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ABSTRACT

This workshop presents a collection of demonstrations of various psychological concepts. It provides a technique to increase people's interest in the field of psychology and to teach some basic principles about psychology for use on a daily basis. The workshop covers sensation; perception; learning; memory; responding; thinking; interference; measurement; feedback; reinforcement; assumptions; and interpretation. For each activity, you review the psychological basis for the activity; engage in participating in the activity; participate in a discussion relating the activity to real life experiences of the participants; and discuss the way in which participating in the activity will benefit the participants at home or on the job. This program provides a lively, informative workshop with minimal preparation. (ADT)

Games To Explain Aspects of Psychology

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National Association of School Psychologists Washington, DC April 21, 2001

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Abstract

Do you receive periodic requests to deliver presentations on "Psychology" for "Career Nights", community service organizations, or faculty "in service" training? Do you need a lively, informative, minimal preparation, and inexpensive program? If so, *Games To Explain Aspects of Psychology* may be just what you are looking for.

In this session we have collected and developed a number of demonstrations of various psychological concepts, and placed them in a single two hour workshop. This workshop will provide you with a technique to increase people's interest in the field of psychology and teach them some basic principles about psychology for use on a daily basis.

The workshop will cover sensation, perception, learning, memory, responding, thinking, interference, measurement, feedback, reinforcement, assumptions and interpretation. For each activity, you will review the psychological basis for the activity, engage in participating in the activity, participate in a discussion relating the activity to real life experiences of the participants, and discuss the way in which participating in the activity will benefit the participants at home or on the job.

Selected Comments

- I found your demonstration-based approach a nice alternative to the usual way in which our profession is explained to the layman.
- A great way for people to learn without even trying.
- I see your session as getting information from the minds of teachers to the minds of students without going through the notebooks of either.
- Good info. Brings common sense to bear that is sometimes lost when designing systems.
- FUN! I had learned/seen this in college perception classes -- nice to see it again.
- This session was very informative. I've always been interested in psychology and this shows me how it relates to design of end-user products.
- Very good practical application and examples.
- A lot of fun and very interesting. I could apply this to life situations.
- Examples proved that "a picture is worth a thousand words." Made it easy to see points being made.
- Content was great. Exercises illustrated points very well.

The Presenters

Raquel Shapiro, Ed.D. is the school psychologist/counselor at The Henry Barnard Laboratory School (HBS) of Rhode Island College (RIC). Raquel received her bachelor's, master's and CAGS degrees from RIC and her doctoral degree from Boston University. Prior to joining the HBS faculty, she served as a teacher, guidance counselor, and school principal in the Providence, Rhode Island public schools.

Ronald G. Shapiro, Ph. D. is the Program Manager for Skills and Employee Development for IBM Software. In previous assignments, Ron served as a Human Factors Professional, a manager, and the IBM Coordinator of Human Factors. Ron received his B. A. from the University of Rochester and his M. A. and Ph. D. from The Ohio State University in Experimental Psychology. He taught at Denison University prior to entering industry, and has held numerous adjunct teaching assignments.

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  - Jody L. S. Wilson

Today's Framework

- What Do People Do?
  - Sense
  - Perceive/Assume/Interpret/Think
  - Learn (Teach and Communicate)
    - Provide and receive feedback/reinforcement
    - Adapt to new situations
    - Develop strategies to cope with interference
    - Learn to observe and measure more effectively
  - Store information in memory
  - Retrieve Information from memory
  - Decide how to respond
  - Respond (Anthropometrics)
  - Interact in a Social Environment

Sense

- What happens: sense organs extract information from environment and convey it to the brain.
- Questions:
  - What information can/do we extract?
  - Can people sense what they think they can?
- Challenges people face:
  - Noisy environment
  - Limited sensory ability (may decline with age)
  - So much information, can't process it all
  - If you provide too much information, some (if not all) will be ignored
- Demonstrations:
  - Two point discrimination threshold
  - Sound localization
  - Sensing vs. interpretation

