Lecture 3: Perception

(a dash "-" indicates student responses)

Everyone in the last 4 rows move up.
Nobody is in the 2nd row, somebody sit in the second row
Why do they make lecture halls with the first 2 rows? Nobody ever uses them…
[as people come in late, the Professor individually tells them and gestures to them to sit up in the first few rows.]

Syllabus

The topic is Managerial Psychology, if you haven't figured it out yet... ☺

How many people did the experiment on Friday?
Who was in the last group?

The first group was happy, the middle group was in the middle, the last group was unhappy. We adjusted to have them paid the least in the last group. Don't expect to earn $70 in future experiments, that was a fluke. On average in future experiments, it will be more like $10.

In a class of any size, some students will do better than others. There will be some in every possible location in the range. Measurement grades are a statistical estimate of your ability – be happy with what you get.

On Wednesdays, we will mostly have lectures in the big class. Sometimes you will meet with your TA, like last week.

There are three books to read this term: Statistics, the class reader, and How We Know What Isn't So. You are in charge of the reading and it will all be covered in the exams. The reading is not that hard, I will not reinterpret the material here. It is helpful to work in groups on the readings.

Your projects will be presented in class. You will get more cheers from your fellow students based on the quality of your work.

At MIT, there is a tendency to start an assignment 2 days before it is due. If you start 2 days before the exam, there is no way you'll do well.

(you are not allowed to sit in the last 3 rows – come forward)

Visual Illusions

Hermann Grid

Intersections slightly grey – how can that be? What's happening here?
-Optical Illusion
Not an optical illusion, a visual illusion.
-Something about your eye.
What about your eye?
-neighboring receptor cells…
Close, your visual system averages brightness. The area is small in the center, but your eye is averaging over a larger area in your peripheral vision.
-Why is there not even more grey on the sides?
Proximity…

How are you all with colors? Have you gone over colors?

What is this color? [points to various colors on the slide, a cube made of smaller, colored cubes]

These two are actually the same color [one in shadow, one in light]. There are always some people who don't trust me, so I brought a hard copy. [Passes it to skeptics] It looks different in the picture, but it is exactly the same color. Why?
-we automatically adjust for shadow
Yes, we want things to remain constant – we want to preserve things. In the image, our mind thinks how we could change it, to interpret the world, though it is not a real change in the object.

Let's look at another learned change
[has someone read several sets of words, timing her.
First, black list of colors – 9s.
Next, colored list of colors – 9s.
Third, same list, but say the colors, not the words – 10s.
Last, set of words that do not match the colors, saying the actual colors – did not finish, it was very slow and she stopped]

Suddenly the reading got very slow. It looked like you were agonizing.
-It was confusing because of the colors.
The only time it was slow was when the color and the name were different. She is a good reader. What happened?
-Red came into her mind automatically, we are used to reading.
-She had to slow down to get what she wanted to produce – color

If you don't speak English, you would be much better at naming the colors.

There is a word-letter effect. Take the word work v. the letter k. You would recognize the k much faster as part of a word. We have holistic perception.

Another example: we can mix up letters as long as the first and last letter remain the same. It is still readable. You can still read this passage easily (slide).

Ball passing example: how many times does the white team pass the ball to each other? We should all be able to get the same number. It is a minimal sign of intelligence!

(video clip)

How many times? [answers range from 14 to 18.] That's the biggest variance I've had in a class. I purposely tried to hype you up to want to concentrate on the number.

Result – something can pass through the center of our vision and we are able to ignore it.
If we are attentive to the white things, we filter out the black.
If we are attentive to what Bush does well, we may not see anything else…

The "mistakes" in our vision are designed for a purpose. Sometimes we are supposed to make mistakes. What does this basic perceptual feature tell us about how people think, etc?

There is another test where someone stops to ask a person for directions. While the person is in the middle of explaining, a couple of construction workers walks between them with a big board and the person getting directions is replaced, but with similar clothing. Only 50 percent of the people giving the directions noticed it was a different person.

Relative Perception

Imagine this picture is ice cream (see slide). Which people would think they were getting more ice cream?

-Store B more generous, getting a better deal
-Store A the people would be more likely to finish all the ice cream, and maybe ask for a refill.
-more profitable for store A?

Who could charge more money?
-Store B

In store B, people leave more on their plate, if they are the kind to do that.
Your perception is relative to a concept. It is a placebo effect in some way, dependent on what you understand and perceive.

Would it be better to use big plates or small plates if you owned a restaurant?
-seems more upscale if you use big plates, a fancier restaurant.
-there's a restaurant that serves wings in a container that looks big, but it's not as much food as it seems it will be.

How much difference would there need to be between two weights for you to tell for sure which is heavier? Say, using one of these black paper clips?
-three
So, 1g to 3g to detect a difference
How about if you had 1kg?
-maybe a ¼ kg difference
That's a lot bigger.
-It is proportional, it is more about the percentages.
Our perceptual system works on something like percentages.
If you have 1 candle in a room and you light one more, it is a big difference. If you were outside in the sunlight and lit 5 candles, you could not tell the difference.

It is called the just noticeable difference (JND)
We are sensitive to the absolute level of stimuli.
$\Delta I/I = k$ (constant across levels of I)
$\Delta I_j/I_j - k_j$
J is the sensory domain.

