



Cooperative Learning

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Two Responsibilities

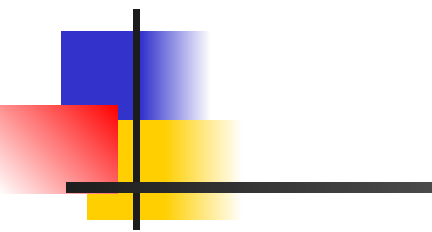
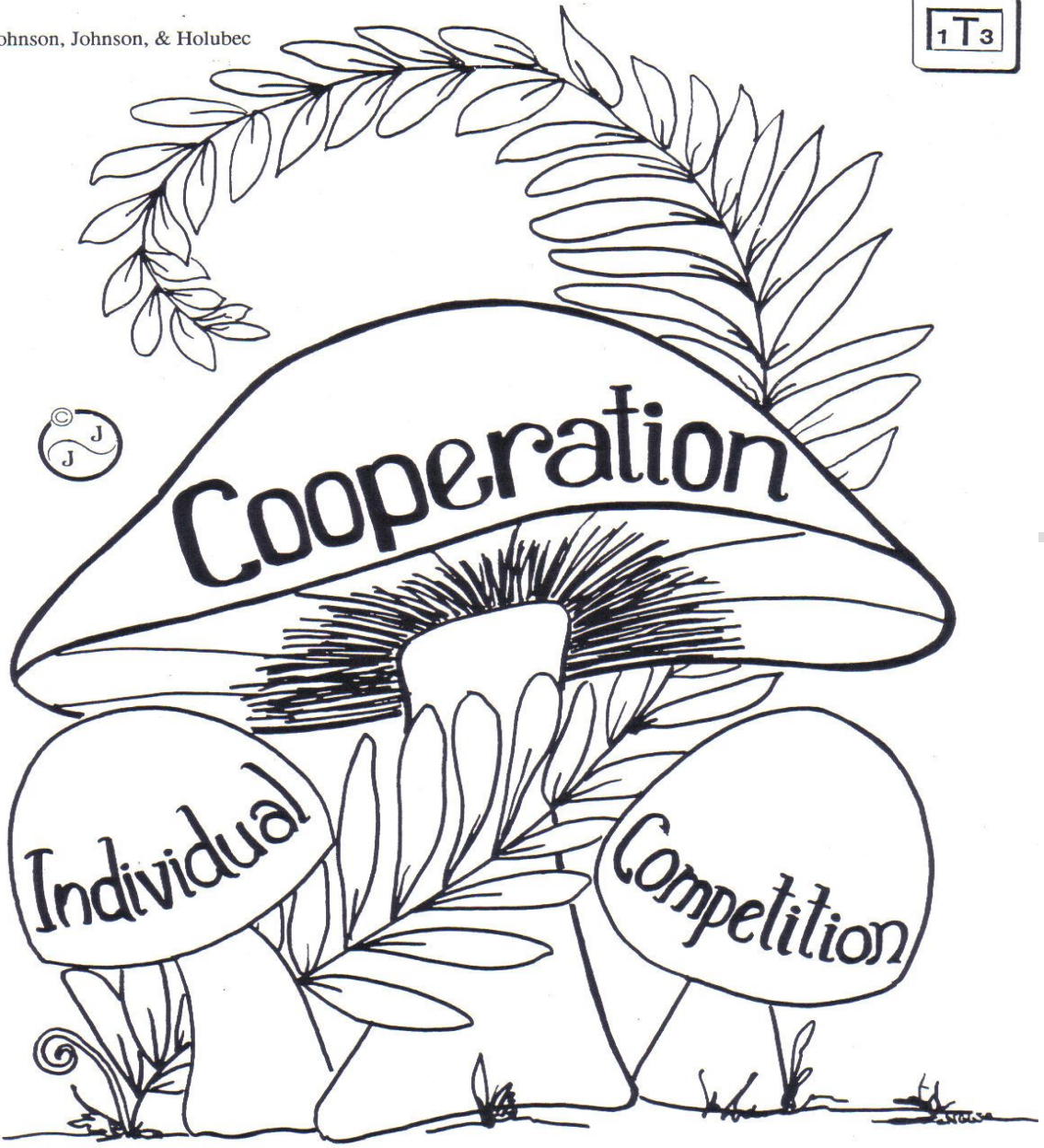
- Make Sure You Learn Something Useful And Interesting From Session(s)
- Make Sure Everyone In The Session(s) Learns Something Useful And Interesting