Sensation 1

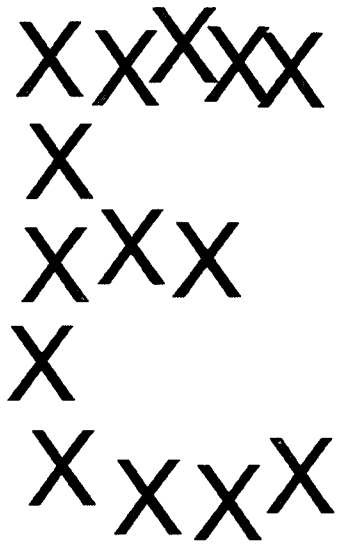
- Two Point Discrimination Threshold
  - Supplies/volunteers needed:
    - Two paper clips with wire bent open
    - One volunteer
  - Instructions for the demonstrator:
    - Ask volunteer to close eyes
    - Touch volunteer with the tip of either one or both clips on finger tip
    - Ask "How many clips did I touch you with?"
    - Repeat above procedure several times at finger tip, varying the distance between the clip points.
    - Repeat on different parts of the body (e.g., back of hand, arm...)
    - People will perform best with clips far apart and on finger tip. Worse performance will result with clips close together and on back of hand, arm, mid-back, etc.
  - Explanation:
    - There is a much richer nervous system structure for finger tips, etc. than back of arms, thus there is more sensitivity there.
  - Discussion:
    - What does this tell you about clients accuracy in reporting "what they feel?"
    - How is this influenced by less than friendly environment?

Sensation 2

- Sound Localization
  - Supplies/volunteers needed:
    - 2 pencils
    - 1 chair in center of room facing audience
    - 1 volunteer
  - Instructions to volunteer:
    - Please be seated in this chair facing the audience.
    - I will be tapping two pencils together many times during this demonstration. Please point to the place where I tap the pencils together.
    - Please close your eyes.
  - Instructions to demonstrator:
    - Tap two pencils together to the right, left, directly in front of, in back of, and on top of participant's head in random order.
    - Volunteer should be 100% correct in pointing when you tap to their left and right. They should perform randomly when you tap directly in front of, on top of, or behind them.
  - Explanation:
    - When tapping on right/left sound travels to one ear before the other. This information is used to perceive direction.
  - Discussion:
    - How do we perceive and make decisions when we have insufficient information?
    - How can auditory alarms be used effectively?

Sensation 3

- Sensation vs.. Interpretation ("E") Demonstration
  - Supplies/volunteers needed:
    - Chart with "E"
    - Overhead projector
  - Instructions to the demonstrator:
    - Say "Look at the screen. I will display something briefly."
    - Place the chart on the next page on the projector.
    - Turn projector on and off as quickly as possible.
    - Ask audience what they saw.
    - Expect to hear either an "E", an "E" made up of X's, or some X's.
    - Ask audience "How many X's in each row?" You will hear a variety of answers.
    - Turn projector back on to count.
  - Explanation:
    - We cannot possibly perceive everything in front of us. There is just too much stimulation there and vision is imperfect. Thus, we gather some information and interpret it. Oftentimes, imperfections are missed (e.g., proofreader's errors).
  - Discussion:
    - How do we process imperfect information?
    - What are the risks associated with doing this?
    - How much do we "see" and how much do we "interpret?"



