

MODULE #12: Critical and Creative Thinking

Objectives

- Participants will enhance their critical and creative thinking through the varied activities.

Context



In order to prove to others that you are a leader, you must acquire some necessary skills. Aside from the common characteristics and traits of a leader (dependability, self-confidence, flexibility, etc.) you must be able to think critically and creatively, make decisions, solve problems, and resolve conflicts. These are not innate skills, but rather skills that can be developed by anyone. This section will concentrate on these skills and give you the chance to practice using them.¹

Handouts & Resources Needed:

Handout 12.1: Statement Bee

Handout 12.2: Conflict Skits

Handout 12.3: Social Assumptions

Handout 12.3A: Social Assumptions: List of Alternative Explanations

Handout 12.3B: Quiz

Handout 12.4: The Lost Ball Problem

Handout 12.5: How I Did It

Pens/pencils

Sheet of paper – one for each participant

Journals – one per students

Activity #1: Statement Bee (40 min)

Procedure:

- Icebreaker
- The purpose of this activity is to encourage participants to use their critical thinking skills. Thinking critically means employing analytical skills, viewing things with a broader perspective, and considering all possible options. Critical thinkers know NOT to take things at face value. They realize that there is a difference between appearance and reality and can easily detect these differences.
 - Have participants divide into two teams. Every member of both teams is challenged three times:
 - To identify a type of statement

¹ Adapted from Research for Better Schools, Inc. Philadelphia, Janice Kruse Comp.

- To formulate a type of statement
- Facilitator will provide examples of factual statements, statements of personal taste, and value judgments (Handout 12.1).
- Facilitator will read any statement from the list and challenge participants to identify the type of statement:
 - Fact, personal statement, value judgment
- Facilitator will ask participants to give an example of one of the three types of statements.
- Have a discussion on what they named.
- Ask participants to add their own example.
- Debriefing

Activity #2: Critical Thinking Components (40 min)

Procedure:

- Icebreaker
- Facilitator will review previous activity.
- Explain to participants that there are four essential components to critical thinking:
 1. Identify and challenge assumptions. Always seek the truth.
 2. Challenge the importance of context. Learn to read between the lines.
 3. Imagine and explore alternatives. Seek out different methods.
 4. Reflect on decision, but with a bit of skepticism.
- Divide participants into two groups.
- Ask participants to role-play two scripts on Handout 12.2. These are conflict situations containing factual, taste and value judgment statements.
- After the role-play takes place, the facilitator will lead a discussion based on the questions following the script.
- Debriefing

Activity #3: Social Assumptions (40 min)

Procedure:

- Icebreaker
- Tell participants that they are going to discuss social assumptions to build on their critical and creative thinking.
- Have participants divide into groups of 4 or 5 and have each group discuss the first three assumptions on the Facts and Causal Factors list (Handout 12.3).
- Have participants suggest at least one alternative explanation for each statement (refer to Handout 12.3A for examples).
- Then, have participants discuss the final two assumptions (Facts and Relationships).

- Administer the quiz that offers facts and social assumptions and ask participants for alternative explanations (Handout 12.3B).
- Review the quiz.
- Debriefing

Activity #4: New and Different Thinking (55 min)

Procedure:

- Icebreaker
- Explain to participants that this activity requires creative and critical thinking. Provide Handout 12.4: The Lost Ball Problem.
- Ask participants the following question: What would they suggest these kids do to get their ball out of the pipe?
- If participants ask for additional information, tell them that the pipe is about 5 feet high, 3 inches in diameter, and the ball is 2 inches in diameter.
- Ask participants to discuss the problem with a partner. If students seem frustrated, use the hints below:
 - Instead of trying to think of ways to reach the ball, how could you get the ball to come to you?
- Ask participants for their ideas and then the facilitator will give the solution:
 - The problem is easily solved by pouring water into the pipe
- Debriefing

Activity #5: Inventions (55 min)

Procedure:

- Icebreaker
- Tell participants to pretend they are inventors of everyday objects.
- Distribute “Inventions: How I Did It” (Handout 12.5).
- Ask participants to fill in the blanks in Part I, with the description of their inventions.
- Once they are finished with Part I, ask participants to work on Part II in pairs.
- Have participants engage in a discussion about their inventions and tell them that there is no right or wrong answer.
- Ask participants the following questions:
 - What type of thinking does it take to be an inventor?
 - Discuss some famous inventions that changed our lives?
- Debriefing

Activity #6: Evaluation (20 min)

Students should be asked to complete the evaluation for this unit.