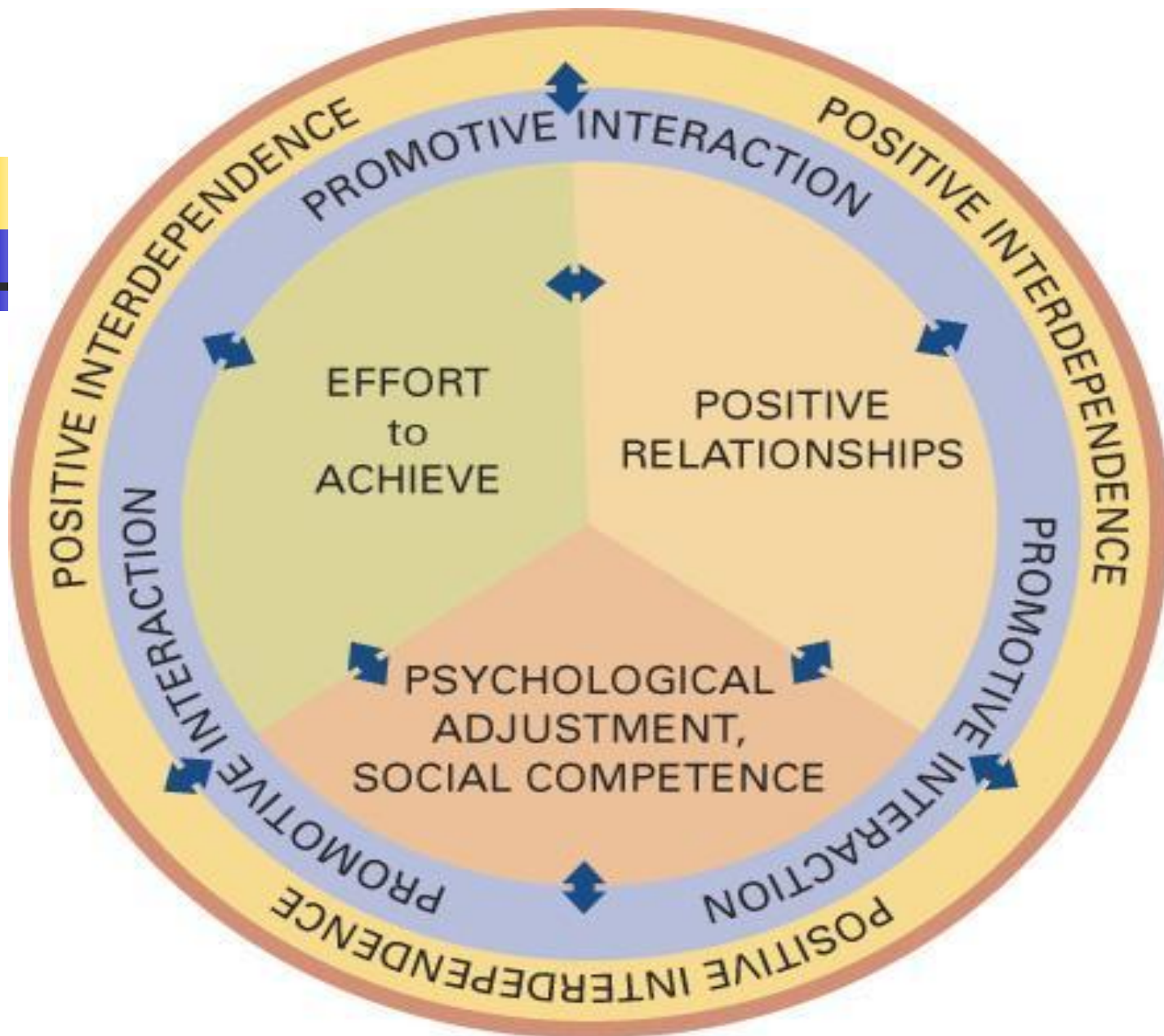


Which Of The Following Best Describes How You Are Feeling

- I Feel Much Better Now That I Have Given Up All Hope
- I Have Given Up My Search For The Truth And Am Now Looking For A Good Fantasy
- I Am Not Perfect, But Parts Of Me Are Excellent

(c) Johnson &
Johnson







David And Roger





Roger And I

- Brothers
- Grew Up On A Farm
- Sibling Rivalry
- He Is The Older Brother (Survival Of Human Species Depends On One Principle)
- Example (Beach: Genie in an old lamp)



David And Roger





Nametags

Where were you born?
Where Is Favorite Place?

Professional Role
What do you teach?

NAME

Road Least
Traveled

Looking Back
Looking Forward



Form Groups Of Three

- Find Two People You Do Not Know
- Who Are Different From You:
 - Grade Level, Subject Area, Role
 - Gender
 - Age
 - Geographic Region
 - Cultural And Ethnic Background



Group Warm-Up

- Names
- Professional Role
- Favorite Place (Geographic, Specific)

- Name The Most Important Outcome Of Cooperative Learning (In Your Present Opinion)

Where I Was Born



Favorite Place: David





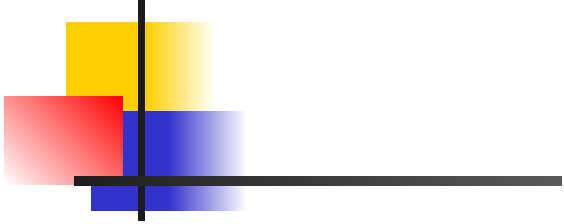
Cooperative Learning

- Active, Not Passive
- Talking, Not Silent
- Connected, Not Isolated



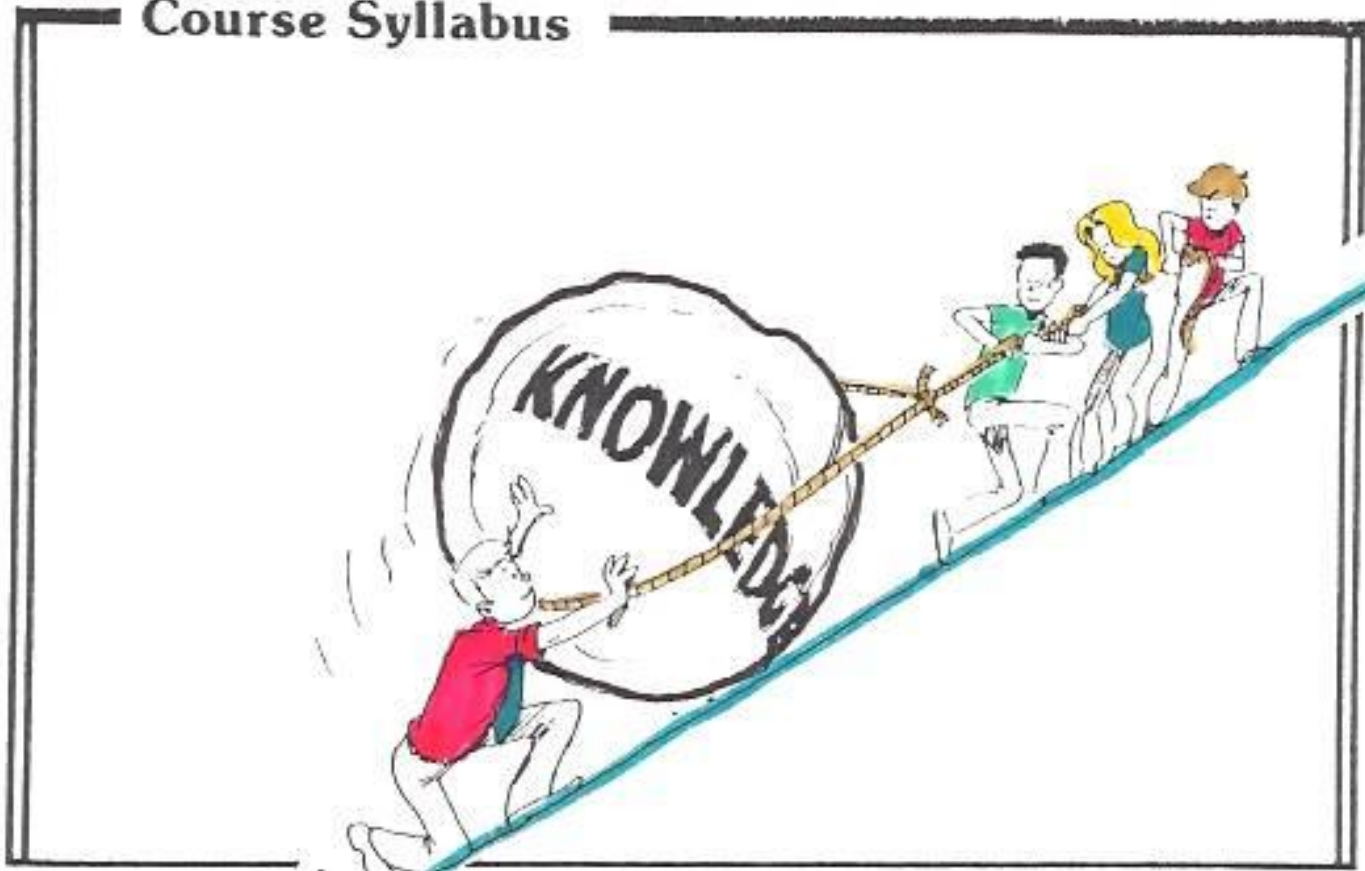
Old Vs New Teaching Paradigms

- Knowledge Transferred From Faculty To Students
- Students Are Passive Vessels To Be Filled
- Faculty Purpose Is To Classify And Sort Students
- Impersonal Relationships
- Competitive/Individualistic Context
- Any Expert Can Teach
- Knowledge Is Jointly Constructed By Faculty And Students
- Students Actively Discovers/Transforms Own Knowledge
- Faculty Purpose Is To Develop Students' Competencies And Talents
- Personal Relationships
- Cooperative Context
- Teaching Expertise Takes Considerable Training To Develop