Interpret

- What happens: decide what is present in the environment based upon our previous experiences
- Questions:
  - Do people perceive what is in the world or something else?
  - How do people search?
  - What do people assume?
  - Why don't people attend to what they are told to?
  - Do people conceptualize in similar ways?
  - How well do people work with Multiple Sets of Rules?
- Challenges:
  - Ambiguous information not necessarily interpreted accurately
    - Remember: people don't sense every detail from "E" demo
    - Pronunciation of 50 vs. 15, Reading 2 vs. 3
  - People will interpret differently
  - People will not always remember what mode their display is in when interpreting display
- Demonstrations:
  - Repeated words --Spelling Checker
  - OTT --Game of States
  - Object localization

Interpretation 1

- "Repeated Words" Demonstration (imperfect information)
  - Supplies/volunteers needed:
    - Chart with Repeated Words on it
    - Overhead projector
  - Instructions to the demonstrator:
    - Say "Look at the screen. I will display something briefly."
    - Place the chart on the next page on the projector.
    - Turn projector on and off as quickly as possible.
    - Ask audience how many words appeared more than once.
    - Expect to hear 2 or less (actual number is 3)
    - Turn projector back on to count.
  - Explanation:
    - We cannot possibly perceive everything in front of us. There is just too much stimulation there and vision is imperfect. Thus, we gather some information and interpret it. Oftentimes, imperfections are missed (e.g., proofreader's errors). Also, people often don't pick up on the exact instruction -- how many words appear more than once... instead they hear how many words appear more than once in a row.
  - Discussion:
    - How do we process imperfect information?
    - What are the risks associated with doing this?
    - How many people followed the exact directions?
    - How did people interpret the word "repeated"? Why?

Interpretation 1

It is often difficult to find the
the repeated word in a sentence,
even when you are aware that
that psychologists are tricky.

My Spelling Checker

I have a spelling checker
It came with my PC
It plane lee marks for my revue
Miss steaks aye can knot sea.
Eye ran this pome rite threw it,
Your sure reel glad two no.
Its vary polished in its weigh --
My checker tolled me sew.
A checker is a bless sing
It freeze ewe lodes of thyme.
It helps me right, awl stiles two reed,
And aides me when aye rime.
Each frays come posed up on my screen
Eye trussed too bee a joule.
The checker pours ore every word
To cheque sum spelling rule.
Be fore a veiling checkers,
Hour spelling mite decline,

And if were lacks or have a laps,
We wood be made to wine.
Butt now bee cause my spelling
Is checked with such grate flare,
Their are know faults with in my cite,
Of non eye am a wear.
Now spelling does knot phase me,
It does knot bring a tier.
My pay purrs awl due glad den
With wrapped words fare as hear.
To rite with care is quite a feet
Of witch won should bee proud.
And wee mussed dew the best wee can,
Sew flaws are knot aloud.
Sew ewe can sea why eye dew prays
Such soft wear four pea sees.
And why I brake in two averse
By righting want too pleas.

--Author unknown

Interpretation 2

- __ O T T F F S S E ___ __
  - Supplies/volunteers needed:
    - Next chart
  - Instructions to the demonstrator:
    - Say "Tell me what letters to put on each line and why?"
    - One answer is Z, N, T, E (the first letter of the names of the numbers from Zero on up).
    - Discuss divergent thinking styles
  - Explanation:
    - Different individuals have different cognitive styles. All must be understood and respected.
  - Discussion:
    - Most any topic involving cognitive styles or diversity is appropriate here. Oftentimes, there are many "correct" answers to a question.
    - How do you think?
    - How do your patients think?
    - How does the equipment designer think?

Interpretation 2

_ O T T F F S S E _ _ _ _ _

Interpretation 3

- Object Localization and Identification
  - Supplies/volunteers needed
    - 1 or 2 volunteers
    - Bandana(s) containing either $1.00 or check for $1.01
    - Next chart
  - Instructions to the demonstrator:
    - Blindfold volunteer(s). Bring them to a place in the room -- where they do not know where they are. Show everyone else the next chart.
    - Say "There is an object worth $1.00 (or $1.01) in front of you right now. You have 10 seconds in which to find it." When they don't find it say "OK, since you did not find the object we'll give you another chance. I'll now bring you to another place in the room (bring them somewhere else in the room -- by a route they could not retrace). Now you get as much time as you need to tell us what the object is and where it is. You may ask "yes/no" questions and move around the room as you wish. As the audience answers your questions, you will be spun around. Good Luck!"
    - Allow task to continue for awhile. Give some hints as needed. This is a difficult task. It has been successfully done with students from Grade 5 up. It is even difficult for graduate students!
  - Explanation:
    - This demonstration highlights the assumptions we make, the difficulty we have sorting out valid from invalid assumptions, and shows how being flexible in thinking helps to solve a problem.
  - Discussion:
    - How would we benefit from being more flexible in thinking?
    - When are we most prone to make invalid assumptions?