Handouts:

12.6A Evaluation Form-Student

12.6 B Evaluation Form-Facilitator

Handout 12.1

Statement Bee

What are the different types of statements?

<p>FACTUAL STATEMENTS</p>	<ol style="list-style-type: none">1. There are many kinds of computers.2. Coffee is one of the major exports of Puerto Rico.3. Library records show that more non-fiction books have been borrowed this year than last year.4. A bad case of measles could cause blindness.5. My mother gets mad if I wear dirty socks for a week.6. Students who cut class usually get called to the office.7. Fútbol is a popular sport in the Americas.8. My mother told me that my bedroom is a mess.9. Maria is Mexican American.10. I spent \$100 today.
<p>STATEMENTS OF PERSONAL TASTE</p>	<ol style="list-style-type: none">1. I prefer to use an apple computer.2. I like chocolate candy but I hate chocolate cake.3. My favorite author is Gabriel García Márquez.4. Don't sneeze on me—I'd hate to catch a cold.5. I'd like to go barefoot all summer.6. I would like to cut math class.7. I enjoy playing dominos.8. I like rap music.9. I like Italian food.10. As far as I'm concerned, \$4.00 an hour is a low wage.
<p>VALUE JUDGEMENTS:</p>	<ol style="list-style-type: none">1. Computers should be built to last.2. People with bad taste should get fashion advise.3. You shouldn't believe everything you read.4. All children ought to be vaccinated against serious diseases.5. Beto is the best swimming teacher at the pool.6. It's important to attend church regularly.7. It's better to be involved in a game than sit watching.8. Students should develop good work habits.9. It's wrong to accuse a person without very good reasons.10. It's wrong to spend more money than you earn.

Handout 12.2

Conflict Skits

Script A

Setting: The Girard dining room at dinner time.

Characters: Elena Martinez, age 18, and Martin, her 12 year-old brother.

ELENA: Eat your dinner. You're wasting food. Think of all the starving children in other countries.

MARTIN: But I'm not starving and I'm not wasting food. Listen, I could be well fed and healthy with only half the food I get.

ELENA: Prove it. Go on – show me statistics for growing kids.

MARTIN: O.K., but I read about it in a magazine at school. We don't have any books about nutrition around the house.

ELENA: So eat your dinner. Mom knows best.

MARTIN: Not on this she doesn't. You said I was wasting food. I say Mom is wasting it by giving me more than I need. I don't need this much to eat – especially not in the summer when I'm lying around and not using much energy.

ELENA: If you can't prove what you're saying, stop talking and start eating.

Script B

Setting: Back yard of the Guzman's house.

Characters: Carlos Guzman, 14 years old, and his friend, Juan Hernandez.

CARLOS: Mom says I have to make up my own mind—guitar lessons this summer or camp.

JUAN: That's not hard. Come to camp with all your friends.

CARLOS: I'd like to. We all had a good time last year. Being together at camp seems to make friendships really solid.

JUAN: Right. So come to camp.

CARLOS: It isn't that easy. You know I like playing the guitar and if I want to improve my playing, I have to take the lessons.

JUAN: Well, that's your thing.

CARLOS: Yes it is, and doing something really well—just for own benefit—is also important to me.

JUAN: You have to make the choice, that’s all.

CARLOS: All? You make it sound so easy, but it isn’t. I just can’t make up my mind.

Script A: Points for Discussion

1. What kind of arguments are Elena and Martin having?

ANSWER: Argument over facts – how much food kids need to stay healthy.

2. Even though they are arguing about facts, each of them had stated an opinion. What are the opinions?

ANSWER: Elena says Martin is wasting good food, and that his mother knows best. Martin says he’s not wasting food; it’s his mother who is wasting food.