Course Syllabus

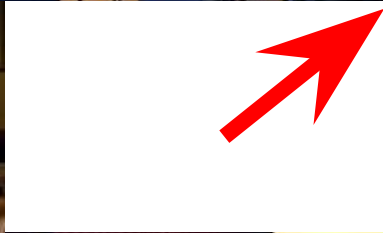




Changing Role Of Teachers

- Pedagogies Of Engagement, Not Passive
- Changing Teacher's Role
- Backward Design
- Theory Based Practices

Pedagogies of Engagement





Changing Teacher Responsibilities

- In The 21st Century The Teacher's Role May (Should) Change From
 - Presenter Of Information To
 - **Designer** Of Learning Experiences, Processes, And Environments

*“It could well be that faculty members of the twenty-first century college or university will find it necessary to set aside their roles as teachers and instead become **designers** of learning experiences, processes, and environments.”*

James Duderstadt, 1999

Nuclear Engineering Professor; Former Dean, Provost and President of the University of Michigan





Three Stages Of Backward Design: Social Interdependence Theory

- Identify Desired Outcomes
- Identify Interaction Patterns Required To Achieve Desired Outcomes
- Identify Type Of Goal Interdependence Required To Create Interaction Pattern
- *Are The Desired Outcomes, Interaction Patterns, And Goal Interdependence ALIGNED?*

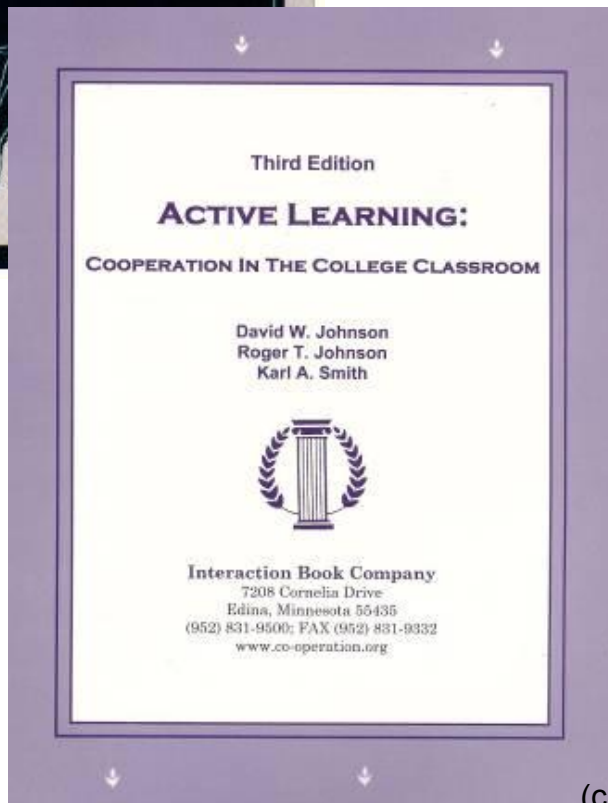
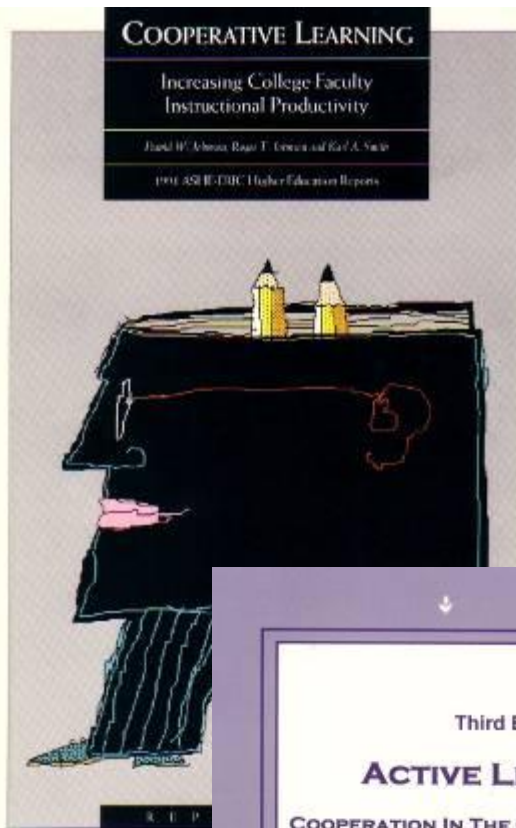
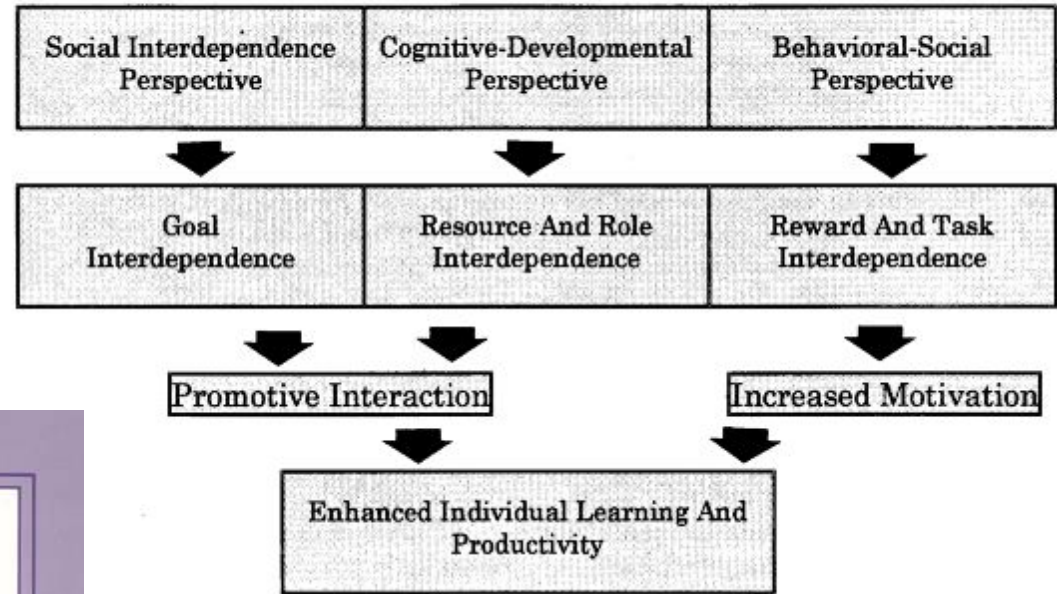


Figure A.1 A General Theoretical Framework



Cooperative Learning

- Positive Interdependence
- Individual and Group Accountability
- Face-to-Face Promotive Interaction
- Teamwork Skills
- Group Processing