Interpretation 3

There is a $1.00 bill hidden in the bandana.

or

There is a check for $1.01 hidden in the bandana.

Interpretation 4

- Game of States
  - Supplies/volunteers needed
    - None
  - Instructions to the demonstrator:
    - The lead presenter asks a member of the audience to whisper the name of a state to one of the co-presenters.
    - The co-presenter then goes through several repetitions of asking the lead presenter "*Is it (name of state?)*"
    - The lead presenter correctly answers "*no*" to the first few states, and then "*yes*" to the whispered state.
    - The following rules determine the correct state:
    - The state mentioned BEFORE the correct ("yes") state must
    - Begin with a Consonant and end in an "A" (e.g., Georgia or one of 14 others) OR
    - Begin with a Vowel and end in an "O" (Ohio and Idaho)
  - Explanation:
    - The relative infrequence of the Vowel + "O" states plus the fact that two different rules are being used makes this set of rules very hard to figure out.
    - This demonstration highlights the need to:
    - Adapt product to user's rules whenever possible
    - Clearly state any rules you are imposing
    - Make rules simple to learn, and minimize exceptions
  - Discussion:
    - Can you give real examples of complex or changing rules making it hard to use a product?

Teach, Learn and Communicate

- What happens: Change system so that future responses will be different than in the past
- Questions:
  - What feedback should be provided?
  - How often should feedback be provided?
  - What helps people observe/respond better?
  - Can people accidentally be taught to fear or dislike something?
  - Will being a better observer help you to measure learning?
- Challenges:
  - Some learning occurs no matter what you do
  - People often provide nonspecific (poor, limited, or delayed feedback)
  - Clear, concise, timely feedback
  - Provide timely and appropriate feedback
- Demonstrations:
  - Paired Associate Learning
  - Perceptual Learning/Adaptation
  - Feedback/Learning I
  - Feedback/Learning II

Learning 1

- Paired Associate Learning
  - Supplies/volunteers needed:
    - None
  - Instructions for the demonstrator:
    - Whenever I say up, raise your hand quickly and put it right back down. (Practice this a bit until you get fast responses).
    - Now, hit table, wait three seconds, say "UP."
    - Repeat previous step 10 times or so.
    - You will notice hands starting to go up before you say "UP."
    - For the last iteration, just hit the table but do not say up.
    - Ask participants whose hands did not going "UP" how hard they worked to resist hand going up.
  - Explanation:
    - Some learning, such as what we are seeing in this demonstration (this could be called a form of classical conditioning, but some might argue it really isn't) is involuntary.
  - Discussion:
    - What does this demonstration tell you about people's ability to follow instructions?
    - When does learning something make it more difficult to do something else?
    - Aversion to some foods after food poisoning is one example of this type of learning. What are others? (fear of computers, dislike of school...)
    - Do we become conditioned to modes?

Learning 2

- Perceptual Learning/Adaptation
  - Supplies/volunteers needed:
    - Pair of Prism Goggles with 180 degree inversion
    - Several coins of differing values
    - Volunteer with normal vision and balance who does not get motion sickness frequently
  - Instructions for the demonstrator:
    - Part A:
      - Ask volunteer to close eyes. Place prism set on volunteer.
      - Rest hands on volunteer shoulders to help them initially orient.
      - Ask volunteer to open eyes. Ask volunteer what they see.
      - Ask volunteer to walk around a little.
    - Part B:
      - Place coins on the floor (while volunteer cannot see you placing them).
      - Have volunteer point to the various coins and try to touch them (without sweeping the floor). (Let them keep whatever they point to first and whatever they can pick up within 15 seconds.)
  - Explanation:
    - With the goggles on the world appears upright on the retina. Under normal situations the world appears upside down on the retina.
    - People adapt to many situations including these goggles (within 3 weeks). After adapting one would need to readapt upon removing the goggles.
  - Discussion:
    - What does this demonstration tell you about people's learning?
    - Why do we normally see the world upside down?
    - How much should people have to adapt to a new school, teacher, job, computer software, etc.?