Implications – price for consumers.
Our perception is in percentage – that is why discounts are also in percentages.

Absolute level of stimuli effect what we observe. Think about buying a car. There is no happiness with a discount of $100.

Automaticity

Nietzsche quote – "We really do not have much freedom, many things are done for us."
We find it hard to accept

Bargh and Chartrand – the majority of things we do are things we don't even consider.

Doing things automatically is important. When you started driving, you may not have been able to listen to the radio at the same time because you needed to concentrate on driving. After a few months, it was automatic. Have you ever made it home and not remembered getting there? Sometimes I end up at home when I am going somewhere else.

When we are walking, we do not have to think, ok, up up up, now down down…[demonstrates]

Like the visual illusions, sometimes too many things can be automatic
Why are things automatic?
We have limited resources. Things you do automatically don't take resources.

Take typing – you don't think where your fingers are going

-is there a different in quality with automatic actions? If you are driving, are you less likely to crash?

Automatic is at a very high level, much faster. Crashing happens because of a new thing. It is not automatic because you are not used to it. You have to think about it. Think, if you play tennis and you had to think of what your hand is doing all the time, you would do much worse.

Adaptation

How bright is this room? Too dark? Light? About right?
How does it compare to the sunlight outside?
-about 100 times less bright?
Yes, maybe more. Yet we are able to function here and there quite well. This is adaptation. What we perceive is based on what we are used to.

During the day, we are not conscious of the fact that we have clothes on. We get used to stationary states. Do you notice if you wear glasses? You are used to it. You also get used to income, lifestyle, well being.

Are you happy at MIT?
-7/10
How do you know? You are comparing it to the rest of your experience.
If we moved someone up from the University of Florida, they would not be happy. But after a couple of weeks, a month, they would get used to it. If you moved someone from MIT to University of Florida, they would be happy, lots of parties, alcohol. But after awhile, they would get used to it.

You think once you graduate, you might become a stockbroker, earn hundreds of thousands of dollars, and it will make you happy. And maybe you will. But you don't foresee that you will get used to it.

Hedonic treadmill
The student thinks about life after school (great life!) 3, 4, 5 months after it happens, you are used to it. You have adapted. Then you look at your neighbor. And maybe they have a horse too, or….etc Keeping up with the Jonses, more and more needed all the time after you get used to what you have.

You compare yourself to others. The tricky thing with adaptation is that people don't predict it.

Some people work very hard to get tenure, think it is very important, and imagine they would almost commit suicide if they don't get it. But look at them after, and people who got tenure are fine and people who did not are fine. Nobody is as elated or as disappointed as they thought they would be.

You cannot predict the speed at which the change will go away (get used to it)

Expectations

How many of you like rabbits? When was the last time you held a rabbit?

What is this picture? (duck/rabbit slide)
Most people think it is a duck when they first look at it. But if you get them thinking about rabbits, then they are more likely to see the rabbit.

Picture of young women, then picture of old/young woman. Most people saw the young woman. The old woman had to be pointed out.

Music example – hidden message. Once you expect to hear something, it is easy to get.

Think about the threshold for observing things in the world
At a cocktail party, maybe you suddenly hear your name. You may have a lower detection threshold for some things. This is set by your expectations. The threshold for what you expect is lower, more likely to hear your name than other things.

Brand Perception

We have been doing an experiment in the bar at MIT where we take beer, and to some of it we add balsamic vinegar. We give people 2 samples, 1 with and 1 without vinegar, and we let them choose which they want in a big glass.

Some people do a completely blind test. Some are told there is balsamic vinegar added to one before they try the samples. Some are told after they try the samples but before they choose which one they want. Those who do not know tend to prefer the beer with balsamic vinegar. When they are told before they taste, they more often choose the beer without balsamic vinegar. And when they are told after they tasted it, they choose pretty evenly.

If you know something before you experience it, it colors your perception. If you are told after your experience, the knowledge has a limited effect.

They have done tests with Coke v. Pepsi, does the can effect your perception? If they switch the drinks between cans, people like the one in the can they prefer.

Let's think about this. [shows picture of coke in a sink and coke in a bottle]. This is a perfectly new sink, never been used. If we give you a straw, which would you drink out of? Also look at the cups, one is half full, one is completely full. One of these looks more appetizing

Awhile ago Pepsi ran a commercial claiming that in a blind test, people choose Pepsi over Coke. Coke ran an ad at the same time saying that they had done tests and people preferred Coke. Both were correct. How can this be?

Coke did not do a blind test, they used the cans.

Do you remember when Coke tried to introduce New Coke? In the lab, under blind tests, people preferred the new formula (it was sweeter). But in the can, they did not. People had expectations when they opened a can of Coke, and these expectations were not met.

Someone did a study with an fMRI scan where people saw the word Coke and 6 seconds later would get a small squirt of Coke. Sometimes they did not get anything. The expectation of Coke coming as well as the experience of drinking Coke proved to be a pleasurable experience.

Conclusion

(see slides)

On Wednesday, there will be someone from the writing center. Writing is one of the most important skills you learn at MIT. It is important for class as well as later in life. Come to class on Wednesday.