[*First edition 1991, Third 2006]

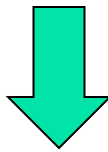
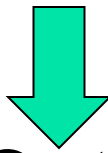


Session Schedule

- Introduction
- Definitions
- Five Basic Elements
- Research Support
- Conclusions And Closure



Basic Premise Of SI Theory

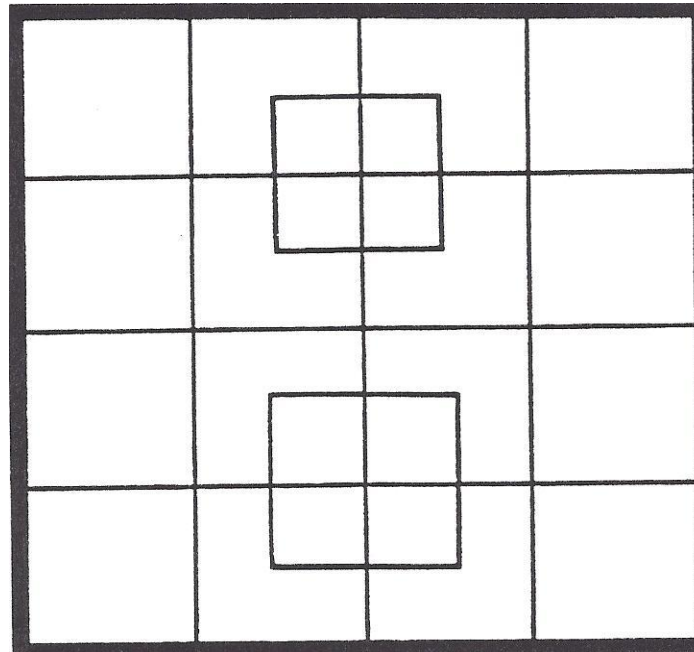
- Type Of Interdependence Structured Among Goals
- 
- Determines How Individuals Interact (Interaction Patterns)
- 
- Determines Outcomes



Competitive

- Task: Identify How Many Squares Are In Figure
- Competitive: Find More Squares Than Classmates
- Evaluation: Norm-Referenced (Comparative)
- Expectations:
 - Work By Yourself
 - Do Not Talk
 - Tune Out Distractions

How Many Squares In This Figure?



How Did I Feel?

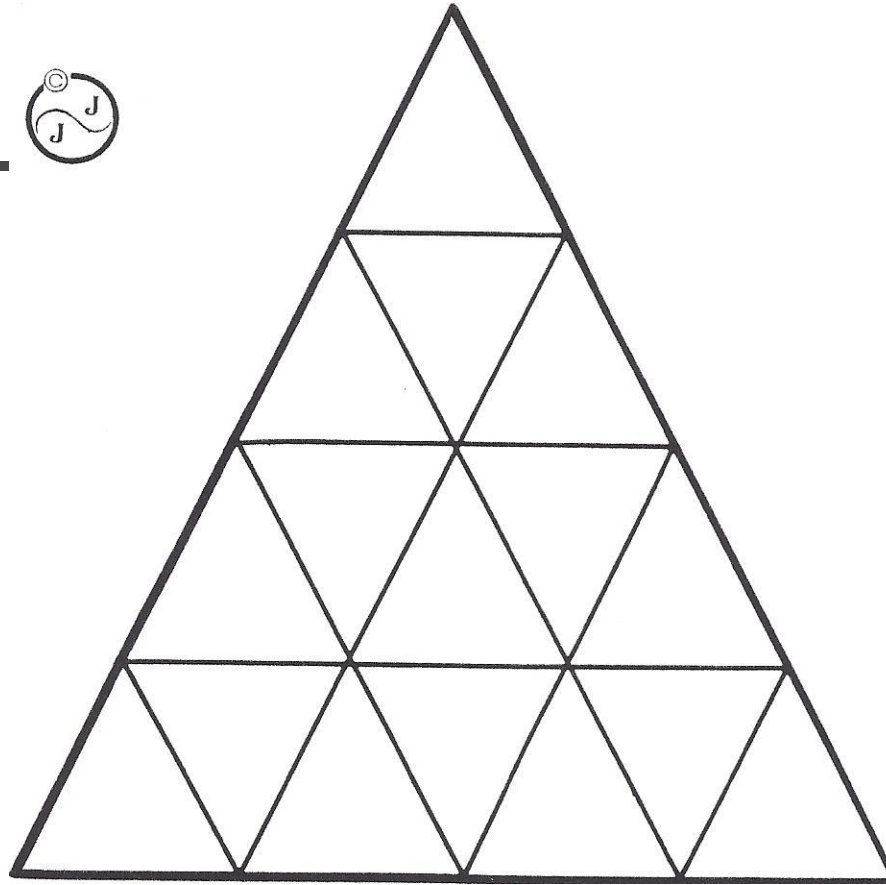
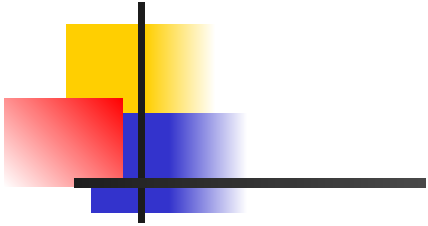
What Did I Notice?



Individualistic

- Task: Identify How Many Triangles Are In The Figure
- Individualistic: Find 95 Percent
- Evaluation: Criteria Referenced
- Expectations:
 - Work By Yourself
 - Do Not Talk
 - Tune Out Distractions

How Many Triangles Are In This Figure?



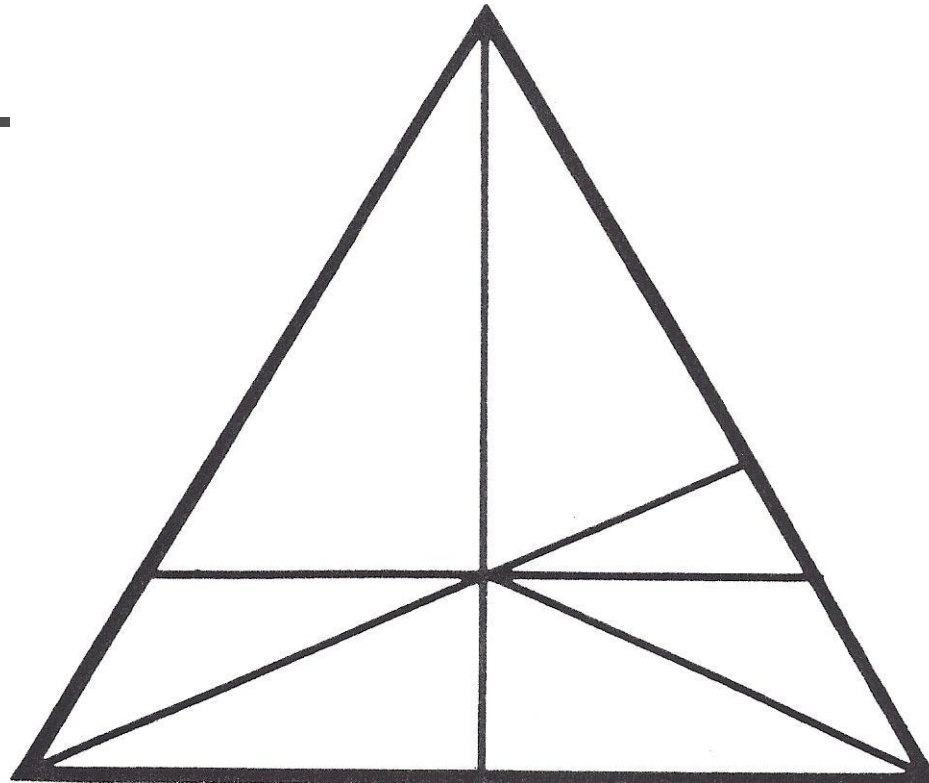
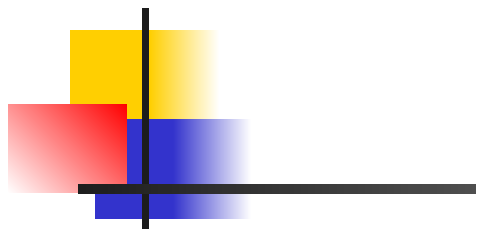
- How Did I Feel?
- What Did I Notice?



