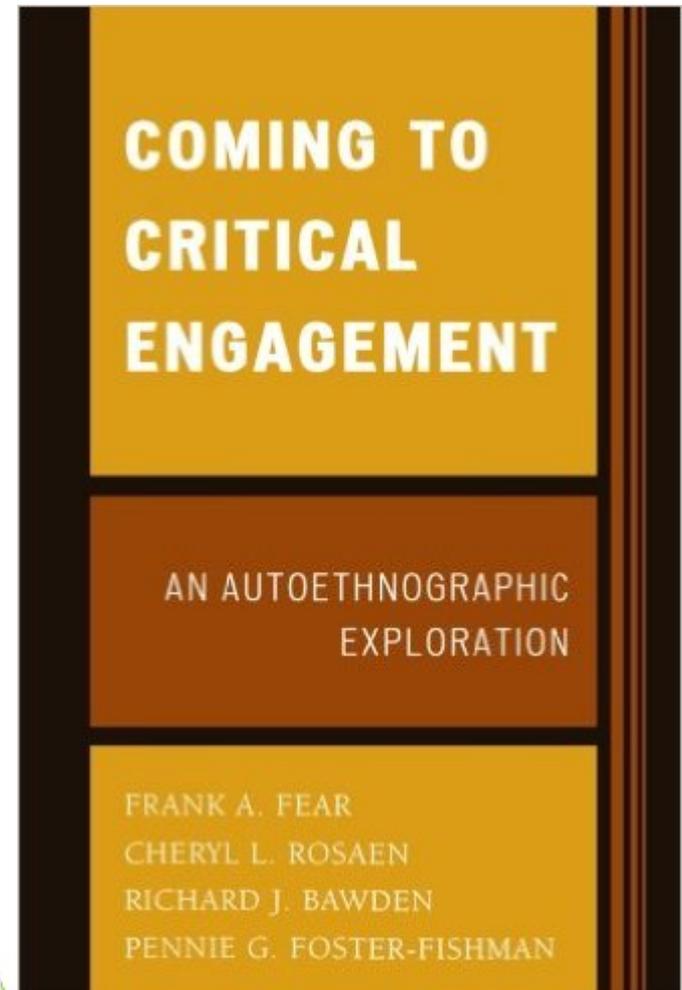
- ...“Grounded in an ethos of **mutuality, respectfulness, and stewardship**, proceeding through dialogue, and fostering inclusive well being.”
- Engagement is a way of being- both on campus and off-energized by the norms of engagement.
- Framed this way, engagement becomes a leadership and management practice.--*Dr. Frank Fear*

Engagement

- Be a learner in your group rather than an **expert** Fear, F., et al. (2002). Experiencing engagement: **Stories from the field.** *Journal of Higher Education Outreach and Engagement*, 8(1), 59-74.
- If you are accomplished in a discipline or area consider yourself a specialist instead of an **expert** (Denny, personal communications, 2006).
- Stay open to outcome, i.e. allow your mind to **be changed** (Arriens, A., workshop, 2004).

Engagement

Dialogue is essential to successful engagement.



<http://www.amazon.com/Coming-Critical-Engagement-Autoethnographic-Exploration/dp/0761834710>

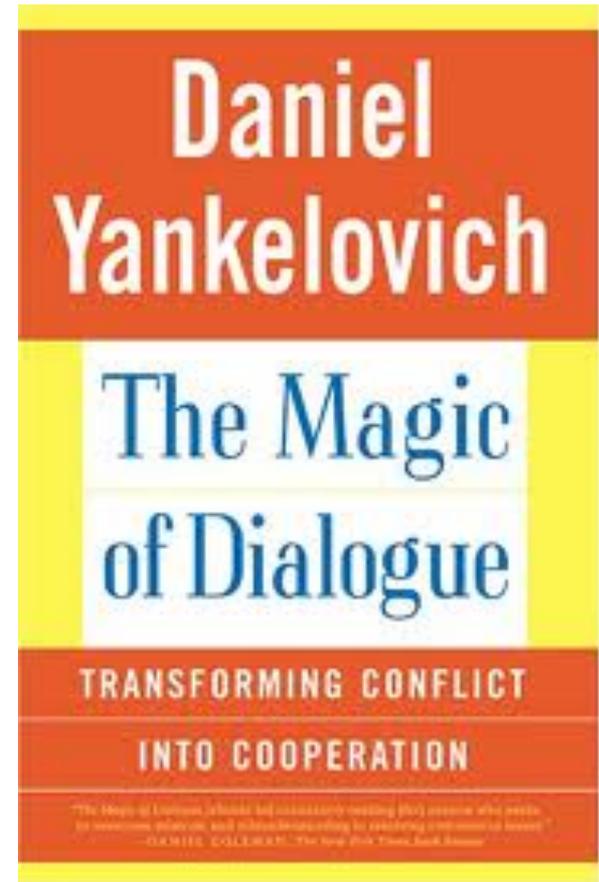
Dialogue: Daniel Yankelovich

<http://www.strategy-business.com/media/image/05309.jpg>



**Daniel Yankelovich
(1924-2017)**

- Graduate School of Arts and Sciences, Harvard University (Rantoul Fellow in Clinical Psychology); Director, UCSD Civic Collaborative, University of California at San Diego
- Recipient, Common Ground Book of the Year Award (for *The Magic of Dialogue*), 1999
- Trustee for 11 major firms & Board of Director on 7 major corporations
- Chairman: The Public Agenda; DYG; Viewpoint Learning



http://www.amazon.com/s/ref=nb_sb_noss_2?url=search-alias%3Dstripbooks&field-keywords=The+magic+of+dialogue