3. What if Martin located facts to show that growing children need less food than he is asked to eat? Would these facts prove that Martin’s opinion is correct? Why can’t opinions ever be proved true or false?

4. Elena and Martin could not settle their factual argument because the facts were in books and magazines that were at school. Can you think of other kinds of factual arguments that would be hard to settle?

ANSWER: When different books or other sources state contradictory facts, or when a fact has not yet been established and must be tested, For example: “I can swim faster than you can.”

Script B: Points for Discussion

1. This conflict situation is not between two people—it’s within one person. Which of Carlos’s values are in conflict?

ANSWER: Enjoyment with friends and doing something really well.

2. Do you sometimes have to make a decision which involves choosing between conflicting values?

SAMPLE ANSWERS:

- a. Spending time on school work to improve grades vs. spending time on sports activities to improve skills.

- b. Being loyal to one special friend vs. being loyal to a group of friends.
 - c. Being kind to a younger brother or sister vs. wanting personal privacy and time of your own.
3. How do you deal with such decisions? Do you work it out on your own? Do you talk it over with people who are in some way involved? Do you talk it over with a good friend, your parents, or some other adult whose opinion you respect?
 4. Could Carlos find a compromise solution?

ANSWER: He could try to arrange for guitar lessons at camp.

Handout 12.3

Social Assumptions

Social Assumptions are ideas adopted by groups of people about other groups of people who are different. They often shape our views of others and can be dangerous because many times they are not true. Social assumptions can eventually lead to stereotypes.

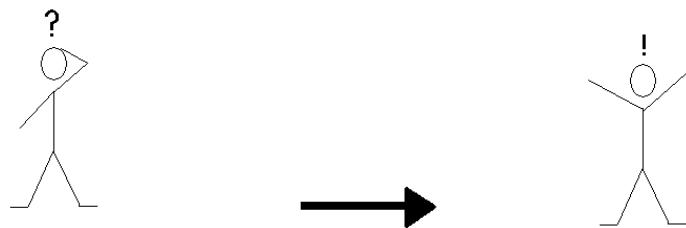
Stereotypes label groups of people in a way that may actually be incorrect. Many times these labels are negative and can be damaging to the social health of a community.

Look at the facts and their corresponding stereotypes below.

FACTS AND STEREOTYPES

FACT 1: Children who grow up in the center of a city do not do as well in school as children in the suburbs.	STEREOTYPE: With little income, little opportunity to play, and high pollution, the city environment affects children's mental abilities.
FACT 2: Most traffic crashes happen within two miles of the driver's home.	STEREOTYPE: Drivers are careless on familiar roads.
FACT 3: The suicide rate is higher in large cities than in small towns or rural areas.	STEREOTYPE: People who live in rural areas are well balanced; people who live in cities are disturbed.
FACT 4: Women tend to stay at home as the main childcare providers.	STEREOTYPE: Women aren't as successful as men in the workforce and therefore are meant to be in the home.
FACT 5: Many men don't feel comfortable crying in public.	Stereotype: Men who show their emotions are weak.

- Do you think these stereotypes are fair and balanced analyses of the facts?
- What do you think motivates stereotypes?
- Why do people stereotype others?



Handout 12.3A

Social Assumptions: List of Alternative Explanations

One or two possible explanations are given for each fact. Can you think of any other probable explanations?

Fact 1—Alternative Explanations:

- Center city families spend less money on toys, books, and lessons than suburban families.
- Center city schools have fewer facilities and materials than suburban schools.
- _____

Fact 2—Alternative explanations:

- Drivers spend more time driving near their homes than on more distant roads. The laws of probability may in part explain the number of accidents.
- _____

Fact 3—Alternative explanations:

- City conditions such as noise, over-crowding, and competition cause the higher suicide rate.
- Pace and quality of life in rural areas are calmer than in the city.
- _____

Fact 4—Alternative explanations:

- Women have historically been discriminated against in the workforce where men have traditionally dominated.
- Because women are often discouraged from pursuing careers out-side the home, they are forced to depend on men in the workforce.
- _____

Fact 5—Alternative explanations:

- Men are often pressured to be "strong," that any lack of strength is a failure. Thus, because men who show their emotions are made fun of, they hide emotions to appear more masculine, and more successful in their gender roles.
- _____

Handout 12.3B

Social Assumptions: Quiz

Read each fact, stereotype, and alternative explanation. Decide where these stereotypes may have originated. Do you think the alternative explanations are reasonable and appropriate? Can you think of any more explanations?