Cooperative

- Task: Identify How Many Triangles Are In The Figure
- Cooperative: One Answer From The Group, Everyone Has To Agree, Everyone Has To Be Able To Point Out Each Triangle
- Evaluation: Criteria Referenced (All Members Able To Identify 95 Percent Of Triangles)
- Expectations: Everyone Participates
- Intergroup Cooperation: If You Need Help, Ask The Group Next To You, They Will Be Glad To Help

How Many Triangles Are In This Figure?

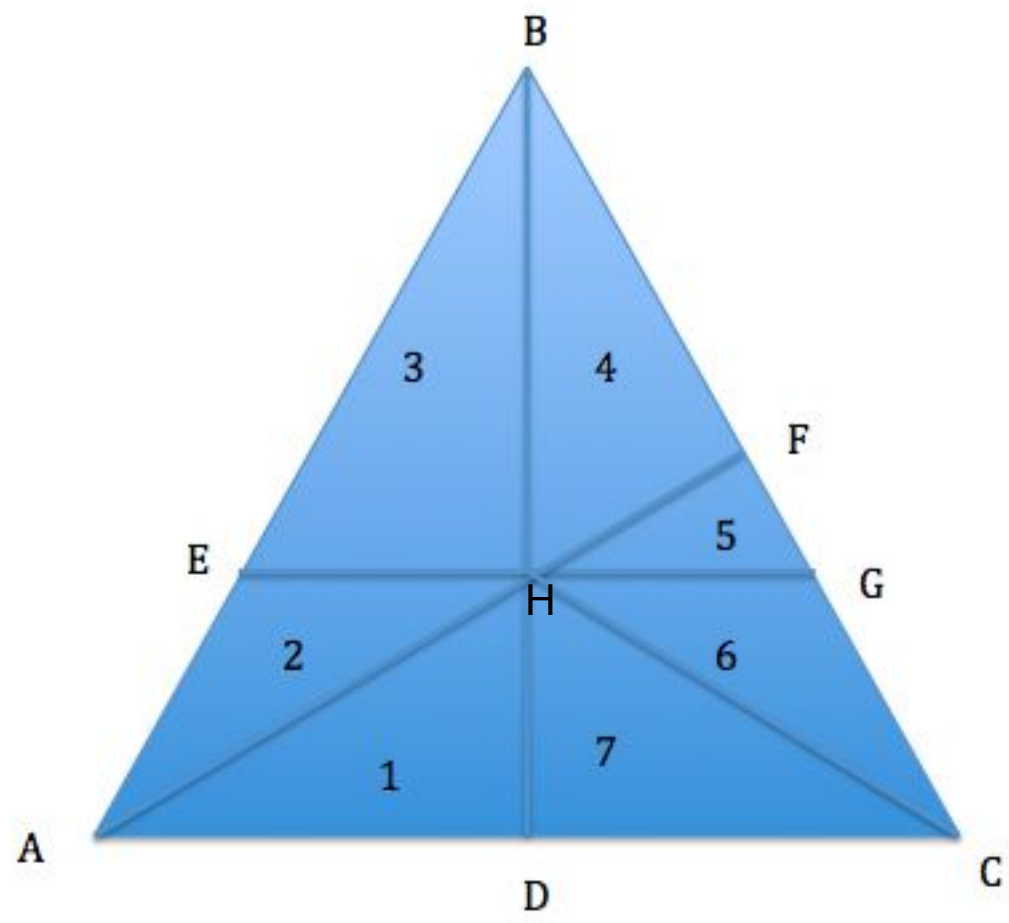
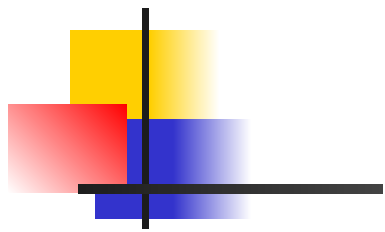


- How Did I Feel?
- What Did I Notice?



Individual Accountability

- Task: Identify Three Strategies For Finding Answer
- Cooperation: One List From The Pair, Both Of You Agree, Both Able To Explain
- Evaluation: Criteria Referenced (All Members Able To Identify Three Strategies For Solving Problem)
- Expectations: Everyone Participates
- Intergroup Cooperation: If You Need Help, Ask The Group Next To You, They Will Be Glad To Help





Strategies

- Random: Count Them As You See Them
- Color Code Or Draw Each Figure Out Separately
- Smallest To Largest (Singles, Doubles, Triples, And So Forth)
- Number Each Figure
- Letter Each Points



Teaching Math: Alan Schoenfeld

- Teach Brightest Math Students In U.S., Always Get The Right Answer, But
 - Many Do Not Understand The Math
 - Many Misunderstand The Math
- Window Into Students' Minds:
 - Homework And Correct Test Answers Are Very Poor Sample Of What Students Understand
 - Only Way To Tell Is Listening To Students Explain What They Are Learning To Someone Else
- Fixation: Pair With Another Student With Different Answer, Come To Agreement
- Heterogeneity: Whenever Possible, Make Groups Heterogeneous

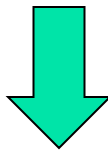
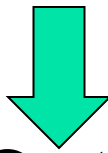


Group Processing

- Name Three Things Your Group Did Well In Working Together
- Name One Thing Your Group Could Do Even Better Next Time



Basic Premise Of SI Theory

- Type Of Interdependence Structured Among Goals
- 
- Determines How Individuals Interact (Interaction Patterns)
- 
- Determines Outcomes



Competition: Definition

- One Person Can Obtain His Or Her Goals If And Only If The Others Fail To Obtain Theirs; Negative Correlation Among Goal Attainments
- If I Swim, You Sink; If You Swim, I Sink
- Operational Definition:
 - Individual Goal
 - Norm-Referenced (Comparative) Evaluation
 - Winners Are Rewarded



Individualistic: Definition

- Each Person's Goal Attainment Is Unrelated To Other's Goal Attainments; No Correlation Among Goal Attainments
- We Are Each In This Alone
- Operational Definition:
 - Individual Goals
 - Criteria-Referenced Evaluation
 - Student Rewarded For Own Product

Cooperation: Definition

- When One Person Achieves His Or Her Goal, All Others Achieve Their Goals; Positive Correlation Among Goal Attainments
- We Sink Or Swim Together
- Operational Definition:
 - Group Goal
 - Criteria-Referenced Assessment/Evaluation
 - Student Rewarded For Own And Groupmates' Work



What Kind of a Group Does This Student Need?