Amazon \$15.99

Dialogue: 3 core components

- Equality
- Empathetic listening
- Airing assumptions and not judging them (or the speaker)



Photo: Brian Zopf

http://www.google.com/imgres?imgurl=http://www.publicagenda.org/files/images/pages/Yankelovich_Claremont_110808.jpg

Yankelovich, D. (1999). *The Magic of Dialogue*, p. 46. New York: Schuster
Video: Jan31, 2012 https://www.youtube.com/watch?v=mgWUjBj_32s

Dialogue

- (3) Bring assumptions into the open: Examine one's own and other participants assumptions. Once exposed (in the open) treat them with respect.

“When your deepest-rooted assumptions about who you are and what you deem most important in life are attacked, you react as if you were attacked personally.” —David Bohm

Yankelovich, D. (1999). *The Magic of Dialogue*, p. 46. New York: Schuster



<http://c.tadast.com/gfx/750x500/sunrise.jpg?1>



<http://globe-views.com/dcm/dreams/storm/storm-04.jpg>

Dialogue vs debate

Dialogue	Debate
Revealing assumptions for reevaluation.	Defending assumptions as truth.
Reexamining all positions.	Critiquing the other side's position.
Admitting that others' thinking can improve on one's own.	Defending one's own views against those of others.

Yankelovich, D. (1999). *The Magic of Dialogue*, pp. 39-40.
New York: Schuster

Dialogue vs debate

Dialogue	Debate
Assuming many people have pieces of the answer and that together they can craft a solution.	Assuming that there is one right answer and you have it.
Is collaborative: participants work together toward common understanding.	Is combative: participants attempt to prove the other side wrong.
About exploring common ground.	About winning.
Listening to understand, find meaning and agreement	Listening to find flaws and make counter-arguments.

Yankelovich, D. (1999). *The Magic of Dialogue*, pp. 39-40.
New York: Schuster

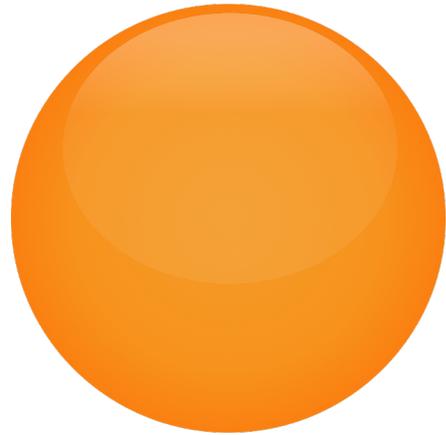
Dialogue vs debate group exercise

- When do you recall experiencing dynamic dialogue?



Community Garden Berkeley, CA

Photo by Ellen Vincent



REAL PEOPLE IN THE CLASSROOM

To make critical thinking relevant

Test 1 question #88

“I am intrigued by listening to others, esp. those with experiential or authoritative influence such as Ricardo Urbina. Its interesting to see how they think/develop ideas.”
(Architecture)



Retired
Federal
Court Judge
Ricardo
Urbina

Chimamanda Ngozi Adichie-video

Chimamanda Ngozi Adichie

- Nigerian award winning author, educated at Yale
- [TED Talk: The danger of a single story](#) (18.49)
- Awarded MacArthur Genius Grant 2008
- [YouTube: Harvard 2018 Commencement Address](#)

<https://www.youtube.com/watch?v=hrAAEMFAG9E>



https://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story?language=en

https://pi.tedcdn.com/r/pet.tedcdn.com/images/ted/3527cd41287ab9d66473e112dbd339c6e515ef38_1600x1200.jpg?quality=89&w=800

<http://2.bp.blogspot.com/-YznGKIfErV4/U4HQsluLVmI/AAAAAAAAEIIY/X1olwTpVfzk/s1600/adichie2.jpg>

David Brooks-article

David Brooks

- Op-Ed columnist NY Times
- Commentator on PBS NewsHour, NPR's "All Things Considered" and NBC's "Meet the Press."
- Award winning author
- Instructor at Yale
- *The Danger of a Single Story* NY Times (April 19, 2016)
<https://www.nytimes.com/2016/04/19/opinion/the-danger-of-a-single-story.html>



Daniel Yankelovich-video and pubs

YouTube video:

- CEO Profile: Daniel Yankelovich
Founder & Chairman Public
Agenda

DYG, Inc. Viewpoint Learning, Inc
Anaheim University (2012)

https://www.youtube.com/watch?v=mgWUjBj_32s



YouTube video:

- Toward a More Just and Effective
Democracy- Celebrating the Life
and Work of Daniel Yankelovich

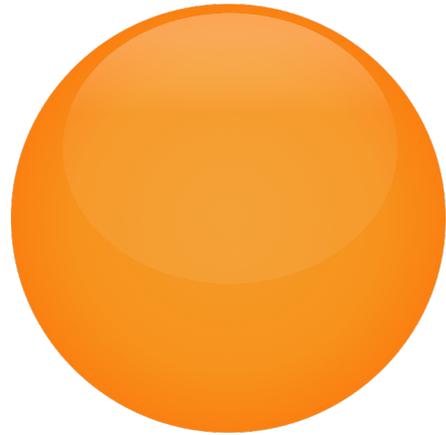
[PublicAgendaOnline](https://www.youtube.com/watch?v=RHpHREVV) Mar 6, 2018

<https://www.youtube.com/watch?v=RHpHREVV>
GMO



https://www.google.com/search?q=daniel+yankelovich&rlz=1C1CHBF_enUS783US783&source=lnms&tbn=isch&sa=X&ved=0ahUKEwiH7Znsw5TcAhVjnuAKHZO3CTkQ_AUICygC&biw=901&bih=1087#imgrc=TM6Ukb7cWqiiFM

https://www.google.com/search?q=daniel+yankelovich&rlz=1C1CHBF_enUS783US783&source=lnms&tbn=isch&sa=X&ved=0ahUKEwiH7Znsw5TcAhVjnuAKHZO3CTkQ_AUICygC&biw=901&bih=1087#imgrc=gS6E2lwWc7n7WM



EXIT SURVEY RESPONSES



Exit survey student responses

What one **belief/thought** has changed or altered as a result of taking this class?

- *“Listen to other people because they have opinions that matter.”* FORESTRY
- *“Being open to listen and plan with the landscape maintenance team during the planning stages.”* HORTICULTURE
- *“That all majors and disciplines are capable of working in a group and learning from each other.”* ANTHROPOLOGY

Exit survey student responses

What one **belief/thought** has changed or altered as a result of taking this class?

- *“I have become more open to others’ opposing viewpoints on controversial topics.”*

AGRICULTURE EDUCATION

- *“I learned to be open-minded. I have learned to look at things from a different perspective than just my own. There are 2 or more sides to every story.”* TURFGRASS

Exit survey student responses

What one **belief/thought** has changed or altered as a result of taking this class?

- *“I now use empathy when listening to other people’s viewpoints. I now look at a person’s viewpoint with a better understanding of how they feel about an issue.”* HORTICULTURE

Exit survey student responses

What one **belief/thought** has changed or altered as a result of taking this class?

- *“Personally, my outlook to the overall design process has shifted to a more sustainable mindset. To get all parties involved in the design process from the beginning will save a lot of hassle on the back end of the install and maintenance.” ARCHITECTURE*

Exit survey student responses

What one **belief/thought** has changed or altered as a result of taking this class?

- *“That I need to [take] into account other peoples thoughts and feelings more.”*
TURFGRASS
- *“I take working in groups [to be] more intriguing and helpful. I get to see how others think.”* HORTICULTURE

Exit survey student responses

What one **practice/behavior** has changed or altered for you as a result of taking this class?

- *“The ability to think from more than one perspective.”* AGRICULTURAL MECHANIZATION
- *“I am a better critical thinker because of my ability to listen and fair mindedness I learned from this class.”* AGRICULTURAL EDUCATION

Exit survey student responses

What one **practice/behavior** has changed or altered for you as a result of taking this class?

- *“Working in interdisciplinary groups is a relatively new concept for me. Throughout this class my openness to other viewpoints has changed during the duration of this class.”*

ARCHITECTURE

- *“Working in groups and being fair minded with everybody.”* HORTICULTURE

Exit survey student responses

What one **practice/behavior** has changed or altered for you as a result of taking this class?

- *“The ability to collaborate with multiple disciplines.”* ARCHITECTURE
- *“Group work”* MARKETING/MGT
- *“I will listen to everyone’s opinions with a more open mind.”* AG EDUCATION

Creative processes summary

1. Multiple definitions to support relatedness
2. Evolution of topic over time: historical & contemporary contributions
3. Visual variety: charts/graphs/word art/photos
4. Relatedness to real life: author bios/photos/stories; rubric reflection/photos
5. Engagement: interdisciplinary work groups/worksheets/oral presentations/action section of rubric

Critical thinking assessment

- **Rubrics** that result in essay artifacts that demonstrate student knowledge of process.
- **Worksheets** that show teams in process.
- **Test questions** that identify individual strengths and challenges.
- **Exit survey questions** that identify topics of value-which can inform future teaching.

Ellen Vincent, Ph.D.

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Environmental Landscape Specialist

CT2 Faculty Scholar 2014-2019
CAFLS Excellence in Teaching 2015
ISA Certified Arborist

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<http://www.clemson.edu/cafls/demo/>



Photo by Craig Mehaffey