Learning 3

- Feedback/Learning 3
  - Supplies/volunteers needed
    - 2 or 3 teams of 2 volunteers each
    - Next chart
  - Instructions to the demonstrator:
    - First, for each team chose a "teacher" and a "student."
    - Say "I will present a task on the screen. The "teacher" will teach the "student" to do the task by only calling out the "student's" name. No demonstrating, modeling, or anything else."
    - Say "Students' close your eyes for a minute while I show the task." (Show task on the screen).
    - Allow task to continue for awhile. Help out as needed. See who wins. Discuss demonstration. Note what feedback, other than hearing their name, "students" are using to gather information (e.g., watching teachers head movements, where teacher is looking, etc.)
  - Explanation:
    - Proper feedback (positive reinforcement) is necessary for people to learn. This involves developing observational skills in both the teacher and the student. This exercise will help develop this observational skill.
  - Discussion:
    - How can we improve our observational skills?

Learning 3

- Stand on One Foot

Learning 4

- Feedback/Learning 4: Clever Hans Demo
  - Supplies/volunteers needed:
    - 2 bandanas
    - 2 teams of 2 volunteers
    - Next chart
  - Instructions to the demonstrator:
    - Say "In the previous demonstration, we observed that 'students' were doing all sorts of observations in addition to listening for their names. For example, 'students' may have observed that their 'teachers' were modeling the behavior desired or that they were looking in certain directions. This information was in some cases more useful than the 'official information'."
    - Tell story of horse that could "count." (Recall you could ask Hans what's 3+4 and he would tap foot 7 times, etc.) Hans wasn't really counting, he was instead responding to his owner's head movements and sigh of relief.
    - Say "In this demonstration we will remove all 'unofficial information' and repeat the earlier learning demonstration (Feedback/Learning 1) with a new task. We will remove the 'unofficial' information by blindfolding the 'students'."
  - Explanation:
    - This demo provides excellent practice in observational and teaching skills, as well as it illustrates "official" vs.. "information really used."
  - Discussion:
    - How can we improve our observational skills?
    - What are the risks/benefits of using readily available information?

Learning 4

- Audience choose 1:
  - Twiddle Thumbs
  - Touch Nose With Index Finger

Store Information In Memory

- What happens: store information for later retrieval
- Questions:
  - How much can people remember?
- Challenges:
  - Short term memory limit of only 7 "chunks"
  - Appropriate amount of information
  - Minimize reliance on memory
  - Provide information in a form that is meaningful
- Demonstrations:
  - Short Term Memory Span Demonstration
  - Method of Loci

Store Information In Memory 1

- Short Term Memory Span
  - Supplies/volunteers needed
    - None
  - Instructions to the demonstrator:
    - Read off a series of ten numbers. Ask audience to recall. They won't do very well.
    - Now tell them to chunk the items as a telephone number. Performance will go up.
  - Explanation:
    - Meaningful information can be chunked more easily than non-meaningful information. Since we can hold about 7 chunks in Short Term Memory, the better we chunk the more we can store.
  - Discussion:
    - What does this tell us about equipment?
    - What does this tell us about instructions to clients and students?