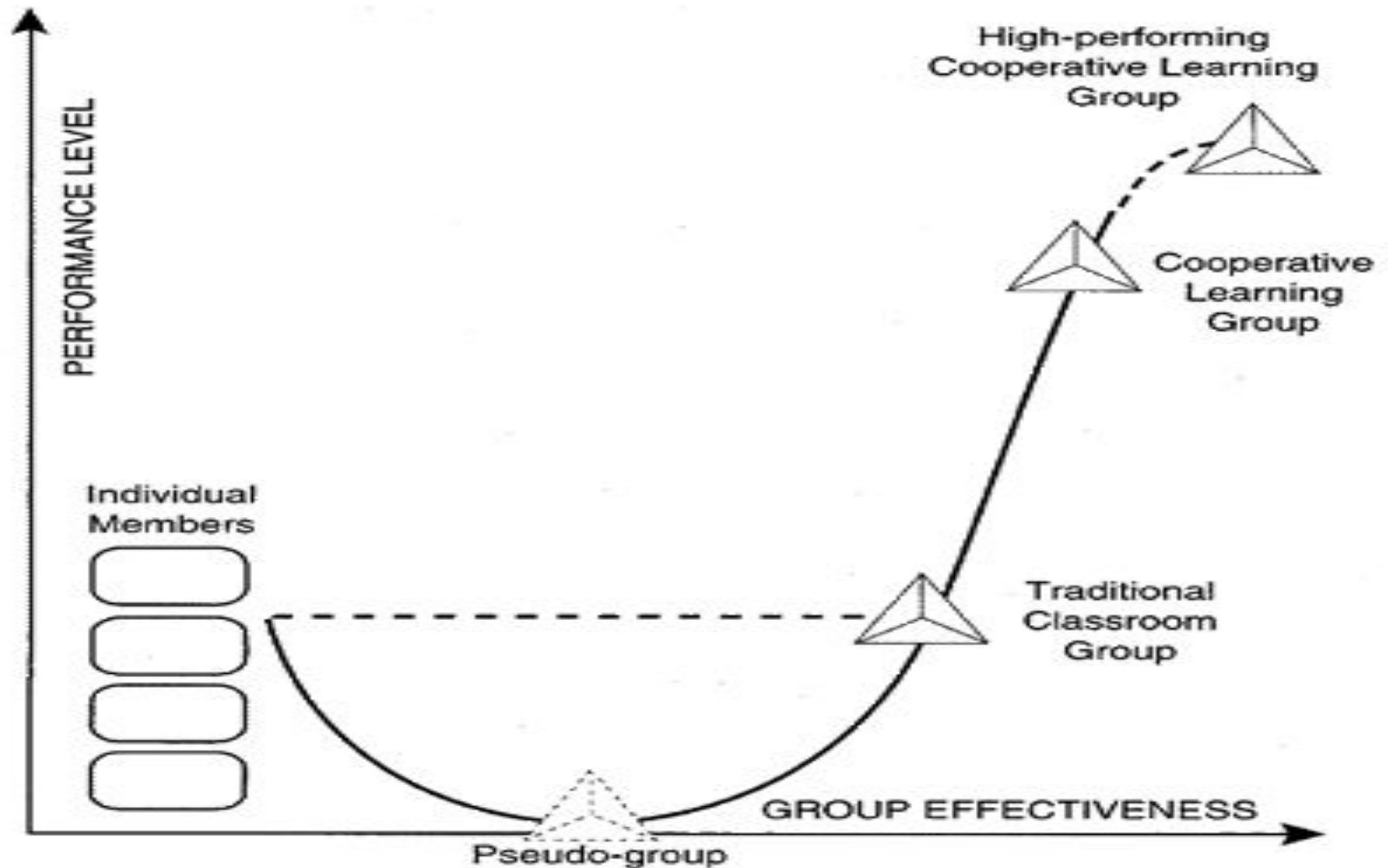
"They don't give us time to learn anything; we have to listen to the teacher all day."



What Makes Cooperation Work?

- Five Basic Elements
- Defining Exercise
- Summary

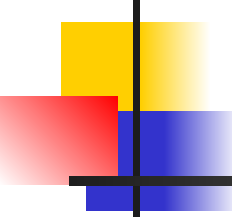
Group Performance Curve





Basic Elements

- Positive Interdependence
- Individual Accountability
- Promotive Interaction
- Cooperative Skills
- Group Processing



Critical Elements Of Cooperative Learning

- **Task:** Ensure you and your partner learn the five basic elements of a well-structured cooperative group so that you never forget them for as long as you live. For each element:
 - Read paragraph defining element
 - Restate definition in your own words, write it down
 - Rate on a 1-to-10 scale the extent to which your group experienced the element while completing task
 - Write down at least two things your instructor did to structure the element.
- **Cooperation:** One set of answers from the group, everyone agrees, everyone can explain. In doing so each member takes one role:
 - Reader
 - Recorder
 - Checker



Group Roles

- Reader: Read Through Material Slowly, Carefully, With Expression, So Group Members Will Never Forget It For The Rest Of Their Lives
- Recorder: Write Down All Of Group's Good Ideas, Make Sure There Are Three Good Possible Right Answers, And Circle The One The Group Decides Is Most Appropriate
- Checker For Understanding: Require Other Members To Demonstrate Comprehension And Help Diagnose Problems In Understanding



Critical Elements Rating Sheet

Your Definition	Rating	Ways It Was Structured



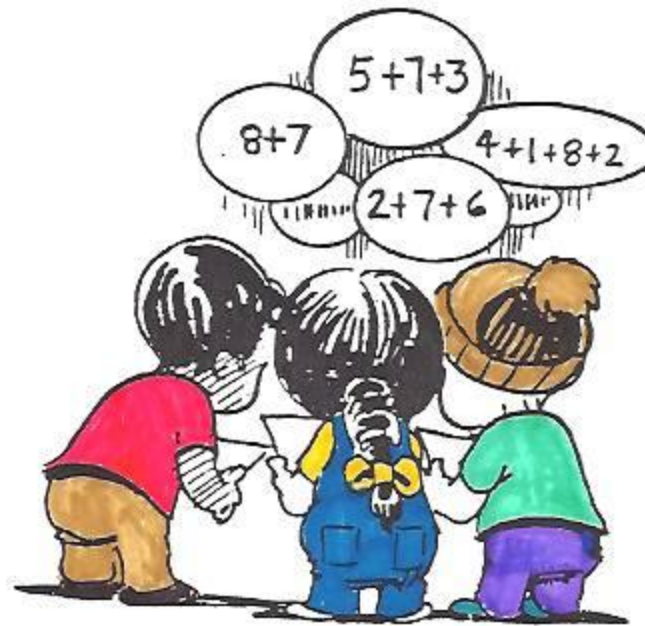
Positive Interdependence

The Emphasis On Mutual
Responsibility For
Achievement Creates
Positive Interdependence



What Children Can Do Together Today,
They Can Do Alone Tomorrow.

