Hi everyone. No experiment per se today, but I do want to show you some things and do some neat demonstrations. Let’s start with this video.

Basketball 1

<http://www.youtube.com/watch?v=vJG698U2Mvo&feature=player_embedded>

This experiment was from a paper by Simons and Chabris (1999) called “Gorillas in our midst.” Now, what this demonstrates is that even though the same information was presented to everyone, depending on what you were focusing on, you may or may not have noticed a gorilla walk past. Particularly, people focusing on the white shirts were less likely to notice the gorilla walk past because they were tuning out anything that looked like a black shirt. According to the original results, about half the people didn’t notice a gorilla walk past. This particular effect is called “inattention blindness,” which means you were blind to something due to lack of the proper attention.

Let me show you another one:

Basketball 2

<http://www.youtube.com/watch?v=IGQmdoK_ZfY&feature=related>

You may have thought you were pretty clever for seeing the gorilla this time, but you missed two more important changes. So it goes to show you that if you’re not focusing directly on something, you might miss it.

What are some ways this affects our daily lives? Well, driving, for one. People in car accidents often report that something “came out of nowhere!” This might be the case when you’re talking about a deer or a moped, but sometimes people hit a tree or a lamppost that “came out of nowhere.” How can that be? What really happened is that the tree or lamppost was obviously stationary, but the driver hadn’t been paying attention to it until right before they collided into it, at which point it “came out of nowhere.” This happens even when people are looking right at the road. As I’m sure you people know, looking at something does not equal attention. You can read a passage in a book and then realize you have no idea what it says because your mind was elsewhere. Likewise, you can be staring right at the road, but if you’re talking on a cell phone, your mind is elsewhere and then trees seem to pop out of nowhere. (Incidentally, talking on a cell phone while driving is one of the stupidest things you can do. There’s not even a difference between hand-held and hands-free; it’s your diverted attention that makes you plow over people.)

This also has applications for what are known as “head-up displays” in airplanes and that are starting to appear in some automobiles. The idea is that you put dials and indicators right in the windshield so you can always be monitoring your speed and altitude and stuff like that without taking your eyes “off the road.” Of course, data such as this indicates that HUDs aren’t particularly useful because your attention is still being diverted.

Another particular problem I’ve read about is with lifeguards. Is anyone here a lifeguard? Correct me if I’m wrong, but one of the big areas of lifeguard training is to recognize the signs that a person is drowning. However, lifeguards often fail to notice if somebody is lying unconscious at the bottom of the pool. It makes it seem as though lifeguards are being inattentive, but that’s not actually the case. They’re just focusing too much attention on one particular thing (thrashing) to notice a less visible thing (limp body at the bottom of the pool). So I believe that’s something that lifeguard training is now trying to include more.

This is something that Magicians use as well. Does anyone here know anything about magic tricks? Do you want to tell me about the concept of “misdirection”? It’s the same basic thing as inattention blindness. You do one big motion over here, you get everyone to look in that direction, and then they don’t see what your hand over here is doing.

Okay, now let me move on to a similar phenomenon: something called “change blindness.” First let me show you this brief video.

Reception Desk

<http://www.youtube.com/watch?v=Qb-gT6vDrmU&feature=related>

So, change blindness is the basic finding that sometimes people find it difficult to notice or detect when something has changed in a picture or scene. Like inattention blindness, it stems from the fact that when we don’t know what to attend to, it makes perception difficult. So, let me show you some examples. When you notice the thing that’s changing in each picture, just raise your hand.

FLICKERS

<http://www2.psych.ubc.ca/~rensink/flicker/download/>

Change blindness can even occur when nothing masks the change, but if something just flashes on the screen at the same time a change occurs.

Mudsplats

<http://nivea.psycho.univ-paris5.fr/#CB>

These are meant to simulate the experience of moving your eyes or having something happen in your visual field. Actually, with the right equipment you can coincide changes in a picture with people’s own eye movements, and if you time it right they won’t notice the change. It’s kind of like every time we move our eyes we re-set our whole visual image, and changes can sneak in undetected.

These types of change are particularly difficult to detect. It takes most people a lot of time/alterations to detect the change, and sometimes they never notice it at all. Now, this particular procedure is known as a flicker paradigm. It was developed by Rensink et al. in 1997. The key to the success of this procedure is that it has a brief grey screen between the normal picture and the altered picture, and that’s the screen that tends to mask the change. Particularly, something has to happen before the change occurs. It can even be your eyes moving from one scene to another. In fact, if you coordinate the change so that it happens when people move their eyes, you see the same effect.

You also get change blindness in real-life examples, such as movies and television. Let me show you this video from Levins & Simon (1997) which shows change blindness in a short film.

Conversation

<http://www.youtube.com/watch?v=6JONMYxaZ_s&list=UUoUA-CpKaFCCV2Uz__qNJZw&index=4&feature=plcp>

Did you notice the changes? The woman on the left had a scarf and then she didn’t, and the woman on the right had her elbow up and then down. Only about 10% of the participants in this study noticed the changes. In fact, even when they were warned that the changes might involve clothing or changes in body position, they still didn’t notice very many changes.

The reason this happens is very similar to what happens in the flicker procedure. In the course of filming something, you move the camera around and record different takes and then splice them together for the final cut. But actors don’t always do things the same way twice, and sometimes things get moved around between takes. One of the most common changes I’ve noticed in movies and television is that the level of liquid in glasses changes between takes. In one shot, it will be at a particular level, and in the next half of it will be gone. It looks like the actor took a big gulp of it off camera. Or sometimes it gets refilled to higher than it was before. But the basic reason we see change blindness in film is the same reason we see change blindness with a flicker. As I said before, the flicker requires that grey mask between the real picture and the changed picture. In film, the change of camera angle serves as that mask. It’s like our visual field resets itself when the angle changes, and it becomes more difficult to notice the change.

-this happens a lot in movies. Continuity errors often listed on IMDB

One of the main reasons we see effects like change blindness is that in our daily experiences, changes in our surroundings tend to accompany movement. So if something changes, it typically doesn’t just blink out of existence; we see it move before it leaves our field of vision. We’re actually pretty good at detecting change when there’s movement. However, when you mask that movement with a grey screen or with a camera angle change, we get worse at that ability to detect change, but we don’t quite realize it.

And finally, you can even see this stuff in real life. Just like in the videotape with people ducking behind the desk, you can see it in everyday life. There was an experiment from Simons and Levin (1998) where a confederate stopped and asked for directions on a college campus. But as the unwitting participant was providing directions, some people holding a door would walk past and the confederate would switch out with a different person. Surprisingly, even in real life, the person giving directions wouldn’t notice the switch.

Door Study

<http://www.youtube.com/watch?v=FWSxSQsspiQ&feature=player_embedded>

Okay, so today we’ve learned about inattention blindness and change blindness. Does someone want to remind me why it is they occur? That’s right. Because if you don’t pay attention to the right things, information does not get into your head, and that makes it easy to fail to notice big things in your surroundings.

-remind that this stuff will be on test. Info about CB in textbook.