Store Information In Memory 2

- Method of Loci
  - Supplies/volunteers needed
    - None
  - Instructions to the demonstrator:
    - Say, "We are going shopping." Call on a member of the audience. Say "Please tell me one item to buy..." After they name the item say "Now picture your bedroom. Picture *item* sitting in your bed." Ask a second person to add to the shopping list. Help associate this item with your bedroom image. Repeat this until list has 12-20 items. Then ask everyone to visualize the bedroom and recall the list .
    - People will do very well.
  - Explanation:
    - Imagery helps to form some cues to facilitate retrieval of items from memory.
  - Discussion:
    - How can we benefit from using imagery in storing information?
    - When will imagery not help? (Hint: using same image too many times)

Retrieve Information From Memory

- What happens: Retrieve stored information for usage
- Questions:
  - Can retrieval be confused?
- Challenges:
  - We may not recall exactly what we want
  - Provide appropriate amount of information
  - Minimize reliance on memory
  - "Overlearn"
  - Multiple cues for later retrieval
    - What is easier to recall?
      - ✓ Who was the 17th president of the US?
      - ✓ Which president followed Lincoln?
- Demonstrations:
  - SPOT
  - PONY

Retrieve Information From Memory 1

- SPOT
  - Supplies/volunteers needed:
    - None
  - Instructions for the demonstrator:
    - Say "Spell SPOT quickly three times."
    - Allow the audience time to do the spelling.
    - Ask "What do you do when you come to a green light?"
    - Audience will, most likely, respond STOP.
  - Explanation:
    - As a result of the spelling, people are primed to say SPOT. They recognize this, realize they should not, and suppress SPOT saying STOP instead.
  - Discussion:
    - What does this demonstration tell you about people's ability to follow instructions?
    - When does doing something make it more difficult to do something else?
    - What does this tell you about memory recall?

Retrieve Information From Memory 2

- PONY (retrieving previously irrelevant information)
  - Supplies/volunteers needed:
    - None
  - Instructions
    - Ask audience: This morning on the way to this room I saw some evidence that at least one US President had a Pony tail. Within the next 5 minutes, without leaving the hallway on this floor of this building, who can provide me with evidence that at least one US President had a Pony Tail?
  - Explanation:
    - This task is somewhat difficult, in that people usually don't attend to detail.
    - Oftentimes, when people solve this they do it by inference.
    - First, people think where can I get a presidential picture?
    - Then they'll start looking at their coins.
    - Sometimes irrelevant information like you can't leave this floor makes task more difficult.
  - Discussion:
    - How do we perceive irrelevant information, such as a portrait on a coin?
    - How did the irrelevant information about the hallway of this floor change the task?

Decide How To Respond

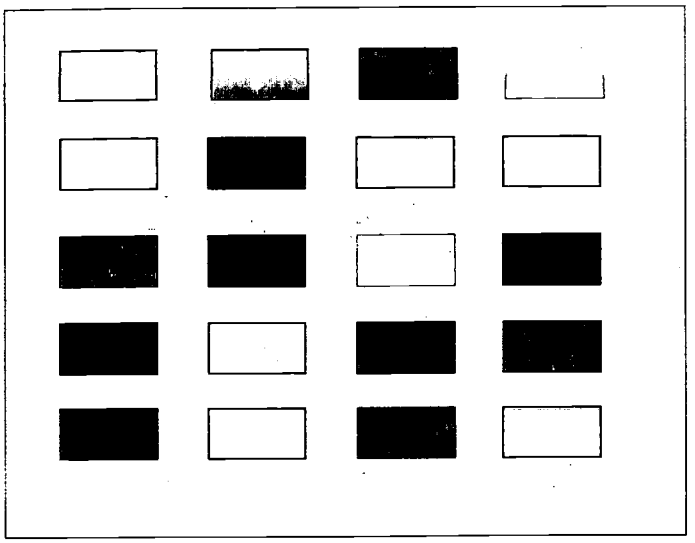
- What happens: Make a decision based upon your interpretation of information
- Questions:
  - Can we be confused based upon "information overload"?
  - Do we always decide or are some responses "automatic?"
- Challenges:
  - Why don't people attend to what they are told to?
  - When information conflicts, we may respond incorrectly
  - We may become "conditioned" to respond to what is familiar no matter what
  - People may do whatever equipment allows (connectivity)
- Demonstrations:
  - Stroop
  - Numerical Stroop
  - "Bob"
  - Testing Decision Rule