Vygotsky, 1965





Whoever Explains, Learns





Individual Accountability

- “A Chain Is Only As Strong As Its Weakest Link
- It Is The Strength Of Each Link That Makes A Strong Chain
- How Strong Is Each Of Your Links?
- In This Chain, There Will Be No Weak Links!



Cooperative Skills

- Leadership
- Communication
- Trust Building
- Decision Making
- Conflict Management

Peer Support

Learning is maximized when it takes place within the context of support, encouragement, and assistance from classmates

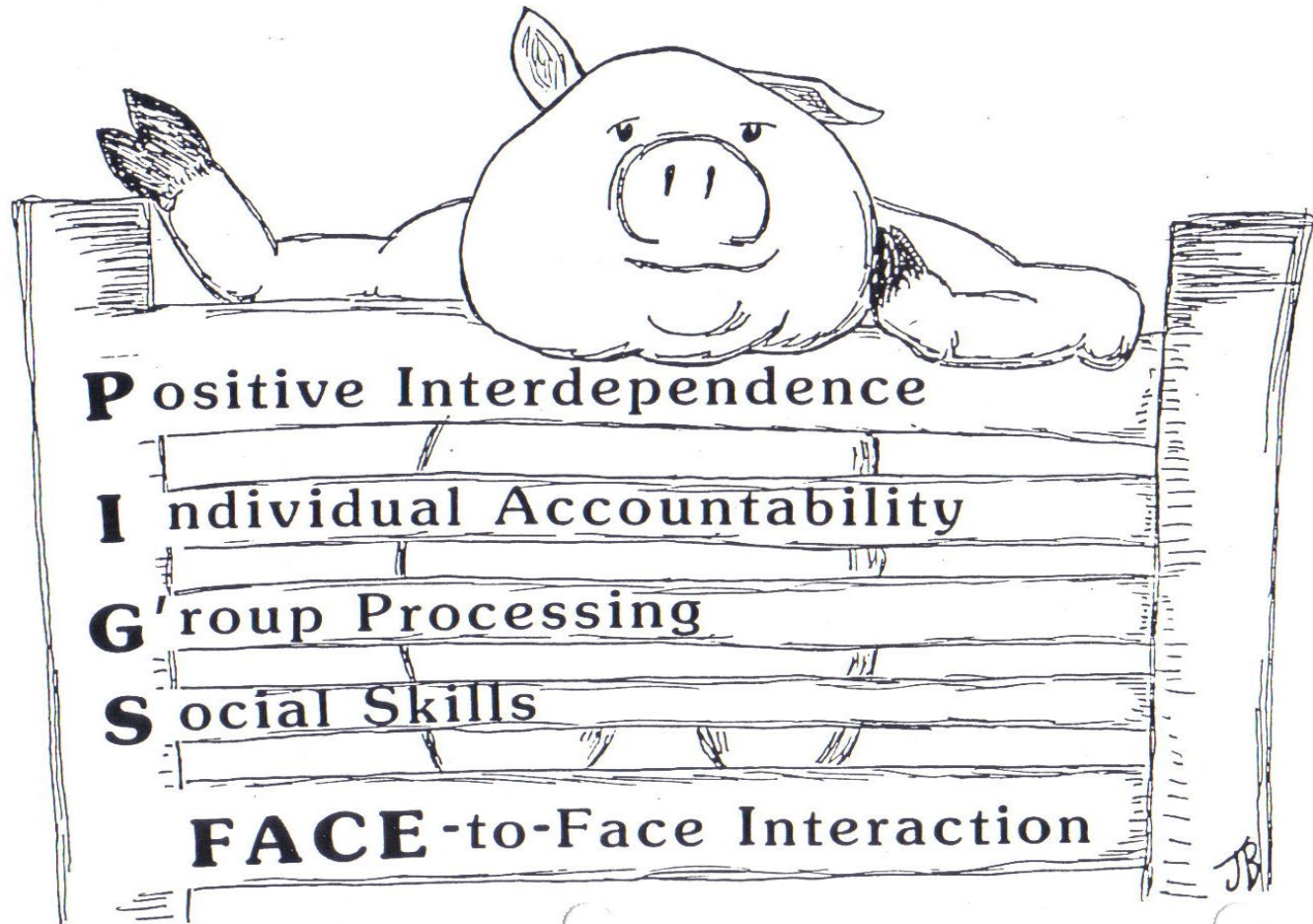




Group Processing

Critical Elements Of CL

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Why Use Cooperative Learning?

- Overview Of Research On Cooperation
- Research Outcomes
- Effect Sizes
- Implications