Fact 1: Up to 40% of all people released from prison commit other crimes and are re-imprisoned within five years of their release.

Stereotype: This is because criminals would rather break the law and chance another prison term than hold a job.

Alternative Explanations:

- A person in prison is seldom taught skills necessary for becoming a responsible member of society. In fact, prison may have taught that person how to become a better criminal.
- _____

Fact 2: Many men are poor housekeepers. This is because men do not have the ability to cook, clean, or do the laundry.

Alternative Explanations:

- Household skills take time to learn and men (and boys) spend their time learning other skills.
- _____

Fact 3: The highest number of deaths caused by heart attacks occurs in America. Americans eat a lot of foods containing cholesterol. We can conclude that cholesterol causes heart attacks.

Alternative Explanations:

- There may be a relationship between heart attacks and diet, but the diet alone usually does not cause heart attacks without interacting factors such as a lack of exercise or strain on the heart due to sudden, excessive activity.
- _____

CRITICAL THINKING: Can you think of another stereotype? What facts do these stereotypes come from? Can you think of an alternative explanation?

Fact: _____

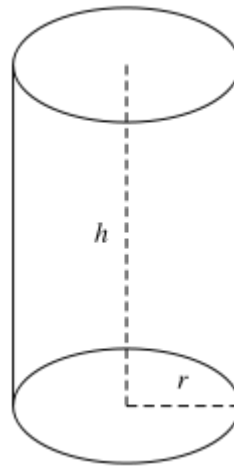
Stereotype: _____

Alternative Explanation: _____

Handout 12.4

New and Different Thinking: Lost Ball Problem

At a picnic in the park some,
Some children accidentally
dropped a wooden ball down
a pipe. The pipe is a
hallow cylinder that is
cemented to the ground.
What would you suggest
these kids do to get their
ball out of the pipe?



Handout 12.5

Innovations: How I Did It: Part I

For each of the following exercises, pretend that you're a famous innovator, a leader in creativity, problem solving, and invention. Fill in each of the blanks with the name and description of your famous idea.

1. You're the president of the Ruben Gonzales Shoe Company. You can't find material that works well for running on grass—rubber is water-proof but too heavy; nylon is light, but slippery in mud and damp grass.

What I need is a soccer cleat material that will grip and keep feet dry in the rain, but that won't hold an athlete back, like _____

2. You're a health scientist for the Lopez Band-Aid Company. You're having difficulty inventing a band-aid that will cover and protect a cut from dirt and at the same time leave it open to the air so it can heal.

What I need is to find a band-aid that is a _____

3. You're an investor for the National Puerto Rican Pastelles Company in the US. You are having difficulty obtaining plantain leaves for wrapping the pastelles.

What I must do is _____

4. You're a famous transportation expert. A number of community leaders have come to you with a complaint. Many local citizens live far away from schools but don't have a car and public transportation is inconvenient and expensive.

What these people need is a _____

5. You're a famous musician from Puerto Rico who wants to teach children how to play the quadro, but they are difficult to find in the US.

What I need to do is _____

Part II

Once again, pretend that you are that very famous inventor. For each invention below, name the thing that gave you the idea (animal, plant, geological formation, other human invention, etc.).

Back Pack

Pants Pockets

Telephone

Stop Light

Radio Antenna

Pool

Vacuum Cleaner

Scissors

Light Bulb

Sunglasses

Soccer Cleats

Snorkel

Helicopter

Fishing Pole

Envelope

Handout 12.6A

Evaluation Form for Student

Indicate three new things you learned.

How will you use this new knowledge in the future?

Were the handouts useful?

How could this workshop have been improved?

Evaluation Form for Facilitator

1. Did the workshops run smoothly? Why?
2. What aspects of the workshops did not work? What would you change?
3. Was it easy to understand?
4. How would you make it more culturally relevant?
5. What visuals would you add?
6. How would you make it more hands-on for youth?