Deciding How To Respond 1

- Stroop (Color Word)
  - Supplies/volunteers needed:
    - Color chart with color bars.
    - Color chart with color words/matching
    - Color chart with color words/mismatching
    - 1 volunteer with good color vision
  - Instructions to the demonstrator:
    - Say "Name the colors on the charts I am going to show you as quickly as possible. We'll do this three times."
    - Show each chart and time reading.
    - You should find performance improves from chart 1 (bars) to chart 2 (matching names), and either gets slower, or more error prone or both (remember, person is naming color on the charts NOT words) on the mismatching chart.
  - Explanation:
    - We can only name one thing at the time.
    - A non-English reader would perform better at this task than a reader.
  - Discussion:
    - What does this demonstration tell you about people's ability to follow instructions?
    - When does learning something make it more difficult to do something else?
    - Can we function in one mode and ignore another mode?

Deciding How To Respond 2

- Stroop (Numerical -- not as powerful as color)
  - Supplies/volunteers needed:
    - XXXX chart with different XXX in each set.
    - Number chart with number words/matching
    - Color chart with number words/mismatching
    - 1 volunteer
  - Instructions to the demonstrator:
    - Say "Tell me how many characters there are in each set of characters on the page as quickly as possible. We'll do this three times."
    - Show each chart. Time how long it takes to read the chart.
    - You should find performance improves from chart 1 (Xs) to chart 2 (matching names), and either gets slower, or more error prone (remember, person is naming number of characters NOT words) on mismatching chart.
  - Explanation:
    - We can only name one thing at the time.
    - A person that knew the name of the numerals but could not count would do better at this task than someone who can count well.
  - Discussion:
    - What does this demonstration tell you about people's ability to follow instructions?
    - When does learning something make it more difficult to do something else?
    - Can we function in one mode and ignore another mode completely?



XXX	XXXX	XXXXXX	XX
XXXX	XXX	XXX	XXXX
XX	XXXXXX	XXXXX	XXX
XXX	XXXXX	XXXX	X
X	XXX	XXXXX	XXXX

BLUE	GREEN	BLACK	YELLOW
RED	BROWN	RED	BLUE
GREEN	BLACK	YELLOW	BLACK
BLACK	BLUE	BROWN	GREEN
BROWN	RED	GREEN	RED

333	4444	666666	22
4444	333	333	4444
22	666666	55555	333
333	55555	4444	1
1	333	55555	4444

BROWN	YELLOW	BROWN	RED
BLACK	GREEN	GREEN	BLACK
RED	BROWN	RED	GREEN
YELLOW	RED	BLACK	BLUE
GREEN	BLUE	YELLOW	BROWN

444	3333	111111	55
666	444	222	6666
11	111111	33333	111
555	33333	2222	3
4	444	66666	2222

Deciding How To Respond 3

- Bob (irrelevant information)
  - Supplies/volunteers needed:
    - Chart with Bob's story on it
    - Overhead projector
  - Instructions
    - Ask audience: to decide which option is more likely.
  - Explanation:
    - The activities described seem to go along with one's stereotype of a psychologist, not of a fisherman.
    - Nonetheless, since we are not 100% certain that Bob is a Psychologist, it is less likely that Bob would be a Psychologist and something else, than just something else.
  - Discussion:
    - How do we perceive irrelevant information, such as all of Bob's academic and people interests?
    - How did the irrelevant information make your decision more complex?

Deciding How To Respond 3

Bob is 31 years old, married and outgoing. In college he was strong in humanities and social science, but weak in physical sciences and math.

Which of the following statements about Bob is most likely to be true?

Bob is a psychologist who likes to go fishing.

Bob likes to go fishing.