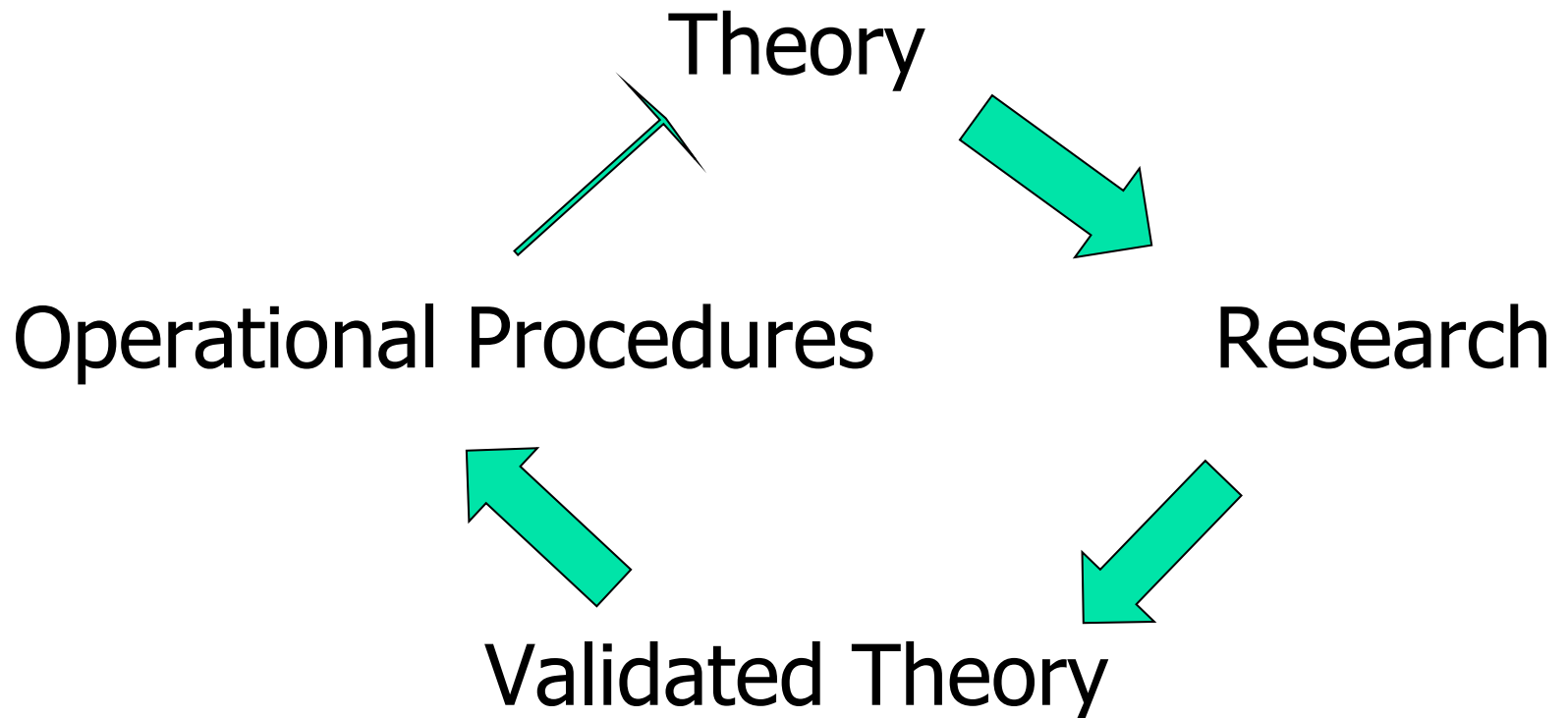


Power Of Teams

Non-Trivial Work Requires Collaborative Efforts

- **Walt Disney:** Snow White & Seven Dwarfs
 - He Got The Credit, But 750 Artists Did The Work
- **Michalangelo:** Ceiling Of Sistine Chapel
 - Thirteen Artists Made The Art Credited To Him

Relationship Among Theory, Research, And Practice





Research Promise

- Structuring Positive Interdependence Among Peers Leads To
- Promotive Interaction, Which Leads To
- High Productivity, Morale, Positive Relationships, And Well-Being



Overview Of Research On Cooperation

- Oldest Area Of Research In American Social Psychology:
 - Turner In England (1889)
 - Triplett In United States (1898)
 - Mayer In Germany (1903)
 - Ringelmann In France (1913)
- In 1989, Over 550 Experimental Studies And 100 Correlational Studies Conducted
- We Now Have Over 1200 Studies
- High Generalizability
- Multiple Outcomes
- Responsible Practice

Outcomes Of Cooperation





Research Outcomes

- Effort To Achieve:
 - Achievement And Retention
 - Higher-Level Reasoning
 - Intrinsic Motivation, Achievement Motivation
- Positive Relationships:
 - Liking For Each Other, Cohesion, Esprit-De-Corp
 - Heterogeneity: Cultural, Ethnic, Ability, Handicaps
 - Social Support: Professional And Personal
- Psychological Health:
 - Psychological Adjustment
 - Social Competencies
 - Self-Esteem
 - Shared Identity
 - Coping With Stress And Adversity



Impact Of Social Interdependence On Dependent Variables: Mean Effect Sizes

	Coop/Comp	Coop/Ind	Comp/Ind
Achievement	0.67	0.64	0.30
Interpersonal Attraction	0.67	0.60	0.08
Social Support	0.62	0.70	-0.13
Self-Esteem	0.58	0.44	-0.23

Note: Coop = Cooperation, Comp = Competition; Ind = Individualistic
Johnson, D. W., & Johnson, R. (1989). Cooperation And Competition: Theory And Research. Edina, MN: Interaction Book Company



Relationship Between Positive Peer Relationships And Achievement For Early Adolescents

- 148 Independent Studies Comparing Impact Of Cooperative, Competitive, Individualistic Efforts On Achievement And Relationships
- 17,000 Early Adolescents, 11 Countries, 4 Multi-National Samples
- Higher Achievement And More Positive Relationships In Cooperative Than Competitive Or Individualistic Situations
- Peer Relationships Explained 33% Of Variation In Achievement
- When Only Moderate And High Quality Studies Were Included, Positive Peer Relationships Explained 40% Of Variation In Achievement.
- If You Want To Increase Academic Integration And Achievement, Give Students Friends.
- Roseth, C. J., Johnson, D. W., & Johnson R. T. (2008). The relationship between interpersonal relationships and achievement within cooperative, competitive, and individualistic conditions: A meta-analysis. **Psychological Bulletin**, 134(2), 223-246.



Impact Of Cooperative Experiences And Dispositions On Harm-Intended Aggression And Prosocial Behavior

- 217 Students From 3rd To 5th Grades
- Path Analysis
- Cooperative Experiences Predicted
 - Cooperative Predispositions,
 - Absence Of Individualistic Predispositions
 - Prosocial Behaviors
- Cooperative Predispositions Predicted
 - Prosocial Behaviors
 - Absence Of Harm-Intended Aggression
- Competitive Predisposition Predicted Harm-Intended Aggression
- Choi, J., Johnson, D. W., & Johnson, R. T. (2011). Relationship Among Cooperative Learning Experiences, Social Interdependence, Children's Aggression, Victimization, And Prosocial Behaviors. **Journal of Applied Social Psychology**, 41(4), 976-1003.



Civic Values

- Work For Mutual Benefit, Common Good
- Commitment To Contribute One's Fair Share Of The Work
- Equality Of All Members
- Trusting, Caring Relationships
- Respect For Efforts Of Others And For Others As Persons
- View Situations From All Perspectives
- Unconditional Worth Of Self, Diverse Others
- Compassion For Others In Need
- Appreciation Of Diversity



Social Interdependence And Values

- **Competitive Experiences** Promote Winning At Others' Expense (See Self & Others Negatively Interdependent)
- **Individualistic Experiences** Promote Self-Interest While Ignoring Others' Interests (See Self & Others Independent)
- **Cooperative Experiences** Promote Concern For:
 - Others' Well-Being
 - Common Good(See Self & Others As Positively Interdependent)



Life-Long Advantage

Knowing How To Work Cooperatively With Others Gives Students A “**Developmental Advantage**” That May Increase Their:

- Academic Success
- Career Success (Employability, Promotability)
- Quality Of Life (Friends, Marriage, Parenthood)
- Happiness, Psychological Well-Being



Conclusions

- There Are Three Ways To Structure Student-Student Interaction
- Most Important And Least Utilized Is Cooperative Learning
- To Be Cooperative, A Group Has To Include The Five Basic Elements
- There Is Considerable Research Supporting The Use Of Cooperative Learning.
- Those Who Use Cooperative Learning Are On Very Safe Scientific Grounds.