Deciding How To Respond 4

- Rule Selection
  - Supplies/volunteers needed:
    - Chart with Rule and Columns on it
    - Overhead projector
  - Instructions
    - Ask audience: to decide which cards to view.
    - The right answers are **E** and **7**.
      - E is needed because if an odd number were in Column 2, the rule would not be followed.
      - J is not needed. There is no vowel, thus it does not matter what is in column 2.
      - 6 is not needed... but most people will say it is. Regardless of whether column 2 contains a vowel or a consonant, the rule is being followed.
      - 7 must be tested. If there were a vowel in column 2, the rule would not be followed. Column 2 must contain a consonant.
  - Explanation:
    - People typically test to confirm, not to disconfirm hypotheses. Thus, they do not do a good job deciding which cards to view.
  - Discussion:
    - In a real life situation what would you do?
    - What does this tell us about human thinking and cognition?
    - Do people usually try to prove they are right or do they try to explore other alternative solutions?
    - Some people, in the past, have said all should be tested. The waste in testing what does not need to be tested is less expensive than the cost of forgetting to test the right thing. What do you think?

Deciding How To Respond

Each row has a letter in one column and a number in the other. This has already been tested. You need to test the following rule:

If There is a VOWEL in a column, there MUST be an EVEN number in the other.

It costs $1000. to see each item in Column 2, and it costs $50,000.00 for an error. For which column 1 items do you wish to see column 2 to test this rule?

Column 1	Column 2
E	*
J	*
6	*
7	*

Responding (Anthropometrics)

- What happens: Execute decision
- Questions:
  - Can people respond as fast as they need to?
  - What helps people respond better?
  - How fast can people respond?
  - How much weight can people lift safely?
  - Can patients open the "safety caps?"
- Challenges:
  - We can only respond so quickly
  - People sometimes overestimate their abilities, causing injury
  - Don't require unreasonably fast responses
  - Don't make things look lighter than they are
  - For safety sake, require critical information be presented twice
    - If both entries don't agree require they be entered twice again
  - Provide accurate feedback after people respond
    - Was the message that you sent in e-mail delivered?
    - Depending upon situation, make this a user option
- Demonstration: Dollar bill drop

Responding

- Dollar Bill Drop (insufficient information)
  - Supplies/volunteers needed:
    - 1 volunteer
    - $1.00
  - Instructions to the volunteer:
    - Hold your hand out making a "V" between index and middle fingers.
  - Instructions to the demonstrator:
    - Hold a dollar bill between volunteer's fingers. Tell volunteer "when I drop it, close your fingers to catch the dollar."
  - Explanation:
    - It takes a minimum of about 250 milliseconds (1/4 second) to respond to anything. Keep this in mind when driving, or performing any other task.
  - Discussion:
    - How do we perceive, make decisions and react when we have insufficient information?

Interact in a Social Environment

- What happens: People are influenced by authority social norms, culture
- Questions:
  - How many errors are caused by conforming to social norms?
- Challenges:
  - People are all too willing to obey and conform, allowing others to accept responsibility.
  - Everyone believes "It can't happen to me"
  - We don't know all the problems
    - People won't report incidents because of penalties
    - People may believe its the operators fault not a system defect
  - Training in accepting personal responsibility
  - Training in "it can happen to you..."
  - Teach about system design problems
  - Encourage penalty-free self reporting of incidents
  - Protection for people who question "orders"
- Discussion:
  - Milgram's Obedience To Authority

Summary

- ***Games To Explain Aspects of Psychology***
  - Provides a lively, informative, minimal preparation, and inexpensive program to explain psychology
  - For "Career Nights", community service organizations and faculty "in service" training.
- **Today's activities also:**
  - *Strengthen observational skills.*
  - *Illustrate facilitators/inhibitors of learning.*
  - *Teach basic science and psychology.*
  - *Show how learning takes place.*
  - *Illustrate that there are reasonable and unreasonable expectations for student learning and performance.*
  - *Provide ideas for improving teaching.*
- **How will you use this program?**

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